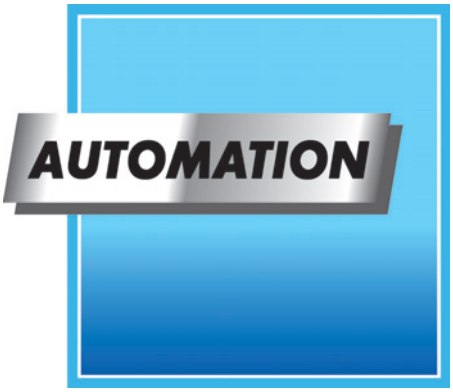
Interface Modules

Full Line Catalog 2010/2011



4

WAGO®
INNOVATIVE CONNECTIONS

WAGO Registered Trademarks

WAGO®

CAGE CLAMP®

CAGE CLAMP®S

POWER CAGE CLAMP

FIT CLAMP®

PUSH WIRE®

TOPJOB®

TOPJOB®S

X-COM®

X-COM®S

WINSTA®

JUMPFLEX®

TO-PASS®

ProServe®

WAGO trademarks are registered brand names or regionally registered
makes of products from WAGO Kontakttechnik GmbH & Co. KG

WAGO Full Line Catalogs

Volume 1, Rail-Mounted Terminal Block Systems

- Rail-Mounted Terminal Blocks
- Modular Connectors (X-COM®-SYSTEM)
- Terminal Strips
- Patchboard Systems
- Shield (Screen) Connecting System
- PUSH WIRE® Connectors for Junction Boxes

Volume 2, Connectors and PCB Terminal Blocks

- PCB Terminal Blocks
- Feedthrough Terminal Blocks
- *MULTI CONNECTION SYSTEM*
- PCB Connectors
- Specialty Connectors

Volume 3, I/O-SYSTEM

- Modular I/O-SYSTEM IP20
- Wireless Technology, *TO-PASS*® Telecontrol Technology
- Industrial Switches, *PERSPECTO*
- Modular I/O-SYSTEM IP67, Block I/O-SYSTEM IP67
- Sensor/Actuator Boxes IP67, Cables and Connectors IP67
- Power Supplies

Volume 4, Interface Modules

- Relay – Optocouplers – Special Functions
- Interface Modules
- Transducers
- Power Supplies
- Overvoltage Protection
- Wireless Technology
- Empty Housings and Mounting Carriers

Volume 5, *WINSTA*® Connector System

- *WINSTA*® MINI Connectors
- *WINSTA*® MIDI Connectors
- *WINSTA*® MAXI Connectors
- *WINSTA*® RD Cable Assemblies
- *WINSTA*® KNX Connectors
- *WINSTA*® IDC Flat Cables

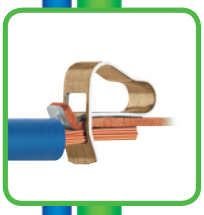
Handling of WAGO Connection Technologies*

CAGE CLAMP®S

Universal connection with "SPECIAL"

Handling:
Open the clamp, insert wire and release the clamp – done! Solid conductors and fine-stranded conductors with ferrules are connected by simply pushing them in – no operating tool needed.

CAGE CLAMP®



Universal connection of solid, stranded and fine-stranded conductors

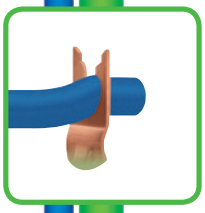
Handling:
Open the clamp, insert wire and release the clamp – done!

POWER CAGE CLAMP®

Universal connection of conductors larger than 6 AWG (16 mm²)

Handling:
- To open the clamp with a standard hex wrench or operating tool, and turn approximately twice counter-clockwise.
- Latch holds clamp open.
- Insert conductor.
- A small counter-clockwise rotation releases the latch.

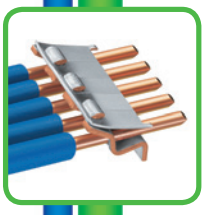
FIT CLAMP®



Insulation displacement connection (IDC)

Handling:
Push unstripped conductor into the IDC contact using an operating tool.

PUSH WIRE®



PUSH WIRE® connection for solid wires and stranded wires (depending on product used)

Handling:
Solid and stranded conductors that are rigid enough are connected by simply pushing them in – no operating tool needed.

* Please follow the product instructions for product-specific handling.

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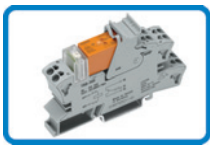
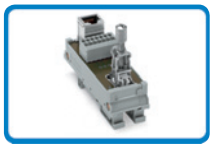
1  Relays – Optocouplers – Special Functions 1

2  Interface Modules 2

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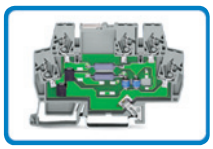
5  Overvoltage Protection 5

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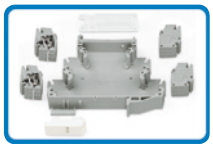
7  Empty Housings and Mounting Carriers 7

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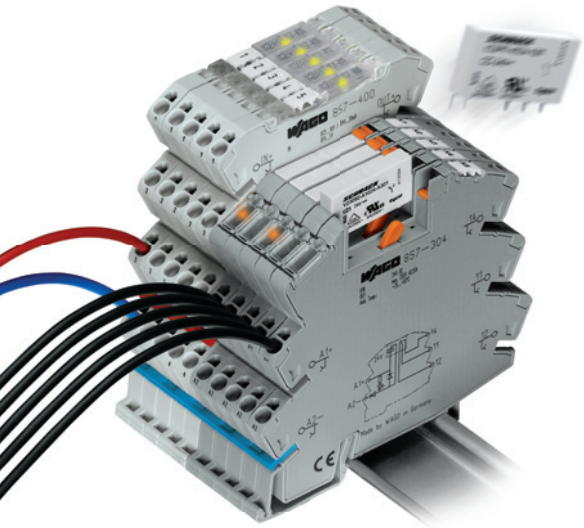
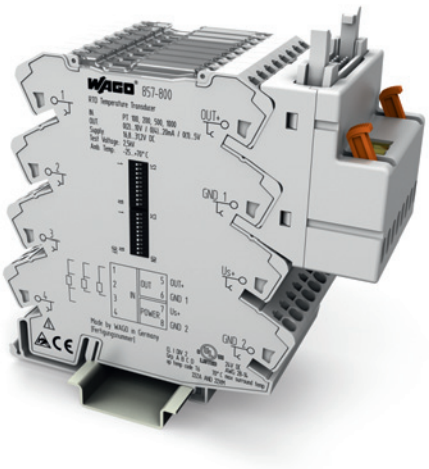
An Interface Solution for

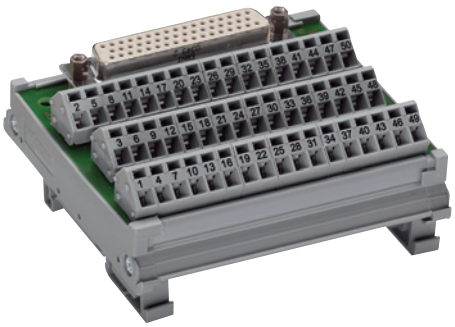
JUMPFLEX®– Transducers / Relay and Optocoupler Modules
857 Series

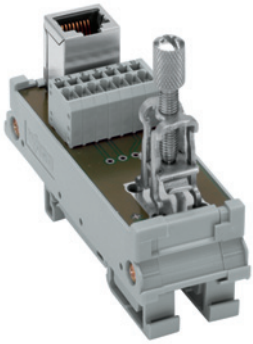


JUMPFLEX®– 8-Channel Adapter
857 Series

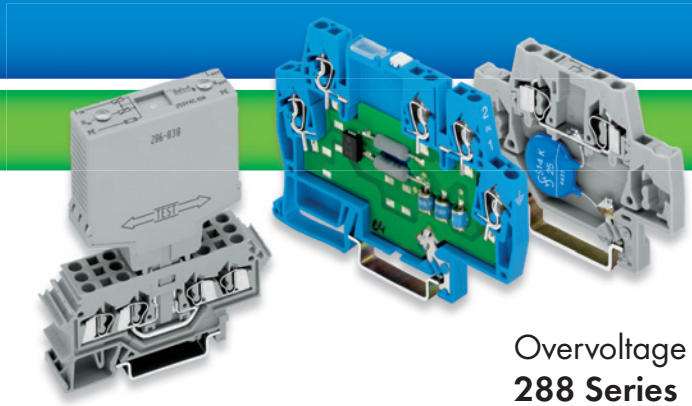


Interface Modules
289 Series





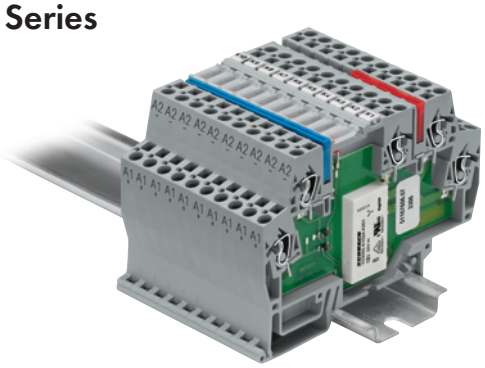
EPSITRON -
Power Supplies
787 Series



Overvoltage Protection
288 Series

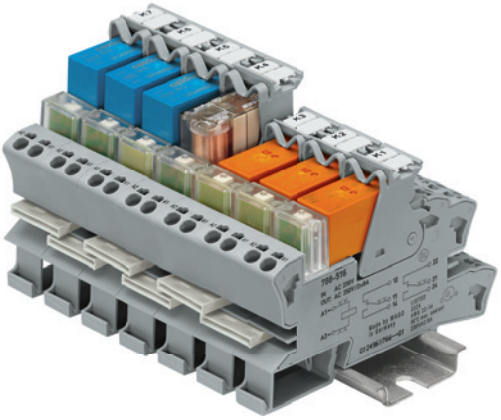
All Applications

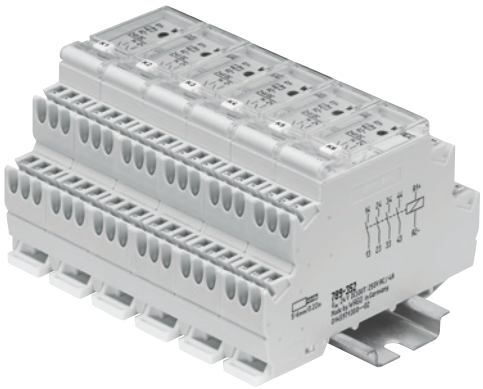
Relay Modules and
Optocoupler Modules
859 Series



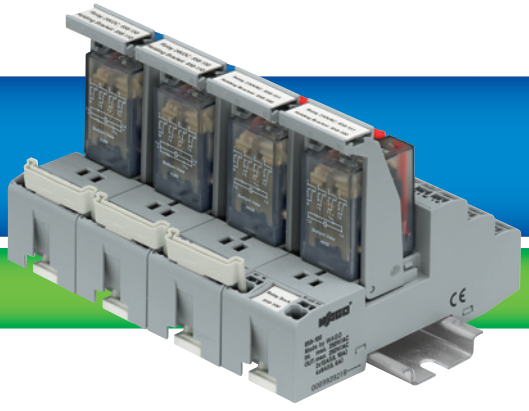
Pluggable Function Modules
286 and 786 Series

Sockets for Miniature Switching Relay /
Optocoupler
788 Series





Relay Modules in
DIN-Rail Mounted Enclosure
789 Series



Sockets with Industrial Relay
858 Series

WAGO Interface Modules

Design and housing possibilities

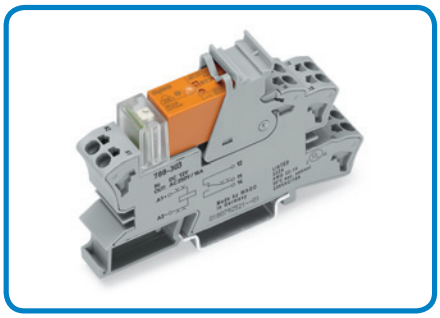
Nowadays when equipment is designed many scenarios need to be considered. Some of which are user and maintenance friendly, limited budgets, safety, availability, space requirements and simplicity in design and usage.

WAGO *AUTOMATION* offers interface modules in various shapes and sizes to overcome any of the restraints posed by space requirements.

This enables any demands and needs to be fulfilled using these different designs, such as pluggable function and interface modules, relay and optocoupler modules, etc.

788 Series Relay Sockets with Pluggable Miniature Switching Relay

The WAGO Series 788 relay socket forms an excellent basis for switching applications using pluggable miniature switching relays (1 or 2 changeover contacts) in industrial and process automation.



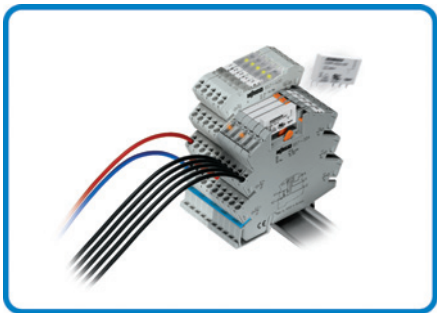
Relay socket with pluggable miniature switching relay

In addition to its compact design 15x53x86mm (W x H x D), the relay socket also stands out thanks to a number of user-oriented features, with the associated benefits for the user.

The lever facilitates relay replacement even when the relay sockets are placed close to each other.

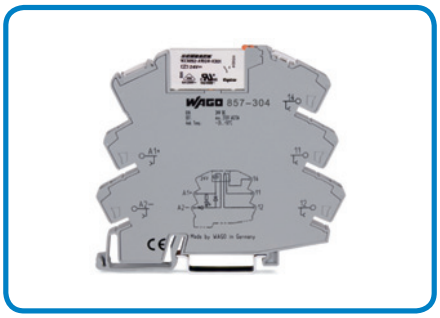
The sockets can be ordered as complete components including relay and status indication or as a single component.

857 Series Transducers and Relay Modules



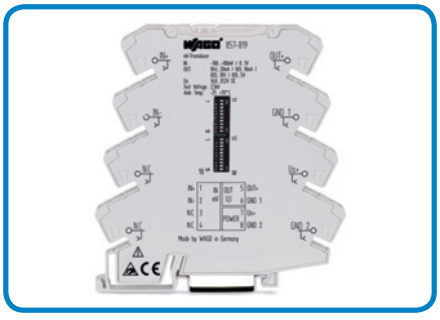
Transducers and relay modules

The new 6mm-wide WAGO isolation amplifiers and transducers not only share a common profile, but in addition one in line jumper can be used to connect the supply voltages, etc, to all modules, doing away with the need to wire each connection. The smaller relay modules also fit perfectly in this scenario. The pluggable relays can simply be replaced from the top.



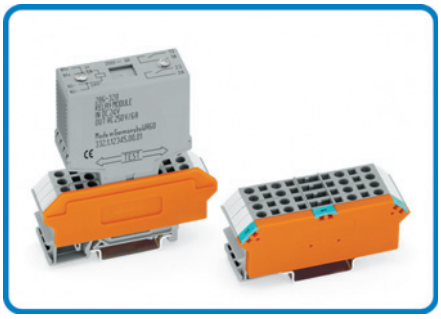
Relay module with pluggable miniature switching relay

In order to cover all application areas with one product family, it is intended to offer five different groups for the transducers alone: these include fixed and configurable isolating amplifiers, passive isolators, power supply isolators (also for HART applications), signal duplicators and temperature transducers for Pt100 and thermocouples.



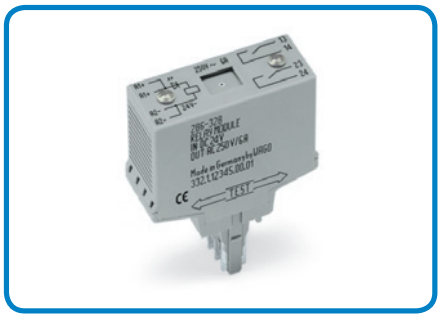
Transducer

286 / 786 Series Pluggable Function Modules



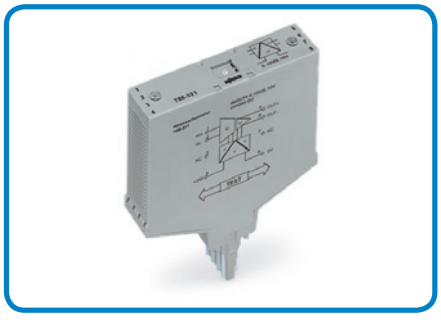
Pluggable function modules

The terminal blocks for pluggable modules offer the greatest degree of flexibility and maintenance-friendly service.
The terminal block for pluggable modules is mounted on the carrier rail and wired like a normal terminal block.
If service is required, this element can be replaced in one step, without having to deal with the system wiring. This saves space and additional wiring effort.



Pluggable function modules

The optocoupler and relay modules are ideal additions to a comprehensive function module program, allowing any required functions to be implemented in a control cabinet by means of a pluggable module system. Large enclosures of the Series 786 are available for more complex functions, such as transducers.



Pluggable signal conditioning modules

859 Series Relay Modules and Optocoupler Modules

The Series 859 is a complete product series that is ideal for the interface level in any industrial application, thanks to the wide range of relays and optocouplers.

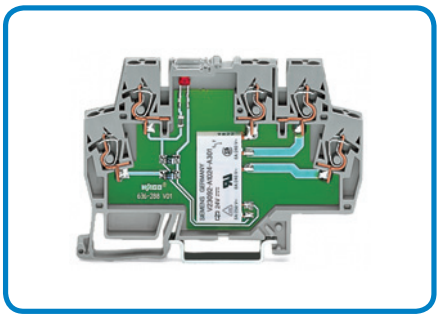
287 / 288 Series DIN-Rail-Mountable Modules - Relay Modules and Sockets

The relay and PLC interface modules in the mounting socket that can be fitted on carrier rails ensure quick and easy linking of signals from periphery devices. The fully wired modules, with up to 16 high-performance relay outputs, provide for direct switching of actuators and other coupling elements in the field.

789 Series Relay Modules in DIN-Rail-Mountable Enclosure

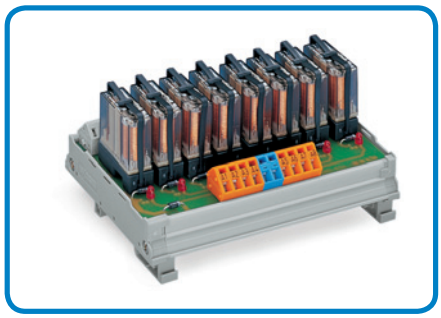
The range of uses for the WAGO latching relays and switching relays of Series 789 spans from simple lighting controls in building services, such as in construction of apartments, hotels, office buildings or parking garages, etc., up to installations in industrial control cabinets.

The 17.5mm-wide design in series bay enclosures is particularly well-suited for installation in distribution boards and meter mounting boards.



Relay module

These units excel in tight spaces, thanks to their narrow 6mm design. Simple commoning at the control and load side enables quick and easy looping through of common input and output potential.

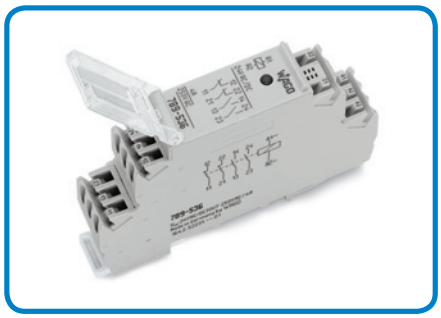


DIN-rail-mountable modules - relay modules

The requisite free-wheeling and reverse voltage protection diodes are also integrated to ensure a long service life of the products.

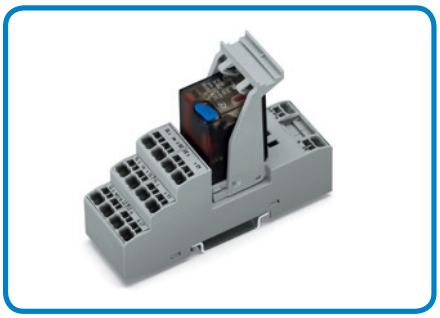
Other interface modules available as:

Multiple modules with plugged relays that are easy to replace, without affecting existing wiring.



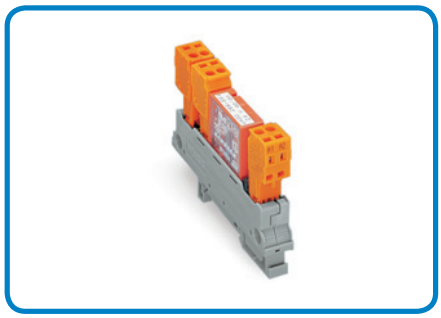
Relay modules in DIN-rail-mountable enclosure

The series bay enclosures are used for installation of other electronics devices having a large scope of functions and higher switching capacities; these come in sizes of
2 module spaces (35mm) and
4 module spaces (70mm).

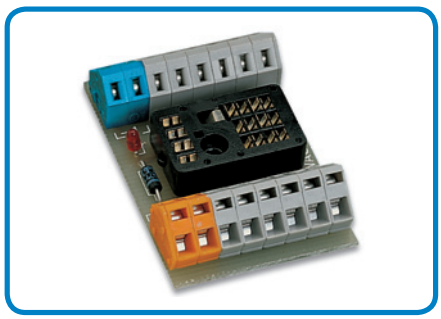


Optocoupler module

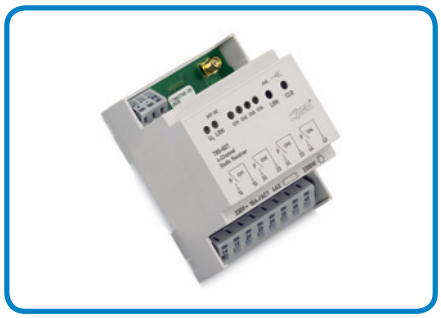
Its robust design and the shock-proof CAGE-CLAMP® connecting technology used ensures continuous and uninterrupted operation of any kind of system.



DIN-rail-mountable modules - relay modules



Relay socket

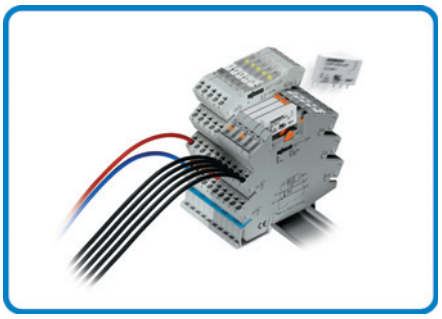


EnOcean radio receiver in DIN-rail-mountable enclosure

PCB terminal blocks and connectors from the extensive WAGO program can be installed in the enclosures to obtain customized development of interface components.
Installation is quick and reliable on the 35mm carrier rail.

WAGO Transducers and Relay Modules

***JUMPLFEX®* , 857 Series**



The perfect match of housing and electronics is the key to a highly successful device. This is exactly what has been achieved by WAGO with the transducers and relay modules of the 857 Series.

Analog systems technology – Basics

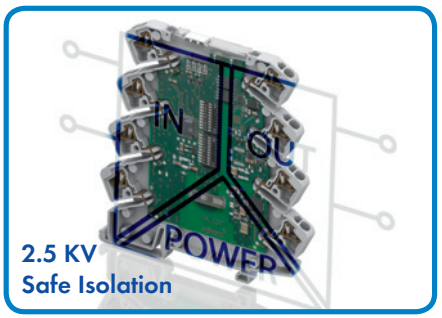
Problems can arise in signal processing in industrial systems of analog standard signals (such as 0-10V or 0-20mA) which can have an adverse effect on overall fault-free signal processing. Problems such as potential differentials arising from interlinked measuring circuits can be efficiently prevented using WAGO transducers, with their associated electrical isolation.

Decoupling (Isolation) methods

A basic distinction is made between active and passive isolation.

Active isolation

Depending on the design and model in use, devices are available that incorporate electrical 3-way isolation. 4-way isolation is provided in a signal duplicator. This means that all inputs, outputs and supply circuits are electrically isolated from one another with a 2.5 kV proof voltage.



This ensures that the greatest possible safety and reliability is achieved for the system and any devices connected to the system. For 3-way isolation provides for electrical isolation between the transducers and the control system and between the control system and the control elements.

At the input side the devices required active signals, i.e., the sensor signal is generated by a dedicated supply voltage.

These devices provide a filtered and amplified signal at the output side.

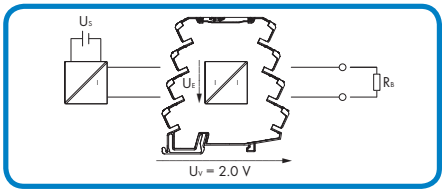
Passive isolation

A passive isolator draws power for signal transmission from the input circuit. In this case, the sensor must supply a power level adequate for the device and must also drive the working resistance.

As a result, it must be ensured that the current-driving power of the sensor is sufficient to drive the maximum current of 20mA via the passive isolator (with the device-specific voltage drop), as well as the working resistance.

This can be calculated using the following equation:

US ≥ UE = UV + 20 mA x RB



Typical equation for a passive isolator (857-451) for a 20mA signal.

US ≥ UE = 2.0 V + 20 mA x 600 Ω

US ≥ UE = 14 V

Temperature measuring techniques

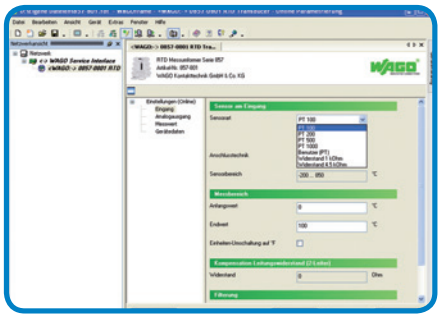
Resistance thermometers, such as Pt100 sensors, alter their resistance level as a function of temperature. For example, a rise in temperature will result in an increase in the resistance level. This reistance level is registered by the *JUMPFLEX®* devices (for example 857-800) and transformed into an analog output signal and simultaneously electrically isolated using a 2.5kV proof voltage.

The analog standard signal can be a current signal in the 0-20 mA, 4-20 mA 0-10 mA or 2-10 mA range, or a voltage signal in the 0-10 V, 2-10 V, 0-5 V or 1-5 V range.

Parameterization, commissioning and diagnostics using WAGO-frame

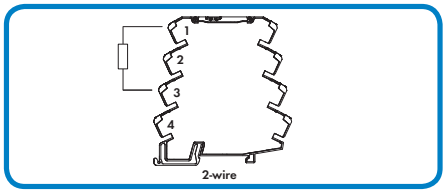
A portion of the *JUMPFLEX®* transducer can be configured for parameterization, commissioning and diagnostics of field devices using WAGOframe, a software based on the FDT/DTM standard.

The WAGOframe FDT frame application provides a wizard, which simplifies the operation of components, such as WAGO *JUMPFLEX®* DTMs. This wizard guides the user through the different operating modes of DTM device drivers.



3 different connecting techniques are employed for acquisition of resistance thermometers:

2-wire connecting technique



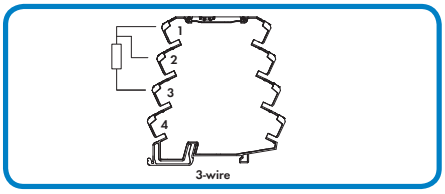
The resistance thermometer is connected to the *JUMPFLEX®* transducer via a two-wire conductor. As the feed-in resistance can directly affect results, which would invalidate them, it must be ensured that the distance between the measuring point and the device is kept as small as possible. This distance should not exceed 10m in this case. If this distance can not be ensured, the 857-801 unit can be used provide compensation for the incoming resistance using the configuration software.

Compensation for line resistance (2-wire)

A resistance value can be input into this field for compensation of the line resistance for 2-wire sensors within a range of 0-50 Ω .

Adjusting the values for resistance compensation is only possible by setting the sensor wire connection to 2-wire. Otherwise the field is displayed in gray and no values can be entered. Using 3- and 4-wire sensors, the input cable resistance is compensated via the connection technology and does not enter into the measuring results.

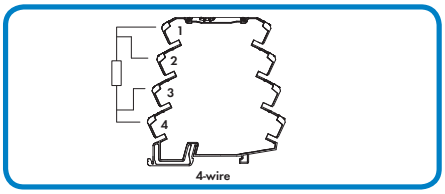
3-wire connecting technique



The 3-wire connecting technique minimizes the effect of line resistance. The resistance thermometer is gauged via two measuring circuits implemented in the *JUMPFLEX*® transducer. One measuring circuit serves as the reference circuit. Line resistance can be compensated for in this manner.

The measuring results can, however, nevertheless be affected by different line lengths or by different ambient temperatures. No further line adjustment is usually necessary, as the same line lengths and the same ambient temperatures exist in most cases.

4-wire connecting technique



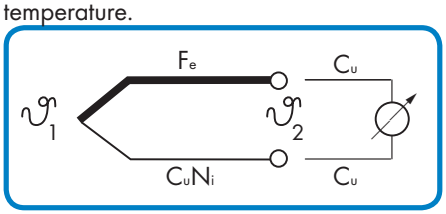
The most accurate measuring method employs the 4-wire connecting technique. This involves feeding in a low supply current via two fully isolated measuring circuits via two lines and measuring the voltage drop across the resistance thermometer via the other two lines. This method offers the advantage not being influenced by line resistance or temperature-induced fluctuations, as the voltage drop for the incoming and outgoing lines can be measured separately and compensation provided for as required. Again, no line adjustment is required here.

Thermocouples

In contrast to resistance thermometers, thermocouples are active sources that generate output in the microvolts range.

Thermocouples have very low resistance and are therefore noise-free. Preferred applications include tasks in environments with high temperatures, such as in ovens or machines in the plastics industry.

The joining of two different materials at the thermocouple results in different energy of formation of the metal atom electrons, yielding a thermoelectric voltage. The level of this thermoelectric voltage is a function of the material and of temperature.



If the temperature at measuring point ϑ1 is the same as the temperature at reference point ϑ2, no current will flow, as the two component voltages cancel one another out.

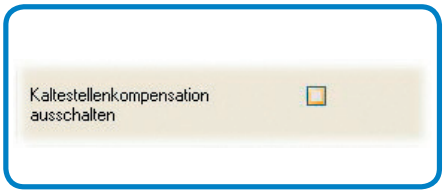
However, if the temperatures at the measuring point and at the reference point are different, differing voltage levels are produced which do not completely cancel one another out, resulting in a flow of current.

To summarize then, a thermocouple only measures a difference in temperature. This is yielded from the difference between the thermoelectric voltage levels at the measuring point and at the reference point. The voltage fluctuation produced by the thermoelectric effect is very low and is generally only a few microvolts per Kelvin. Therefore, only the difference between the thermoelectric voltages of the materials used is of significance, for example, thermocouple type J, iron (Fe) and constantan (CuNi).

Also of some significance in the connection point temperature. This temperature must be known in order to derive the ambient temperature from the thermoelectric voltage level. This is why the temperature at the connection point is measured by *JUMPFLEX*® transducers. This value, also referred to as the reference or cold junction, can then be compensated for. (cold junction compensation)

Cold-junction compensation can be activated and de-activated just by a click using the configuration software (default setting: ON (activated)).

Table for Thermocouples



Type of sensor	Thermocouple materials	Measuring range
J *)	Fe-CuNi	-210 °C ... +1200 °C
K *)	NiCr-Ni	-200 °C ... +1372 °C
E *)	NiCr-CuNi	-200 °C ... +1000 °C
N *)	NiCrSi-NiSi	-200 °C ... +1300 °C
R *)	Pt13Rh-Pt	+250 °C ... +1768 °C
S *)	Pt10Rh-Pt	-50 °C ... +1664 °C
T *)	Cu-CuNi	-200 °C ... +400 °C
B *)	Pt30Rh-Pt6Rh	+250 °C ... +1820 °C
C		0 °C ... +2320 °C
*) Thermocouples based on IEC 584 / EN 60584 Other thermocouples available upon request.		

Relay modules with mounted miniature switching relays

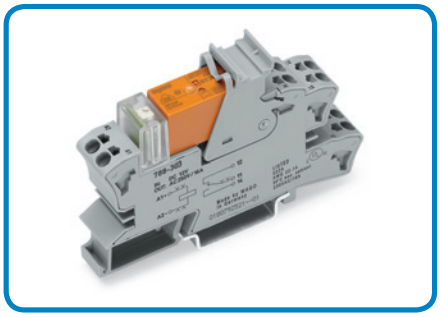
The *JUMPFLEX*® product family is rounded out by the relay modules that fit perfectly with the transducers.

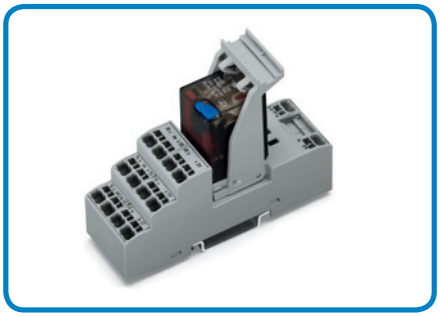
A logical enclosure concept with options for linking all levels offers a variety of synergy and cost-savings potential. This allows for efficient optimization of installation efforts.

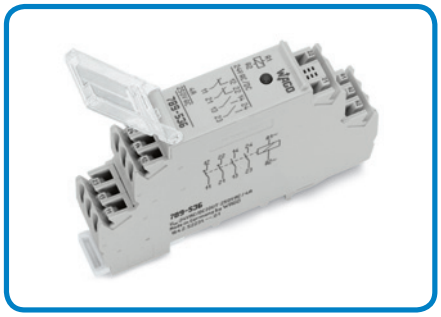
The pluggable relays can be replaced quickly and easily when required.

For further information about the relays go to pages 10 - 12.

WAGO Relay Modules







WAGO Relay Modules.
The professional interface between electronics and peripheral equipment.

Even in modern automation systems, electromechanical relays guarantee a safe connection between process control systems and process and signalling systems. They provide:

- a high isolation level between input and output circuit
- ability to match different signal levels
- signal amplification and/or signal multiplication, especially for different potentials in the input and output circuits.

Modernized relays also offer the following advantages:

- unaffected by electromagnetic fields and surges
- high short-term overload capacity for the input and output sides
- small switching power losses
- a module for switching of AC or DC

WAGO *AUTOMATION* offers a complete range of relay modules that provide these functions for a wide range of applications.

Depending on the function and operating conditions, the relay modules are available with different contacts, contact materials, housings and shapes.

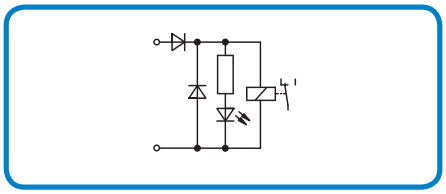
The following relay types are also available: bistable switching relays, time-delay relays, current pulse switching and safety relays with force-guided contacts.

Definitions of several important technical terms

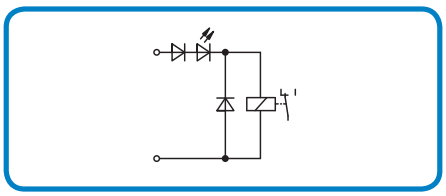
Coil-side information

The relays can be used within the stated temperature range with nominal voltage plus tolerance at 100% contin uous duty rating.

According to the type and application, the relays are triggered with DC or AC signal.
The DC versions (residual ripple ≤6%) are, unless otherwise stated, equipped with LED function indicators, a recovery diode and a reverse voltage protection diode.



For a nominal voltage of ≤12VDC,
the LED is connected in parallel to the coil.



For a nominal voltage ≥24VDC,
the LED isconnected in series with the coil.

AC versions of select relays equipped with series connected rectifiers (refer to the wiring diagrams) can be triggered with AC and DC at the stated nominal voltage.

The free-wheel function is in this case actuated by the rectifier.
In order to guarantee a safe operation it has to be observed that “residual voltages” due to cable capacitance in case of long connecting lines or leakage currents of semi-conductor switches and their protection circuits are lower than the release voltage of the relay.

For DC relays, the release voltage is specified with a value of ≤5% of the nominal voltage;
for AC relays it is 15% of the nominal voltage (acc. to VDE 0435).

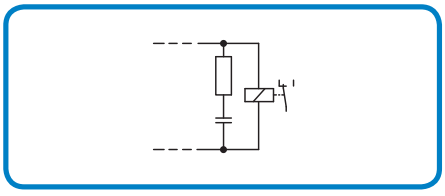
If a high residual voltage exists, it is possible that the relay will not reset.

Addition of a parallel connection of an RC element of:

R = 100-220Ω

C = 220-470nF

could remedy this situation.



Alternatively, the 286-904 relay module is available.
This specially developed module features a defined release point at 110VAC ± 10% at an operating voltage (coil volt age) of 230 VAC.

Contact material

To ensure a long service life and low contact resistance, various materials may be used for relay contacts (depending on the load type, switching current, voltage and duty cycle).
Possible mate rials, their properties and advantages are shown in the table.

Contact material	Properties and use	Range of values
Ag Ni 0.15 + 5 µ Au	High corrosion resistance, low and constant contact resistance at small power ratings, for dry circuits	µV . . . 30 V µA . . . 0.2 A
Ag Ni plated with Au Ag + Au	Same properties as a 5 µ gold contact, however with five times greater resistance to wear, for all circuits from the µW range up to 100 W/1 kVA	100 mV/10 µA
Ag Cd 0 + 1 µ Au	Low tendency to contact weld, high resistance to contact burn-out at higher power rating, also suitable for lower power ratings	≥ 5 V ≥ 10 mA
Ag Cd 0, with gold flash	Low tendency to contact weld, high resistance to contact burn-out at higher power rating, with gold flash for additional protection during storage	≥ 12 V ≥ 100 mA
Ag Ni 0.15 + HV	High mechanical strength, low tendency to contact weld and low contact resistance, universal application at medium loads	≥ 12 V 5 mA – 10 A
Ag Sn 0_2	Small tendency to contact weld, high resistance to contact burn-out at higher power rating, small migration of material, for circuits with high input and output ratings, DC circuits	≥ 5 V/100 mA ≥ 10 V/10 mA ≥ 24 V/1 mA
Ag alloy, with gold flash	High mechanical strength, small tendency to contact weld, wide scope of application for low to medium ratings	10^{-3} W

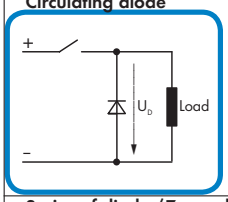
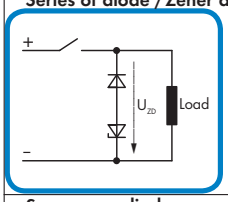
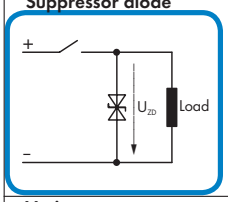
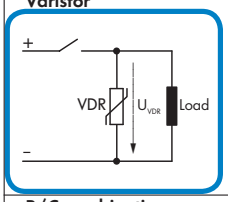
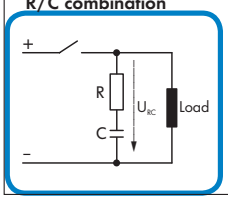
Contact switching protection

When switching inductive loads (e.g., for contractors or solenoid valves) transients with peak voltages up to thousands of volts will arise.

Suppression is necessary as these transients frequently exceed admissible EMC limits.

Moreover, they cause electric arcs at the switching contact that destroy the contact and significantly reduce the relay's service life and functional safety.

In practical use the following switching protections, which are connected directly at the source in parallel to the load, have proved to be efficient:

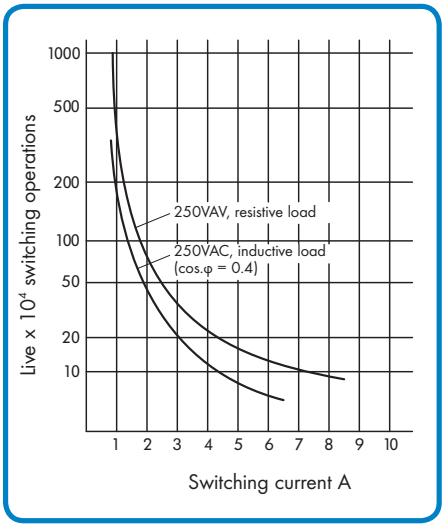
Switching of load	Additional off-delay	Defined limitation of inductive voltage	Attenuation when used with bipolar circuits	Advantages / disadvantages
Circulating diode 	large	yes (V_D)	no	**Advantages:** • simple device • cost-effective, reliable • sizing not critical • small inductive voltages **Disadvantages:** • limit only via load resistance • longer turn-off time
Series of diode / Zener diode 	medium to small	yes (V_{ZD})	no	**Advantages:** • sizing not critical **Disadvantages:** • limits only above V_{ZD}
Suppressor diode 	medium to small	yes (V_{ZD})	yes	**Advantages:** • cost-effective • sizing not critical • limitation of positive peaks • suitable for alternating voltages **Disadvantages:** • attenuation only above V_{ZD}
Varistor 	medium to small	yes (V_{VDR})	yes	**Advantages:** • high energy absorption • sizing not critical • suitable for AC voltages **Disadvantages:** • attenuation only above V_{VDR}
R/C combination 	medium to small	no	yes	**Advantages:** • limiting by energy storage • suitable for alternating voltages • limiting independent of level **Disadvantages:** • exact component values • high turn-on current pulse

WAGO Relay Modules

Service life

The difference between mechanical life and electrical life must be distinguished. Mechanical life consists the amount of switching operations without contact load; electrical life at maximum load refers to the amount of switching operations with maximum switching capacity and resistive load.

Smaller switching capacities increase the operation at maximum load. The following illustration shows the typical course between switching current and relay's operational life.

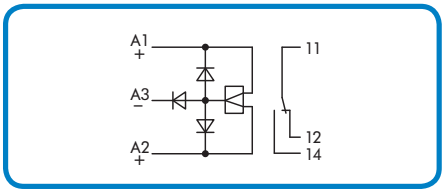


More details upon request.

Description of select relays

Bistable switching relays

Bistable switching relays have 3 coil contacts. According to the wiring scheme, the relay is switched into "working condition" (contacts 11 – 14 closed) by the common connection A 3 and the connection A 1 and into "rest position" (contacts 11 – 14 opened) by the connection A 2.



After removing the control signal, the relay returns to its respective position and can only be switched over by a control signal circuit. The bistable switching relays are only available for direct voltage with positive or negative triggering.

Current pulse switching relay

One current pulse is needed to change the relay from the rest position to the working position and vice versa.

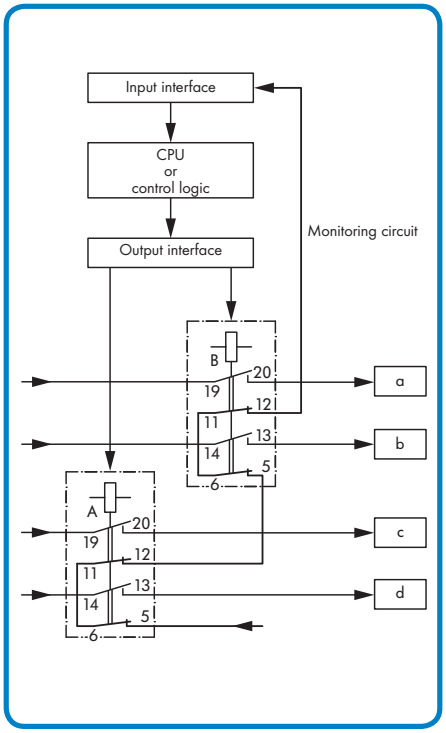
During the triggering process, one of two status indicators displays the actual contact position. The current pulse switching relay is available for direct and alternating voltage.

Safety relay

Force-guided safety relays, have become increasingly recommended and specified for self-regulated systems as they provide protection for personnel, machines and installations. Relays with force-guided contacts are an essentially safety component for these circuits, particularly when defects occur. WAGO offers these functions in special relay modules with force-guided contacts as based on to ZH1/457

(Specification of the employer's liability insurance association).

Example of circuit configuration:



Control of different peripheral equipment (a, b, c, d) with monitoring

As shown in the fig. "Example of Circuit Configuration," two SF relays are controlled by one output interface. The NO contacts 13 – 14/19 – 20 of relay A and B switch over the peripheral equipment. After switching off equipment a ... d the control circuit (NC contacts 5 – 6/11 – 12) verifies that all main circuits are interrupted.

When the control circuit is closed, the next operation cycle will be executed by the CPU or by the control logic. Depending on the safety requirements, an open control circuit prevents operation of either the entire machine or specified components.

If a partial or complete standstill is required in the event of a failure (for ex. in medical technology or chemical processes) each control contact can be polled and evaluated.

Independent of a single or complete control for the NO contact, the SF relay operates in such a way that the other equipment is switched off even if a NO contact is welded. The failure is recognized by the control contact while the other contacts are still able to open to interrupt circuits.

Time delay relays

WAGO time delay relay modules are electromechanical time relays with an integrated time response, e.g., acc. to VDE 0435, part 201/5.83.
The time ranges can be adjusted via potentiometer for either continuously variable or linear operation. A status LED indicates the switching condition of the relay.

WAGO Optocouplers

WAGO optocouplers: the modern and efficient alternative

As the connecting element between process interface and electronic control and signalling systems, the optocoupler modules offer the following advantages compared with mechanical relays:

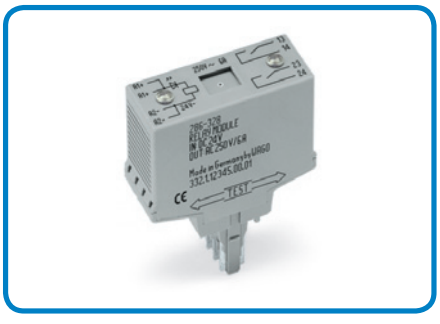
- long service life, because there is no mechanical wear
- high switching frequency because of fast switching times
- unaffected by vibrationn
- no contacts
- "noiseless" switching
- low driving capacity.

For all interfaces between control and load circuits that rely on these advantages, WAGO *AUTOMATION* offers a complete optocoupler range for the following functions:

- electrical isolation between input and output circuit
- adaptation to different signal levels
- signal amplification.

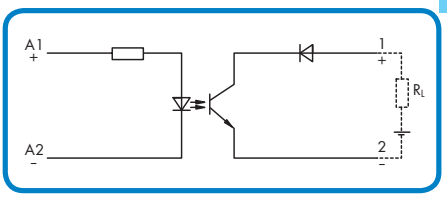
The optocoupler modules are available in WAGO's component plug technology that is designed to plug directly into rail-mounted carrier terminal blocks.
The terminal blocks are fitted to the carrier rail and offer all advantages of CAGE CLAMP® technology, which provides safe and maintenance-free connection of the signal wires for cross sections ranging from 0.08 mm² to 2.5 mm²/ AWG 28–12.

In addition to optimizing space through the combination of terminal points and the "function module," maximum flexibility and ease of service are also achieved.

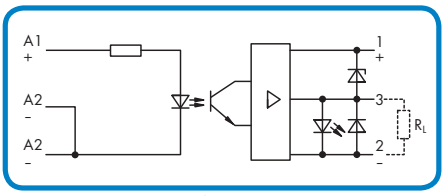


Input circuit

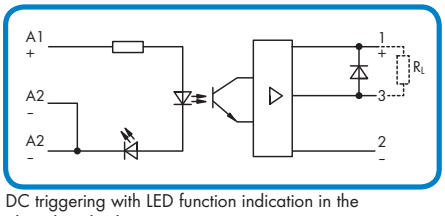
According to the type, triggering the optocoupler modules is performed via direct voltage (residual ripple RR <6%) or AC voltage (50–60 Hz).
In the DC type, a reverse voltage protection diode is always provided; in the AC type optocoupler element, a rectifier is included.
The optocoupler modules are equipped with a LED function indication at either the input side or at the load side, as shown in the wiring diagram.



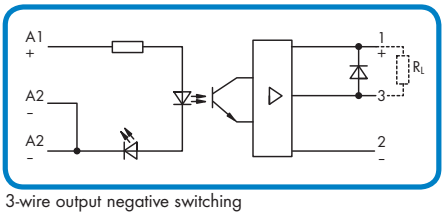
2-wire output



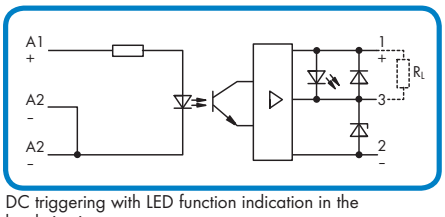
3-wire output positive switching



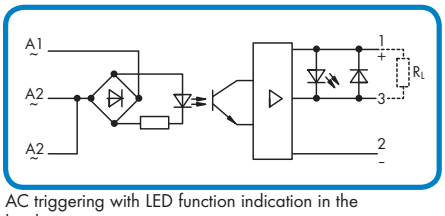
DC triggering with LED function indication in the triggering circuit



3-wire output negative switching



DC triggering with LED function indication in the load circuit



AC triggering with LED function indication in the load circuit

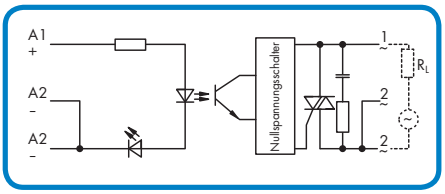
In addition to these different functional outputs, the output voltage range an the maximum switching current must be observed. Also note the correct polarity. In order to protect the output transis tors, inductive loads must always be equipped with a protective circuit, e.g., a recovery diode. For other types of protective measures, the cut-off voltage peaks must be lower than the indicated cut-off voltage of the output transistors. For the AC outputs a Triac is used as the switching element.

Due to the low threshold voltages, care must be taken to ensure malfunctions are not caused by the capacitance of long signal lines or the residual off-current of semiconductor devices.

Output circuit

Depending on the application, an optocoupler module for the AC or DC supply may be chosen. In the case of DC outputs, they can be:

- 2-wire output
- 3-wire output positive switching
- 3-wire output negative switching.



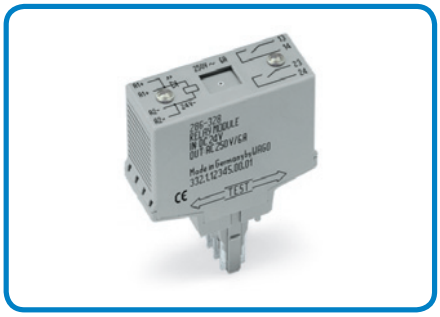
In order to avoid high turn-on currents, the AC output is equipped with a zero-voltage switch which turns on the load at the zero-voltage point. In the current zero-crossing, the Triac will cut off the load, in case inductive loads do not exceed the maximum switching voltage and the maximum switching current.

WAGO Analog Signal Conditioning Modules

Transducers for measurement technology

The Recording and processing of numbers of physical values, such as temperature, pressure, speed, humidity, etc., form the basis for modern process control. Special sensors supply these values as analog signals, which must be transmitted as standard analog signals to the processing instruments. These analog signals may be transmitted over long or short distances between sensors and controlling mechanisms, for example PLCs and computers, or in less sophisticated systems directly to relays or actuators. Various standards are used. Normally recognized signals are
0-10 V, 0-20 mA and 4-20 mA.

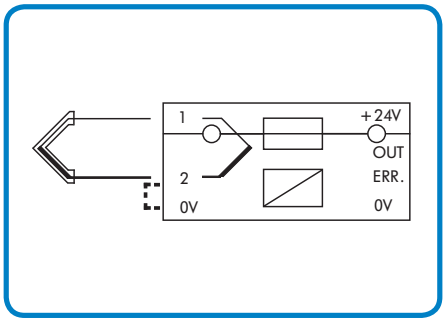
The transducer/transmitter may also linea rize non-linear signals internally, before transmission. In order to prevent these relatively low power signals from dis tortion, WAGO *AUTOMATION* offers a complete range of modules for measurement and transmission of these signals, both with and without isolation between the module's input/output and the supply voltage (if necessary). Apart from the converters for various standardized signals, WAGO offers a complete selection of analog/digital and digital/analog converters with a resolution of 10 bits.



The electronics are protectect by an enclosure which can be snapped on a DIN 35 rail. The CAGE CLAMP® connection ensures a secure, maintenance-free connection for conductors sized from 0.08 mm² to 2.5 mm²/AWG 28-12.

Temperature transducers

Temperature sensing in the process industry is traditionally performed via "Thermocouple" or "RTD" (Platinum Resistance) elements. A popular RTD is the Pt100 element. Having a nominal resistance of 100 ohm at 0 °C, and a typical operating temperature range of –200 °C to + 650 °C, its non-linear characteristics are compensated by the WAGO signal conditioning module, as the Pt100 element typically meets the IEC 60571 specification.
The WAGO Pt100 signal conditioning module is suitable for 2- or 3-wire RTD, with 3-wire RTDs offering greater accuracy over longer distances. Thermocouples consist of two different metals that are connected at the measuring point and utilize of the "Dissimilar Metal (EMF) effect", which can be measured at the open ends of an element.



- When using insulated thermocouples, terminal "2" has to be connected to 0 V.
- In the case of grounded (earthed) thermocouples, the design is such that terminal 2 is alread connected to 0 V inside the thermocouple element. Therefore, it is not necessary to jumper 2 → 0 V.
- For commoning 2 → 0 V, 4-wire base terminals are recommended.

WAGO analog signal conditioning modules are designed to work with common types of "J" (Iron/Constantan) and "K" (Chromel/Alumel) thermocouples, which comply with IEC standard 60584 Pt. 1, with cold junction compen sation. WAGO temperature transducers are available with industry standard output signals of 0-10 V, 0-20 mA or 4-20 mA.

Additionally, they have an integral wire break/short circuit detection. Visual LED fault indication is standard, but the WAGO modules also include an error output signal that may be used to initiate a safe shutdown before serious damage occurs in the event of a wire break or short circuit of the measuring sensor.

For this purpose, a transistor switches the output as soon as the operating voltage is correct and no error is present in the measuring circuit on VB-2V. The transistor blocks the output in the case of an error.

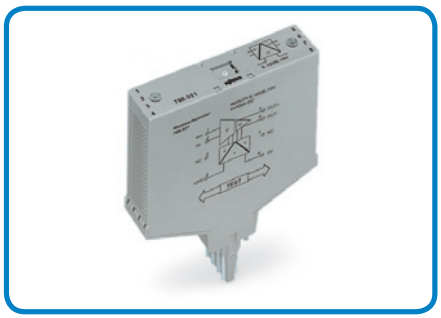
WAGO temperature transducers are available as follows:

- The "wire break" and "short circuit" error output is available on the Pt100 module.
- The "wire break" function is available on the J and K Thermocouple modules.

In the event of wire break, the outputs switch to the following values:

Output	Value
0(4)-20mA	≥20.5mA
0-10V	≥14V

With Pt100 modules, and in case of short circuit, the outputs switch to 0V or 0mA, respectively.



The mechanical assemble of pluggable modules for rail-mounted terminal blocks on DIN 35 rails offers all the advantages of CAGE CLAMP® connectivity. Additionally, the separation of wiring and function levels offer maximum flexibility and ease of service.

WAGO Interface Modules

Interface modules connect electronic to electromechanical functions at the control level.
They connect:

- signal transmission, control system ↔ field
- signal distribution, control system ↔ field.

They allow prefabricated plugs to interface to discrete field wiring.

WAGO *AUTOMATION* offers a wide range of interface modules for commonly used connector types. The use of these interface modules offers the following advantages in the system wiring:

- easy and time-saving planning and calculations
- rapid wiring, starting and fault elimination by clearly arranged wiring and clear pole marking, reduction of wiring faults
- safe and maintenance-free connection of the signal lines with the CAGE CLAMP® terminal strips
- high packing density creates space-saving modules

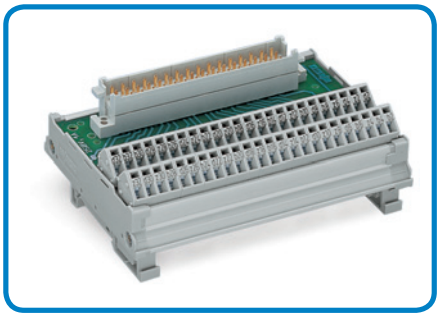
The interface modules are standard in a universal mounting carrier for DIN 35 carrier rails with the following connectors:

Subminiature-D connectors acc. to DIN 41 652 or MIL-C-24308

Interface modules for male and female connectors are available with 9, 15, 25, 37 or 50 contacts. Compared with the standard solder connection, the mating connector with IDC connection offers additional advantages.

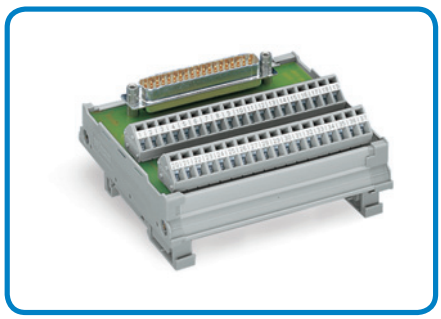
Connectors acc. to IEC 60603/DIN 41 612, types C, E and F

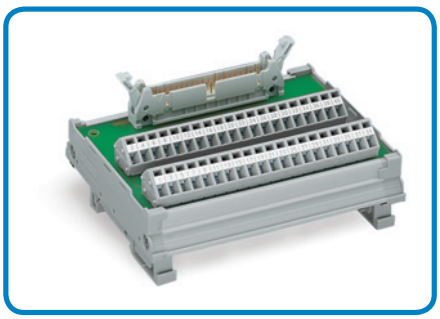
These connectors are frequently used for compact input and output component groups and are available for 32-, 48- and 64-pole pin and socket connectors, as well as for mating connectors with solder and IDC contacts.



Ribbon cable connectors acc. to IEC 60603-1 / DIN 41 651 or MIL-C-83503

Interface modules with 10-, 14-, 16-, 20-, 26-, 34-, 40-, 50- and 64-pole connectors are available for ribbon cable connectors.





WAGO *EPSITRON* – 787 Series

High-Performance and Efficient Advanced Power Supplies

PRO Power Supplies

Slimline, 1- and 3-phase, primary switch mode power supplies feature a wide input voltage range, stabilized, adjustable 24VDC output voltage and up to 93% high efficiency. An integrated Power-Boost (up to 200 % output power for 4 seconds) allows reliable starting of heavy loads with high inrush currents, eliminating expensive oversizing of the switch mode power supply. The TopBoost function, which provides a much higher output current of up to 60A for 50ms, permits use of standard circuit breakers for protection on the secondary side. This enables safe tripping within the time limits required by the EN 60204 standard.

Select devices utilize the LineMonitor feature for current and voltage monitoring, fault memory and parameterization options via LCD display, on-unit function keys, or free monitoring software and available RS-232 interface from a PC and PLC. This allows the power supply to replace additional devices, such as phase failure and phase sequence monitoring devices or operational hour meters.

Additionally, the single-phase power supplies have a stand-by mode to switch off the device output via remote input, while minimizing power consumption. CAGE CLAMP® pluggable terminations permit efficient pre-wiring.

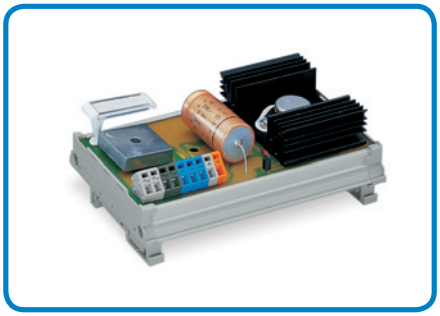
CLASSIC Power Supplies

Single-phase, primary switch mode, industrial power supplies provide a with wide input voltage range and robust metal housings. The CLASSIC Power Supplies have a stabilized, adjustable output voltage and provide short-circuit and overload protection. The devices achieve high efficiency and the integrated LED status indicator conveniently provides operational status at a glance. CAGE CLAMP® pluggable terminations permit efficient pre-wiring.

The CLASSIC Power Supplies are available in four nominal output voltages: 12VDC, 24VDC or 48VDC, as well as 30.5VDC for AS-Interface networks.

Rail-Mounted Modules – Constant Voltage Sources

Constant voltage sources provide stabilized 24VDC voltage via integrated longitudinal voltage regulator.
CAGE CLAMP® provides fast, vibration-proof and maintenance-free terminations.
The modules are DIN-rail mountable.



ECO Power Supplies

Single-phase, primary switch mode power supplies in sturdy metal housing offer a wide input voltage range from 90 to 264VAC, without manual switching. The stabilized, front-panel adjustable 24VDC output voltage is protected against open and short circuits, and constant current operation is provided in the overload range. LEDs quickly provide operational status at a glance. CAGE CLAMP® provides fast, vibration-proof and maintenance-free terminations.

Rail-Mounted Modules – Power Supplies

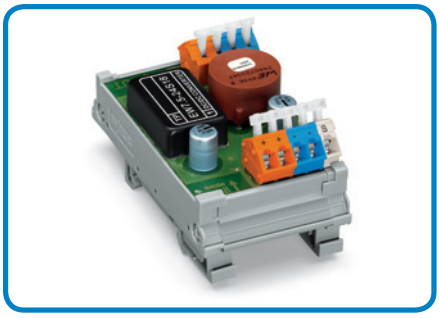
Conventional transformer power supply with bridge rectifier, smoothing capacitors and stabilized output voltage via longitudinal voltage regulator. This power supply is ideal for supplying small loads with nominal output voltages of 24VDC, 12VDC, ± 12 VDC and ± 15 VDC. The low residual ripple makes the units well suited to applications using analog technology.
CAGE CLAMP® provides fast, vibration-proof and maintenance-free terminations.
The modules are DIN-rail mountable.

Electronic Circuit Breakers

Configurable protection via 4-channel electronic circuit breakers, for shutting down faulty 24VDC current paths. Offering adjustable trip times, the Electronic Circuit Breakers can respond to short circuits/overloads quicker than traditional circuit breakers or melting fuses, or when unintended start-ups must be prevent in the event of a ground fault (see EN 60204). This is particularly advantageous when using long cables between a power supply and load where loop resistance may be very high. Integrated current and voltage monitoring, as well as parameter setting via display and on-unit function keys, or via free software from a PC or PLC, provides easy operation and diagnosis. Electronic circuit breakers with active current limitation (maximum 1.5 times rated current) are also available as an option. These advanced features enable the Electronic Circuit Breakers to reliably prevent voltage drops in the event of a short circuit.

DC/DC Converters

DC/DC converters available in 6.2mm-wide terminal block housing or DIN-rail mount carrier. These converters are ideal for applications where it is not necessary to use a separate power supply with special voltage due to low power requirements (e.g., when supplying sensors, actuators or DALI bus devices).



Uninterruptible Power Supplies (UPS)

The Uninterruptible Power Supply (UPS) provides reliable power applications impacted by long-term power outages. The UPS consists of a charger, controller and a connected battery (capacities ranging from 3.2 to 12 Ah are available). In battery operation, 24VDC can be provided for several hours depending on the load current and battery capacity. The charger and controller are supplied with 24VDC from an external power supply – capacity must be matched to the load. Operation, configuration and diagnosis are simplified by an integrated LCD with keypad, or free software using an RS-232 interface (for connection to a PC or PLC). The battery modules have a temperature sensor NTC 164 (4k7 Ω), allowing for temperature-controlled charging via charger and controller, which may extend the battery's service life.

Redundancy Module

The redundancy module has two integrated power diodes (2 x 20A) for parallel connection of power supplies, while improving power supply availability or increasing the total current (max. 40A) for the 24VDC loads.
A signal contact reports the failure of one or both input voltages, which is also displayed via LED.

Capacitive Buffer Modules

Capacitive buffer modules ensure smooth operation and protect data during shorter 24VDC power interruptions. Depending on the output current and buffer capacity, buffer times up to several seconds can be achieved. Control units are particularly sensitive to short power interruptions. This is why an integrated signal contact reports buffer operation, offering the control unit sufficient time for preventive measures (e.g., saving valuable production data or program parameters).

Communication Cable

The communication cable connects the RS-232 interface for power supplies with integrated LineMonitor (787-85x) and electronic circuit breakers (787-86x), as well as UPS charger and controller units (787-87x) to the RS-232 interface of a PC or PLC. When combined with free software, the cable provides easy parameterization and diagnostics for these WAGO power supply solutions.

WAGO Overvoltage Protection

WAGO overvoltage protection for increased safety and longer on-line operation

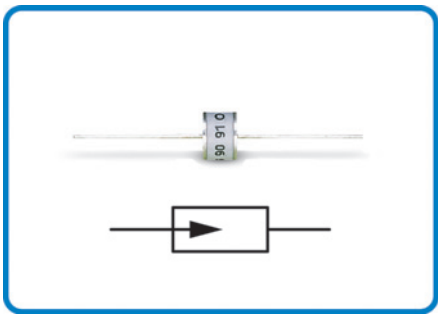
On-the-line overvoltages cause most operating failures for measuring, control, data and power lines. Failure of electronic and semiconductor components due to surges can cause operating interruptions. The overvoltage (also called transients) can be generated by switching electrical equipment on or off or by lighting discharges. Devices designed to protect electrical equipment from these voltages are called SPDs (Surge Protection Devices). SPDs may consist of either a single component or a combination of them. Various components may be subdivided in use by the protection type offered:

- Coarse protection
- Medium protection
- Fine protection.

The boundaries between these levels of protection may not be sharply defined, leading the devices chosen to vary accordingly. The following components have proven performance in these applications:

Gas-filled surge arresters and spark gaps

The gas filled surge arrester is comprised of two electrodes in a ceramic or glass tube filled with a pressurized inert gas. A spark gap is simply two electrodes in air, spaced a predetermined distance apart.

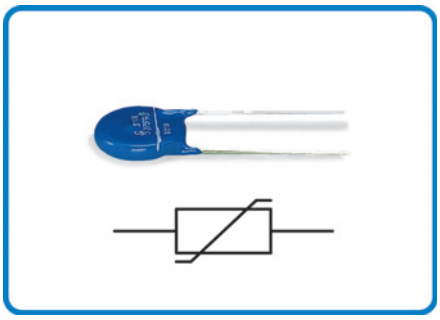


Once the ignition voltage is reached, resistance drops due to ionization and current begins to flow. The resistance of the device drops from high to low as it conducts. The voltage across the device after the arc is struck is typically 10 V ... 30 V. Therefore, the current will continue to flow until the voltage drops below this level. As this is not a guaranteed occurrence in typical power situations, a fuse must precede the device to ensure disconnection from the supply.
The advantage of a gas-filled arrester:
high current carrying capacity for its size.
However, the key disadvantages:
slow response speed and in AC applications, the crowbar action across the supply.

Varistor

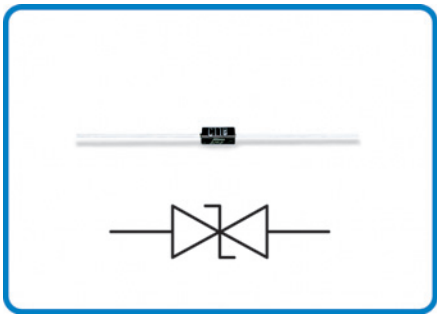
A varistor is a voltage-dependent resistor. A common type of varistor is referred to as an MOV (Metal Oxide Varistor) due to its method of construction.

Varistors have a very high resistance until their threshold voltage is exceeded. Then they drop to a low resistance and are capable of carrying high currents for a short period of time. They have a fast response time, and have a current carrying capacity dependent on the surface area of metal oxide material.
MOVs can be sized to handle currents exceeding of 100 kA.
Undersized varistors can age with continued



surge conduction, resulting in lower impedance and higher leakage.
When subjected to continuous (AC or DC) voltages in excess to the device rating, MOVs can overheat, and even explode, in certain circumstances. This is why a quality surge protection device is important, it will incorporate protective measures to disconnect faulty components before safety is compromised.

Suppression diode (or silicon avalanche diode)

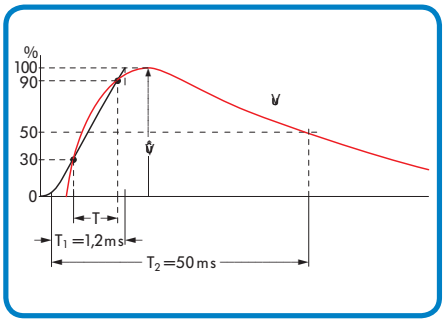


These devices have electrical characteristics similar to Zener diodes, but are rated for surge currents.

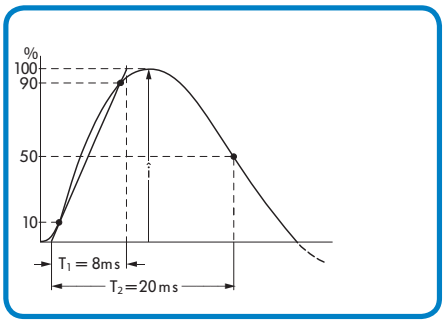
Once the rated breakdown voltage is exceeded (in the non-conductive direction), the diode becomes a conductor. The suppressor diode differs from a Zener in its higher current carrying capability and faster response time (in the picosecond range).

Test impulse

Surge arresters are subject to standardized test pulses in order to classify capabilities; the effectiveness of protection measures with reference to dissipation capacity and voltage arresting. The form and level of the test pulses are defined by IEC 60060-1/DIN VDE 0432, part 2. Preference is given to voltage pulses of 1.2/50 and current pulses of 8/20.



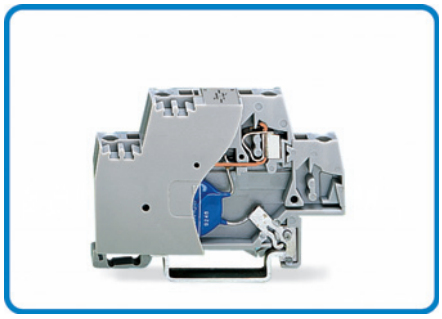
Voltage pulses 1.2 /50
per IEC 60060-1 /DIN VDE 0432 P. 2



Current pulses 8 /20
per IEC 60060-1 /DIN VDE 0432 P. 2

Application recommendations

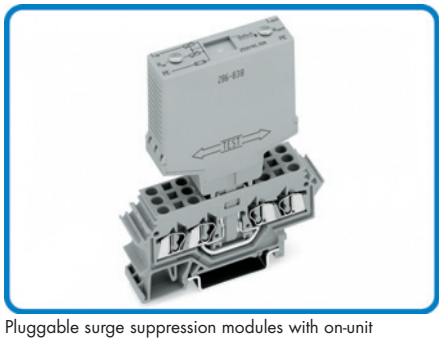
The advantages of gas-filled surge arresters lie in their high current carrying capacity, making them ideal for coarse protection. One disadvantage, particularly in the medium protection range, is the relatively long response time, as well as the power follow current. Varistors have a considerably shorter response time; however they also have lower leakage currents. This makes them more suitable for medium protection, as they offer limited applications for coarse protection.
If the connection lines of electronic equipment are already "fine" protected, general coarse and medium protection measures are sufficient. If this is not the case, suppressor diodes with very short response time may be employed as fine protection.
WAGO *AUTOMATION* offers a complete range of modular terminal blocks with integrated surge arresters for coarse, medium and fine protection.
Depending on the application, one can choose the appropriate type from the previously mentioned surge arresters. These are electrically connected in the modular terminal blocks between the connection point and the mounting rail. Snapping the terminal block onto the grounded (earthed) mounting rail automatically ensures the required overvoltage protection.



Double-deck terminal block with varistor, direct connection to the DIN 35 rail

Frequently, only one surge arrester is fitted for cost reasons. However, due to the fact that one surge arrester alone cannot optimally ensure several protection functions, combinations are recommended. Care must be taken to ensure that the single-stage protection devices are decoupled sufficiently by inductors or resistors.

In addition to single-stage surge arresters, WAGO *AUTOMATION* also offers multi-stage surge arresters, combining components for different applications. These pluggable modules are snapped into "carrier" terminal blocks. These are DIN rail-mounted and offer secure and maintenance-free CAGE CLAMP® terminations for conductors 0.08mm²/AWG 28 to 2.5mm²/AWG 14.



Pluggable surge suppression modules with on-unit warnings

Addition of interference suppression to surge suppression devices.
In addition to overvoltage protection, a high frequency interference filter can be added to the circuitry. This filter cannot only protect the equipment from high frequency energy transmitted by connecting wires, but also prevents a transmission of disturbances to the supply lines. The main component of a filter is an LC network, which produces a mismatch between the filter impedance and the impedance of the disturbance path. This reflects any disturbance back to its source.

Definition of several important technical terms

Nominal operating voltage (V_{BN})

The nominal operating voltage corresponds to the voltage which may be permanently connected to the appropriate connection terminals of the overvoltage protection module. Alternating voltages are quoted as effective values.

Max. operating voltage (V_{Bmax})

The maximum operating voltage corresponds to the voltage which may be permanently connected to the appropriate connection terminals without the operating properties changing or activating the individual module's protection elements.

Nominal current (I_N)

The nominal current corresponds to the current which may permanently flow through the connection terminals of the overvoltage protection device.

Nominal discharge current (I_{SN})

The nominal discharge current is the maximum value of a current having the 8/20 µs waveform
(DIN VDE 0432/10.78 part 3), which can flow through the surge arrester five times within a time period of 30 seconds (VDE) without destroying it.

Max. surge current (I_{Smax})

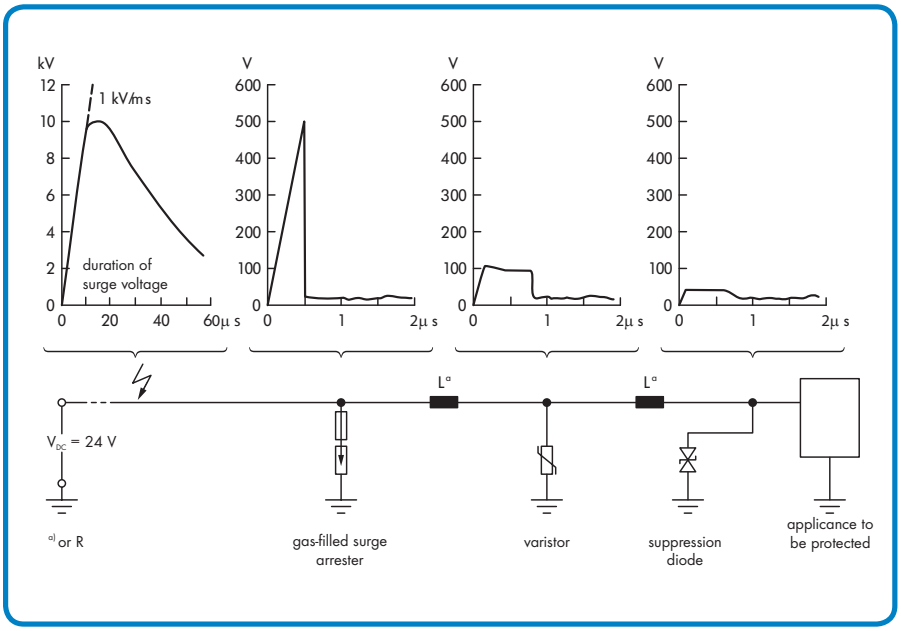
The maximum surge current I_{Smax} defines the maximum value of a current having the 8/20µs waveform, which can flow through the surge arrester once without destroying it.

Protection level

The protection level is the value of the residual voltage occurring on the "protected" side of the surge arrester when applying the rated discharge current.

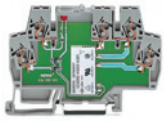
Response time (t_{an})

The response time is primarily based on the physical properties of the surge arresters and is dependent upon the wave front duration of the surge voltage. WAGO's data refers to a voltage rise of 1kV/µs.



Function diagram of a multi-stage surge voltage protection module

Overview: Relay Modules


859 Series

857 Series

788 Series

858 Series

288 and 287 Series

286 Series

789 Series

Relays with Changeover Contacts

Nominal voltage	5 V		12 V		24 V		48 V		60 V		115 V		230 V	
1 changeover contact	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
DC	859-302	32	859-303	32	859-304	32	859-305	32	859-306	32	859-307	32	859-308	32
	286-302	101	857-303	50	859-314	33	857-305	50	857-306	50	859-317	33	859-318	35
			788-303	64	859-390	36	788-305	64	788-306	64	859-391	37	857-308	50
			286-303	101	859-398	37	286-305	101	286-306	101	857-307	50	857-318	50
			287-853	93	859-392	38	286-395	102			857-317	50	286-308	101
					857-304	50					788-307	64		
					857-314	50					286-307	101		
					788-304	64								
					788-404	66								
					788-324	68								
					788-354	70								
					788-374	73								
					286-304	101								
					286-394	102								
					286-380	109								
					286-381	109								
					288-304	89								
					287-774	91								
					287-804	92								
					287-824	92								
					287-854	93								
					288-380	95								
					789-304	140								
AC					788-506	65					859-360	34	859-359	34
											859-367	35	859-368	36
											788-507	65	788-508	65
											788-607	67	788-608	67
											286-507	101	788-528	69
													286-508	101
													286-904	108
													288-508	89
													288-762	90
													789-508	140
AC/DC	286-502	101	859-353	32	859-354	32	859-355	32	286-506	101	859-357	32	859-358	32
			286-503	101	857-354	50	286-505	101			857-357	50	857-358	50
					857-364	50					857-367	50	857-368	50
					286-504	101					288-761	90		
					286-594	102								
					288-554	89								
					288-504	89								
					288-758	90								
					287-814	92								
					287-834	92								
					789-504	140								

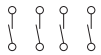
Nominal voltage	5 V		12 V		24 V		48 V		60 V		115 V		230 V	
2 changeover contacts	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
DC	286-310	103	788-311	64	788-312	64	788-313	64	788-314	64	788-315	64	286-316	103
			286-311	103	788-412	66	286-313	103	286-314	103	286-315	103		
					788-334	68	789-313	141			789-315	141		
					788-384	72								
					788-375	73								
					286-312	103								
					286-384	107								
					288-312	90								
					288-437	96								
					789-312	141								
AC	286-510	103	286-511	103	788-512	65	286-513	103	286-514	103	788-515	65	788-516	65
					286-512	103					788-615	67	788-616	67
											286-515	103	788-538	69
											789-515	141	286-516	103
													789-516	141
AC/DC					288-512	90								
					789-512	141								

Nominal voltage	5 V		12 V		24 V		48 V		60 V		115 V		230 V	
4 changeover contacts	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
DC					858-304	82								
					858-314	82								
					286-375	106								
AC											286-578	106	858-508	83
													858-518	83
													286-579	106

Relays with Make Contacts

Nominal voltage 1 make contact		5 V		12 V		24 V		48 V		60 V		115 V		230 V	
		Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
	DC					286-364 788-355 288-364 288-320 287-475 287-474 789-571 286-376	100 71 88 94 94 94 144 107	286-365	100	286-366	100				
	AC					286-564	100					286-566	100	286-567 789-570	100 144
	AC/DC					288-564	88	288-565	88			288-567	88		

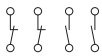
Nominal voltage 2 make contacts		5 V		12 V		24 V		48 V		60 V		115 V		230 V	
		Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
	DC	286-326	104	286-327	104	286-328	104	286-329	104	286-330	104			286-332	104
	AC														
	AC/DC														

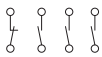
Nominal voltage 4 make contacts		5 V		12 V		24 V		48 V		60 V		115 V		230 V	
		Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
	DC	286-350	106	286-351	106	286-352 789-352	106 143	286-353	106	286-354	106	286-355	106		
	AC					286-552	106					286-555	106	286-556	106
	AC/DC			789-551	143	789-552	143								

Relays with break contacts and make contacts

Nominal voltage 1 break contact		5 V		12 V		24 V		48 V		60 V		115 V		230 V	
		Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
	DC					286-368	100	286-369	100	286-370	100				
	AC					286-568	100								
	AC/DC					288-568	88								

Nominal voltage 1 break contact/ 1 make contact		5 V		12 V		24 V		48 V		60 V		115 V		230 V	
		Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
	DC	286-318	104	286-319	104	286-320 286-906 286-571	104 108 109	286-321	104	286-322	104			286-324	104
	AC					286-520	104							286-570	109
	AC/DC														

Nominal voltage 2 break contacts/ 2 make contacts		5 V		12 V		24 V		48 V		60 V		115 V		230 V	
		Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
	DC	286-334	105	286-335	105	286-336 789-336	105 142	286-337	105	286-338	105	286-339	105		
	AC					286-536	105							286-540	105
	AC/DC			789-535	142	789-536	142								

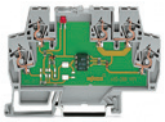
Nominal voltage 1 break contact/ 3 make contacts		5 V		12 V		24 V		48 V		60 V		115 V		230 V	
		Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
	DC	286-342	105	286-343	105	286-344	105	286-345	105	286-346	105	286-347	105		
	AC					286-544	105					286-547	105	286-548	105
	AC/DC														

Nominal voltage Safety relays 4 break contacts/ 4 make contacts		5 V		12 V		24 V		48 V		60 V		115 V		230 V	
		Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
	DC	288-412 288-422	97 97	288-413 288-423	97 97	288-435	96								
	AC													288-418 288-428	97 97
	AC/DC					288-414 288-424	97 97	288-415 288-425	97 97	288-416 288-426	97 97				

Overview: Timing Relays, Optocouplers and Special Functions

Timing Relay with Changeover Contact

Nominal voltage 1 changeover contact	Timer Range	On-Delay		Off-Delay		Pulsing		Pulse Lengthening	
		Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
24 V DC	0.1 s ... 1 s	286-600	110	286-440	112	286-460	113	286-426	111
	1 s ... 10 s	286-602	110	286-442	112	286-462	113	286-427	111
	10 s ... 100 s	286-604	110	286-444	112	286-464	113	286-428	111
230 V AC	0.1 s ... 1 s	286-610	110	286-446	112	286-470	113		
	1 s ... 10 s	286-612	110	286-448	112	286-472	113		
	10 s ... 100 s	286-614	110	286-450	112	286-474	113		
Multirange Timing Relay 24 V AC, 115 V AC, 230 V AC, 24 V DC	0.3 s ... 3 s 3 s ... 12 s 10 s ... 100 s 100 s ... 800 s	286-616	114						
Multifunction Timing Relays 24 V DC	0.3 s ... 3 s 3 s ... 12 s 10 s ... 100 s 100 s ... 800 s	286-640 115 286-640/004-000 138							



859 Series

857 Series

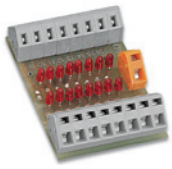
788 Series

286 Series

Optocouplers

Function	Input	Output	Max. Perm. Continuous. Current	859 Series		857 Series		788 Series		286 Series	
				Item No.	Page	Item No.	Page	Item No.	Page	Item No.	Page
2-Wire Optocouplers	5 V DC	24 V DC	100 mA	859-795	40						
		60 V DC		859-793	39						
	24 V DC	24 V DC		859-796	40						
				859-794	41						
			2 A			857-724	60				
			3 A	859-730	42						
				859-740	42						
			3.5 A					788-700	78		
			5 A					788-701	78		
		48 V DC	100 mA			857-704	56				
		60 V DC	100 mA	859-791	39					286-791	121
										286-794	122
		240 V AC	1 A			857-714	58				
								788-720	79		
		2 x 24 V DC	2 x 250 mA							286-790	123
	2 x 24 V DC									286-792	122
	115 V AC/DC	48 V DC	100 mA			857-707	56				
		240 V AC	1 A			857-717	58				
		24 V DC	2 A			857-727	60				
	230 V AC/DC	48 V DC	100 mA			857-708	57				
		240 V AC	1 A			857-718	59				
		24 V DC	2 A			857-728	61				
2-Wire Optocouplers with zero volt switch	5 V DC	230 V AC	0.5 A	859-902	47						
			1 A							286-732	120
	12 V DC									286-733	120
	24 V DC									286-734	120
3-Wire Optocouplers positive switching	5 V DC	24 V DC	0,5 A	859-752	45					286752/002000	119
	24 V DC	5 V DC		859-756	46					286-750	116
		15 V DC								286-751	116
		24 V DC		859-758	46					286-752	116
			4 A							286-723	119
		24 V DC programmable (L or H)	300 mA							286-938	123
	230 V AC	5 V DC	0.5 A							286-754	117
		15 V DC								286-756	117
		24 V DC		859-772	43					286-758	117
3-Wire Optocouplers negative switching	5 V DC	24 V DC	0.5 A	859-702	44						
		110 V DC	1.6 A							286-726	120
	12 V DC									286-728	120
	24 V DC	5 V DC	0.5 A	859-706	45					286-700	116
		15 V DC								286-701	116
		24 V DC		859-708	44					286-702	116
			2 A							286-720	118
			3 A	859-720	41						
			5 A							286-721	118
		110 V DC	1.6 A							286-730	120
	230 V AC	5 V DC	0.5 A							286-704	117
		15 V DC								286-706	117
		24 V DC		859-712	43					286-708	117
	10 V ... 30 V AC/DC		1 mA ... 500 mA							286-725	121
Power Optocouplers	S0 current meter interface	AC Output								286-740	124
		DC Output								286-741	124
Supply Module	passive S0 current meter interfaces									286-742	125

286 Series

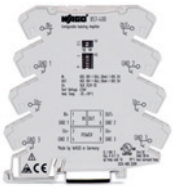


289 Series

Special Functions

Function			289 / 789 Series		286 Series	
			Item No.	Page	Item No.	Page
NAMUR Switching Amplifiers	with relay output 250 V AC /120 V DC				286-880	126
	with transistor output 24 V DC				286-881	126
Current Flow Monitoring Modules	AC/DC 15 mA DC/35 mA ... 300 mA AC	Optocoupler			286-659	128
	AC 80 mA ... 6 A	Transformer			286-661	128
	AC 0.2 A ... 3 A	1 changeover contact			286-664	129
	AC 1 A ... 10 A	1 changeover contact			286-665	129
	DC 0.4 A ... 1.5 A	1 make contact			286-662	129
Switching Module	1-pole changeover	with changeover rocker switch			286-895	127
		with momentary switch			286-896	127
	Hand-0-Automatik Umschalter		789-323	145		
Bridge Rectifiers	230 V / 1 A AC				280-804/281-419	131
	230 V / 1 A AC	with varistor protection			286-840	130
	24 V / 1 A AC				286-830	130
Fuse Module for replaceable microfuses 5 x 20 mm	Operating voltage 24 V AC/DC	Blown fuse indication, LED green			286-890	132
	Operating voltage 230 V AC/DC	Blown fuse indication, neon lamp			286-891	132
Diode Gate Modules	common anode	3 diodes			286-803	133
		5 diodes			286-805	133
		7 diodes			286-807	133
		9 diodes			286-809	133
	common cathode	3 diodes			286-813	133
		5 diodes			286-815	133
		7 diodes			286-817	133
		9 diodes			286-819	133
Polarized Diode Gate	common anode	14 diodes	289-121	188		
	common cathode	14 diodes	289-111	188		
Open Diode Gate	with 8 diodes, individual connection possible	Diode 1 N 4007	289-101	186		
		Diode P 600 B	289-103	186		
	with 9 diodes, individual connection possible	Diode 1 N 5408	289-105	187		
AND Gate Module	with 6 inputs, relay output with 1 make contact				286-826	134
Flip-Flop Module	Operating voltage 24 V DC				286-825	135
LED Indicator Module	with 8 LEDs	common cathode			286-822	134
LED Gate Module	with 16 LEDs	common anode	289-202	189		
		common cathode	289-201	189		
Lamp Test Circuit	with 20 diodes for testing 10 lamps		289-151	189		
Open Resistor Gate	with 8 resistors, individual connection possible		289-114	190		
Resistor Gate	with 1 end commoned, 8 resistors		289-113	190		
Fault Indicator Modules, with reset	Auxiliary and fault indication voltage 230 V AC	Alarm with continuous light			286-681	136
	60 V DC	Alarm with continuous light			286-684	136
	24 V DC	Indication of original fault with single flashing light			286-683	137
Connection Modules for sensors and actuators	8 x 3-conductor sensors		289-664	184		
		LED indicator for positive switching	289-665	184		
		LED indicator for negative switching	289-666	184		
	8 actuators		289-667	184		
		with ground (earth) contact	289-671	184		

Overview: Transducers



857 Series

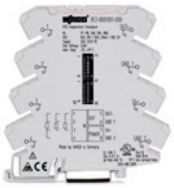
JUMPFLEX®– Transducers

Function	Input Signal (switchable in a calibrated way)	Output Signal (switchable in a calibrated way)	Configuration	Electrical Isolation	Supply Voltage V_N	Item No.	Page
Isolation Amplifier	0 ... 20 mA, 4 ... 20 mA, 0 ... 5 V, 0 ... 10 V, 2 ... 10 V, 1 ... 5 V	0 ... 20 mA, 4 ... 20 mA, 0 ... 5 V, 0 ... 10 V, 2 ... 10 V, 1 ... 5 V	DIP switch	3 ways, 2.5 kV	24 V DC	857-400	194
Isolation Amplifier, Configurable with Digital Output	-10...+10 V, -20...+20 mA, 0...+30 V (31,2 V (V_{IN}) 100 mA (I_{IN})	0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V, 0... 5 V, 1 ... 5 V, 0 ... 10 mA, 2 ... 10 mA	DIP switch or configuration software	3 ways, 2.5 kV	24 V DC	857-401	196
Bipolar Isolation Amplifier	± 5 V, 0 ... 5 V, 1 ... 5 V, ± 10 V, 0 ... 10 V,2 ... 10 V, ± 10 mA, 0 ... 10 mA, 2 ... 10 mA, ± 20 mA, 0 ... 20 mA, 4 ... 20 mA	± 5 V, 0 ... 5 V, 1 ... 5 V, ± 10 V, 0 ... 10 V,2 ... 10 V, ± 10 mA, 0 ... 10 mA, 2 ... 10 mA, ± 20 mA, 0 ... 20 mA, 4 ... 20 mA	DIP switch	3 ways, 2.5 kV	24 V DC	857-409	198
Isolation Amplifier Fixed (Current)	0(4) ... 20 mA	0(4) ... 20 mA	_	3 ways, 2.5 kV	24 V DC	857-411	200
Isolation Amplifier Fixed (Voltage)	0(2) ... 10 V	0(2) ... 10 V	_	3 ways, 2.5 kV	24 V DC	857-412	200
Passive Isolator 1-Channel	0(4) ... 20 mA	0(4) ... 20 mA	_	2 ways, 2.5 kV	24 V DC	857-451	201
Passive Isolator 2-Channel	0(4) ... 20 mA	0(4) ... 20 mA	_	2 ways, 2.5 kV	24 V DC	857-452	201
Repeater Power Supply	0 ... 20 mA, 4 ... 20 mA	0 ... 20 mA, 4 ... 20 mA, 0 ... 5 V, 0 ... 10 V, 2 ... 10 V, 1 ... 5 V	DIP switch	3 ways, 2.5 kV	24 V DC	857-420	202
Repeater Power Supply HART	4 ... 20 mA	4 ... 20 mA	_	3 ways, 2.5 kV	24 V DC	857-421	204
Signal Splitter	0 ... 20 mA, 4 ... 20 mA, 0 ... 5 V, 0 ... 10 V, 2 ... 10 V, 1 ... 5 V	2 x 0(4) ... 20 mA	DIP switch	4 ways, 2.5 kV	24 V DC	857-423	206
Millivolt Transducer	-100 mV ... +100 mV, 0 mV ... 200 mV bis 0 mV ... 1000 mV (in steps of 100)	0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V, 0... 5 V, 1 ... 5 V, 0 ... 10 mA, 2 ... 10 mA	DIP switch or configuration software	3 ways, 2.5 kV	24 V DC	857-819	216
Threshold Value Switch	-10...+10 V, -20...+20 mA, 0...+30 V (31,2 V (V_{IN}) 100 mA (I_{IN})	1 changeover contact (relay max. 6A) 1 digital switching output	DIP switch, teach-in, configuration software	4 ways, 2.5 kV	24 V DC	857-531	218

786 Series

Signal Conditioning Modules

Function	Input	Output	Electrical Isolation	Supply Voltage V_N	Item No.	Page
Signal Conditioning Modules for Standard Signals	0 ... 10 V	0 ... 10 V	2 ways, 4 kV	24 V DC	786-301	230
			3 ways, 4 kV		786-321	230
		0 ... 20 mA	2 ways, 4 kV		786-302	230
			3 ways, 4 kV		786-322	230
		4 ... 20 mA	2 ways, 4 kV		786-303	230
			3 ways, 4 kV		786-323	230
	0 ... 20 mA	0 ... 10 V	2 ways, 4 kV	24 V DC	786-304	231
			3 ways, 4 kV		786-324	232
		0 ... 20 mA	2 ways, 4 kV		786-305	231
			3 ways, 4 kV		786-325	232
		4 ... 20 mA	2 ways, 4 kV		786-306	231
			3 ways, 4 kV		786-326	232
	4 ... 20 mA	0 ... 10 V	2 ways, 4 kV	24 V DC	786-307	231
			3 ways, 4 kV		786-337	232
		0 ... 20 mA	2 ways, 4 kV		786-308	231
			3 ways, 4 kV		786-338	232
		4 ... 20 mA	2 ways, 4 kV		786-309	231
			3 ways, 4 kV		786-339	232



857 Series

JUMPFLEX®– Temperature Transducers for RTD and Thermocouples

Function	Input Signal	Connection	Output Signal	Configuration	Electrical Isolation	Supply Voltage V_N	Item No.	Page
Temperature Transducers for RTD	Pt 100, Pt 200, Pt 500, Pt 1000 0 ...1 kΩ, 0 ...4.5 kΩ	2 wire, 3 wire, 4 wire	0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V, 0 ... 5 V, 1 ... 5 V, 0 ... 10 mA, 2 ... 10 mA	Dip switch	3 ways, 2.5 kV	24 V DC	857-800	208
Temperature Transducers for RTD	Pt 100, Pt 200, Pt 500, Pt 1000 0 ...1 kΩ, 0 ...4.5 kΩ	2 wire, 3 wire, 4 wire	0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V, 0 ... 5 V, 1 ... 5 V, 0 ... 10 mA, 2 ... 10 mA	Dip switch or configuration Software	3 ways, 2.5 kV	24 V DC	857-801	210
Temperature Transducers for Thermocouples	Thermocouples of types J and K		0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V, 0 ... 5 V, 1 ... 5 V, 0 ... 10 mA, 2 ... 10 mA	Dip switch	3 ways, 2.5 kV	24 V DC	857-810	212
Temperature Transducers for Thermocouples	Thermocouples of types J and K		0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V, 0 ... 5 V, 1 ... 5 V, 0 ... 10 mA, 2 ... 10 mA	Dip switch or configuration Software	3 ways, 2.5 kV	24 V DC	857-811	214

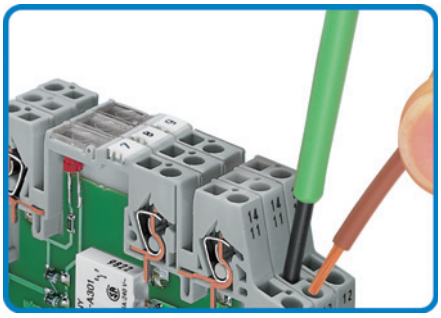
286 Series

Temperature Transducers

Function	Input	Temperature Range	Connection	Output	Electrical Isolation	Supply Voltage V_N	Item No.	Page
Temperature Transducers	Pt 100	0 °C ... 100 °C	2 wire	0 ... 10 V	–	24 V DC	286-860	224
			3 wire				286-870	224
			2 wire	0 ... 20 mA			286-861	224
			3 wire				286-871	224
			2 wire	4 ... 20 mA			286-862	224
			3 wire				286-872	224
		-30 °C ... +150 °C	2 wire	0 ... 10 V	–	24 V DC	286-860/150-030	226
			3 wire				286-870/150-030	226
			2 wire	0 ... 20 mA			286-861/150-030	226
			3 wire				286-871/150-030	226
			2 wire	4 ... 20 mA			286-862/150-030	226
			3 wire				286-872/150-030	226
		0 °C ... 300 °C	2 wire	0 ... 10 V	–	24 V DC	286-860/000-300	227
			3 wire				286-870/000-300	227
			2 wire	0 ... 20 mA			286-861/000-300	227
			3 wire				286-871/000-300	227
			2 wire	4 ... 20 mA			286-862/000-300	227
			3 wire				286-872/000-300	227
	Pt 1000	0 °C ... 100 °C	2 wire	0 ... 10 V	–	24 V DC	286-873	228
				0 ... 20 mA			286-874	228
				4 ... 20 mA			286-875	228
	Thermocouple Typ J	0 °C ... 750 °C		0 ... 10 V	–	24 V DC	286-863	225
				0 ... 20 mA			286-865	225
				4 ... 20 mA			286-867	225
	Thermocouple Typ K	0 °C ... 1000 °C		0 ... 10 V	–	24 V DC	286-864	225
				0 ... 20 mA			286-866	225
				4 ... 20 mA			286-868	225

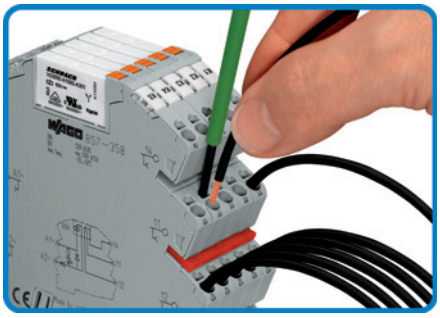
Installation Notes

859 Series
Relay Modules and
Optocoupler Modules



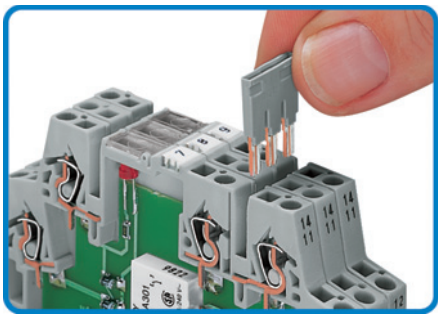
Connection of conductor

857 Series
JUMPFLEX®– Transducers / Relay and
Optocoupler Modules

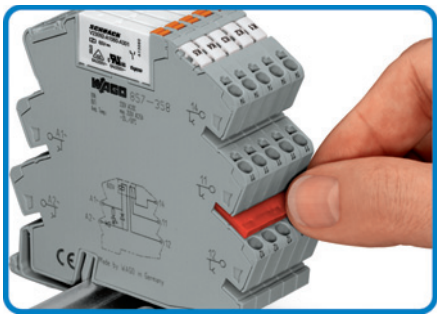


Connection of conductor

Operation of the relay ejector

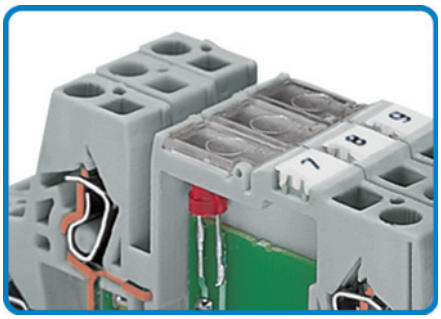


Easy commoning using
adjacent jumpers

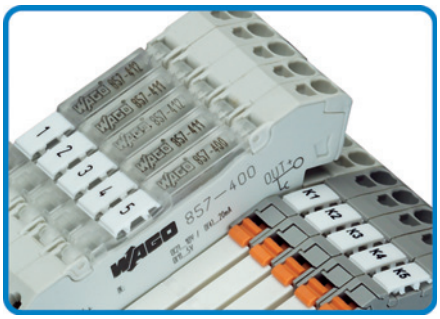


Easy commoning using
adjacent jumpers

Configuration of the Transducers with
WAGO-USB-Service-Cable 750-923

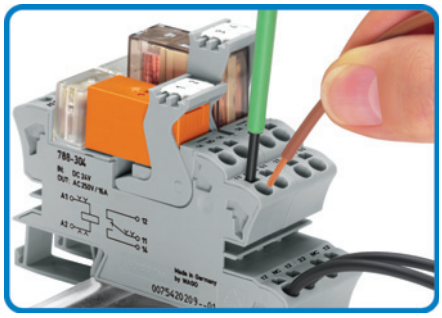


Marking using Miniature quick
marking card

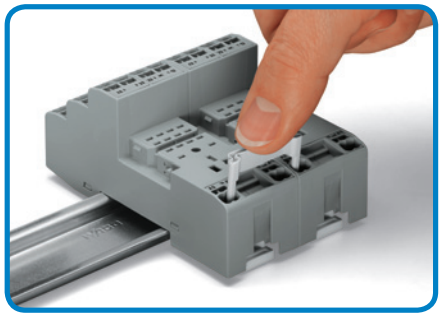


Marking using WMB Multi markers

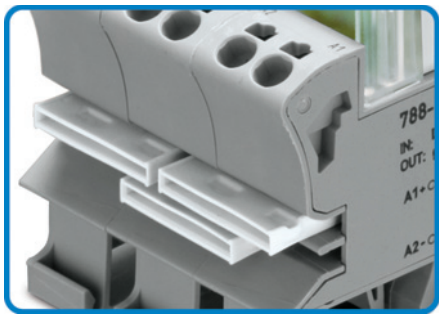
788 Series
Sockets for Miniature Switching Relay / Optocoupler



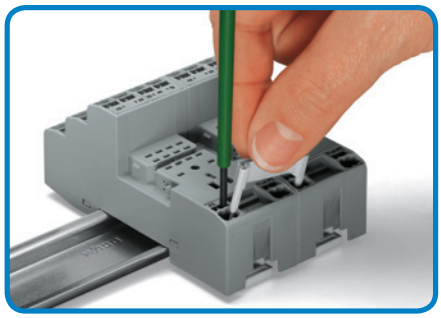
Connection of conductor



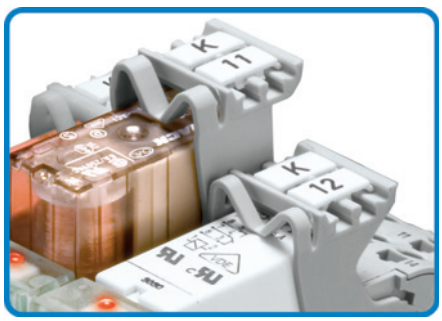
Easy commoning using adjacent jumpers



Easy commoning using adjacent jumpers



Remove jumper with screwdriver

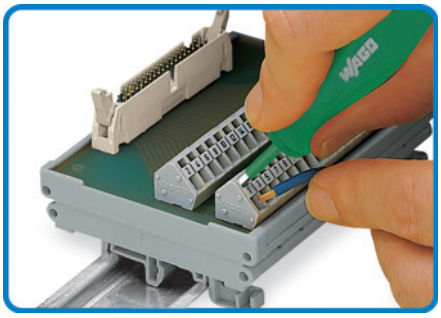


Marking using WMB Multi markers and group marker carriers

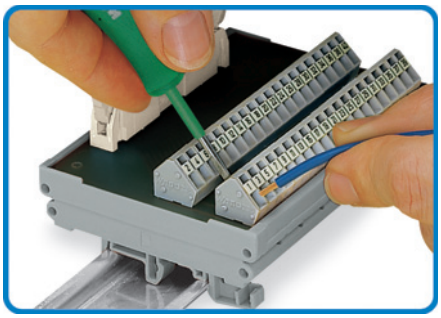
858 Series
Sockets with Industrial Relay

Installation Notes

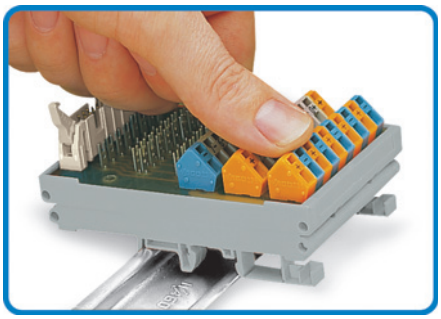
287 / 288 Series Mounting Carriers with Miniature Switching Relay



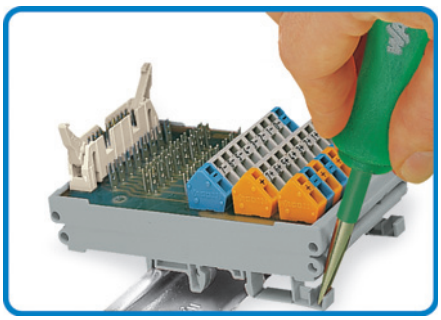
Connection of conductor "front-entry"



Connection of conductor "side-entry"

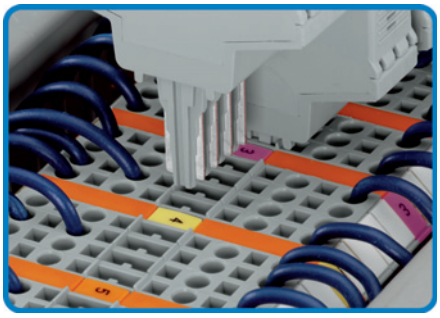


Assembly of a module on the carrier rail

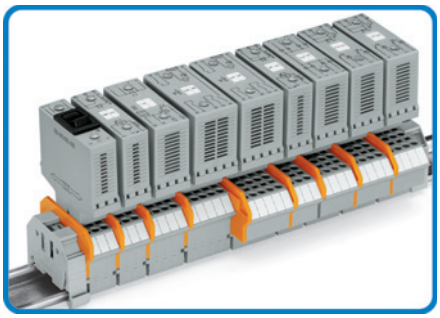


Removal of a module from the carrier rail

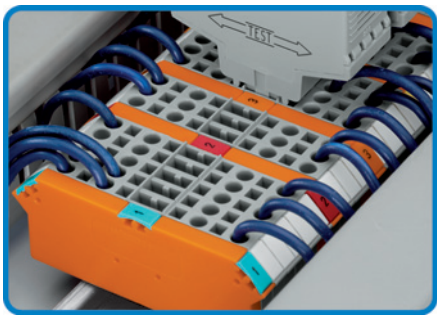
286 / 786 Series Pluggable Function Modules



Coding ensures correct polarity



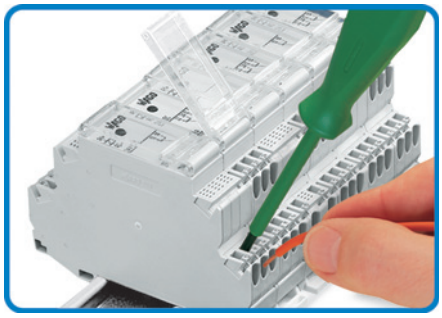
Pluggable electronic modules, for application on 2- or 4-conductor carrier terminal blocks



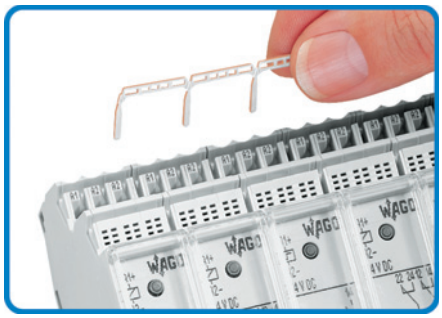
Marking using WMB Multi markers

Easy testing at touchproof contacts

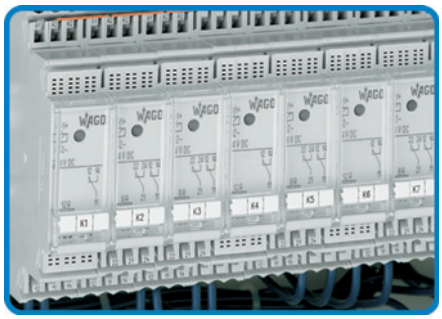
789 Series Relay Modules in DIN-Rail Mounted Enclosure



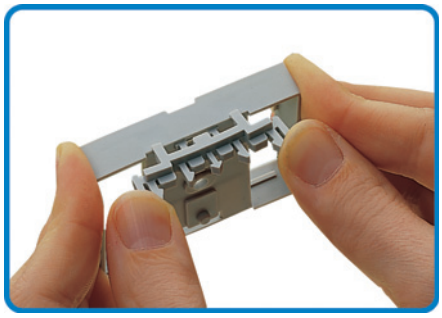
Connection of conductor



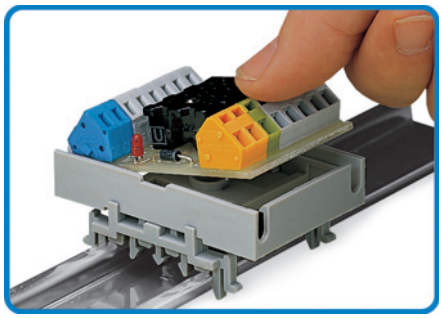
Easy commoning using adjacent jumpers



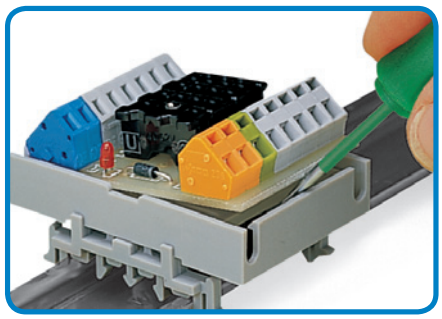
Marking using Miniature quick marking card



Mounting carrier, gray, snap-fit mounting of universal mounting feet

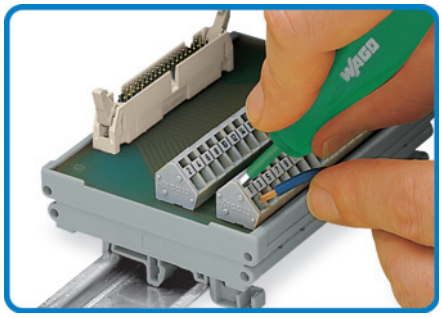


Fitting of an individual module to the mounting carrier

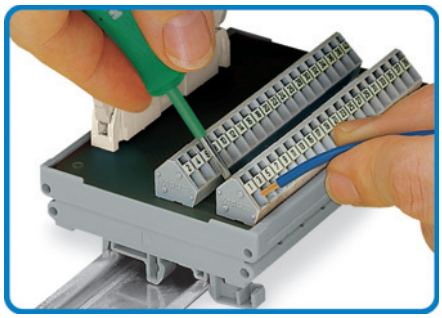


Removal of an individual module from the mounting carrier

289 Series Interface Modules

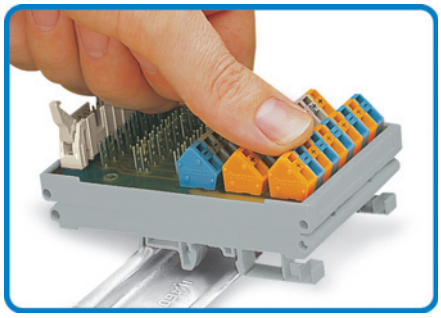


Connection of conductor "front-entry"

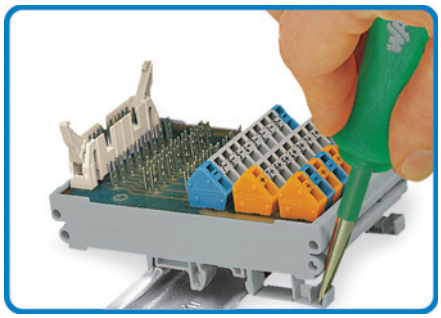


Connection of conductor "side-entry"

289 Series Interface Modules

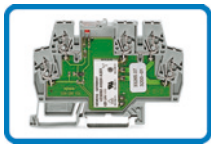


Assembly of a module on the carrier rail



Removal of a module from the carrier rail

WAGO Application: Cerestar (Cargill GmbH), Barby, Saxony-Anhalt, Germany
Manufacturer of starches and starch derivatives.
WAGO Products:
Matrix Patchboards and Pluggable Electronic Modules



859 Series

Rail-Mounted Terminal Blocks with Miniature Switching Relay 32 – 38
Rail-Mounted Terminal Blocks with Optocoupler 39 – 47
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Accessories, 859 Series 49

857 Series

JUMPFLEX® Relay Socket with Miniature Switching Relay 50 – 51
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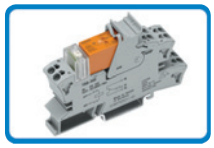
JUMPFLEX® Relay Socket with Solid State Relay 56 – 61
Solid State Relays 62
Accessories, 857 Series 63



788 Series

Sockets with Miniature Switching Relay 64 – 73
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Sockets with Solid State Relay 78 – 79
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858 Series

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287/288 Series

Mounting Carriers with Miniature Switching Relay 88 – 99

286 Series

Pluggable Modules – Relays, Time Relays, Optocouplers, S0 Optocouplers, S0 Supply Module, NAMUR Switching Amplifiers, Current Flow Monitoring, Switches, Bridge Rectifiers, Fuses, Diode Gates, AND Gate and LED Indicator, Flip-Flop, Fault Indication, Surge Suppression Devices 100 – 139

789 Series

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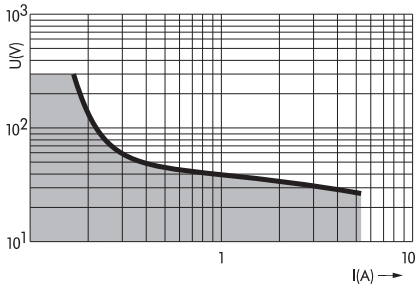
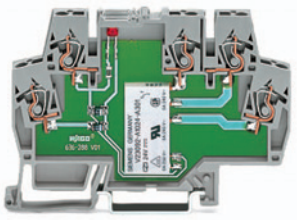
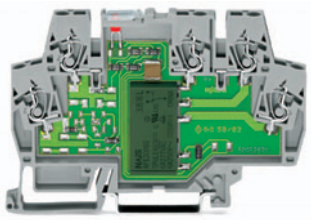
4-Channel EnOcean Radio Receiver in DIN-Rail-Mountable Enclosure 148
Manual Control Modules 149

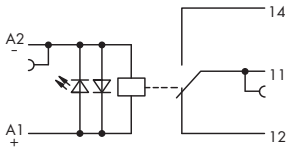
Rail-Mounted Terminal Blocks with Miniature Switching Relay

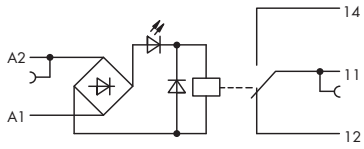
	Relay with 1 changeover contact (1u) for normal switching power Nominal input voltage V_N 5 V, 12 V, 24 V, 48 V, 60 V, 110 V, 220 V DC	Relay with 1 changeover contact (1u) for normal switching power Nominal input voltage V_N 12 V, 24 V, 48 V, 115 V, 230 V AC/DC









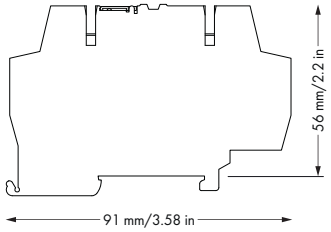


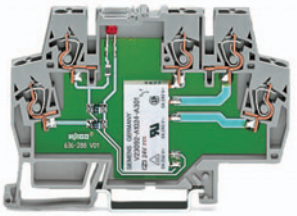
Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

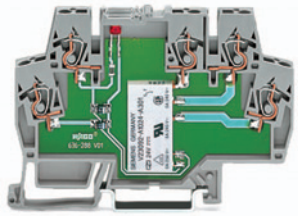
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with miniature switching relay, for DIN 35 rail	5 V DC	31 mA	**859-302**	1	12 V AC/DC	15 mA	**859-353**	1
	12 V DC	17 mA	**859-303**	1	24 V AC/DC	8 mA	**859-354**	1
	24 V DC	10 mA	**859-304**	1	48 V AC/DC	5.3 mA	**859-355**	1
	48 V DC	6.5 mA	**859-305**	1	115 V AC/DC	3.5 mA	**859-357**	1
	60 V DC	5.2 mA	**859-306**	1	230 V AC/DC	3.5 mA	**859-358**	1
	120 V DC	3.5 mA	**859-307**	1				
	220 V DC	3.2 mA	**859-308**	1				

Technical Data	Accessories see page 49	Accessories see page 49
Contact material	$AgSnO_2$	$AgSnO_2$
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +10 %
Max. switching voltage	250 V AC	250 V AC
Max. continuous current (terminal blocks in a row)	5 A	5 A
Max. Switching power (resistive)	1250 VA AC ; DC see load limit curve	1250 VA AC ; DC see load limit curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC	≥ 100 mA / 12 V AC/DC
Max. switching rate with / without load	6 min^{-1} / 20 s^{-1}	6 min^{-1} / 20 s^{-1}
Operating power	< 320 mW	< 300 mW
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	5 ms / 6 ms / 5 ms
Nominal operating mode	continuous duty	continuous duty
Dielectric strength contact-coil	4 kV	4 kV
Dielectric strength contact-coil (1.2/50 µs)	6 kV	6 kV
Surge capacity open contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
Mechanical life at max. load (resistance)	3 x 10^5 switching operations	3 x 10^4 switching operations
Ambient operating temperature (V_N)	-25 °C ... +50 °C	-25 °C ... +50 °C
Ambient operating temperature (1.2 x V_N)	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; UL 508; EEx nC II T4 / DEMKO 02 ATEX 132280U;	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; UL 508; EEx nC II T4 / DEMKO 02 ATEX 132280U;

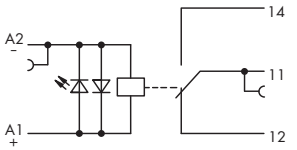
	Relay with 1 changeover contact (1u) Contacts 5 µm Au hard gold plated for normal switching power Nominal input voltage V_N 24 V DC	Relay with 1 changeover contact (1u) Contacts 5 µm Au hard gold plated with an extended Input voltage range: V_N -30 % ... +25 % Operating temperature range: -25 °C ... +70 °C for normal switching power Nominal input voltage V_N 115 V DC

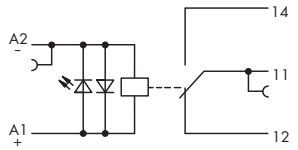






* In order to prevent the gold layer from being damaged these values should not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.



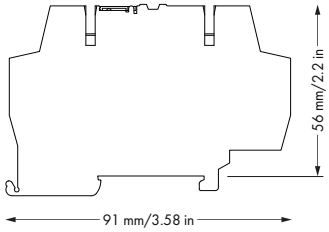


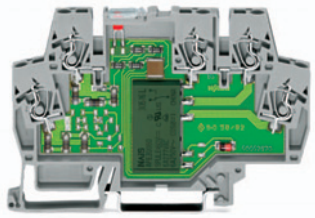
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with miniature switching relay, for DIN 35 rail	24 V DC	10 mA	**859-314**	1	115 V DC	3.1 mA	**859-317**	1

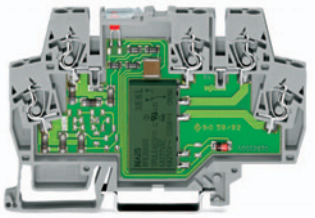
Technical Data	Accessories see page 49	Accessories see page 49
Contact material	$AgSnO_2$ + 5 µm Au	$AgSnO_2$ + 5 µm Au
Input voltage range	V_N -15 % ... +20 %	V_N -30 % ... +25 %
Max. switching voltage	36 V DC *	36 V DC *
Max. continuous current (terminal blocks in a row)	50 mA *	50 mA *
Recommended minimum load	10 µA / 100 mV	10 µA / 100 mV
Max. switching rate with / without load	6 min^{-1} / 20 s^{-1}	6 min^{-1} / 20 s^{-1}
Operating power	< 320 mW	< 320 mW
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	5 ms / 6 ms / 5 ms
Nominal operating mode	continuous duty	continuous duty
Dielectric strength contact-coil	4 kV	4 kV
Dielectric strength contact-coil (1.2/50 µs)	6 kV	6 kV
Surge capacity open contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
Mechanical life at max. load (resistance)	5 x 10^6 switching operations	5 x 10^6 switching operations
Ambient operating temperature (V_N)	-25 °C ... +50 °C	-25 °C ... +70 °C
Ambient operating temperature (1.2 x V_N)	-25 °C ... +40 °C	
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; UL 508; EEx nC II T4 / DEMKO 02 ATEX 132280U;	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; UL 508; EEx nC II T4 / DEMKO 02 ATEX 132280U;

Rail-Mounted Terminal Blocks with Miniature Switching Relay

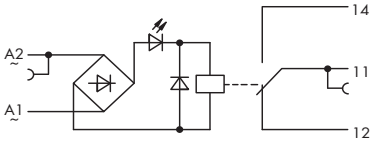
	Relay with 1 changeover contact (1u) Contacts 5 µm Au hard gold plated for normal switching power Nominal input voltage V_N 230 V AC	Relay with 1 changeover contact (1u) Contacts 5 µm Au hard gold plated for normal switching power Nominal input voltage V_N 115 V AC

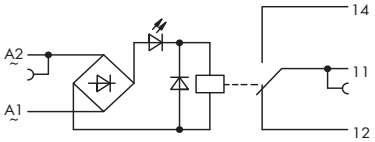






* In order to prevent the gold layer from being damaged these values should not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

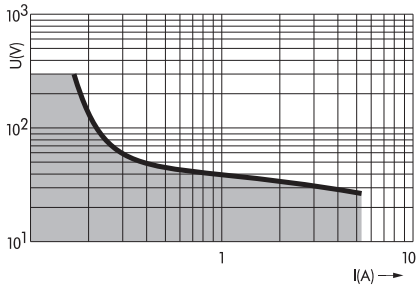


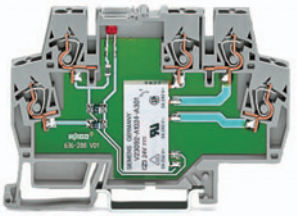


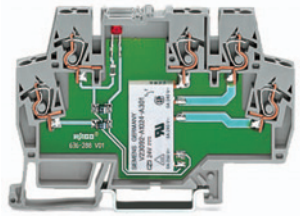
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with miniature switching relay, for DIN 35 rail	230 V AC	3.5 mA	**859-359**	1	115 V AC	3.1 mA	**859-360**	1

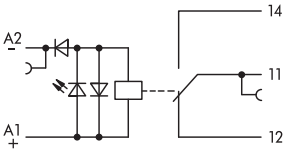
Technical Data	Accessories see page 49	Accessories see page 49
Contact material	$AgSnO_2$ + 5 µm Au	$AgSnO_2$ + 5 µm Au
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +20 %
Max. switching voltage	36 V DC *	36 V DC *
Max. continuous current (terminal blocks in a row)	50 mA *	50 mA *
Recommended minimum load	10 µA / 100 mV	10 µA / 100 mV
Max. switching rate with / without load	6 min^{-1} / 20 s^{-1}	6 min^{-1} / 20 s^{-1}
Operating power	< 820 mW	< 370 mW
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	5 ms / 6 ms / 5 ms
Nominal operating mode	continuous duty	continuous duty
Dielectric strength contact-coil	4 kV	4 kV
Dielectric strength contact-coil (1.2/50 µs)	6 kV	6 kV
Surge capacity open contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
Mechanical life at max. load (resistance)	5 x 10^6 switching operations	5 x 10^6 switching operations
Ambient operating temperature (V_N)	-25 °C ... +50 °C	-25 °C ... +50 °C
Ambient operating temperature (1.2 x V_N)	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; UL 508; EEx nC II T4 / DEMKO 02 ATEX 132280U; ㊋	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; UL 508; EEx nC II T4 / DEMKO 02 ATEX 132280U; ㊋

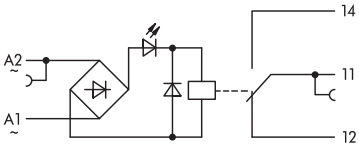
	Relay with 1 changeover contact (1u) Contacts 5 µm Au hard gold plated for low switching power Nominal input voltage V_N 220 V DC	Relay with 1 changeover contact (1u) for normal switching power Nominal input voltage V_N 115 V AC











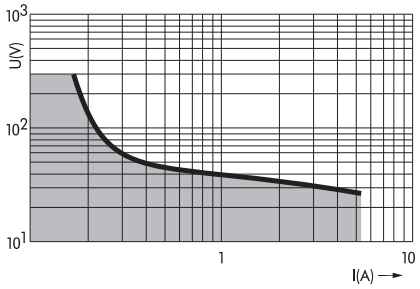
* In order to prevent the gold layer from being damaged these values should not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the endosure may cause sparkover between the coil and the contact.

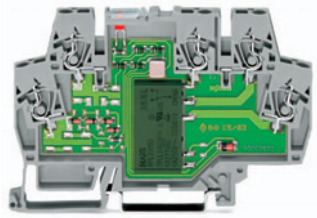
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with miniature switching relay, for DIN 35 rail	220 V DC	3.2 mA	**859-318**	1	115 V AC	4.2 mA	**859-367**	1

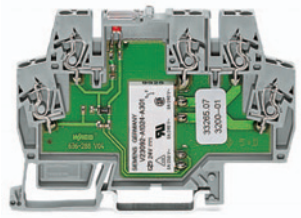
Technical Data	Accessories see page 49	Accessories see page 49
Contact material	$AgSnO_2$ + 5 µm Au	$AgSnO_2$
Input voltage range	V_N -15 % ... +20 %	V_N ± 10 %
Turn-on threshold relay/LED		95 V AC/ 80 V AC
Turn-off threshold relay/LED		60 V AC/60 V AC
Max. switching voltage	36 V DC *	250 V AC
Max. continuous current (terminal blocks in a row)	50 mA *	5 A
Max. Switching power (resistive)		1250 VA AC ; DC see load limit curve
Recommended minimum load	50 mW	≥ 100 mA / 12 V AC/DC
Max. switching rate with / without load	6 min^{-1} / 20 s^{-1}	6 min^{-1} / 20 s^{-1}
Operating power	< 750 mW	< 820 mW
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	5 ms / 6 ms / 5 ms
Nominal operating mode	continuous duty	continuous duty
Dielectric strength contact-coil	4 kV	4 kV
Dielectric strength contact-coil (1.2/50 µs)	6 kV	6 kV
Surge capacity open contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
Mechanical life at max. load (resistance)	5 x 10^6 switching operations	3 x 10^4 switching operation
Ambient operating temperature (V_N)	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0435 (corresp. parts); DIN EN 61810;	DIN VDE 0160, DIN EN 50178; VDE 0435
	DIN VDE 0140, DIN EN 61140 E175199, UL 508; ㊏	(corresp. parts); DIN EN 61810; VDE 0140,
		DIN EN 61140; ㊏

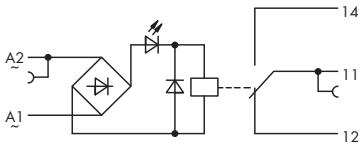
Rail-Mounted Terminal Blocks with Miniature Switching Relay

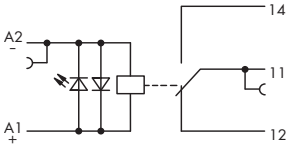
	Relay with 1 changeover contact (1u) defined turn-on/turn-off threshold for normal switching power Nominal input voltage V_N 230 V AC	Relay with 1 changeover contact (1u) with an extended Input voltage range: V_N -30 % ... +25 % Operating temperature range: -25 °C ... +70 °C for normal switching power Nominal input voltage V_N 24 V DC









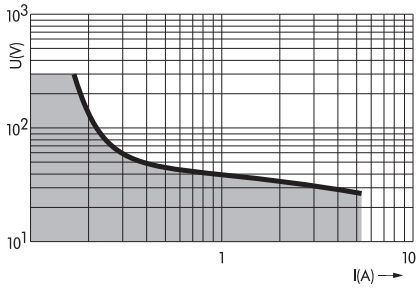


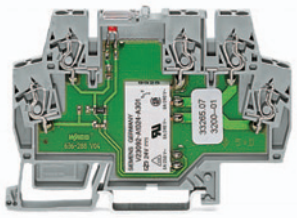
Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

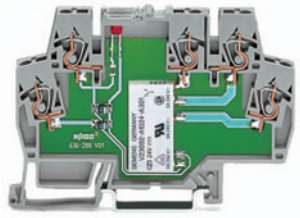
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with miniature switching relay, for DIN 35 rail	230 V AC	4.2 mA	**859-368**	1	24 V DC	12 mA	**859-390**	1

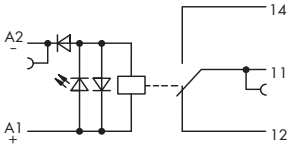
Technical Data	Accessories see page 49	Accessories see page 49
Contact material	$AgSnO_2$	$AgSnO_2$
Input voltage range	V_N ± 10 %	V_N -30 % ... +25 %
Turn-on threshold relay/LED	190 V AC / 165 V AC	
Turn-off threshold relay/LED	140 V AC / 150 V AC	
Max. switching voltage	250 V AC	250 V AC
Max. continuous current (terminal blocks in a row)	5 A	3 A
Max. Switching power (resistive)	1250 VA AC ; DC see load limit curve	750 VA AC ; DC see load limit curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC	≥ 100 mA / 15 V AC/DC
Max. switching rate with / without load	6 min^{-1} / 20 s^{-1}	6 min^{-1} / 20 s^{-1}
Operating power	< 820 mW	< 320 mW
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	5 ms / 6 ms / 5 ms
Nominal operating mode	continuous duty	continuous duty
Dielectric strength contact-coil	4 kV	4 kV
Dielectric strength contact-coil (1.2/50 µs)	6 kV	6 kV
Surge capacity open contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
Mechanical life at max. load (resistance)	3 x 10^4 switching operation	3 x 10^5 switching operation
Ambient operating temperature (V_N)	-25 °C ... +50 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5;	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5;
	UL 508; EEx nC II T4 / DEMKO 02 ATEX 132280U; ㏈	UL 508; EEx nC II T4 / DEMKO 02 ATEX 132280U; ㏈

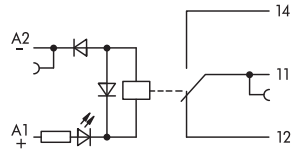
	Relay with 1 changeover contact (1u) with an extended Input voltage range: V_N ±30 % Operating temperature range: -25 °C ... +70 °C for normal switching power Nominal input voltage V_N 110 V DC	Relay with 1 changeover contact (1u) with an extended Input voltage range: V_N ±40 % Operating temperature range: -25 °C ... +70 °C for normal switching power Nominal input voltage V_N 24 V DC











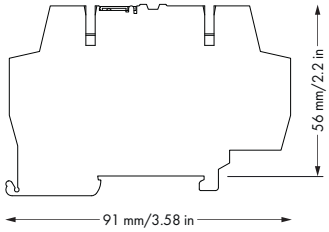
NOTE: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

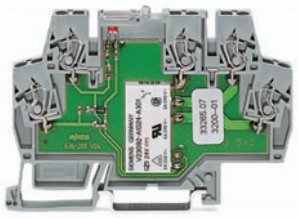
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with miniature switching relay, for DIN 35 rail	110 V DC	2.7 mA	**859-391**	1	24 V DC	14.4 mA	**859-398**	1

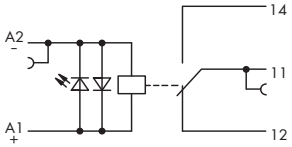
Technical Data	Accessories see page 49	Accessories see page 49
Contact material	$AgSnO_2$	$AgSnO_2$
Input voltage range	V_N ± 30 %	V_N ± 40 %
Max. switching voltage	250 V AC	250 V AC
Max. continuous current (terminal blocks in a row)	3 A	3 A
Max. Switching power (resistive)	750 VA AC ; DC see load limit curve	750 VA AC ; DC see load limit curve
Recommended minimum load	≥ 100 mA / 15 V AC/DC	≥ 100 mA / 12 V AC/DC
Max. switching rate with / without load	6 min^{-1} / 20 s^{-1}	6 min^{-1} / 20 s^{-1}
Operating power	< 370 mW	< 400 mW
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	5 ms / 6 ms / 5 ms
Nominal operating mode	continuous duty	continuous duty
Dielectric strength contact-coil	4 kV	4 kV
Dielectric strength contact-coil (1.2/50 µs)	6 kV	6 kV
Surge capacity open contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	5 x 10^6 switching operations	1 x 10^7 switching operations
Mechanical life at max. load (resistance)	3 x 10^4 switching operation	3 x 10^4 switching operation
Ambient operating temperature (V_N)	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; UL 508; EEx nC II T4 / DEMKO 02 ATEX 132280U; ㊏	DIN VDE 0160 and IEC 60255; VDE 0435 (corresp. parts); DIN VDE 0140, DIN EN 61140; DIN VDE 0115 Part 200; DIN EN 50155; ㊏

Rail-Mounted Terminal Blocks with Miniature Switching Relay

	Relay with 1 changeover contact (1u) **Contacts 5 µm Au hard gold plated with an extended** **Input voltage range: V_N -30 % ... +25 %** **Operating temperature range: -25 °C ... +70 °C for normal switching power** **Nominal input voltage V_N 24 V DC**	







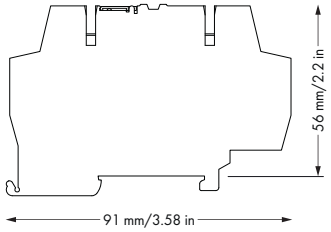
* In order to prevent the gold layer from being damaged these values should not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

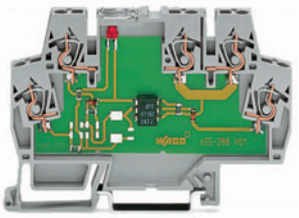
Description	**V_N**	**I_N**	**Item No.**	**Pack. Unit**	
Rail-mounted terminal blocks with miniature switching relay, for DIN 35 rail	24 V DC	10 mA	**859-392**	1	

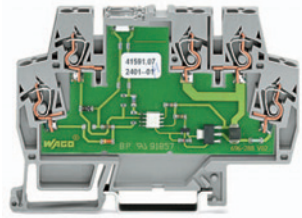
Technical Data	Accessories see page 49	
Contact material	$AgSnO_2$ + 5 µm Au	
Input voltage range	V_N -30 % ... +25 %	
Max. switching voltage	36 V DC *	
Max. continuous current (terminal blocks in a row)	50 mA *	
Recommended minimum load	10 µA / 100 mV	
Max. switching rate with / without load	6 min^{-1} / 20 s^{-1}	
Operating power	< 320 mW	
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	
Nominal operating mode	continuous duty	
Dielectric strength contact-coil	4 kV	
Dielectric strength contact-coil (1.2/50 µs)	6 kV	
Surge capacity open contact	1 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	
IEC 60664-1		
Mechanical life	5 x 10^6 switching operations	
Mechanical life at max. load (resistance)	2 x 10^7 switching operations	
Ambient operating temperature (V_N)	-25 °C ... +70 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) W x H x L	6 x 56 x 91	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	
Stripped lengths	5 ... 6 mm / 0.22 in	
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5;	
	VDE 0115 Part 200 / EN 50155; UL 508;	
	EEx nC II T4 / DEMKO 02 ATEX 132280U; ㉮	

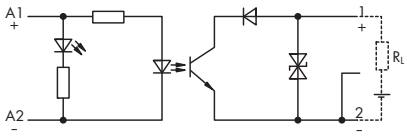
Rail-Mounted Terminal Blocks with Optocoupler

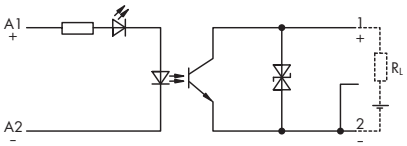
	Optocoupler Input: 5 V DC Output: 60 V DC/100 mA with an extended output voltage and operating temperature range for use in railway traffic	Optocoupler Input: 24 V DC Output: 60 V DC/100 mA with an extended output voltage and operating temperature range for use in railway traffic









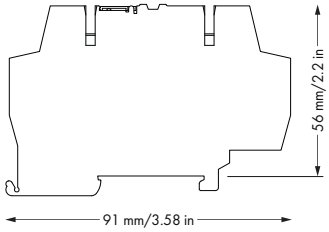


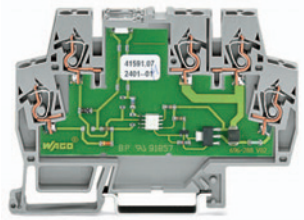
Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	5 V DC	**859-793**	1	24 V DC	**859-791**	1

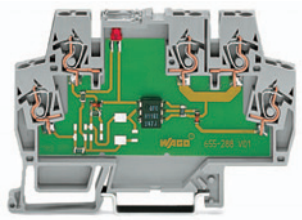
Technical Data	Accessories see page 49	Accessories see page 49
Nominal input voltage (V_N)	5 V DC	24 V DC
Input voltage range low level	0 V ... 0.8 V DC	0 V ... 5 V DC
Input voltage range high level	2 V ... 6.25 V DC	16 V ... 30 V DC
Input current range	1.3 mA ... 10 mA DC	2 mA ... 5.5 mA DC
Current at nominal voltage	7.5 mA DC	4 mA DC
Output nominal voltage	24 V DC	24 V DC
Output voltage range	3 V ... 60 V DC	7 V ... 60 V DC
Max. continuous current (20°C)	100 mA	100 mA
Max. continuous current (70°C)	50 mA	50 mA
Reverse voltage transistor	100 V	100 V
Switch on /switch off time	20 µs / 120 µs	20 µs / 120 µs
Max. operating frequency	1.5 kHz	3 kHz
Leakage current at nominal voltage	25 µA	30 µA
Voltage drop at output	≤ 2.5 V	≤ 1.5 V
Test voltage input / output	2.5 kV eff.	4 kV eff.
Nominal operating mode	continuous duty	continuous duty
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Max. operating temperature with reduced current	+70 °C	+70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; VDE 0115 Part 200 / EN 50155; UL 508; EEx nA II T4 / DEMKO 02 ATEX 132280U	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; VDE 0115 Part 200 / EN 50155; UL 508; EEx nA II T4 / DEMKO 02 ATEX 132280U

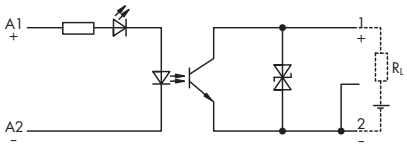
Rail-Mounted Terminal Blocks with Optocoupler

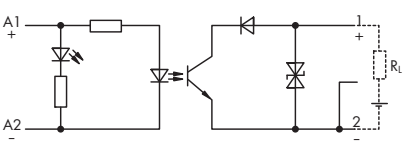
	Optocoupler Input: 24 V DC Output: 24 V DC/100 mA	Optocoupler Input: 5 V DC Output: 24 V DC/100 mA







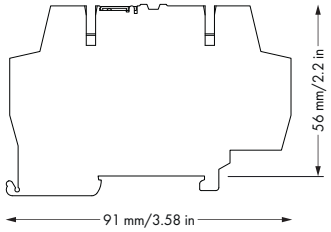


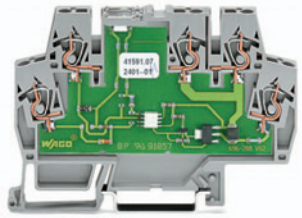


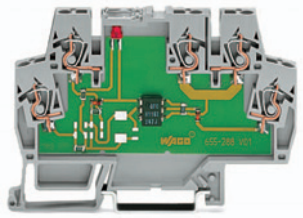
Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	24 V DC	**859-796**	1	5 V DC	**859-795**	1

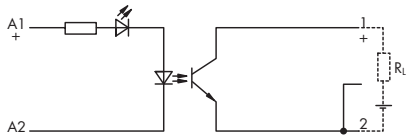
Technical Data	Accessories see page 49	Accessories see page 49
Nominal input voltage (V_N)	24 V DC	5 V DC
Input voltage range low level	0 V ... 5 V DC	0 V ... 0.8 V DC
Input voltage range high level	18 V ... 30 V DC	2 V ... 6.25 V DC
Input current range	3.8 mA ... 12.5 mA DC	3.8 mA ... 23 mA DC
Current at nominal voltage	9.2 mA DC	17.5 mA DC
Output nominal voltage	24 V DC	24 V DC
Output voltage range	3 V ... 30 V DC	3 V ... 30 V DC
Max. continuous current (20°C)	100 mA	100 mA
Max. continuous current (70°C)	50 mA	50 mA
Reverse voltage transistor	65 V	65 V
Switch on /switch off time	10 µs / 50 µs	10 µs / 50 µs
Max. operating frequency	10 kHz	10 kHz
Leakage current at nominal voltage	25 µA	25 µA
Voltage drop at output	≤ 1 V	≤ 1 V
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal operating mode	continuous duty	continuous duty
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Max. operating temperature with reduced current	+70 °C	+70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; UL 508; EEx nA II T4 / DEMKO 02 ATEX 132280U	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; UL 508; EEx nA II T4 / DEMKO 02 ATEX 132280U

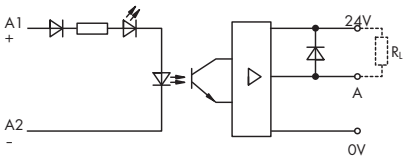
	Optocoupler Input: 24 V DC Output: 24 V DC/100 mA	Optocoupler Input: 24 V DC Output: 24 V DC/3 A Negative switching









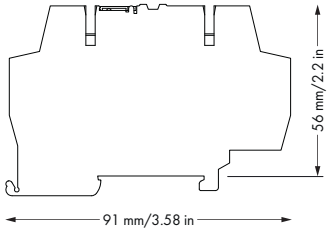


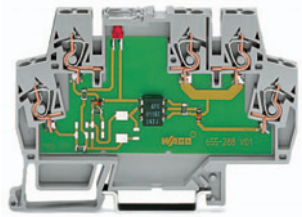
Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	24 V DC	**859-794**	1	24 V DC	**859-720**	1

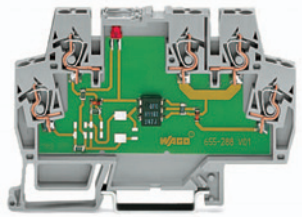
Technical Data	Accessories see page 49	Accessories see page 49
Nominal input voltage (V_N)	24 V DC	24 V DC
Input voltage range		16 V ... 30 V DC
Input voltage range low level	0 V ... 5 V DC	
Input voltage range high level	16 V ... 30 V DC	
Input current range	2 mA ... 5.5 mA DC	2.5 mA ... 5.5 mA DC
Current at nominal voltage	4.2 mA DC	4 mA DC
Output nominal voltage	24 V DC	24 V DC
Output voltage range	9 V ... 60 V DC	10 V ... 30 V DC
Max. continuous current		3 A
Max. continuous current (20°C)	100 mA	
Max. continuous current (70°C)	50 mA	
Peak output current		20 A
Reverse voltage transistor	100 V	55 V
Switch on /switch off time	20 µs / 120 µs	25 µs / 75 µs
Max. operating frequency	1.5 kHz	
Switching frequency		f < 500 Hz
IL < 2 A / IL < 1 A / IL < 500 mA		f < 1 kHz / f < 2 kHz / f < 3 kHz
Leakage current at nominal voltage	25 µA	< 25 µA
Collector / emitter voltage drop Vce sat		≤ 0.5 V
Voltage drop at output	≤ 2 V	
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal operating mode	continuous duty	continuous duty
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5;	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5;
	UL 508; EEx nA II T4 / DEMKO 02 ATEX 132280U	UL 508; EEx nA II T4 / DEMKO 02 ATEX 132280U

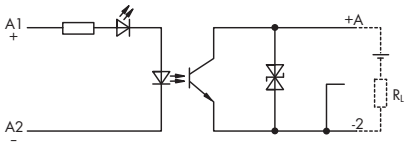
Rail-Mounted Terminal Blocks with Optocoupler

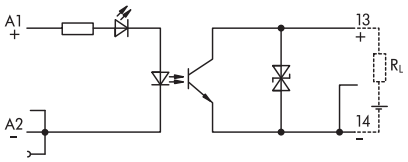
	Optocoupler Input: 24 V DC Output: 24 V DC/3 A	Optocoupler Input: 24 V DC Output: 3V ... 30 V DC/3A 3 A power optocoupler







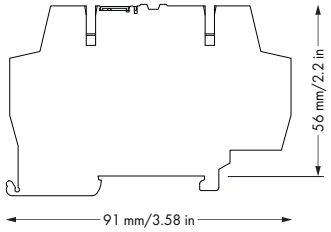


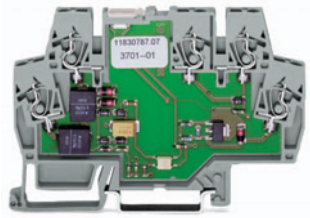


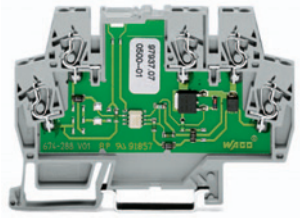
Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	24 V DC	**859-730**	1	24 V DC	**859-740**	1

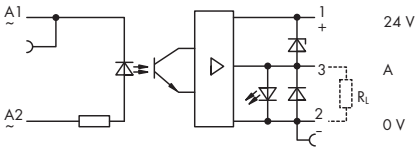
Technical Data	Accessories see page 49	Accessories see page 49
Nominal input voltage (V_N)	24 V DC	24 V DC
Input voltage range low level	0 V ... 5 V DC	0 V ... 9 V DC
Input voltage range high level	15 V ... 27 V DC	19 V ... 27 V DC
Current at nominal voltage	14 mA DC	7 mA DC
Input wiring	Status LED (red)	status indication LED (yellow), reverse voltage protection
Output circuit	2-wire, isolated	2-wire, isolated, overvoltage protection
Output nominal voltage	24 V DC	24 V DC
Output voltage range	3 V ... 30 V DC	3 V ... 30 V DC
Max. continuous current	3 A	3 A
Peak output current	25 A	25 A
Reverse voltage transistor	55 V	
Voltage drop	< 0.4 V	< 0.2 V
Switch on /switch off time	25 µs / 450 µs	25 µs / 450 µs
Switching frequency	f < 350 Hz	f < 350 Hz
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal operating mode	continuous duty	continuous duty
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-5; UL 508; EEx nA II T4 / DEMKO 02 ATEX 132280U	IEC 60664 / IEC 60664A / DIN VDE 0110; degree of pollution 2, overvoltage category III

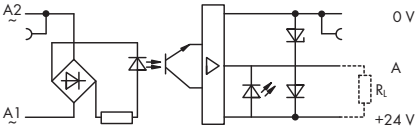
	Optocoupler **Input: 230 V AC** **Output: 24 V DC/0.5 A** **Positive switching increased input frequency up to 100 Hz** **Input voltage up to 270 V AC**	**Optocoupler** **Input: 230 V DC** **Output: 24 V DC/0.5 A** **Negative switching**











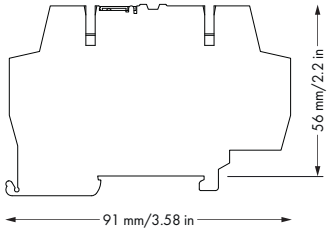
859-772
- Increased input frequency up to 100 Hz
- Input voltage up to 270 V AC

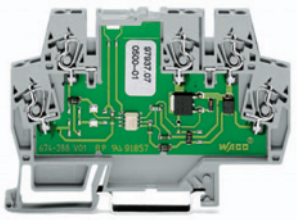
Description	V_N	**Item No.**	**Pack. Unit**	V_N	**Item No.**	**Pack. Unit**
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	230 V AC	**859-772**	1	230 V AC	**859-712**	1

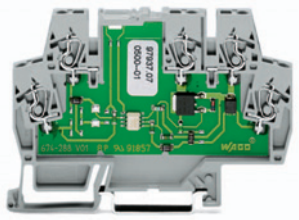
Technical Data	Accessories see page 49	Accessories see page 49
Nominal input voltage (V_N)	230 V AC/ 50 Hz ... 60 Hz	230 V AC
Input voltage range low level	0 V ... 90 V AC	0 V ... 90 V AC
Input voltage range high level	175 V ... 270 V AC	175 V ... 250 V AC
Input current range	0.04 mA ... 0.7 mA	0.4 mA ... 0.7 mA
Current at nominal voltage	0.6 mA	0.6 mA
Input wiring	Varistor 300 V	Varistor 300 V
Output circuit	Protection diode, operation indicator	Protection diode, operation indicator LED (red)
Output nominal voltage	24 V DC	24 V DC
Output voltage range	20 V ... 30 V DC	20 V ... 30 V DC
Max. continuous current	500 mA	500 mA
Reverse voltage transistor	80 V	80 V
Switch on /switch off time	< 30 ms / < 30 ms	< 30 ms / < 30 ms
Leakage current at nominal voltage	10 µA	10 µA
Collector / emitter voltage drop Vce sat	< 1.2 V	< 1.2 V
Max. output (reverse current)	12 mA	11 mA
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal operating mode	continuous duty	continuous duty
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; UL 508;	VDE 0110 / EN 60664; UL 508;
	EEx nA II T4 / DEMKO 02 ATEX 132280U	EEx nA II T4 / DEMKO 02 ATEX 132280U

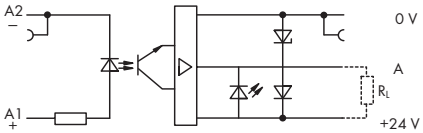
Rail-Mounted Terminal Blocks with Optocoupler

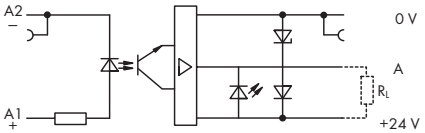
	Optocoupler Input: 5 V DC Output: 24 V DC/0.5A/25 kHz Negative switching	Optocoupler Input: 24 V DC Output: 24 V DC/0.5A/25 kHz Negative switching







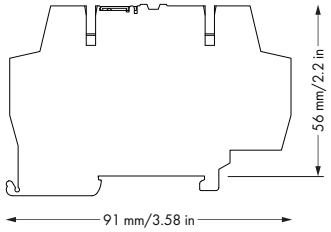


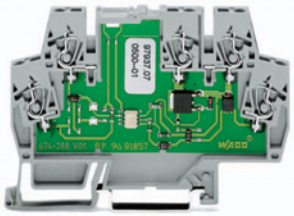


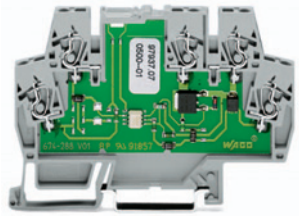
Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	5 V DC	**859-702**	1	24 V DC	**859-708**	1

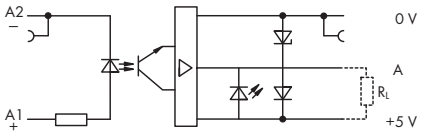
Technical Data	Accessories see page 49	Accessories see page 49
Nominal input voltage (V_N)	5 V DC	24 V DC
Input voltage range low level	0 V ... 1 V DC	0 V ... 5 V DC
Input voltage range high level	4 V ... 6.25 V DC	19 V ... 30 V DC
Input current range	7 mA ... 13 mA	5.7 mA ... 10.2 mA
Current at nominal voltage	9.6 mA DC	7.7 mA DC
Input wiring	Reverse voltage protection	Reverse voltage protection
Output circuit	Protection diode, operation indicator LED (red)	Protection diode, operation indicator LED (red)
Output nominal voltage	24 V DC	24 V DC
Output voltage range	20 V ... 30 V DC	20 V ... 30 V DC
Max. continuous current	500 mA	500 mA
Reverse voltage transistor	80 V	80 V
Switch on /switch off time	< 7 µs / < 15 µs	< 10 µs / < 10 µs
Max. operating frequency	10 kHz	10 kHz
Leakage current at nominal voltage	< 10 µA	< 10 µA
Collector / emitter voltage drop Vce sat	< 1.2 V	< 1.2 V
Max. output (reverse current)	11 mA	11 mA
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal operating mode	continuous duty	continuous duty
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; UL 508;	VDE 0110 / EN 60664; UL 508;
	EEx nA II T4 / DEMKO 02 ATEX 132280U	EEx nA II T4 / DEMKO 02 ATEX 132280U

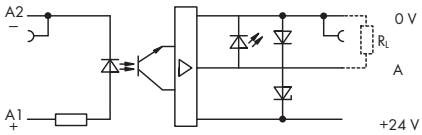
	Optocoupler Input: 24 V DC Output: 5 V DC/0.5A/25 kHz Negative switching	Optocoupler Input: 5 V DC Output: 24 V DC/0.5 A/10 kHz Positive switching









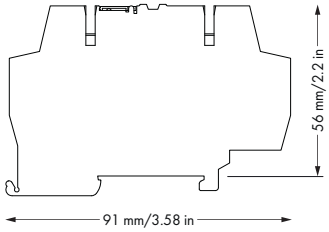


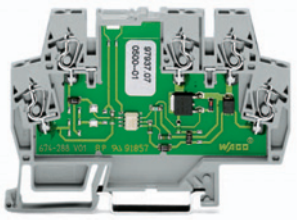
Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	24 V DC	**859-706**	1	5 V DC	**859-752**	1

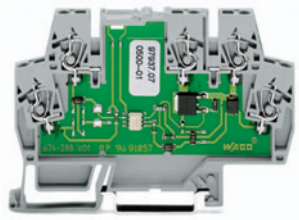
Technical Data	Accessories see page 49	Accessories see page 49
Nominal input voltage (V_N)	24 V DC	5 V DC
Input voltage range low level	0 V ... 5 V DC	0 V ... 1 V DC
Input voltage range high level	18 V ... 30 V DC	4 V ... 6 V DC
Input current range	8 mA ... 14 mA	7 mA ... 13 mA
Current at nominal voltage	11 mA DC	10 mA
Input wiring	Reverse voltage protection	Reverse voltage protection
Output circuit	Protection diode, operation indicator LED (red)	Protection diode, operation indicator LED (red)
Output nominal voltage	5 V DC	24 V DC
Output voltage range	4 V ... 6.25 V DC	20 V ... 30 V DC
Max. continuous current	500 mA	500 mA
Reverse voltage transistor	80 V	80 V
Switch on /switch off time	< 7 µs / < 15 µs	< 15 µs / < 30 µs
Max. operating frequency	10 kHz	10 kHz
Leakage current at nominal voltage	< 10 µA	< 10 µA
Collector / emitter voltage drop Vce sat	< 1.2 V	< 1.2 V
Max. output (reverse current)	7 mA	12.5 mA
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal operating mode	continuous duty	continuous duty
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; UL 508;	VDE 0110 / EN 60664; UL 508;
	EEx nA II T4 / DEMKO 02 ATEX 132280U	EEx nA II T4 / DEMKO 02 ATEX 132280U

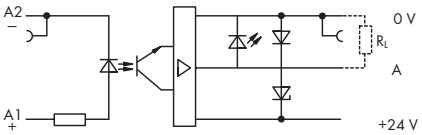
Rail-Mounted Terminal Blocks with Optocoupler

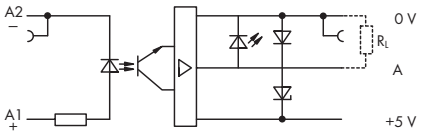
	Optocoupler Input: 24 V DC Output: 24 V DC/0.5 A/10 kHz Positive switching	Optocoupler Input: 24 V DC Output: 5 V DC/0.5 A/10 kHz Positive switching







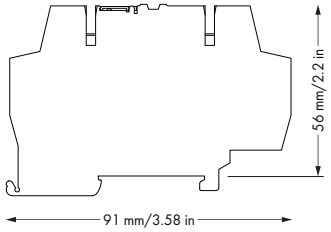


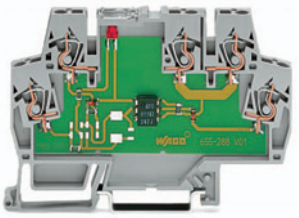


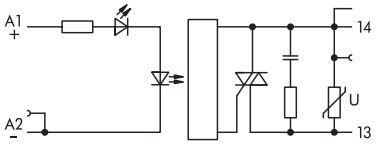
Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	24 V DC	**859-758**	1	24 V DC	**859-756**	1

Technical Data	Accessories see page 49	Accessories see page 49
Nominal input voltage (V_N)	24 V DC	24 V DC
Input voltage range low level	0 V ... 5 V DC	0 V ... 5 V DC
Input voltage range high level	18 V ... 30 V DC	18 V ... 30 V DC
Input current range	5.5 mA ... 10.6 mA	8 mA ... 14.5 mA
Current at nominal voltage	8 mA	11 mA
Input wiring	Reverse voltage protection	Reverse voltage protection
Output circuit	Protection diode, operation indicator LED (red)	Protection diode, operation indicator LED (red)
Output nominal voltage	24 V DC	5 V DC
Output voltage range	20 V ... 30 V DC	4 V ... 6.25 V DC
Max. continuous current	500 mA	500 mA
Reverse voltage transistor	80 V	80 V
Switch on /switch off time	< 15 µs / < 30 µs	< 15 µs / < 30 µs
Max. operating frequency	10 kHz	10 kHz
Leakage current at nominal voltage	< 10 µA	< 10 µA
Collector / emitter voltage drop Vce sat	< 1.2 V	< 1.2 V
Max. output (reverse current)	11 mA	4.5 mA
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal operating mode	continuous duty	continuous duty
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	VDE 0110 / EN 60664; UL 508;	VDE 0110 / EN 60664; UL 508;
	EEx nA II T4 / DEMKO 02 ATEX 132280U	EEx nA II T4 / DEMKO 02 ATEX 132280U

	Optocoupler **Input: 5 V DC** **Output: 230 V AC/0.5 A**	







Description	V_N	Item No.	Pack. Unit	
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	5 V DC	**859-902**	1	

Technical Data

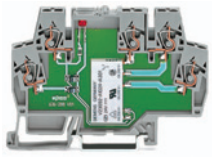
Accessories see page 49

Nominal input voltage (V_N)	5 V DC
Input voltage range low level	0 V ... 1 V DC
Input voltage range high level	4 V ... 6.25 V DC
Input current range	DC 5.6 mA ... 10.3 mA
Current at nominal voltage	7.7 mA DC
Input wiring	Reverse voltage protection
Output circuit	varistor /RC module
Output nominal voltage	230 V AC
Output voltage range	24 V ... 260 V AC (50 Hz ... 60 Hz)
Max. continuous current (20°C)	500 mA
Surge current (t=20 ms)	30 A
Min. load current	50 mA
Peak reverse voltage Triac	600 V
Switch on /switch off time	10 ms / 10 ms (1 half-wave)
Leakage current at nominal voltage	< 1 mA
Voltage drop at output	< 1 V
Test voltage input / output	2.5 kV eff.
Nominal operating mode	continuous duty
Ambient operating temperature	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in
Approvals	IEC 60664 / IEC 60664A / DIN VDE 0110;
	degree of pollution 2,
	overvoltage category III

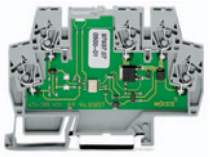
Rail-Mounted Terminal Blocks with Miniature Switching Relays and Optocouplers

with an extended input voltage and operating temperature range V_N -30 % ... +25 % Ambient operating temperature -25 °C ... +70 °C

Rail-mounted terminal blocks with miniature switching relay



Rail-mounted terminal blocks with optocouplers



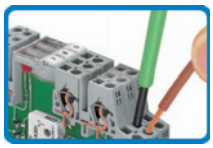
Description	Nominal input voltage (V_N)	Input voltage range	Max. switching capacity	Ambient operating temperature (V_N)	Item No.	Pack. Unit
Relay with 1 changeover contact	115 V DC	V_N -30 % ... +25 %	Contact 5 µm Au	-25 °C ... +70 °C	**859-317**	1
Relay with 1 changeover contact	48 V DC	V_N -30 % ... +25 %	Contact 5 µm Au	-25 °C ... +70 °C	**859-384**	1
Relay with 1 changeover contact	36 V DC	V_N -40 % ... +25 %	Contact 5 µm Au	-25 °C ... +70 °C	**859-386**	1
Relay with 1 changeover contact	24 V DC	V_N -30 % ... +25 %	250 V AC / 3 A	-25 °C ... +70 °C	**859-390**	1
Relay with 1 changeover contact	110 V DC	V_N ± 30 %	250 V AC / 3 A	-25 °C ... +70 °C	**859-391**	1
Relay with 1 changeover contact	24 V DC	V_N -30 % ... +25 %	Contact 5 µm Au	-25 °C ... +70 °C	**859-392**	1
Relay with 1 changeover contact	72 V DC	V_N -30 % ... +25 %	250 V AC / 3 A	-25 °C ... +70 °C	**859-393**	1
Relay with 1 changeover contact	36 V DC	V_N -30 % ... +25 %	250 V AC / 3 A	-25 °C ... +70 °C	**859-394**	1
Relay with 1 changeover contact	48 V DC	V_N ± 40 %	250 V AC / 3 A	-25 °C ... +70 °C	**859-397**	1
Relay with 1 changeover contact	24 V DC	V_N ± 40 %	250 V AC / 3 A	-25 °C ... +70 °C	**859-398**	1
Relay with 1 changeover contact	110 V DC	V_N ± 40 %	250 V AC / 3 A	-25 °C ... +70 °C	**859-399**	1
Optocoupler, 2-wire output	24 V DC	V_N -25 % ... +25 %	3 V ... 60 V DC / 50 mA	-25 °C ... +70 °C	**859-794**	1

For additional technical data see: www.wago.com

Accessories, 859 Series

Operating tool

Wire connection



Marking pen with fibre tip

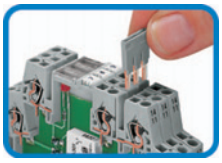
Test pin

End and intermediate plate

Description		Item No.	Pack. Unit
End and intermediate plate; 1 mm / 0.039 in thick, gray		859-525	100 (4x25)
Test pin; Ø 1 mm / 0.039 in; test wire for sold. onto test plug		859-500	1 (1x1)
Marking pen	for permanent marking	210-110	1
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	210-720	1

Push-in type jumper bar

Commoning



Description		Item No.	Pack. Unit
Push-in type jumper bars, light gray, insulated, 18 A	2-way	859-402	200 (8x25)
	3-way	859-403	200 (8x25)
	4-way	859-404	200 (8x25)
	5-way	859-405	200 (8x25)
	6-way	859-406	100 (4x25)
	7-way	859-407	100 (4x25)
	8-way	859-408	100 (4x25)
	9-way	859-409	100 (4x25)
	10-way	859-410	100 (4x25)
Item no. suffix for colored push-in type jumper bars	yellow	... /000-029	
	red	... /000-005	
	blue	... /000-006	

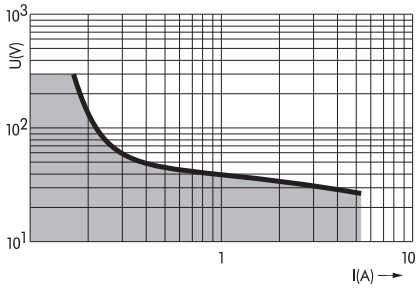
Miniature quick marking card

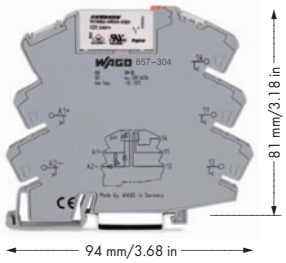
Marking

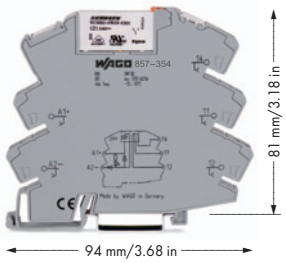
Description		Item No.	Pack. Unit
Miniature WSB Quick marking system	plain	248-501	5 cards
Marking software and printer/plotter see Section 8			
Marking	1 ...10 (10 x)	248-502	5 cards
	11 ... 20 (10x)	248-503	5 cards
	21 ... 30 (10x)	248-504	5 cards
	31 ... 40 (10x)	248-505	5 cards
	41 ... 50 (10 x)	248-506	5 cards
	1 ... 50 (2 x)	248-566	5 cards
	K 1 ... K 10 (10 x)	248-450	5 cards
	K 11 ... K 20 (10 x)	248-451	5 cards
	K 100 (10 x)	248-452	5 cards
	U 1 ... U 10 (10 x)	248-453	5 cards
	U 11 ... U 20 (10 x)	248-454	5 cards
	U 100 (10 x)	248-455	5 cards
10 strips with 10 markers, white with black printing			

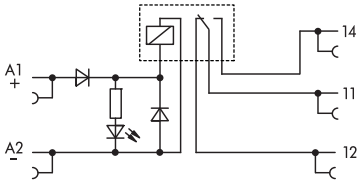
JUMPFLEX® Relay Socket with Miniature Switching Relay

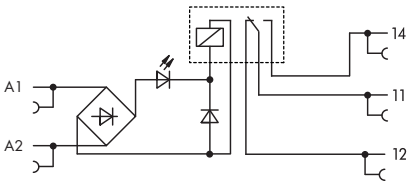
	Relay with 1 changeover contact (1u) for normal switching power Nominal input voltage V_N 12 V, 24 V, 48 V, 60 V, 110 V, 220 V DC	Relay with 1 changeover contact (1u) for normal switching power Nominal input voltage V_N 24 V, 115 V, 230 V AC/DC









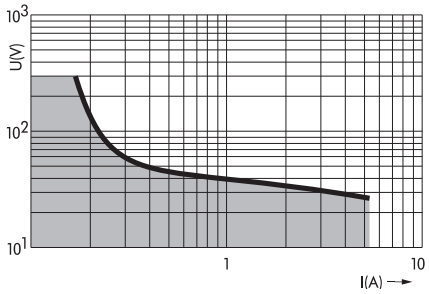


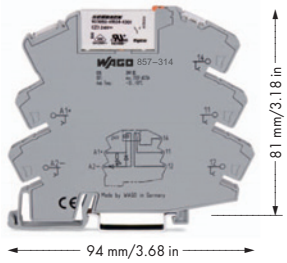
Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

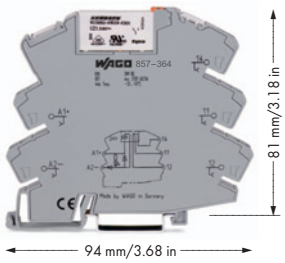
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
***JUMPFLEX*® relay socket with miniature switching relay, for DIN 35 rail**	12 V DC	17 mA	**857-303**	1	24 V AC/DC	8.5 mA	**857-354**	1
	24 V DC	10 mA	**857-304**	1	115 V AC/DC	4 mA	**857-357**	1
	48 V DC	6.5 mA	**857-305**	1	230 V AC/DC	3.5 mA	**857-358**	1
	60 V DC	5.2 mA	**857-306**	1				
	110 V DC	3.5 mA	**857-307**	1				
	220 V DC	3.2 mA	**857-308**	1				

Technical Data	Accessories see page 52 ... 55 + 63	Accessories see page 52 ... 55 + 63
Contact material	$AgSnO_2$	$AgSnO_2$
Input voltage range	V_N -15 % ... +20 %	V_N -15 % ... +20 % (857-354/857-357)
		V_N -15 % ... +10 % (857-358)
Max. switching voltage	250 V AC	250 V AC
Max. continuous current (terminal blocks in a row)	6 A	6 A
Max. Switching power (resistive)	1250 VA AC; DC see load limit curve	1250 VA AC; DC see load limit curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC	≥ 100 mA / 12 V AC/DC
Max. switching rate with / without load	6 min^{-1} / 20 s^{-1}	6 min^{-1} / 20 s^{-1}
Operating power	< 300 mW / < 700 mW	< 300 mVA / < 800 mVA
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	5 ms / 6 ms / 5 ms
Nominal operating mode	continuous duty	continuous duty
Dielectric strength contact-coil	4 kV_{eff}	4 kV_{eff}
Surge capacity open contact	1 kV_{eff}	1 kV_{eff}
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
Mechanical life at max. load (resistance)	5 x 10^4 switching operations	5 x 10^4 switching operations
Ambient operating temperature (V_N)	-25 °C ... +60 °C	-25 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94	6 x 81 x 94
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	solid: 0.08 mm^2 ... 2.5 mm^2 / AWG 28 ... 12	solid: 0.08 mm^2 ... 2.5 mm^2 / AWG 28 ... 12
	fine-stranded: 0.34 mm^2 ... 2.5 mm^2 / AWG 22 ... 12	fine-stranded: 0.34 mm^2 ... 2.5 mm^2 / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-1; cULus	VDE 0110 / EN 60664; VDE 0435 / EN 61810-1; cULus
		(857-358: cULus pending)

	Relay with 1 changeover contact (1u) (gold contacts) for normal switching power Nominal input voltage V_N 24 V, 110 V, 220 V DC	Relay with 1 changeover contact (1u) (gold contacts) for normal switching power Nominal input voltage V_N 24 V, 115 V, 230 V AC/DC

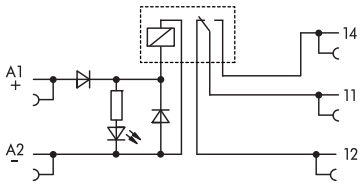


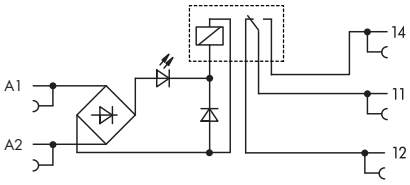




* In order to prevent the gold layer from being damaged these values should not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

The values in brackets are valid if the gold layer is damaged.



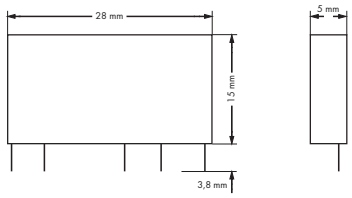


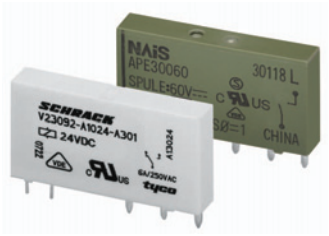
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
***JUMPFLEX*®** **relay socket with miniature switching relay, for DIN 35 rail**	24 V DC	10 mA	**857-314**	1	24 V AC/DC	8.5 mA	**857-364**	1
	110 V DC	3.5 mA	**857-317**	1	115 V AC/DC	4 mA	**857-367**	1
	220 V DC	3.2 mA	**857-318**	1	230 V AC/DC	3.5 mA	**857-368**	1

Technical Data	Accessories see page 52 ... 55 + 63	Accessories see page 52 ... 55 + 63
Contact material	$AgSnO_2$ + 5 µ Au	$AgSnO_2$ + 5 µ Au
Input voltage range	V_N -15 % ... +20 %	V_N -15 % ... +20 % (857-364/857-367)
		V_N -15 % ... +10 % (857-368)
Max. switching voltage	*36 V* DC / (250 V AC/DC)*	*(250 V AC/DC)**
Max. continuous current (terminal blocks in a row)	50 mA* / (6 A)	50 mA* / (6 A)
Max. Switching power (resistive)	*(1250 VA AC; DC see load limit curve)*	*(1250 VA AC; DC see load limit curve)*
Recommended minimum load	≥ 1 V / 1 mA / 50 mW	≥ 1 V / 1 mA / 50 mW
Max. switching rate with / without load	6 min^{-1} / 20 s^{-1}	6 min^{-1} / 20 s^{-1}
Operating power	< 300 mW / < 700 mW	< 300 mVA / < 800 mVA
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	5 ms / 6 ms / 5 ms
Nominal operating mode	continuous duty	continuous duty
Dielectric strength contact-coil	4 kV_{eff}	4 kV_{eff}
Surge capacity open contact	1 kV_{eff}	1 kV_{eff}
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
Mechanical life at max. load (resistance)	5 x 10^4 switching operations	5 x 10^4 switching operations
Ambient operating temperature (V_N)	-25 °C ... +60 °C	-25 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94	6 x 81 x 94
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Approvals	VDE 0110 / EN 60664; VDE 0435 / EN 61810-1; cULus	VDE 0110 / EN 60664; VDE 0435 / EN 61810-1; cULus
		(857-368: cULus pending)

Miniature Switching Relay, Series 857

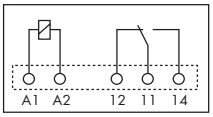
	Pluggable miniature switching relays 1 changeover contact	Pluggable miniature switching relays 1 changeover contact (gold contacts)

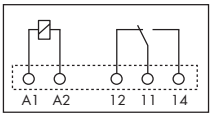




* In order to prevent the gold layer from being damaged these values should not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

The values in brackets are valid if the gold layer is damaged.



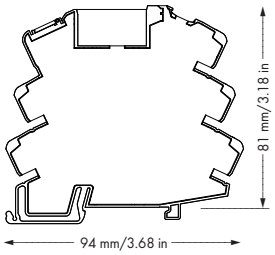


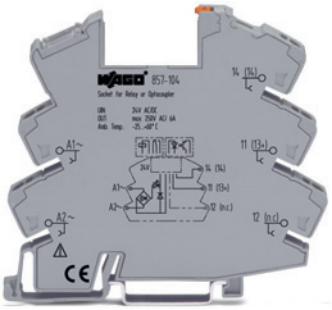
Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Pluggable miniature switching relays	12 V DC	**857-150**	20			
	24 V DC	**857-152**	20	24 V DC	**857-153**	20
The 60 V DC replacement relays must be used with 60 V DC, 110 V DC, 220 V DC and 115 V AC/DC, 230 V AC/DC relay modules.	60 V DC	**857-155**	20	60 V DC	**857-157**	20

Technical Data		
Contact material	$AgSnO_2$	$AgSnO_2$ + 5 µ Au
Max. switching voltage	250 V AC/DC	36 V* DC / (250 V AC/DC)
Max. continuous current (terminal blocks in a row)	6 A	50 mA* / (6 A)
Max. Switching power (resistive)	1250 VA AC	(1250 VA AC)*
Recommended minimum load	≥ 100 mA / 12 V AC/DC	≥ 1 V / 1 mA / 50 mW
Max. switching rate with / without load	6 min^{-1} / 20 s^{-1}	6 min^{-1} / 20 s^{-1}
Rated power consumption	< 220 mW	< 220 mW
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	5 ms / 6 ms / 5 ms
Nominal operating mode	continuous duty	continious duty
Dielectric strength contact-coil	4 kV_{eff}	4 kV_{eff}
Surge capacity open contact	1 kV_{eff}	1 kV_{eff}
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
Mechanical life at max. load (resistance)	5 x 10^4 switching operations	5 x 10^4 switching operations
Ambient operating temperature (V_N)	-25 °C ... +60 °C	-25 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	5 x 15 x 28	5 x 15 x 28
Weight	13,5 g	13,5 g

Sockets for Miniature Switching Relay and Optocoupler

	Sockets for miniature switching relay and optocoupler	





Description	Item No.	Pack. Unit	
JUMPFLEX® **socket for miniature switching relay and optocoupler, 24 V AC/DC for DIN 35 rail**	**857-104**	1	
JUMPFLEX® **socket for miniature switching relay and optocoupler, 110 V AC/DC for DIN 35 rail**	**857-107**	1	
JUMPFLEX® **socket for miniature switching relay and optocoupler, 230 V AC/DC for DIN 35 rail**	**857-108**	1	

Technical Data

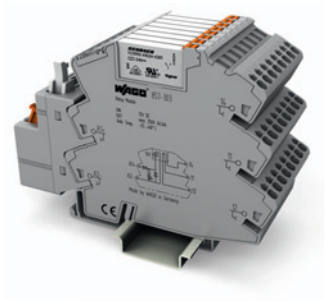
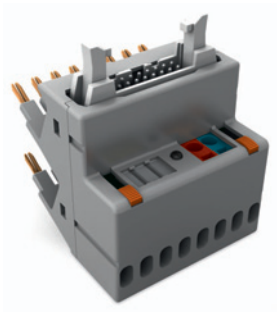
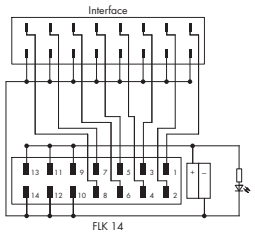
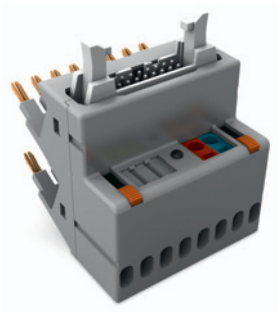
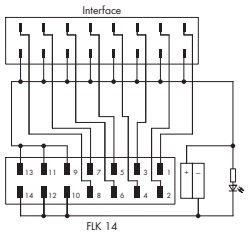
Accessories see page 52 + 62 ... 63

Status indication	LED yellow
Operating temperature	-25 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Assignment Socket / Replacement Relay / Replacement Optocoupler

	Input Voltage	Item No.	Socket	Replacement Relays or Optocouplers
Miniature Switching Relays	12 V DC	857-303	857-103	857-150
	24 V DC	857-304	857-104	857-152
	48 V DC	857-305	857-105	857-154
	60 V DC	857-306	857-106	857-155
	110 V DC	857-307	857-107	857-155
	220 V DC	857-308	857-108	857-155
	24 V AC/DC	857-354	857-104	857-152
	115 V AC/DC	857-357	857-107	857-155
	230 V AC/DC	857-358	857-108	857-155
Miniature Switching Relays (gold contacts)	24 V DC	857-314	857-104	857-153
	110 V DC	857-317	857-107	857-157
	220 V DC	857-318	857-108	857-157
	24 V AC/DC	857-364	857-104	857-153
	115 V AC/DC	857-367	857-107	857-157
	230 V AC/DC	857-368	857-108	857-157
Solid State Relays	24 V DC	857-704	857-104	857-164
	115 V AC/DC	857-707	857-107	857-165
	230 V AC/DC	857-708	857-108	857-165
	24 V DC	857-714	857-104	857-167
	115 V AC/DC	857-717	857-107	857-168
	230 V AC/DC	857-718	857-108	857-168
	24 V DC	857-724	857-104	857-161
	115 V AC/DC	857-727	857-107	857-162
	230 V AC/DC	857-728	857-108	857-162

JUMPFLEX® 8-Channel Adapter for System Wiring

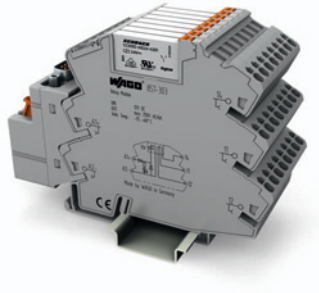
	8-channel adapter with 14-pin ribbon cable connector Input, positive switching	8-channel adapter with 14-pin ribbon cable connector Output, positive switching
		
		
		

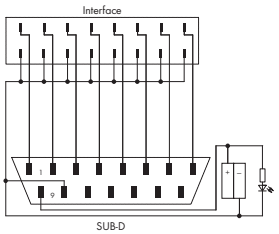
Description	Item No.	Pack. unit	Item No.	Pack. unit
***JUMPFLEX*® 8-channel adapter for system wiring**	**857-981**	1	**857-982**	1

Technical Data

Connection type, signal level	14-pin ribbon cable connector acc. to DIN 41651	14-pin ribbon cable connector acc. to DIN 41651
Performance level	3	3
Contact resistance	≤ 20 mΩ	≤ 20 mΩ
Current carrying capacity	1 A	1 A
Test voltage	500 V / 50 Hz / 1 min.	500 V / 50 Hz / 1 min.
Voltage supply V_N	24 V DC	24 V DC
Supply voltage range	16.8 V ... 31.2 V	16.8 V ... 31.2 V
Max. total current	3 A	3 A
Operational indication	LED, green	LED, green
Connection type, supply	231 Series with CAGE CLAMP®	231 Series with CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Accessories	**WAGO ribbon cable on request**	**WAGO ribbon cable on request**

	8-channel adapter with SUB-D male connector Input	





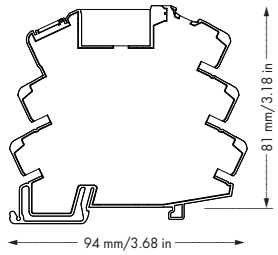
Description	Item No.	Pack. unit	
***JUMPFLEX*® 8-channel adapter for system wiring**	**857-986**	1	

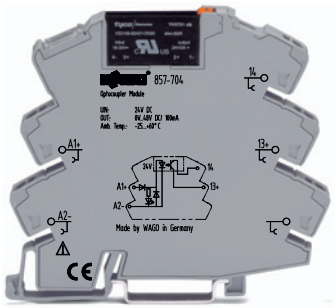
Technical Data

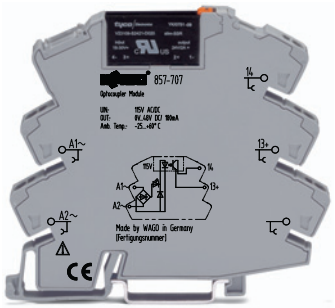
Connection type, signal level	15-pin ribbon cable connector acc. to DIN 41651	
Performance level	2	
Contact resistance	≤ 10 mΩ	
Current carrying capacity	1 A	
Test voltage	500 V / 50 Hz / 1 min.	
Voltage supply V_N	24 V DC	
Supply voltage range	16.8 V ... 31.2 V	
Max. total current	3 A	
Operational indication	LED, green	
Connection type, supply	231 Series with CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	
Stripped lengths	5 ... 6 mm / 0.22 in	
Accessories	**WAGO ribbon cable on request**	

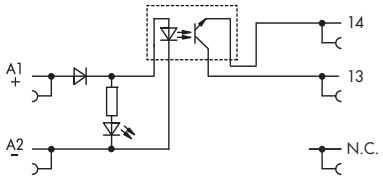
JUMPFLEX® Relay Socket with Solid State Relay

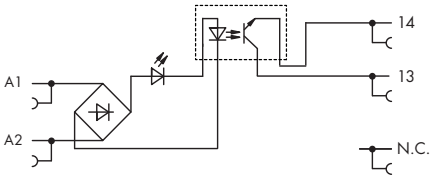
	Solid state relay Input: 24 V DC Output: 0 V ... 48 V DC / 0.1 A	Solid state relay Input: 115 V AC/DC Output: 0 ... 48 V DC / 0.1 A







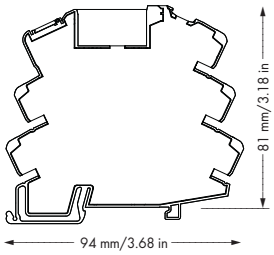


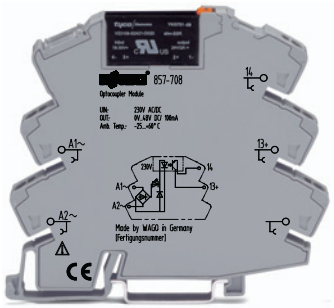


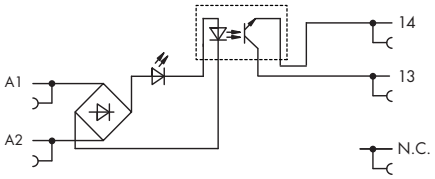
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
***JUMPFLEX*® relay socket with solid state relay, for DIN 35 rail**	**857-704**	1	**857-707**	1

Technical Data	Accessories see pages 62 ... 63	Accessories see pages 62 ... 63
Control circuit:		
Nominal input voltage (V_N)	24 V DC	115 V AC/DC
Input voltage range	U_N -15 % ... +20 %	U_N -15 % ... +20 %
Nominal input current (I_N)	9 mA	3.1 mA
Load circuit:		
Switching voltage	0 V ... 48 V DC	0 V ... 48 V DC
Peak reverse voltage	54 V	54 V
Max. switching current	0.1 A DC	0.1 A DC
Forward voltage at max. switching current	< 1 V DC	< 1 V DC
Ambient operating temperature	-20 °C ... +60 °C	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dielectric strength control/switching circuit	2.5 kV	2.5 kV
Dimensions (mm) W x H x L	6 x 81 x 94	6 x 81 x 94
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in

	Solid state relay **Input: 230 V AC/DC** **Output: 0 V ... 48 V DC / 0.1 A**	







Description	Item No.	Pack. Unit	
***JUMPFLEX®* relay socket with solid state relay, for DIN 35 rail**	**857-708**	1	

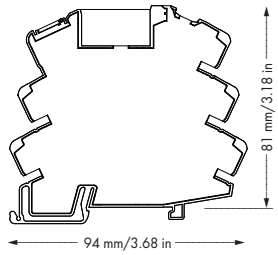
Technical Data

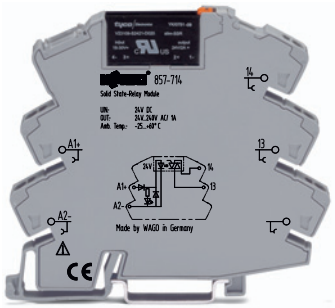
Accessories see pages 62 ... 63

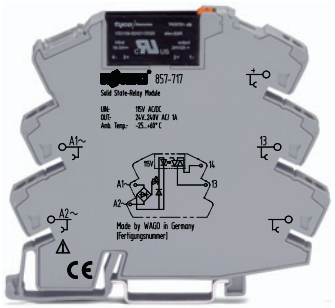
Control circuit:	
Nominal input voltage (V_N)	230 V AC/DC
Input voltage range	U_N -15 % ... +10 %
Nominal input current (I_N)	3.25 mA
Load circuit:	
Switching voltage	0 V ... 48 V DC
Peak reverse voltage	54 V
Max. switching current	0.1 A DC
Forward voltage at max. switching current	< 1 V DC
Ambient operating temperature	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C
Dielectric strength control/switching circuit	2.5 kV
Dimensions (mm) W x H x L	6 x 81 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

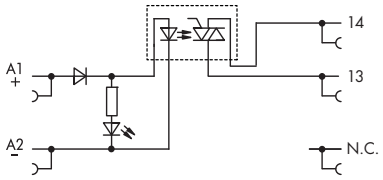
JUMPFLEX® Relay Socket with Solid State Relay

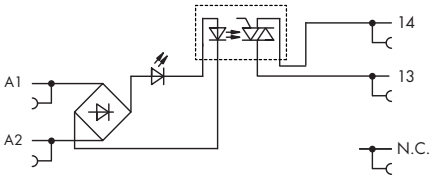
	Solid state relay Input: 24 V DC Output: 24 V ... 240 V AC / 1 A	Solid state relay Input: 115 V AC/DC Output: 24 V ... 240 V AC / 1 A







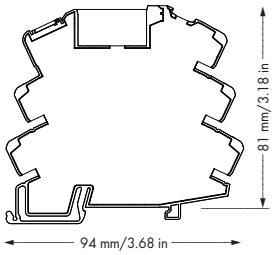


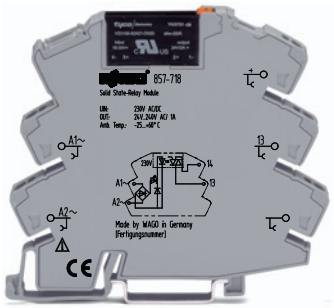


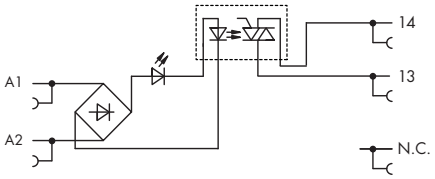
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
***JUMPFLEX*® relay socket with solid state relay, for DIN 35 rail**	**857-714**	1	**857-717**	1

Technical Data	Accessories see pages 62 ... 63	Accessories see pages 62 ... 63
Control circuit:		
Nominal input voltage (V_N)	24 V DC	115 V AC/DC
Input voltage range	U_N -15 % ... +20 %	U_N -15 % ... +20 %
Nominal input current (I_N)	9.2 mA	3 mA
Load circuit:		
Switching voltage	24 V ... 240 V AC	24 V ... 240 V AC
Peak reverse voltage	600 V	600 V
Max. switching current	1 A AC	1 A AC
Forward voltage at max. switching current	< 1 V AC	< 1 V AC
Ambient operating temperature	-20 °C ... +60 °C	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dielectric strength control/switching circuit	2.5 kV	2.5 kV
Dimensions (mm) W x H x L	6 x 81 x 94	6 x 81 x 94
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in

	Solid state relay **Input: 230 V AC/DC** **Output: 24 V ... 240 V AC / 1 A**	







Description	Item No.	Pack. Unit	
***JUMPFLEX®* relay socket with solid state relay, for DIN 35 rail**	**857-718**	1	

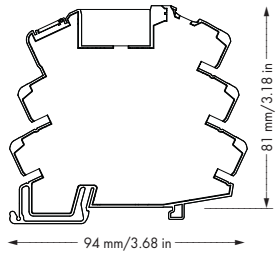
Technical Data

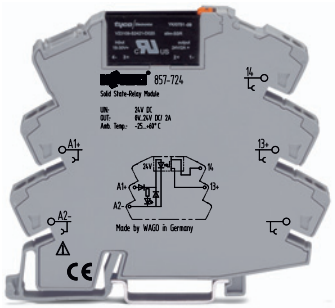
Accessories see pages 62 ... 63

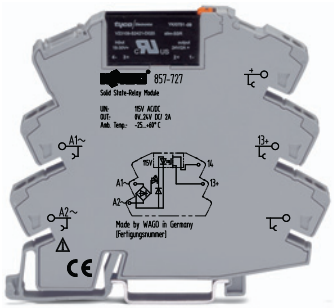
Control circuit:	
Nominal input voltage (V_N)	230 V AC/DC
Input voltage range	U_N -15 % ... +10 %
Nominal input current (I_N)	3.1 mA
Load circuit:	
Switching voltage	24 V ... 240 V AC
Peak reverse voltage	600 V
Max. switching current	1 A AC
Forward voltage at max. switching current	< 1 V AC
Ambient operating temperature	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C
Dielectric strength control/switching circuit	2.5 kV
Dimensions (mm) W x H x L	6 x 81 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

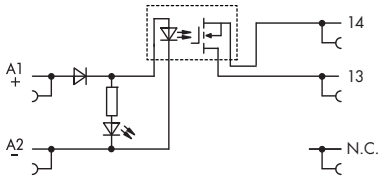
JUMPFLEX® Relay Socket with Solid State Relay

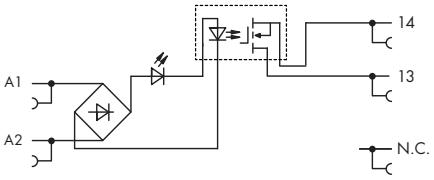
	Solid state relay Input: 24 V DC Output: 0 V ... 24 V DC / 2 A	Solid state relay Input: 115 V AC/DC Output: 0 V ... 24 V DC / 2 A







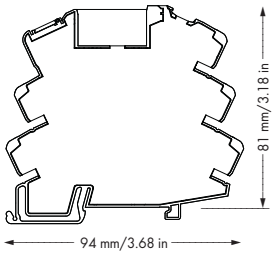


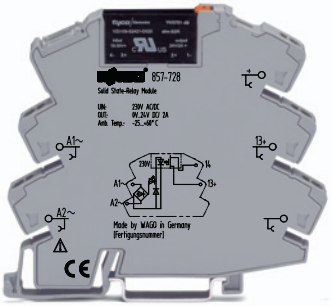


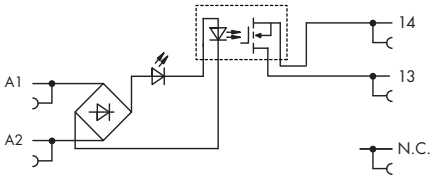
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
***JUMPFLEX*® relay socket with solid state relay, for DIN 35 rail**	**857-724**	1	**857-727**	1

Technical Data	Accessories see pages 62 ... 63	Accessories see pages 62 ... 63
Control circuit:		
Nominal input voltage (V_N)	24 V DC	115 V AC/DC
Input voltage range	U_N -15 % ... +20 %	U_N -15 % ... +20 %
Nominal input current (I_N)	9.2 mA	3 mA
Load circuit:		
Switching voltage	0 V ... 24 V DC	0 V ... 24 V DC
Peak reverse voltage	33 V	33 V
Max. switching current	2 A DC	2 A DC
Forward voltage at max. switching current	< 120 mV DC	< 120 mV DC
Ambient operating temperature	-20 °C ... +60 °C	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dielectric strength control/switching circuit	2.5 kV	2.5 kV
Dimensions (mm) W x H x L	6 x 81 x 94	6 x 81 x 94
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in

	Solid state relay **Input: 230 V AC/DC** **Output: 0 V ... 24 V DC / 2 A**	







Description	Item No.	Pack. Unit	
***JUMPFLEX®* relay socket with solid state relay, for DIN 35 rail**	**857-728**	1	

Technical Data

Accessories see pages 62 ... 63

Control circuit:		
Nominal input voltage (V_N)	230 V AC/DC	
Input voltage range	U_N -15 % ... +10 %	
Nominal input current (I_N)	3 mA	
Load circuit:		
Switching voltage	0 V ... 24 V DC	
Peak reverse voltage	33 V	
Max. switching current	2 A DC	
Forward voltage at max. switching current	< 120 mV DC	
Ambient operating temperature	-20 °C ... +60 °C	
Storage temperature	-40 °C ... +70 °C	
Dielectric strength control/switching circuit	2.5 kV	
Dimensions (mm) W x H x L	6 x 81 x 94	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®S	
Cross sections	solid: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
	fine-stranded: 0.34 mm² ... 2.5 mm² / AWG 22 ... 12	
Stripped lengths	9 ... 10 mm / 0.37 in	

Solid State Relays, 857 Series

	Pluggable replacement optocoupler	Pluggable replacement optocoupler

Description	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Pluggable optocouplers	**857-161**	20	**857-164**	20	**857-167**	20
Technical Data						
Control circuit:						
Nominal input voltage (V_N)	24 V DC		24 V DC		24 V DC	
Input voltage range	18 V ... 30 V DC		16 V ... 30 V DC		18 V ... 30 V DC	
Nominal input current (I_N)	7 mA		7 mA		7 mA	
Load circuit:						
Switching voltage	0 V ... 24 V DC		0 V ... 48 V DC		24 V ... 240 V AC	
Peak reverse voltage	33 V		54 V		600 V	
Max. switching current	2 A DC		100 mA DC		1 A AC	
Forward voltage at max. switching current	< 120 mV DC		< 1 V DC		< 1 V AC	
Dielectric strength control/switching circuit	2.5 kV		2.5 kV		2.5 kV	
General Specifications						
Ambient operating temperature	-20 °C ... +60 °C		-20 °C ... +60 °C		-20 °C ... +60 °C	
Storage temperature	-40 °C ... +70 °C		-40 °C ... +70 °C		-40 °C ... +70 °C	
Dimensions (mm) W x H x L	5 x 15 x 28		5 x 15 x 28		5 x 15 x 28	

Description	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Pluggable optocouplers	**857-162**	20	**857-165**	20	**857-168**	20
Technical Data						
Control circuit:						
Nominal input voltage (V_N)	60 V DC		60 V DC		60 V DC	
Input voltage range	35 V ... 72 V DC		52 V ... 72 V DC		35 V ... 72 V DC	
Nominal input current (I_N)	3 mA		2.8 mA		3.1 mA	
Load circuit:						
Switching voltage	0 V ... 24 V DC		0 V ... 48 V DC		24 V ... 240 V AC	
Peak reverse voltage	33 V		54 V		600 V	
Max. switching current	2 A DC		100 mA DC		1 A AC	
Forward voltage at max. switching current	< 120 mV DC		< 1 V DC		< 1 V AC	
Dielectric strength control/switching circuit	2.5 kV		2.5 kV		2.5 kV	
General Specifications						
Ambient operating temperature	-20 °C ... +60 °C		-20 °C ... +60 °C		-20 °C ... +60 °C	
Storage temperature	-40 °C ... +70 °C		-40 °C ... +70 °C		-40 °C ... +70 °C	
Dimensions (mm) W x H x L	5 x 15 x 28		5 x 15 x 28		5 x 15 x 28	

Accessories, 857 Series

Push-in type jumper bar

Commoning

Description		Item No.	Pack. Unit
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	**859-402**	200 (8x25)
	3-way	**859-403**	200 (8x25)
	4-way	**859-404**	200 (8x25)
	5-way	**859-405**	200 (8x25)
	6-way	**859-406**	100 (4x25)
	7-way	**859-407**	100 (4x25)
	8-way	**859-408**	100 (4x25)
	9-way	**859-409**	100 (4x25)
	10-way	**859-410**	100 (4x25)
Item no. suffix for colored push-in type jumper bars	**yellow**	**... /000-029**	
	red	**... /000-005**	
	blue	**... /000-006**	

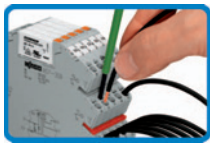
WMB Multi marking system

Marking

Description		Item No.	Pack. Unit
WMB Multi marking system	**plain**	**793-501**	5 cards
Marking software and printer/plotter see Section 8			
Marking	**1 ... 10 (10x)**	**793-502**	5 cards
	11 ... 20 (10x)	**793-503**	5 cards
	21 ... 30 (10x)	**793-504**	5 cards
	31 ... 40 (10x)	**793-505**	5 cards
	41 ... 50 (10x)	**793-506**	5 cards
	1 ... 50 (2x)	**793-566**	5 cards
10 strips with 10 markers, white with black printing			

Operating tool

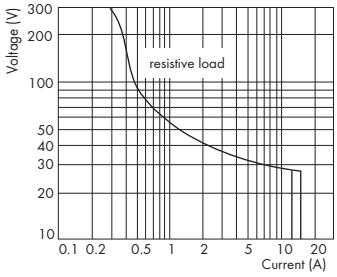
Wire connection



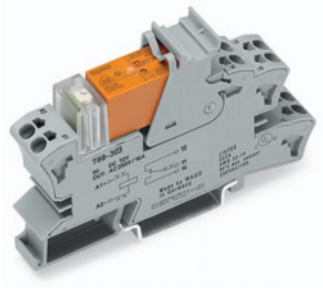
Description		Item No.	Pack. Unit
Operating tool, with partially insulated shaft,	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

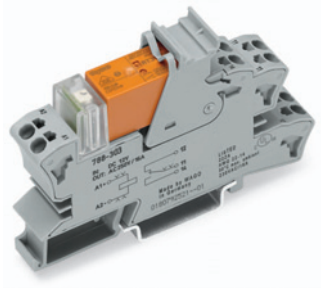
Sockets with Miniature Switching Relay

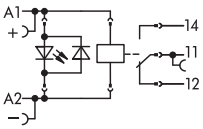
	Relay with 1 changeover contact and status indication (Relay height: 15 mm) Nominal input voltage V_N 12 V, 24 V, 48 V, 60 V, 110 V DC	Relay with 2 changeover contact and status indication (Relay height: 15 mm) Nominal input voltage V_N 12 V, 24 V, 48 V, 60 V, 110 V DC

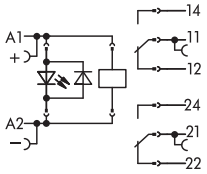


Load limit curve for 788-303 to 788-307, 788-506, 788-507 and 788-508







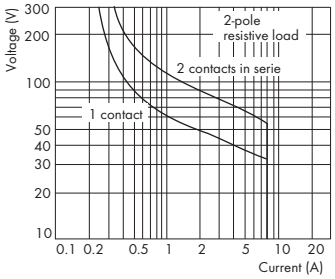


Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

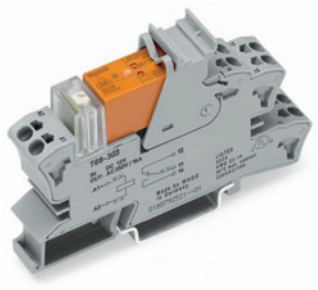
Description	V_N	I_N	Item No.	Pack. unit	V_N	I_N	Item No.	Pack. unit
Relay sockets with pluggable miniature switching relay, for DIN 35 rail	12 V DC	36 mA	**788-303**	1	12 V DC	36 mA	**788-311**	1
	24 V DC	19.1 mA	**788-304**	1	24 V DC	19.1 mA	**788-312**	1
	48 V DC	11 mA	**788-305**	1	48 V DC	11 mA	**788-313**	1
	60 V DC	10.5 mA	**788-306**	1	60 V DC	10.5 mA	**788-314**	1
	110 V DC	6 mA	**788-307**	1	110 V DC	6 mA	**788-315**	1

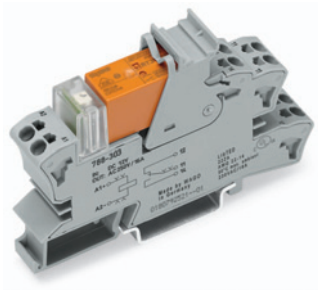
Technical Data	Accessories see pages 74 ... 77 + 80 ... 81	Accessories see pages 74 ... 77 + 80 ... 81
Contact material	AgNi 90/10	AgNi 90/10
Input voltage range	V_N ± 10 %	V_N ± 10 %
Max. switching voltage	250 V AC	250 V AC
Max. continuous current	16 A	2 x 8 A
Max. make current (resistive) at a 10 % duty cycle	4 s 30 A (AC)	4 s 15 A (AC)
Max. Switching power (resistive)	4 kVA AC, DC see load limit curve	2 x 2 kVA AC, DC see load limit curve
Max. switching rate with / without load	6 min^{-1} / 1200 min^{-1}	6 min^{-1} / 1200 min^{-1}
Operating power	400 mW typ.	400 mW typ.
Pull-in/drop-out/bounce time typ.	7 ms / 3 ms / 3 ms	7 ms / 2 ms / 3 ms
Nominal operating mode	continious duty	continious duty
Dielectric strength contact-coil	5 kV	5 kV
Dielectric strength open contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	30 x 10^6 switching operations	30 x 10^6 switching operations
Degree of protection	IP20	IP20
Ambient operating temperature	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 54 x 86	15 x 54 x 86
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	0.34 mm^2 ... 2.5 mm^2 / AWG 22 ... 12	0.34 mm^2 ... 2.5 mm^2 / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; UL 508	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; UL 508

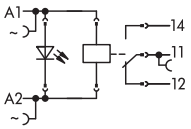
	Relay with 1 changeover contact and status indication (Relay height: 15 mm) Nominal input voltage V_N 24 V, 115 V, 230 V AC	Relay with 2 changeover contact and status indication (Relay height: 15 mm) Nominal input voltage V_N AC 24 V, 115 V, 230 V

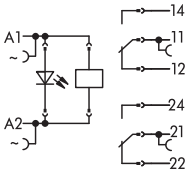


Load limit curve for 788-311 to 788-315, 788-512, 788-515 and 788-516







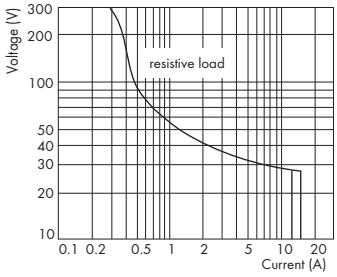


Description	V_N	I_N	Item No.	Pack. unit	V_N	I_N	Item No.	Pack. unit
Relay sockets with pluggable miniature switching relay, for DIN 35 rail	24 V AC	34 mA	**788-506**	1	24 V AC	34 mA	**788-512**	1
	115 V AC	8 mA	**788-507**	1	115 V AC	8 mA	**788-515**	1
	230 V AC	4.3 mA	**788-508**	1	230 V AC	3 mA	**788-516**	1

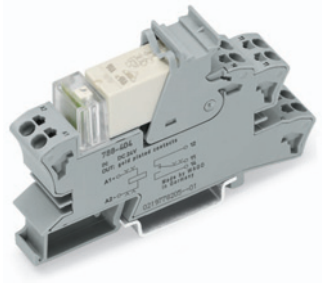
Technical Data	Accessories see pages 74 ... 77 + 80 ... 81	Accessories see pages 74 ... 77 + 80 ... 81
Contact material	AgNi 90/10	AgNi 90/10
Input voltage range	V_N ± 10 %	V_N ± 10 %
Max. switching voltage	250 V AC	250 V AC
Max. continuous current	16 A	2 x 8 A
Max. make current (resistive) at a 10 % duty cycle	4 s 30 A (AC)	4 s 15 A (AC)
Max. Switching power (resistive)	4 kVA AC, DC see load limit curve	2 x 2 kVA AC, DC see load limit curve
Max. switching rate with / without load	6 min^{-1} / 1200 min^{-1}	6 min^{-1} / 1200 min^{-1}
Operating power	0.75 VA	0.75 VA
Pull-in/drop-out/bounce time typ.	7 ms / 3 ms / 3 ms	7 ms / 2 ms / 3 ms
Nominal operating mode	continious duty	continious duty
Dielectric strength contact-coil	5 kV	5 kV
Dielectric strength open contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Mechanical life	10 x 10^6 switching operations	5 x 10^6 switching operations
Degree of protection	IP20	IP20
Ambient operating temperature	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 54 x 86	15 x 54 x 86
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	0.34 mm^2 ... 2.5 mm^2 / AWG 22 ... 12	0.34 mm^2 ... 2.5 mm^2 / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; ㊀ ; UL 508	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; ㊀ ; UL 508

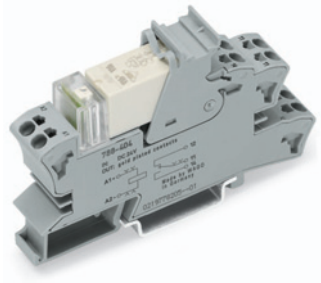
Sockets with Miniature Switching Relay

	Relay with 1 changeover contact with gold contacts and and status indication (Relay height: 15 mm) Nominal input voltage V_N 24 V DC	Relay with 2 changeover contact with gold contacts and and status indication (Relay height: 15 mm) Nominal input voltage V_N 24 V DC

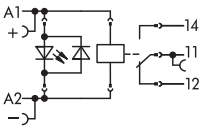


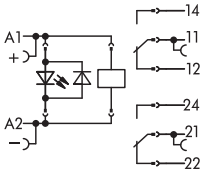
Load limit curve for 788-404, 788-607 and 788-608





* In order to prevent the gold layer from being damaged these values should not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

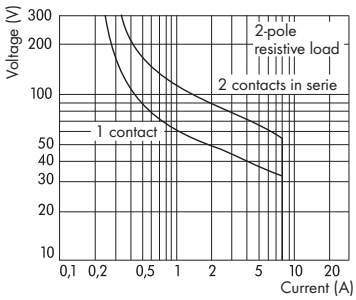




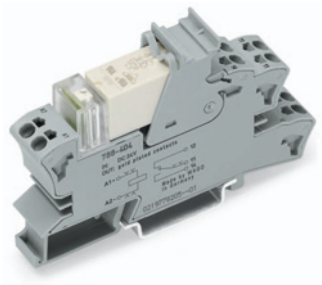
Description	V_N	I_N	Item No.	Pack. unit	V_N	I_N	Item No.	Pack. unit
Relay sockets with pluggable miniature switching relay, for DIN 35 rail	24 V DC	19 mA	**788-404**	1	24 V DC	19 mA	**788-412**	1

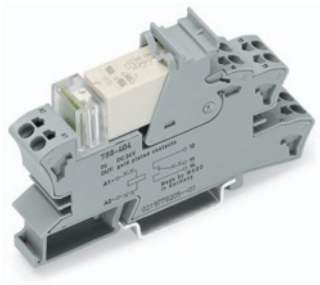
Technical Data	Accessories see pages 74 ... 77 + 80 ... 81	Accessories see pages 74 ... 77 + 80 ... 81
Contact material	AgNi + 5µ AU	AgNi + 5µ AU
Input voltage range	V_N ± 10 %	V_N ± 10 %
Max. switching voltage	250 V AC / 36 V DC*	250 V AC / 36 V DC*
Max. continuous current	50 mA*	2 x 50 mA*
Max. Switching power (resistive)	4 kVA AC, DC see load limit curve	2 x 2 kVA AC, DC see load limit curve
Pull-in/drop-out time typ.	7 ms / 3 ms	7 ms / 3 ms
Nominal operating mode	continious duty	continious duty
Dielectric strength contact-coil	5 kV	5 kV
Dielectric strength open contact	1 kV	1 kV
Dielectric strength contact-contact		2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	3 x 10^7 switching operations	3 x 10^7 switching operations
Degree of protection	IP20	IP20
Ambient operating temperature	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 54 x 86	15 x 54 x 86
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12	0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160,	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160,
	EN 50178; degree of protection II	EN 50178; degree of protection II

	Relay with 1 changeover contact with gold contacts and and status indication (Relay height: 15 mm) Nominal input voltage V_N 115 V, 230 V AC	Relay with 2 changeover contact with gold contacts and and status indication (Relay height: 15 mm) Nominal input voltage V_N 115 V, 230 V AC

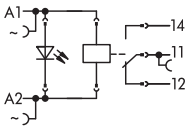


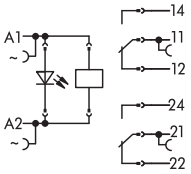
Load limit curve for 788-412, 788-615 and 788-616





* In order to prevent the gold layer from being damaged these values should not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.



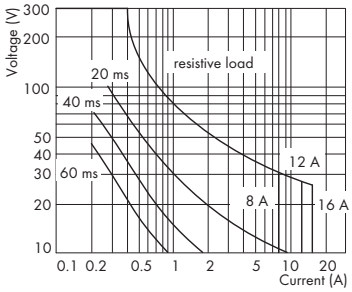


Description	V_N	I_N	Item No.	Pack. unit	V_N	I_N	Item No.	Pack. unit
Relay sockets with pluggable miniature switching relay, for DIN 35 rail	115 V AC	8.2 mA	**788-607**	1	115 V AC	8.2 mA	**788-615**	1
	230 V AC	5 mA	**788-608**	1	230 V AC	5 mA	**788-616**	1

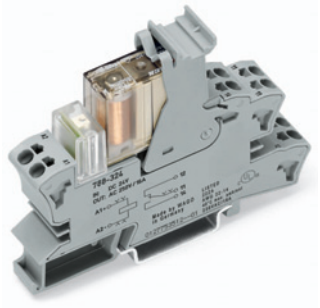
Technical Data	Accessories see pages 74 ... 77 + 80 ... 81	Accessories see pages 74 ... 77 + 80 ... 81
Contact material	AgNi + 5µ AU	AgNi + 5µ AU
Input voltage range	V_N ± 10 %	V_N ± 10 %
Max. switching voltage	250 V AC / 36 V DC*	250 V AC / 36 V DC*
Max. continuous current	50 mA*	2 x 50 mA*
Max. Switching power (resistive)	4 kVA AC, DC see load limit curve	2 x 2 kVA AC, DC see load limit curve
Pull-in/drop-out time typ.	7 ms / 3 ms	7 ms / 3 ms
Nominal operating mode	continious duty	continious duty
Dielectric strength contact-coil	5 kV	5 kV
Dielectric strength open contact	1 kV	1 kV
Dielectric strength contact-contact	2.5 kV	2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	3 x 10^7 switching operations	3 x 10^7 switching operations
Degree of protection	IP20	IP20
Ambient operating temperature	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 54 x 86	15 x 54 x 86
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12	0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160,	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160,
	EN 50178; degree of protection II; GL	EN 50178; degree of protection II; GL

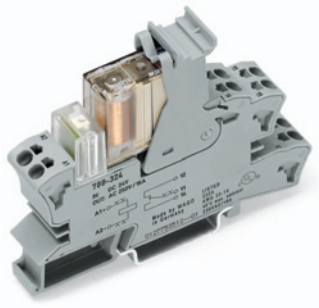
Sockets with Miniature Switching Relay

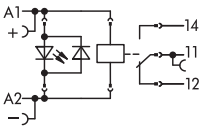
	Relay with 1 changeover contact and status indication (Relay height: 25 mm) Nominal input voltage V_N 24 V DC	Relay with 2 changeover contact and status indication (Relay height: 25 mm) Nominal input voltage V_N 24 V DC

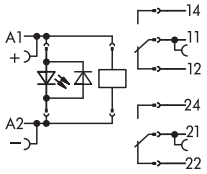


Load limit curve for 788-324 and 788-528





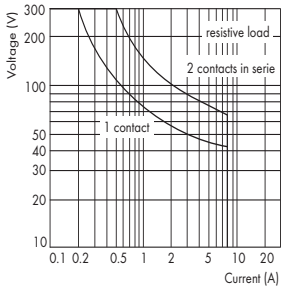




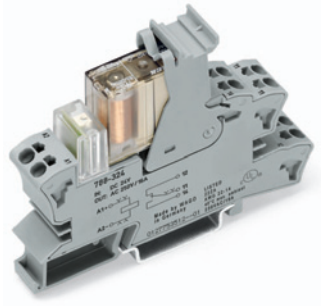
Description	V_N	I_N	Item No.	Pack. unit	V_N	I_N	Item No.	Pack. unit
Relay sockets with pluggable miniature switching relay, for DIN 35 rail	24 V DC	22 mA	**788-324**	1	24 V DC	22 mA	**788-334**	1

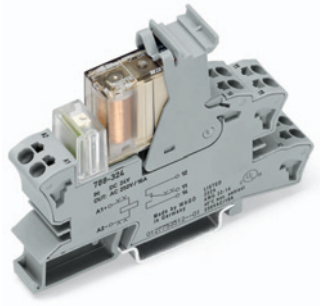
Technical Data	Accessories see pages 74 ... 77 + 80 ... 81	Accessories see pages 74 ... 77 + 80 ... 81
Contact material	AgCdO	AgCdO
Input voltage range	V_N ± 10 %	V_N ± 10 %
Max. switching voltage	250 V AC	250 V AC
Max. continuous current	16 A	2 x 8 A
Max. make current (resistive) at a 10 % duty cycle	4 s 25 A (AC)	4 s 14 A (AC)
Max. Switching power (resistive)	4 kVA AC, DC see load limit curve	2 x 2 kVA AC, DC see load limit curve
Max. switching rate with / without load	10 min^{-1} / 1200 min^{-1}	10 min^{-1} / 1200 min^{-1}
Operating power	500 mW typ.	500 mW typ.
Pull-in/drop-out/bounce time typ.	8 ms / 2 ms / 4 ms	9 ms / 3 ms / 3 ms
Nominal operating mode	continious duty	continious duty
Dielectric strength contact-coil	4 kV	4 kV
Dielectric strength open contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	30 x 10^6 switching operations	20 x 10^6 switching operations
Degree of protection	IP20	IP20
Ambient operating temperature	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 64 x 86	15 x 64 x 86
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	0.34 mm^2 ... 2.5 mm^2 / AWG 22 ... 12	0.34 mm^2 ... 2.5 mm^2 / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; UL 508 (max. 40 °C)	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; UL 508 (max. 40 °C)

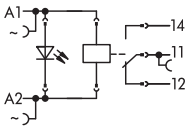
	Relay with 1 changeover contact and status indication (Relay height: 25 mm) Nominal input voltage V_N 230 V AC	Relay with 2 changeover contact and status indication (Relay height: 25 mm) Nominal input voltage V_N 230 V AC

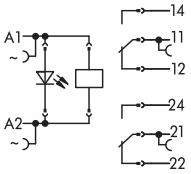


Load limit curve for 788-334 and 788-538







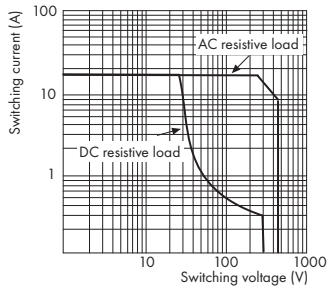


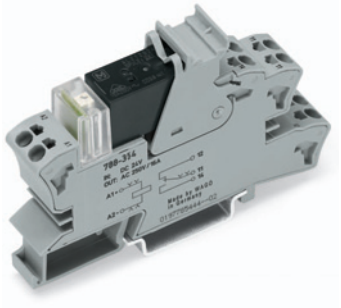
Description	V_N	I_N	Item No.	Pack. unit	V_N	I_N	Item No.	Pack. unit
Relay sockets with pluggable miniature switching relay, for DIN 35 rail	230 V AC	5.6 mA	**788-528**	1	230 V AC	5.6 mA	**788-538**	1

Technical Data	Accessories see pages 74 ... 77 + 80 ... 81	Accessories see pages 74 ... 77 + 80 ... 81
Contact material	AgCdO	AgCdO
Input voltage range	V_N ± 10 %	V_N ± 10 %
Max. switching voltage	250 V AC	250 V AC
Max. continuous current	16 A	2 x 8 A
Max. make current (resistive) at a 10 % duty cycle	4 s 14 A (AC)	4 s 14 A (AC)
Max. Switching power (resistive)	4 kVA AC, DC see load limit curve	2 x 2 kVA AC, DC see load limit curve
Max. switching rate with / without load	10 min^{-1} / 1200 min^{-1}	10 min^{-1} / 1200 min^{-1}
Operating power	500 mW typ.	500 mW typ.
Pull-in/drop-out/bounce time typ.	8 ms / 2 ms / 4 ms	9 ms / 3 ms / 3 ms
Nominal operating mode	continious duty	continious duty
Dielectric strength contact-coil	4 kV	4 kV
Dielectric strength open contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Mechanical life	30 x 10^6 switching operations	20 x 10^6 switching operations
Degree of protection	IP20	IP20
Ambient operating temperature	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 64 x 86	15 x 64 x 86
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	0.34 mm^2 ... 2.5 mm^2 / AWG 22 ... 12	0.34 mm^2 ... 2.5 mm^2 / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; ㊀ ; UL 508 (max. 40 °C)	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; ㊀ ; UL 508 (max. 40 °C)

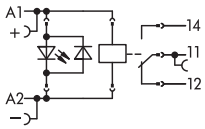
Sockets with Miniature Switching Relay

Relay with 1 changeover contact and status indication (Relay height: 15 mm) Nominal input voltage V_N 24 V DC





Type of load	Capability	Electrical life
Incandescent lamp	2200 W	20.000
Halogen lamp 230 V AC	1400 W	50.000
Halogen trafo	120 VA	20.000
Fluorescent lamp not comp., CB, cos φ 0,4-0,6	20 x 58 W	25.000
Fluorescent lamp comp., Conv. ballast, C parallel	9 x 58 W	25.000
Fluorescent lamp comp., Conv. ballast, Duo-circuit	600 W	20.000
Fluorescent lamp with electronic ballast	12 x 58 W	25.000
Energy saving lamp 15 W	25 pcs	20.000
Energy saving lamp 13 W	30 pcs	20.000
Energy saving lamp 9 W	38 pcs	20.000
Gas discharge lamp	1000 W	20.000
Dulux-Lamp not compensated	800 W	20.000
Dulux-Lamp compensated	500 W	20.000
Max. capacitance at 230 V AC	60 µF	min. 5.000



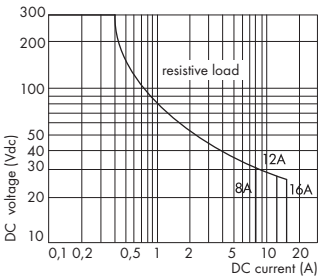
Description	V_N	I_N	Item No.	Pack. unit	
Relay sockets with pluggable miniature switching relay, for DIN 35 rail	24 V DC	19 mA	**788-354**	1	

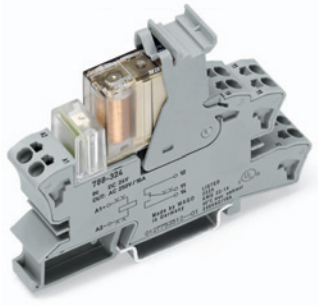
Technical Data

Accessories see pages 74 ... 77 + 80 ... 81

Contact material	Ag alloy
Input voltage range	U_N -15 % ... +20 %
Max. switching voltage	250 V AC
Max. continuous current	16 A
Max. make current (resistive) at a 10 % duty cycle	(50 ms) 120 A at 230 V AC
Recommended minimum load	> 100 mA / 12 V AC/DC
Max. Switching power (resistive)	4 kVA AC, DC see load limit curve
Operating power	400 mW
Pull-in/drop-out/bounce time typ.	15 ms / 5 ms / -
Nominal operating mode	continious duty
Dielectric strength contact-coil	5 kV
Dielectric strength open contact	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3
IEC 60664-1	
Mechanical life	10 x 10^6 switching operations
Mechanical life at max. load (resistance)	min. 100.000 switching operations
Service life at lamp load	see table lamp loads
Degree of protection	IP20
Type of relay	ALZ
Ambient operating temperature	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 54 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; UL 508

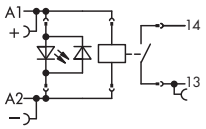
Relay with 1 make contact
and status indication
(Relay height: 25 mm)
Nominal input voltage V_N 24 V DC





Contact life at different lamp loads

Load	Switching operations
12 A, 250 V AC, cos φ = 1	3×10^5
TV 8 acc. to UL 508	25×10^3
2500 W, 230 V AC Halogen lamp	$> 10^4$
1000 W, 250 V AC Incandesent lamp	2.3×10^5
3000 W, 250 V AC Incandesent lamp	3.6×10^4
1500 VA, Fluorescent lamp 163 µF	10^4



Description	V_N	I_N	Item No.	Pack. unit	
Relay sockets with pluggable miniature switching relay, for DIN 35 rail	24 V DC	21.8 mA	**788-355**	1	

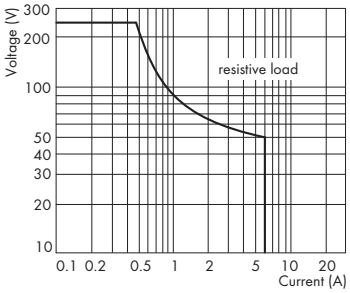
Technical Data

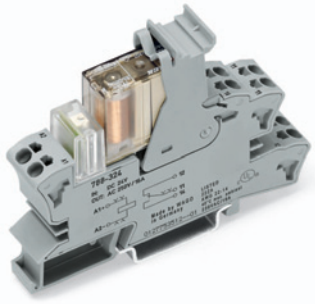
Accessories see pages 74 ... 77 + 80 ... 81

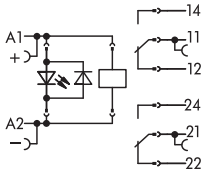
Contact material	$AgSnO_2$
Input voltage range	U_N -15 % ... +20 %
Max. switching voltage	250 V AC
Max. continuous current	16 A
Max. make current (resistive) at a 10 % duty cycle	4 s 25 A (AC)
Peak inrush current	20 ms / 120 A
Recommended minimum load	> 100 mA / 12 V AC/DC
Max. Switching power (resistive)	4 kVA AC, DC see load limit curve
Operating power	500 mW
Pull-in/drop-out/bounce time typ.	8 ms / 2 ms / 2 ms
Nominal operating mode	continious duty
Dielectric strength contact-coil	4 kV
Dielectric strength open contact	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3
IEC 60664-1	
Mechanical life	30×10^6 switching operations
Service life at lamp load	see table lamp loads
Degree of protection	IP20
Type of relay	RP3SL
Ambient operating temperature	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 64 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; UL 508

Sockets with Miniature Switching Relay

Safety relay SR2M (2 changeover contacts) with forced guided contacts and status indication
(Relay height: 25 mm)
Nominal input voltage V_N 24 V DC







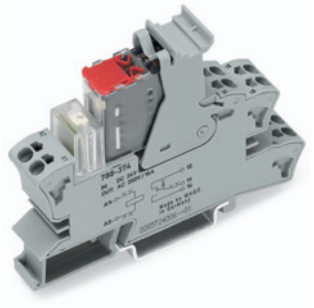
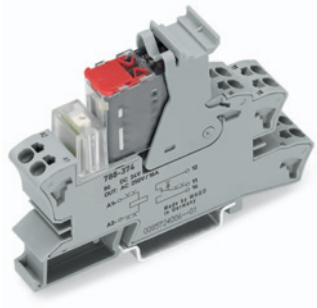
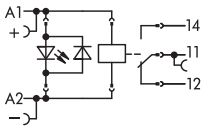
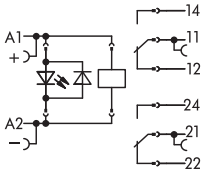
In accordance with EN 50205, it is only permitted to use 1 make contact / 1 break contact for safety circuits (11-14 and 22-21 or 12-11 and 21-24)

Description	V_N	I_N	Item No.	Pack. unit
Relay sockets with pluggable miniature switching relay, for DIN 35 rail	24 V DC	31 mA	**788-384**	1

Technical Data

Accessories see pages 74 ... 77 + 80 ... 81

Contact material	AgNi
Input voltage range	V_N ± 10 %
Max. switching voltage	250 V AC
Max. continuous current	6 A
Max. make current (resistive) at a 10 % duty cycle	4 s 14 A (AC)
Recommended minimum load	> 50 mW
Max. Switching power (resistive)	AC 1500 VA; DC see load limit curve
Max. switching rate with / without load	6 min^{-1} / 300 min^{-1}
Operating power	700 mW
Pull-in/drop-out time typ.	10 ms / 4 ms
Nominal operating mode	continious duty
Dielectric strength contact-coil	4 kV
Dielectric strength open contact	1.5 kV
Dielectric strength contact-contact	3 kV
Clearance and creepage distance contact / coil	8 mm
Adjacent contacts	5.5 mm
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3
Mechanical life	10 x 10^6 switching operations
Degree of protection	IP20
Ambient operating temperature	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 64 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in
Approvals	EN 50205; UL 508

	Relay with 1 changeover contact manual operation and status indication (Relay height: 25 mm) Nominal input voltage V_N 24 V DC	Relay with 2 changeover contact manual operation and status indication (Relay height: 25 mm) Nominal input voltage V_N 24 V DC
		
		

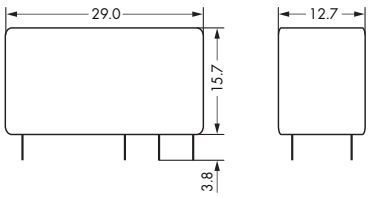
Description	V_N	I_N	Item No.	Pack. unit	V_N	I_N	Item No.	Pack. unit
Relay sockets with pluggable miniature switching relay, for DIN 35 rail	24 V DC	24 mA	**788-374**	1	24 V DC	24 mA	**788-375**	1

Technical Data	Accessories see pages 74 ... 77 + 80 ... 81	Accessories see pages 74 ... 77 + 80 ... 81
Contact material	AgCdO	AgCuNi
Input voltage range	V_N ± 10 %	V_N ± 10 %
Max. switching voltage	250 V AC	250 V AC
Max. continuous current	16 A	8 A
Max. make current (resistive) at a 10 % duty cycle	20 ms 50 A (AC)	20 ms 30 A (AC)
Max. Switching power (resistive)	4 kVA AC	2 kVA AC
Max. switching rate	360 / h	360 / h
Operating power	500 mW typ.	500 mW typ.
Pull-in/drop-out/bounce time typ.	8 ms / 3 ms / AK 0.5 ms, RK 5 ms	8 ms / 3 ms / AK 0.5 ms, RK 5 ms
Nominal operating mode	continious duty	continious duty
Dielectric strength contact-coil	5 kV	5 kV
Dielectric strength open contact	1 kV	1 kV
Dielectric strength contact-contact		2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	50 x 10^6 switching operations	50 x 10^6 switching operations
Degree of protection	IP20	IP20
Ambient operating temperature	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 64 x 86	15 x 64 x 86
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12	0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; UL 508	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II; UL 508

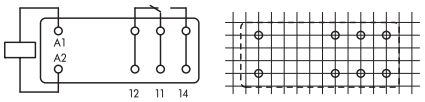
Accessories, 788 Series

	Pluggable miniature switching relays (Relay height: 15 mm) 1 changeover contact	Pluggable miniature switching relays (Relay height: 15 mm) 2 changeover contact

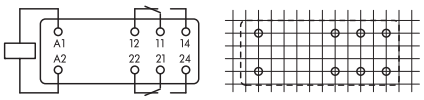
Relay height 15 mm



Pinning 5 mm



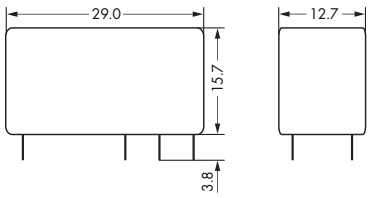
Pinning 5 mm

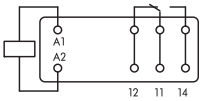


Description	V_N	Item No.	Pack. unit	V_N	Item No.	Pack. unit
Pluggable miniature switching relays	12 V DC	**788-150**	20	12 V DC	**788-152**	20
	24 V DC	**788-154**	20	24 V DC	**788-156**	20
	48 V DC	**788-158**	20	48 V DC	**788-160**	20
	60 V DC	**788-162**	20	60 V DC	**788-164**	20
	110 V DC	**788-166**	20	110 V DC	**788-168**	20
	24 V AC	**788-170**	20	24 V AC	**788-172**	20
	115 V AC	**788-174**	20	115 V AC	**788-176**	20
	230 V AC	**788-178**	20	230 V AC	**788-180**	20
Technical Data						
Contact material		AgNi			AgNi	
Switching current		16 A			2 x 8 A	
Inrush current		30 A			15 A	
Max. switching voltage		250 V AC			250 V AC	
Switching power		4 kVA			2 kVA	
Min. switching current		10 mA			10 mA	
Nominal consumption, typ		400 mW			400 mW	
Pull-in/drop-out time typ.		7 ms / 3 ms			7 ms / 3 ms	
Nominal operating mode		continious duty			continious duty	
Mechanical life AC coil		> 10 x 10^6 switching operations			> 5 x 10^6 switching operations	
Mechanical life DC coil		> 30 x 10^6 switching operations			> 30 x 10^6 switching operations	
Dielectric strength contact-coil		5 kV			5 kV	
Dielectric strength open contact		1 kV			1 kV	
Dielectric strength contact-contact					2.5 kV	
Weight		approx. 13.5 g			approx. 13.3 g	
Degree of protection		IP40			IP40	
Ambient operating temperature AC coil		-40 °C ... +70 °C			-40 °C ... +70 °C	
Ambient operating temperature DC coil		-40 °C ... +85 °C			-40 °C ... +85 °C	
Flammability acc. to UL 94		V0			V0	

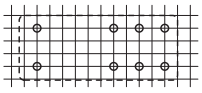
	Pluggable miniature switching relays (Relay height: 15 mm) 1 changeover contact (gold contacts)	Pluggable miniature switching relays (Relay height: 15 mm) 2 changeover contact (gold contacts)

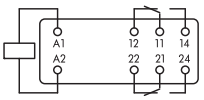
Relay height 15 mm



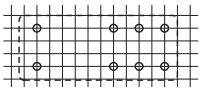


Pinning 5 mm





Pinning 5 mm



Description	V_N	Item No.	Pack. unit	V_N	Item No.	Pack. unit
Pluggable miniature switching relays	24 V DC	**788-155**	20	24 V DC	**788-157**	20
	115 V AC	**788-175**	20	115 V AC	**788-177**	20
	230 V AC	**788-179**	20	230 V AC	**788-181**	20

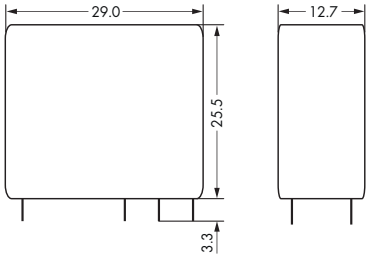
Technical Data

Contact material	AgNi + 5 µm Au	AgNi + 5 µm Au
Switching current	50 mA*	2 x 50 mA*
Max. switching voltage	36 V* DC	36 V* DC
Switching power	min. 50 mW	min. 50 mW
Rated power consumption	200 mW DC	200 mW DC
Rated power consumption	0.422 VA AC	0.422 VA AC
Pull-in/drop-out time typ.	7 ms / 3 ms	7 ms / 3 ms
Nominal operating mode	continious duty	continious duty
Mechanical life AC coil	> 3 x 10^7 switching operations	> 3 x 10^7 switching operations
Mechanical life DC coil	> 3 x 10^7 switching operations	> 3 x 10^7 switching operations
Dielectric strength contact-coil	5 kV	5 kV
Dielectric strength open contact	1 kV	1 kV
Dielectric strength contact-contact		2.5 kV
Weight	approx. 11 g	approx. 15 g
Degree of protection	IP40	IP40
Ambient operating temperature AC coil	-40 °C ... +70 °C	-40 °C ... +70 °C
Ambient operating temperature DC coil	-40 °C ... +85 °C	-40 °C ... +85 °C
Flammability acc. to UL 94	V0	V0

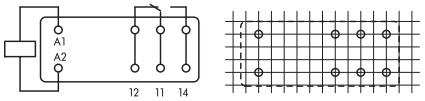
Accessories, 788 Series

	Pluggable miniature switching relays (Relay height: 25 mm) 1 changeover contact	Pluggable miniature switching relays (Relay height: 25 mm) 2 changeover contact

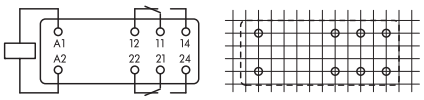
Relay height 25 mm



Pinning 5 mm



Pinning 5 mm



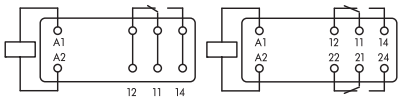
Description	V_N	Item No.	Pack. unit	V_N	Item No.	Pack. unit
Pluggable miniature switching relays	12 V DC	**788-182**	20	12 V DC	**788-183**	20
	24 V DC	**788-184**	20	24 V DC	**788-185**	20
	48 V DC	**788-186**	20	48 V DC	**788-187**	20
	60 V DC	**788-188**	20	60 V DC	**788-189**	20
	110 V DC	**788-190**	20	110 V DC	**788-191**	20
	230 V AC	**788-192**	20	230 V AC	**788-193**	20

Technical Data		
Contact material	AgNi AgSnO (788-192)	AgNi AgSnO (788-193)
Switching current	16 A	2 x 8 A
Max. switching voltage	250 V AC	250 V AC
Switching power	4 kVA	2 kVA
Min. switching current	100 mA	10 mA
Rated power consumption	500 mW DC	500 mW DC
Rated power consumption	1.2 VA AC	1.2 VA AC
Pull-in/drop-out time typ.	9 ms / 3 ms	9 ms / 3 ms
Nominal operating mode	continious duty	continious duty
Mechanical life AC coil	> 10 x 10^6 switching operations	> 10 x 10^6 switching operations
Mechanical life DC coil	> 20 x 10^6 switching operations	> 20 x 10^6 switching operations
Dielectric strength contact-coil	5 kV	5 kV
Dielectric strength open contact	1 kV	1 kV
Dielectric strength contact-contact		2.5 kV
Weight	approx. 18 g	approx. 18 g
Degree of protection	IP40	IP40
Ambient operating temperature AC coil	-40 °C ... +70 °C	-40 °C ... +70 °C
Ambient operating temperature DC coil	-40 °C ... +85 °C	-40 °C ... +85 °C
Flammability acc. to UL 94	V0	V0

Sockets for Miniature Switching Relay

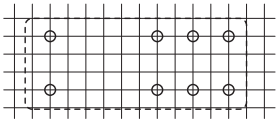
	Sockets for miniature switching relay 1 changeover contact / 2 changeover contact	

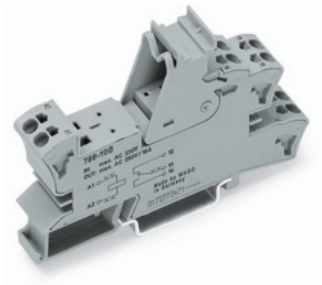
1 changeover contact 2 changeover contacts

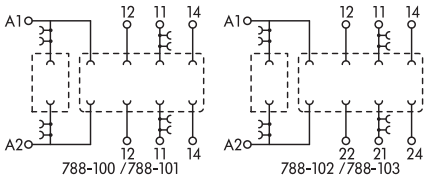


View on pins

Pinning





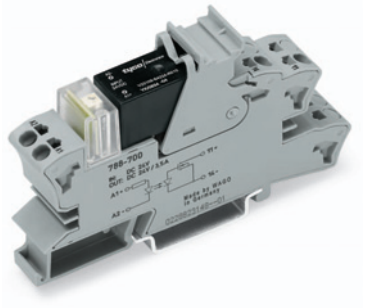


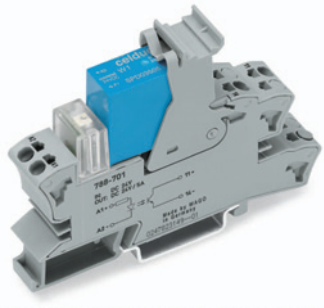
Description	Item No.	Pack. unit	
Socket without relay, for DIN 35 rail			
Relay height 15 mm, 1 changeover contact	**788-100**	1	
Relay height 15 mm, 2 changeover contacts	**788-102**	1	
Relay height 25 mm, 1 changeover contact	**788-101**	1	
Relay height 25 mm, 2 changeover contacts	**788-103**	1	

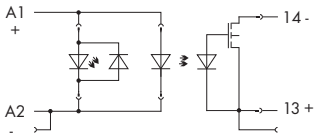
Technical Data		
Max. continuous current	16 A / 2 x 8 A	
Nominal input voltage (V_N)	depending on relay; max. 250 V AC	
Dielectric strength	5 kV (depending on relay)	
Max. switching voltage	250 V AC	
Max. Switching power (resistive)	4000 VA AC	
Nominal operating mode	continious duty	
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	
IEC 60664-1		
Degree of protection	IP20	
Ambient operating temperature	-25 °C ... +70 °C (depending on relay)	
Storage temperature	-40 °C ... +80 °C	
Wire connection	CAGE CLAMP®S	
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12	
Stripped lengths	9 ... 10 mm / 0.37 in	
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II	

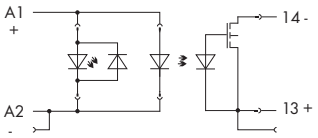
Sockets with Solid State Relay

	Solid state relay Input: 24 V DC Output: 0 V ... 24 V DC / 3.5 A	Solid state relay Input: 24 V DC Output: 0 V ... 24 V DC / 5 A



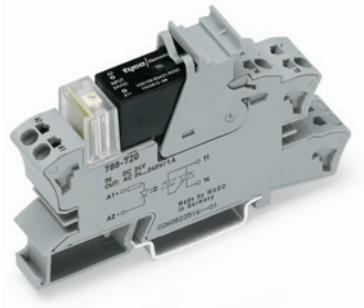


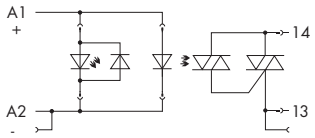




Description	Item No.	Pack. unit	Item No.	Pack. unit
Relay socket with solid state relay, for DIN 35 rail	**788-700**	1	**788-701**	1
Technical Data	Accessories see pages 80 ... 81		Accessories see pages 80 ... 81	
Control circuit:				
Nominal input voltage (V_N)	24 V DC		24 V DC	
Input voltage range	18 V ... 30 V DC		15 V ... 30 V DC	
Control current U_N (20 °C)	7 mA ±10 %		9.3 mA ±10 %	
Release voltage	8 V DC		2.5 V DC	
Control circuit resistance	3.2 kΩ		2.1 kΩ	
Load circuit:				
Load switching voltage range	0 ... 24 V DC		0 ... 30 V DC	
Peak reverse voltage	33 V		36 V	
Max. switching current	3.5 A DC		DC12/DC13 (5 A DC)	
Min. switching current			1 mA DC	
Pull-in time			50 µs	
Drop-out time			600 µs	
Switching frequency (max.)			100 Hz at 5 A	
Forward voltage at max. switching current	< 0.1 V DC		0.3 V DC	
Nominal operating mode	continuous duty		continuous duty	
Dielectric strength control/switching circuit	2.5 kV		2.5 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 2.5 kV / 2		250 V / 2.5 kV / 2	
IEC 60664-1				
Degree of protection	IP 20		IP 20	
Ambient operating temperature	-20 °C ... +60 °C		-40 °C ... +60 °C	
Storage temperature	-40 °C ... +70 °C		-40 °C ... +70 °C	
Dimensions (mm) W x H x L	15 x 53 x 86		15 x 63 x 86	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®S		CAGE CLAMP®S	
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12		0.34 mm² ... 2.5 mm² / AWG 22 ... 12	
Stripped lengths	9 ... 10 mm / 0.37 in		9 ... 10 mm / 0.37 in	
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160,		DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160,	
	EN 50178; degree of protection II		EN 50178; degree of protection II	

	Solid state relay **Input: 24 V DC** **Output: 24 V ... 240 V AC / 1 A**	





Description	Item No.	Pack. unit	
Relay socket with solid state relay, for DIN 35 rail	**788-720**	1	

Technical Data

Accessories see pages 80 ... 81

Control circuit:	
Nominal input voltage (V_N)	24 V DC
Input voltage range	18 V ... 30 V DC
Control current U_N (20 °C)	7 mA ±10 %
Release voltage	4 V DC
Control circuit resistance	3.2 kΩ
Load circuit:	
Max. switching voltage	240 V AC
Load switching voltage range	24 ... 240 V AC
Peak reverse voltage	600 V
Max. switching current	1 A AC
Forward voltage at max. switching current	< 1 V AC
Nominal operating mode	continuous duty
Dielectric strength control/switching circuit	3.75 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 2.5 kV / 2
IEC 60664-1	
Degree of protection	IP 20
Ambient operating temperature	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 53 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in
Approvals	DIN VDE 0140 part 1, DIN EN 61140; DIN VDE 0160, EN 50178; degree of protection II

Accessories, 788 Series

Status indication

Description	Power consumption at V_N	Item No.	Pack. Unit
Status indication 24 V DC (12 V ... 24 V)	2.4 mA	**788-120**	50 (2x25)
Status indication 48 V DC (48 V ... 60 V)	1.9 mA	**788-121**	50 (2x25)
Status indication 110 V DC	1.9 mA	**788-122**	50 (2x25)
Status indication 24 V AC	2.1 mA	**788-123**	50 (2x25)
Status indication 115 V AC	1.7 mA	**788-124**	50 (2x25)
Status indication 230 V AC	1.6 mA	**788-125**	50 (2x25)

Push-in type jumper bar
788-113

Commoning

Push-in type jumper bar

Description			Item No.	Pack. Unit
Push-in type jumper bar, I max. 18 A	**2-way**	(module/module)	**788-113**	200 (8x25)
	3-way		**788-114**	100 (4x25)
	4-way		**788-115**	100 (4x25)
	6-way		**788-116**	100 (4x25)
	8-way		**788-117**	100 (4x25)
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	(intern)	**859-402**	200 (8x25)

WMB Multi marking system

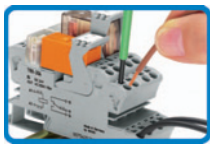
Marking

Group marker carrier

Description		Item No.	Pack. Unit
WMB Multi marking system	**plain**	**793-501**	5 cards
Marking software and printer/plotter see Section 8			
Marking	**1 ... 10 (10x)**	**793-502**	5 cards
	11 ... 20 (10x)	**793-503**	5 cards
	21 ... 30 (10x)	**793-504**	5 cards
	31 ... 40 (10x)	**793-505**	5 cards
	41 ... 50 (10x)	**793-506**	5 cards
	1 ... 50 (2x)	**793-566**	5 cards
10 strips with 10 markers, white with black printing			
Group marker carrier		**209-112**	50 (1x50)

Operating tool

Wire connection



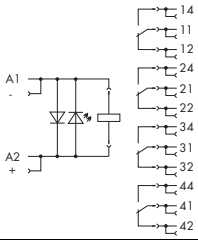
Description		Item No.	Pack. Unit
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

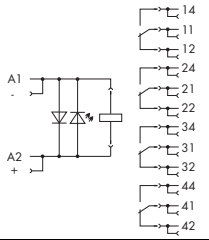
Ferrule

Description	Sleeve for mm² / AWG	Item No.	Pack. Unit
Ferrule, red insulated, 12 mm	2 x 1 mm² / 2 x 18	**216-542**	500

Sockets with Industrial Relay

	Socket with industrial relay Coil voltage: 24 V DC 4 changeover contacts	Socket with industrial relay Coil voltage: 24 V DC 4 changeover contacts (gold contacts)



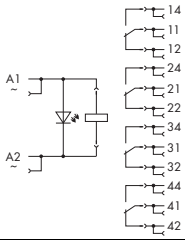


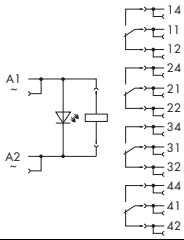
* In order to prevent the gold layer from being damaged, these values shall not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Relay socket with industrial relay, for DIN 35 rail	**858-304**	1	**858-314**	1

Technical Data	Accessories see page 84 ... 86	Accessories see page 84 ... 86
Coil		
Coil voltage	24 V DC	24 V DC
Rated power	0.9 W	0.9 W
Coil current	36.9 mA	36.9 mA
Operating range	0.8 ... 1.1 x V	0.8 ... 1.1 x V
Holding voltage	50 % of V_N	50 % of V_N
Release voltage	0.1 x V	0.1 x V
Contacts		
Contact material	AgCe	AgCe + 5 µm Au
Continuous current	5 A	50 mA*
Inrush current	15 A / 4 s	15 A / 4 s
Max. switching voltage	250 V AC / 30 V DC	30 V DC*
Switching power (max.) AC1 / AC15	1250 VA / 300 VA	1250 VA / 300 VA
1-phase motor load AC3	0.12 kW	0.12 kW
Switching current (max.) DC1	5 A at 30 V DC	5 A at 30 V DC
Min. switching load	12 V / 100 mA	12 V / 100 mA
Switching frequency under load	20 cycles/min.	20 cycles/min.
General Specifications		
Mechanical life	20 x 10^6 switching operations	20 x 10^6 switching operations
Electrical life	1 x 10^5 switching operations	1 x 10^5 switching operations
Pull-in/drop-out/bounce time typ.	25 ms / 25 ms / 4 ms	25 ms / 25 ms / 4 ms
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 2.5 kV / 2	250 V / 2.5 kV / 2
IEC 60664-1		
Dielectric strength contact-coil (1.2/50 µs)	4 kV	4 kV
Dielectric strength contact-coil (AC, 1 min)	1.5 kV	1.5 kV
Dielectric strength open contact	1 kV	1 kV
Dielectric strength contact-contact	1.5 kV	1.5 kV
Ambient operating temperature	-25 °C ... +70 °C (V_L + 50 °C)	-25 °C ... +70 °C (V_L + 50 °C)
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	31 x 73 x 97	31 x 73 x 97
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	2 x 0.34 mm² ... 2 x 1.5 mm² /	2 x 0.34 mm² ... 2 x 1.5 mm² /
	1 x 2.5 mm²/	1 x 2.5 mm²/
	AWG 22 ... 16	AWG 22 ... 16
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in

	Socket with industrial relay Coil voltage: 230 V AC 4 changeover contacts	Socket with industrial relay Coil voltage: 230 V AC 4 changeover contacts (gold contacts)





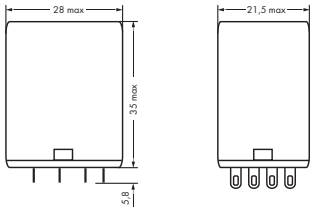
* In order to prevent the gold layer from being damaged, these values shall not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

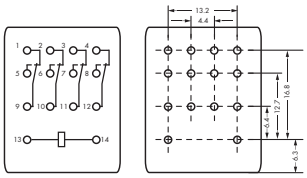
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Relay socket with industrial relay, for DIN 35 rail	**858-508**	1	**858-518**	1

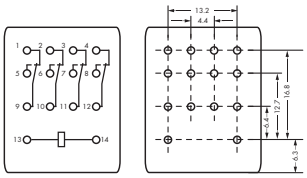
Technical Data	Accessories see page 84 ... 86	Accessories see page 84 ... 86
Coil		
Coil voltage	230 V AC	230 V AC
Rated power	1.2 VA	1.2 VA
Coil current	8.3 mA	8.3 mA
Operating range	0.8 ... 1.1 x V	0.8 ... 1.1 x V
Holding voltage	80 % of V_N	80 % of V_N
Release voltage	0.3 x V	0.3 x V
Contacts		
Contact material	AgCe	AgCe + 5 µm Au
Continuous current	5 A	50 mA*
Inrush current	15 A / 4 s	15 A / 4 s
Max. switching voltage	250 V AC / 30 V DC	30 V DC*
Switching power (max.) AC1 / AC15	1250 VA / 300 VA	1250 VA / 300 VA
1-phase motor load AC3	0.12 kW	0.12 kW
Switching current (max.) DC1	5 A at 30 V DC	5 A at 30 V DC
Min. switching load	12 V / 100 mA	12 V / 100 mA
Switching frequency under load	20 cycles/min.	20 cycles/min.
General Specifications		
Mechanical life	20 x 10^6 switching operations	20 x 10^6 switching operations
Electrical life	1 x 10^5 switching operations	1 x 10^5 switching operations
Pull-in/drop-out/bounce time typ.	25 ms / 25 ms / 4 ms	25 ms / 25 ms / 4 ms
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 2.5 kV / 2	250 V / 2.5 kV / 2
IEC 60664-1		
Dielectric strength contact-coil (1.2/50 µs)	4 kV	4 kV
Dielectric strength contact-coil (AC, 1 min)	1.5 kV	1.5 kV
Dielectric strength open contact	1 kV	1 kV
Dielectric strength contact-contact	1.5 kV	1.5 kV
Ambient operating temperature	-25 °C ... +70 °C (V_L + 50 °C)	-25 °C ... +70 °C (V_L + 50 °C)
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	31 x 73 x 97	31 x 73 x 97
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S	CAGE CLAMP®S
Cross sections	2 x 0.34 mm² ... 2 x 1.5 mm² /	2 x 0.34 mm² ... 2 x 1.5 mm² /
	1 x 2.5 mm²/	1 x 2.5 mm²/
	AWG 22 ... 16	AWG 22 ... 16
Stripped lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in

Accessories, 858 Series

	Pluggable industrial relays, 4 changeover contacts with integrated LED and recovery diode and manual operation	Pluggable industrial relays, 4 changeover contacts with integrated LED and manual operation







* In order to prevent the gold layerfrom being damaged these values should not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the endosure may cause sparkover between the coil and the contact.

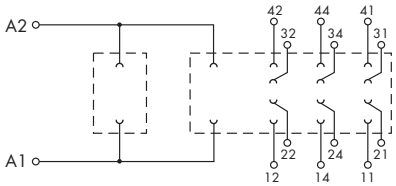
Description	V_N	Item No.	Pack. unit	V_N	Item No.	Pack. unit
Pluggable industrial relay	24 V DC	**858-150**	1	240 V AC	**858-151**	1
	24 V DC*	**858-152**	1	240 V AC*	**858-153**	1

Technical Data

Coil		
Coil voltage	24 V DC	240 V AC
Rated power	0.9 W	1.2 VA
Coil current	36.9 mA	8.3 mA
Operating range	0.8 ... 1.1 x V	0.8 ... 1.1 x V
Holding voltage	50 % of V_N	80 % of V_N
Release voltage	0.1 x V	0.3 x V
Contacts		
Contact material	AgCe, AgCe + 5 µm Au*	AgCe, AgCe + 5 µm Au*
Continuous current	5 A *	5 A *
Inrush current	15 A / 4 s	15 A / 4 s
Max. switching voltage	250 V AC / 30 V DC	250 V AC / 30 V DC
Switching power (max.) AC1 / AC15	1250 VA / 300 VA	1250 VA / 300 VA
1-phase motor load AC3	0.12 kW	0.12 kW
Switching current (max.) DC1	5 A at 30 V DC	5 A at 30 V DC
Min. switching load	12 V / 100 mA	12 V / 100 mA
Switching frequency under load	20 cycles/min.	20 cycles/min.
General Specifications		
Mechanical life	20 x 10^6 switching operations	20 x 10^6 switching operations
Electrical life	1 x 10^5 switching operations	1 x 10^5 switching operations
Pull-in/drop-out/bounce time typ.	25 ms / 25 ms / 4 ms	25 ms / 25 ms / 4 ms
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 2 kV / 2	250 V / 2 kV / 2
IEC 60664-1		
Dielectric strength contact-coil (1.2/50 µs)	4 kV	4 kV
Dielectric strength contact-coil (AC, 1 min)	1.5 kV	1.5 kV
Dielectric strength open contact	1 kV	1 kV
Dielectric strength contact-contact	1.5 kV	1.5 kV
Ambient operating temperature	-25°C ... +70°C	-25°C ... +70°C
Mounting distance in a row	6 mm	6 mm
Weight	approx. 37 g	approx. 37 g

Sockets with Industrial Relay

	Socket for industrial relays 2 and 4 changeover contacts	



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	**Item No.**	**Pack. Unit**
Relay socket for industrial relays, for DIN 35 rail	**858-100**	1

Technical Data

Nominal input voltage (V_N)	depending on Relay; max. 250 V AC
Max. switching voltage	250 V AC
Max. continuous current	4 x 8 A (4 changeover contacts);
	2 x 12 A (2 changeover contacts)
Max. Switching power (resistive)	4000 VA AC
Nominal operating mode	continious duty
Dielectric strength	4 kV (depending on relay)
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3
IEC 60664-1	
Degree of protection	IP 20
Ambient operating temperature	-25 °C ... +70 °C (depending on relay)
Storage temperature	-40 °C ... +80 °C
Dimensions (mm) W x H x L	31 x 39 x 97
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Stripped lengths	9 ... 10 mm / 0.37 in
Cross sections	2 x 0.34 mm² ... 2 x 1.5 mm² /
	1 x 2.5 mm²/
	AWG 22 ... 16
Approvals	IEC60664 / IEC60664A / DIN VDE0110
	Degree of pollution 2
	Overvoltage category 2

Accessories, 858 Series

Holding bracket

Description	Item No.	Pack. unit
Holding bracket for industrial relays (height 33.5 mm ... 35.5 mm)	**858-110**	1

Push-in type jumper bar

Description	Item No.	Pack. unit
Push-in type jumper bar	**858-402**	200

Status indication

Description	Power consumption at V_N	Item No.	Pack. Unit
Status indication 24 V DC (12 V ... 24 V)	2.4 mA	**788-120**	50 (2x25)
Status indication 48 V DC (48 V ... 60 V)	1.9 mA	**788-121**	50 (2x25)
Status indication 110 V DC	1.9 mA	**788-122**	50 (2x25)
Status indication 24 V AC	2.1 mA	**788-123**	50 (2x25)
Status indication 115 V AC	1.7 mA	**788-124**	50 (2x25)
Status indication 230 V AC	1.6 mA	**788-125**	50 (2x25)

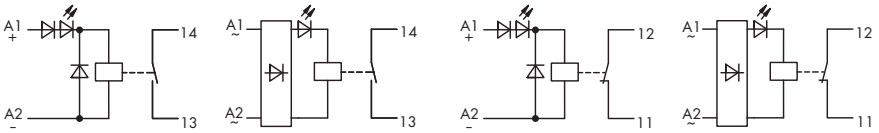
NOTE:
Only required when using relays without integrated operating indicator!

Operating tool

Description		Item No.	Pack. unit
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

Rail Mounted Relay Modules

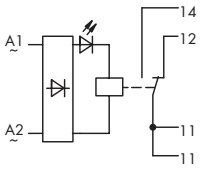
	Relay with 1 make contact Relay direct soldered with universal mounting carrier	Relay with 1 break contact Relay direct soldered with universal mounting carrier

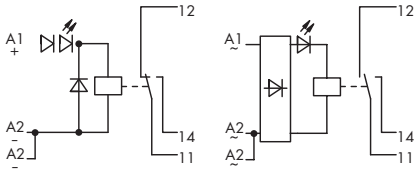


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 V DC	16 mA	**288-364**	1	24 V DC	16 mA	**288-368**	1
	24 V AC/DC	16 mA	**288-564**	1	24 V AC/DC	16 mA	**288-568**	1
	48 V AC/DC	9.1 mA	**288-565**	1				
	115 V AC/DC	4.4 mA	**288-567**	1				

Technical Data		
Contact material	AgNi 0.15 + HV	AgNi 0.15 + HV
Max. switching voltage	250 V DC / 250 V AC	250 V DC / 250 V AC
Max. make / break current	4 s 16 A / 8 A	4 s 16 A / 8 A
Max. continuous current	5 A	5 A
Max. switching power (resistive)	100 W/ 1500 VA	100 W/ 1500 VA
Pull-in / operating power	240 mW / 500 mW	240 mW / 500 mW
Pull-in/drop-out/bounce time typ.	4 ms / 6 ms / 2 ms	4 ms / 6 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	30 x 10^6 switching operations	30 x 10^6 switching operations
Mechanical life at max. load (resistance)	2 x 10^5 switching operations	2 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x W x H	13 x 47 x 85	13 x 47 x 85
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

	Relay with 1 changeover contact Relay direct soldered with connectors	Relay with 1 changeover contact Relay direct soldered with universal mounting carrier





Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 V AC/DC	16 mA	**288-554**	1	24 V DC	21.8 mA	**288-304**	1
					24 V AC/DC	21.8 mA	**288-504**	1
					230 V AC	6.1 mA	**288-508**	1

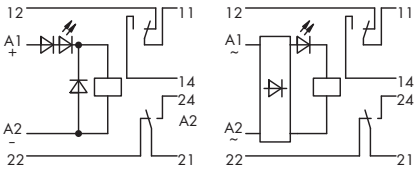
Technical Data

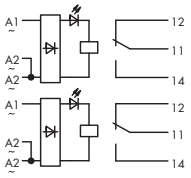
Contact material	AgNi 0.15 + HV	AgNi 0.15 + HV
Max. switching voltage	250 V DC / 250 V AC	300 V DC / 250 V AC
Max. make / break current	4 s 16 A / 8 A	4 s 20 A / 8 A
Max. continuous current	5 A	6 A
Max. switching power (resistive)	100 W/ 1500 VA	192 W/ 1750 VA
Pull-in / operating power	240 mW / 500 mW	261 mW / 533 mW
Pull-in/drop-out/bounce time typ.	4 ms / 6 ms / 2 ms	9 ms / 3 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	30 x 10^6 switching operations	30 x 10^6 switching operations
Mechanical life at max. load (resistance)	2 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x W x H	13 x 52 x 85	20.5 x 48 x 85
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 231 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	8 ... 9 mm / 0.33 in	5 ... 6 mm / 0.22 in

Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Rail Mounted Relay Modules

	Relay with 2 changeover contacts Relay direct soldered with universal mounting carrier	with 2 relays, 1 changeover contact each Relay direct soldered with universal mounting carrier

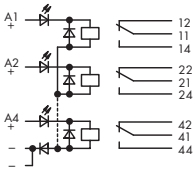




Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 V DC	21.8 mA	**288-312**	1	24 V AC/DC	21.8 mA	**288-758**	1
	24 V AC/DC	21.8 mA	**288-512**	1	115 V AC/DC	4.8 mA	**288-761**	1
					230 V AC	4.1 mA	**288-762**	1

Technical Data		
Contact material	AgNi 0.15 + HV	AgNi 0.15 + HV
Max. switching voltage	250 V DC / 250 V AC	300 V DC / 250 V AC
Max. make / break current	4 s 14 A / 8 A	20 A / 8 A
Max. continuous current	6 A	6 A
Max. switching power (resistive)	100 W/ 1500 VA	192 W/ 1500 VA
Pull-in / operating power	261 mW / 533 mW	261 mW / 533 mW
Pull-in/drop-out/bounce time typ.	8 ms / 3 ms / 2 ms	9 ms / 3 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	2.5 kV	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 2.5 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	30 x 10^6 switching operations	30 x 10^6 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x W x H	22.5 x 48 x 85	38.5 x 48 x 85
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

	with 4 relays, 1 changeover contact each Relay in socket with universal mounting carrier	



Description	V_N	I_N	Item No.	Pack. Unit	
Switching relay module	24 V DC	21.8 mA	**287-774**	1	

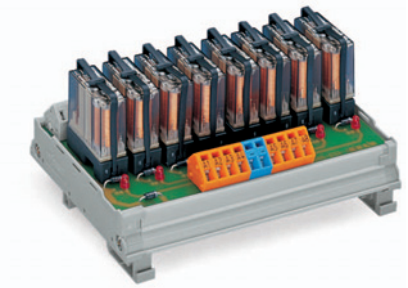
Technical Data

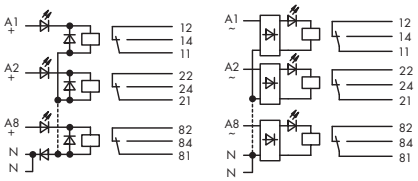
Contact material	AgNi 0.15 + HV	
Max. switching voltage	300 V DC / 250 V AC	
Max. make / break current	20 A / 8 A	
Max. continuous current	6 A	
Max. switching power (resistive)	192 W/ 1500 VA	
Pull-in / operating power	261 mW / 533 mW	
Pull-in/drop-out/bounce time typ.	9 ms / 3 ms / 2 ms	
Dielectric strength contact-coil (AC, 1 min)	4 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	
IEC 60664-1		
Mechanical life	30 x 10^6 switching operations	
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	
Ambient operating temperature	-25 °C ... +40 °C	
Dimensions (mm) L x W x H	63.5 x 58 x 85	
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
Stripped lengths	5 ... 6 mm / 0.22 in	

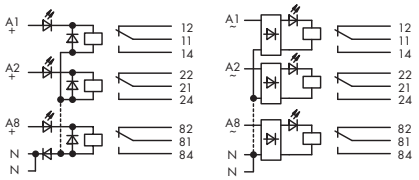
Accessories		
WMB Multi marking system for mounting carrier	see page 323	
Marker strips for mounting carrier	white 709-198 / transparent 709-197	

Rail Mounted Relay Modules

	with 8 relays, 1 changeover contact each Relay direct soldered with universal mounting carrier	with 8 relays, 1 changeover contact each Relay in socket with universal mounting carrier



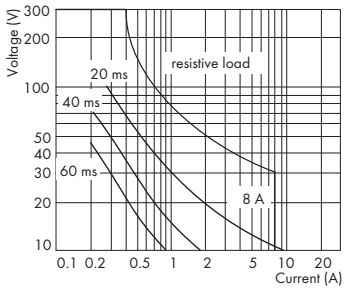


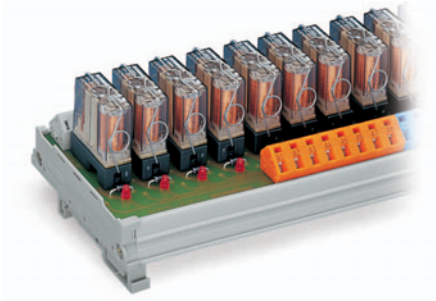


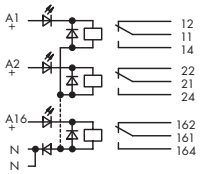
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 V DC	10.2 mA	**287-804**	1	24 V DC	21.8 mA	**287-824**	1
	24 V AC/DC	10.2 mA	**287-814**	1	24 V AC/DC	21.8 mA	**287-834**	1

Technical Data		
Contact material	AgNi 0.15 + HV	AgNi 0.15 + HV
Max. switching voltage	250 V DC / 250 V AC	300 V DC / 250 V AC
Max. make / break current	4 s 30 A / 8 A	20 A / 8 A
Max. continuous current	6 A	6 A
Max. switching power (resistive)	90 W/ 1500 VA	192 W/ 1500 VA
Pull-in / operating power	170 mW / 245 mW	261 mW / 533 mW
Pull-in/drop-out/bounce time typ.	7 ms / 3 ms / 2 ms	9 ms / 3 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 2.5 kV / 3	250 V / 2.5 kV / 3
IEC 60664-1		
Mechanical life	20 x 10^6 switching operations	20 x 10^6 switching operations
Mechanical life at max. load (resistance)	2 x 10^5 switching operations	2 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x W x H	127 x 38 x 85	127 x 58 x 85
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

	with 16 relays, 1 changeover contact each Relay in socket with universal mounting carrier	







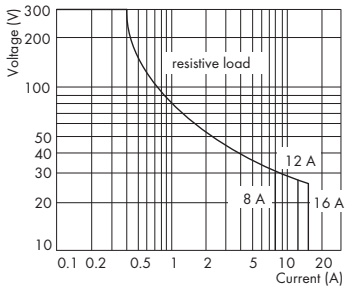
Description	V_N	I_N	Item No.	Pack. Unit	
Switching relay module	12 V DC	43.8 mA	**287-853**	1	
	24 V DC	21.8 mA	**287-854**	1	

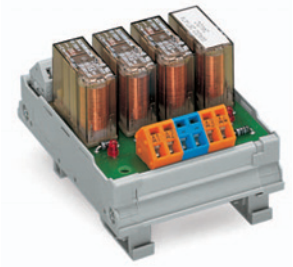
Technical Data

Input voltage range	V_N -15 % ...+20 %	
Contact material	AgNi 0.15	
Max. switching voltage	250 V DC / 250 V AC	
Max. make / break current	4 s 16 A (AC) / 5 A (24 V DC)	
Max. continuous current	6 A	
Max. switching power (resistive)	1500 VA AC; DC see load limit curve	
Recommended minimum load	100 mA / 10 V AC/DC (1 W, 1 VA)	
Pull-in / operating power	533 mW	
Pull-in/drop-out/bounce time typ.	10 ms / 4 ms / 2 ms	
Nominal operating mode	continuous duty	
Dielectric strength contact-coil (AC, 1 min)	4 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 2.5 kV / 3	
IEC 60664-1		
Mechanical life	30 x 10^6 switching operations	
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	
Ambient operating temperature	-25 °C ... +40 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) L x W x H	287 x 58 x 85	
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
Stripped lengths	5 ... 6 mm / 0.22 in	
Approvals	DIN VDE 0140, DIN VDE 0160 and IEC 60255, DIN VDE 0435 (corresponding parts)	
Accessories		
WMB Multi marking system for mounting carrier	see page 323	
Marker strips for mounting carrier	white 709-198 / transparent 709-197	

Rail Mounted Relay Modules

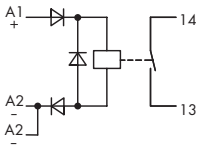
	Relay with 1 make contact Relay direct soldered with universal mounting carrier Designed for switching high inrush current loads i.e. filament lamp loads	with 4 relays, 1 make contact each Relay direct soldered with universal mounting carrier Designed for switching high inrush current loads i.e. filament lamp loads

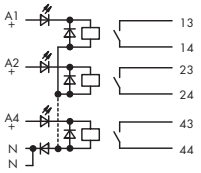




Contact life at lamp load

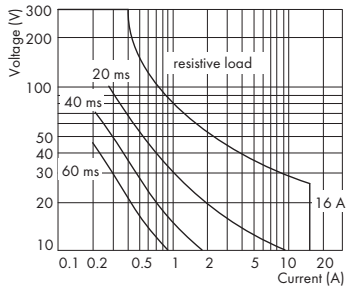
Load	Switch. oper.
12 A, AC 250 V, cos φ = 1	3×10^5
TV 8 acc. UL 508	25×10^3
2500 W, 230 V AC halogen	$> 10^4$
1000 W, 250 V AC incandescent	2.3×10^5
3000 W, 250 V AC incandescent	3.6×10^4
1500 VA, fluorescent 163 µF	10^4

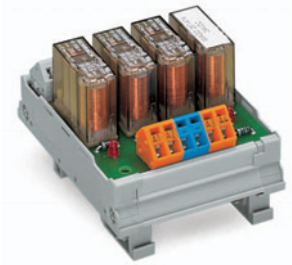


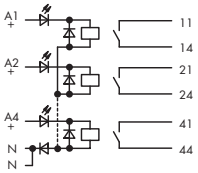


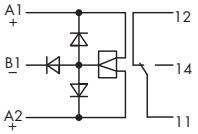
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 V DC	21.8 mA	**288-320**	1	24 V DC	21.8 mA	**287-475**	1
Technical Data								
Input voltage range	V_N -15 % ...+20 %				V_N -15 % ...+20 %			
Contact material	$AgSnO_2$				$AgSnO_2$			
Max. switching voltage	440 V AC				440 V AC			
Max. make / break current	4 s 25 A				4 s 25 A			
Peak inrush current	20 ms/120 A				20 ms/120 A			
Max. continuous current	16 A				16 A			
Max. switching power (resistive)	4000 VA AC; DC see load limit curve				4000 VA AC; DC see load limit curve			
Recommended minimum load	> 100 mA / 12 V AC/DC				> 100 mA / 12 V AC/DC			
Pull-in / operating power	500 mW				500 mW			
Pull-in/drop-out/bounce time typ.	8 ms / 2 ms / 2 ms				8 ms / 2 ms / 2 ms			
Nominal operating mode	continuous duty				continuous duty			
Dielectric strength contact-coil (AC, 1 min)	4 kV				4 kV			
Dielectric strength open contact	1 kV				1 kV			
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3				250 V / 4 kV / 3			
IEC 60664-1								
Mechanical life	30×10^6 switching operations				30×10^6 switching operations			
Service life at lamp load	see lamp load table				see lamp load table			
Ambient operating temperature	-25 °C ... +40 °C				-25 °C ... +40 °C			
Storage temperature	-40 °C ... +70 °C				-40 °C ... +70 °C			
Dimensions (mm) L x W x H	20.5 x 47 x 85				64 x 47 x 85			
incl. mounting carrier and relay								
	Height from upper-edge of DIN 35 rail				Height from upper-edge of DIN 35 rail			
Wire connection	CAGE CLAMP® (WAGO 236 Series)				CAGE CLAMP® (WAGO 236 Series)			
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12				0.08 mm² ... 2.5 mm² / AWG 28 ... 12			
Stripped lengths	5 ... 6 mm / 0.22 in				5 ... 6 mm / 0.22 in			
Approvals	DIN VDE 0140 Part 18.01 for AC 250 V; DIN VDE 0160				DIN VDE 0140 Part 18.01 for AC 250 V; DIN VDE 0160			
	and IEC 60255; DIN VDE 0435 (corresponding parts); UL				and IEC 60255; DIN VDE 0435 (corresponding parts); UL			
	508				508, ㏁			
Accessories								
WMB Multi marking system for mounting carrier	see page 323				see page 323			
Marker strips for mounting carrier	white 709-198 / transparent 709-197				white 709-198 / transparent 709-197			

	with 4 relays, 1 make contact each Relay direct soldered with universal mounting carrier	Bistable relay with 1 changeover contact Relay direct soldered with universal mounting carrier









Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 V DC	21.8 mA	**287-474**	1	24 V DC	41.5 mA	**288-380**	1

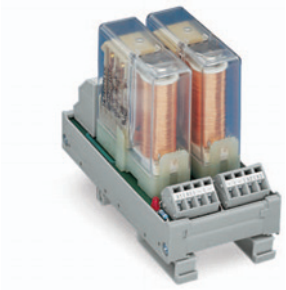
Technical Data

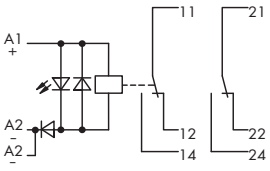
Input voltage range	V_N -15 % ...+20 %	V_N -15 % ...+20 %
Contact material	AgCdO	AgNi 0.15 + HV
Max. switching voltage	250 V DC / 250 V AC	300 V DC / 250 V AC
Max. make / break current	1 s 25 A (AC)	4 s 20 A / 8 A
Max. continuous current	16 A	6 A
Max. switching power (resistive)	4000 VA AC; DC see load limit curve	192 W / 1750 VA
Recommended minimum load	> 100 mA / 12 V AC/DC	
Pull-in / operating power	500 mW	261 mW / 533 mW
Pull-in/drop-out/bounce time typ.	8 ms / 2 ms / 2 ms	9 ms / 3 ms / 2 ms
Nominal operating mode	continuous duty	
Dielectric strength contact-coil (AC, 1 min)	4 kV	4 kV
Dielectric strength open contact	1 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Mechanical life	30 x 10^6 switching operations	30 x 10^6 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) L x W x H	64 x 47 x 85	20.5 x 48 x 85
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	DIN VDE 0160 and IEC 60255; DIN VDE 0435 (corresponding parts), ㊭	

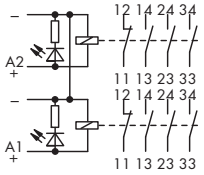
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Rail Mounted Relay Modules

	Relay with 2 changeover contacts with forced operated contacts Relay direct soldered with universal mounting carrier	Switching relay module with 2 pluggable safety relays with 3 make contacts and 1 break contact with universal mounting carrier





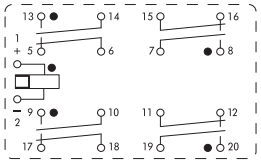


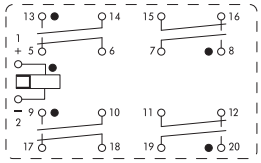
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 V DC	30 mA	**288-437**	1	24 V DC	50 mA	**288-435**	1

Technical Data		
Contact material	AgNi 10 + 5 µm Au	AgCdO + 0.2 µm Au
Contact type	2 changeover contacts	3 make contacts / 1 break contact
Max. switching voltage	380 V	300 V DC / 230 V AC
Max. make / break current	0.3 A	10 A / 7 A
Max. continuous current	5 A	6 A
Max. switching power (resistive)	7 W / 7 VA	120 W / 2000 VA
Recommended minimum load	1 mA / 100 mV AC/DC	300 mA / 12 V
Pull-in / operating power	800 mW	1200 mW
Max. switching rate		5 x / s
Pull-in/drop-out/bounce time typ.	15 ms / 12 ms	23 ms / 20 ms
Nominal operating mode	continuous duty	continuous duty
Dielectric strength contact-coil (AC, 1 min)	4 kV	2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 2.5 kV / 3	
IEC 60664-1		
Test voltage coil - contact	4 kV (1 min)	2500 V eff
Test voltage contact - contact	1 kV (1 min)	2500 V eff
Test voltage contacts - yoke		2500 V eff
Mechanical life	50 x 10^7 switching operations	1 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	
Ambient operating temperature	-40 °C ... +85 °C	-25 °C ... +70 °C
Relay fixing mechanism	soldered	plastic holden with locking latches (by relay manufacturer)
Dimensions (mm) L x W x H	19 x 38 x 85	57 x 90 x 107
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 736 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

If required a breathing hole can be made in the cover. However be aware that the degree of waterproof protection will reduce from IP67 to IP30!	Safety relay type SDS SF 4 with 4 break contacts and 4 make contacts with 1 relay with universal mounting carrier	Safety relay type SDS SF 4 with 4 break contacts and 4 make contacts with 2 relays with universal mounting carrier

If an outer contact (20) should weld then the forced operated inner contact (12) driven by the actuator (d) remains open. The rotating armature (c) remains free to move. The unaffected contact pairs can operate normally, (i. e. their function to make or break remains unaffected).
If an inner contact should weld (12) then the movement of the rotating armature (c) is blocked via the operator (d). Open contacts of all four contact pairs remain open. This arrangement corresponds to conventional, forced contact operation.





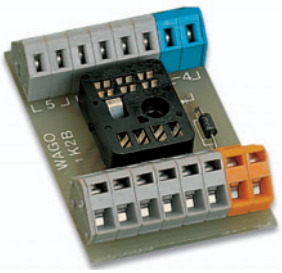
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	5 V DC	100 mA	**288-412**	1	5 V DC	100 mA	**288-422**	1
	12 V DC	41.7 mA	**288-413**	1	12 V DC	41.7 mA	**288-423**	1
	24 V AC/DC	20.9 mA	**288-414**	1	24 V AC/DC	20.9 mA	**288-424**	1
	48 V AC/DC	10.5 mA	**288-415**	1	48 V AC/DC	10.5 mA	**288-425**	1
	60 V AC/DC	8.4 mA	**288-416**	1	60 V AC/DC	8.4 mA	**288-426**	1
	230 V AC	9.4 mA	**288-418**	1	230 V AC	9.4 mA	**288-428**	1

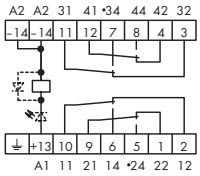
Technical Data

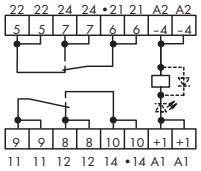
Contact material	Ag Sn O 0.1 µm Au	Ag Sn O 0.1 µm Au
Max. switching voltage	250 V AC	250 V AC
Max. make / break current	20 A / 6 A	20 A / 6 A
Max. continuous current	6 A	6 A
Max. switching power (resistive)	150 W/ 1500 VA	150 W / 1500 VA
Pull-in / operating power	280 mW / 500 mW	280 mW / 500 mW
Pull-in/drop-out/bounce time typ.	18 ms / 6 ms / 4 ms	18 ms / 6 ms / 4 ms
Dielectric strength contact-coil (AC, 1 min)	2.5 kV	2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 2.5 kV / 3	250 V / 2.5 kV / 3
IEC 60664-1		
Mechanical life	1 x 10^7 switching operations	1 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) L x W x H	63.5 x 40 x 85	127 x 40 x 85
incl. mounting carrier and relay		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 256 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Relay Approvals	SEV approvals, no. D 3.31/192; SUVA approvals, no. 36	SEV approvals, no. D 3.31/192; SUVA approvals, no. 36
	62 (delayed operation 5 Amp fuse); TÜV test no. 945/EL	62 (delayed operation 5 Amp fuse); TÜV test no. 945/EL
	178/88; UL recognized, file no. E 43149	178/88; UL recognized, file no. E 43149
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Accessories for Rail Mounted Modules

KAMMERRELAIS® is a registered trademark of the Siemens AG	Socket for European standard industrial relay, size 1 with 4 changeover contacts	Socket for KAMMRELAIS® Size I with 2 changeover contacts





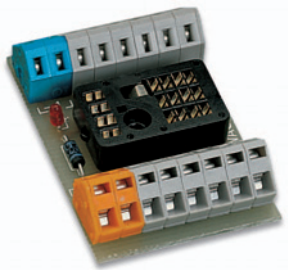


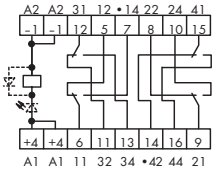
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Relay socket, for AC/DC relays	**288-111**	1	**288-131**	1
Relay socket, for DC relays with free-wheeling diode	**288-112**	1	**288-132**	1
Relay socket, for DC relays with free-wheeling diode and LED	**288-113**	1	**288-133**	1

Technical Data		
Relay enclosure	14-pole	8-pole
Operating voltage (dependent on the relay voltage)	max. 250 V AC/DC	max. 250 V AC/DC
Nominal current	5 A	5 A
Max. coil current of the LED version	25 mA	25 mA
Dimensions (mm) L x W x H incl. mounting carrier and universal mounting feet	42.5 x 32 x 62.5	42.5 x 32 x 62.5
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Examples of suitable relays	Schrack RA4 and ZG4; Siemens V23 100; SDS HC 4; P+B KH/KHA; Aromat HC+HQ; OMRON MY; IDES RM/RY	Schrack ZL2; Siemens V23 154; Siemens V 23 162; SDS K2; P+B R 10; Aromat K

Accessories	Item No.	Pack. Unit	Item No.	Pack. Unit
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1	**288-001**	1
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails (also see page 258)	**288-002**	10	**288-002**	10

KAMMERRELAIS® is a registered trademark of the Siemens AG	Socket for KAMMRELAIS® Size II with 4 changeover contacts	





Description	Item No.	Pack. Unit	
Relay socket, for AC/DC relays	**288-151**	1	
Relay socket, for DC relays with free-wheeling diode	**288-152**	1	
Relay socket, for DC relays with free-wheeling diode and LED	**288-153**	1	

Technical Data

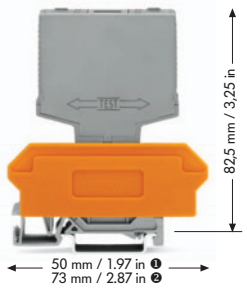
Relay enclosure	14-pole	
Operating voltage (dependent on the relay voltage)	max. 250 V AC/DC	
Nominal current	5 A	
Max. coil current of the LED version	25 mA	
Dimensions (mm) L x W x H incl. mounting carrier and universal mounting feet	42.5 x 32 x 62.5	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.22 in	
Examples of suitable relays	Schrack ZL4; Siemens V23 154; Siemens V 23 162; SDS K4; P+B R 10; Aromat K	

Accessories

	Item No.	Pack. Unit	
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1	
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails (also see page 258)	**288-002**	10	

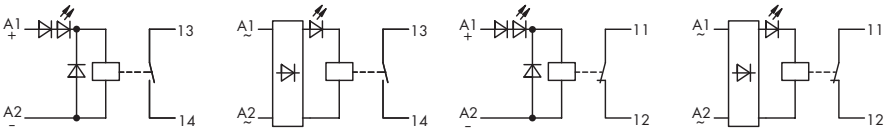
Pluggable Modules - Relays

	Relay with 1 make contact Module width 10 mm / 0.394 in	Relay with 1 break contact Module width 10 mm / 0.394 in



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, 13, 14; Item No.: 209-952
- Marking A1, A2, 11, 12; Item No.: 209-953

5 cards, each containing 10 strips with 10 markers

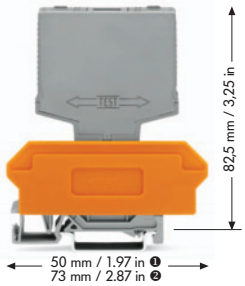


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 V DC	7.4 mA	**286-364**	1	24 V DC	20.4 mA	**286-368**	1
	48 V DC	8.6 mA	**286-365**	1	48 V DC	11.1 mA	**286-369**	1
	60 V DC	7.3 mA	**286-366**	1	60 V DC	10.7 mA	**286-370**	1
	24 V AC	10.2 mA	**286-564**	1	24 V AC	18.5 mA	**286-568**	1
	115 V AC	10.5 mA	**286-566**	1				
	230 V AC	7.3 mA	**286-567**	1				

Technical Data	Accessories see page 138 ... 139	Accessories see page 138 ... 139
Contact material	Ag Cd O + 1 µ Au	Ag Cd O
Max. switching voltage	30 V DC / 250 V AC	250 V DC / 250 V AC
Max. make / break current	5 A / 5 A	8 A / 8 A
Max. continuous current	5 A	5 A
Max. Switching power (resistive)	150 W / 1250 VA	150 W / 1250 VA
Pull-in / operating power	100 mW / 200 mW	300 mW / 450 mW
Pull-in/drop-out/bounce time typ.	6 ms / 6 ms / 2 ms	10 ms / 4 ms / 3 ms
Dielectric strength contact-coil (AC, 1 min)	2.5 kV	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 2.5 kV / 3	250 V / 4 kV / 3
Mechanical life	2 x 10^7 switching operations	1 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

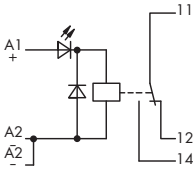
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	12 mm / 0.472 in	**280-618**	1	12 mm / 0.472 in	**280-618**	1
with 4-conductor terminal blocks, orange separator ❷	12 mm / 0.472 in	**280-608**	1	12 mm / 0.472 in	**280-608**	1
with 4-conductor terminal blocks, marker plate ❷	15 mm / 0.591 in	**280-762**	1	15 mm / 0.591 in	**280-762**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

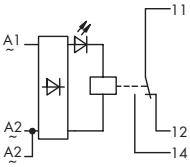
	Relay with 1 changeover contact Module width 15 mm / 0.591 in	Relay with 1 changeover contact Module width 15 mm / 0.591 in



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 11, 12, 14, A1, A2, A2; Item No.: 209-994

5 cards, each containing 10 strips with 10 markers





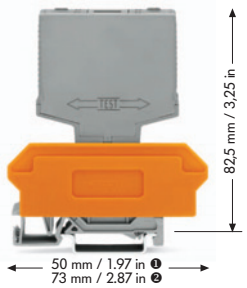
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	5/6 V DC	94.3 mA	**286-302**	1	5/6 V AC/DC	94.3 mA	**286-502**	1
	12 V DC	49.4 mA	**286-303**	1	12 V AC/DC	49.4 mA	**286-503**	1
	24 V DC	19.4 mA	**286-304**	1	24 V AC/DC	21.8 mA	**286-504**	1
	48 V DC	11.4 mA	**286-305**	1	48 V AC/DC	11.4 mA	**286-505**	1
	60 V DC	9.2 mA	**286-306**	1	60 V AC/DC	9.2 mA	**286-506**	1
	115 V DC	4.8 mA	**286-307**	1	115 V AC	4.8 mA	**286-507**	1
	220 V DC	6.1 mA	**286-308**	1	230 V AC	6.1 mA	**286-508**	1

Technical Data	Accessories see page 138 ... 139	Accessories see page 138 ... 139
Contact material	AgNi 0.15 + HV	AgNi 0.15 + HV
Max. switching voltage	300 V DC / 250 V AC	300 V DC / 250 V AC
Max. make / break current	16 A / 8 A (10 % continious duty)	16 A / 8 A (10 % continious duty)
Max. continuous current	7 A	7 A
Max. Switching power (resistive)	192 W / 1750 VA	192 W / 1750 VA
Pull-in / operating power	261 mW / 533 mW	261 mW / 533 mW
Pull-in/drop-out/bounce time typ.	8 ms / 6 ms / 4 ms	8 ms / 6 ms / 4 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Mechanical life	30 x 10^6 switching operations	30 x 10^6 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in	**280-619**	1	17 mm / 0.669 in	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in	**280-609**	1	17 mm / 0.669 in	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in	**280-763**	1	20 mm/ 0.787 in	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

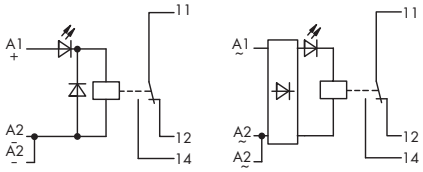
Pluggable Modules - Relays

	Relay with 1 changeover contact **Contact 5 µm hard gold plated** **Module width 15 mm / 0.591 in**	



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 11, 12, 14, A1, A2, A2; Item No.: 209-994

5 cards, each containing 10 strips with 10 markers



Description	V_N	I_N	Item No.	Pack. Unit	
Switching relay module	24 V DC	21.8 mA	**286-394**	1	
	48 V DC	11.4 mA	**286-395**	1	
	24 V AC/DC	21.8 mA	**286-594**	1	

Technical Data

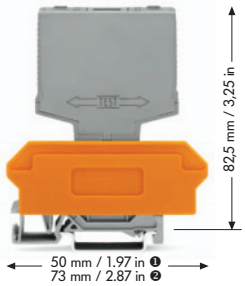
Accessories see page 138 ... 139

Contact material	AgNi + 5µ Au
Max. switching voltage	36 V DC
Max. continuous current	1 A
Max. Switching power (resistive)	25 W / -
Pull-in / operating power	261 mW / 533 mW
Pull-in/drop-out/bounce time typ.	9 ms / 3 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3
IEC 60664-1	
Mechanical life	30 x 10^6 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C

Accessories

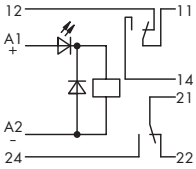
		Item No.	Pack. Unit	Item No.	Pack. Unit
Terminal block for pluggable modules,					
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in	**280-619**	1		
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in	**280-609**	1		
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in	**280-763**	1		
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;					
stripped length 8 ... 9 mm / 0.33 in					

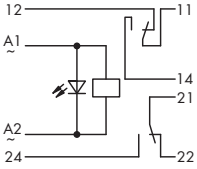
	Relay with 2 changeover contacts Module width 20 mm / 0.787 in	Relay with 2 changeover contacts Module width 20 mm / 0.787 in



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking 12, A1, A2, 24, 11, 14, 21, 22; Item No.: 209-995

5 cards, each containing 10 strips with 10 markers





Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	5/6 V DC	82.8 mA	**286-310**	1	5/6 V AC	174 mA	**286-510**	1
	12 V DC	46.1 mA	**286-311**	1	12 V AC	89 mA	**286-511**	1
	24 V DC	21.8 mA	**286-312**	1	24 V AC	47 mA	**286-512**	1
	48 V DC	10.3 mA	**286-313**	1	48 V AC	23.3 mA	**286-513**	1
	60 V DC	8.8 mA	**286-314**	1	60 V AC	18.1 mA	**286-514**	1
	115 V DC	4.9 mA	**286-315**	1	115 V AC	10.5 mA	**286-515**	1
	220 V DC	5 mA	**286-316**	1	230 V AC	5.5 mA	**286-516**	1

Technical Data

Accessories see page 138 ... 139

Accessories see page 138 ... 139

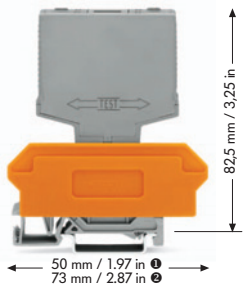
Contact material	Ag Ni 0.15	Ag Ni 0.15
Max. switching voltage	300 V DC / 250 V AC	300 V DC / 250 V AC
Max. make / break current	0.2 s 30 A / 10 A	0.2 s 30 A / 10 A
Max. continuous current	7 A	7 A
Max. Switching power (resistive)	210 W / 1750 VA	210 W / 1750 VA
Pull-in / operating power	600 mW / 1000 mW	0.8 VA / 1 VA
Pull-in/drop-out/bounce time typ.	18 ms / 3 ms / 2 ms	15 ms / 5 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Mechanical life	30 x 10^7 switching operations	30 x 10^7 switching operations
Mechanical life at max. load (resistance)	2.5 x 10^5 switching operations	2.5 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories

		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in						

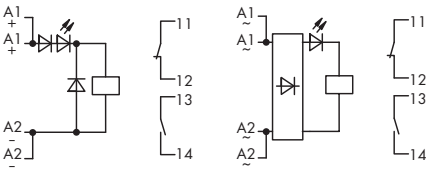
Pluggable Modules - Relays

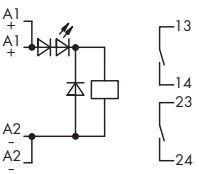
	Relay with 1 break and 1 make contact Module width 20 mm / 0.787 in	Relay with 2 make contacts Module width 20 mm / 0.787 in



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 11, 12, 13, 14, 23, 24; Item No.: 209-693

5 cards, each containing 10 strips with 10 markers



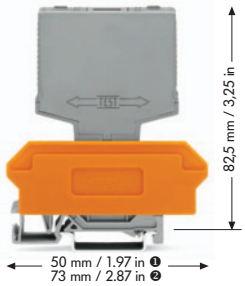


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	5/6 V DC	47.2 mA	**286-318**	1	5/6 V DC	47.2 mA	**286-326**	1
	12 V DC	19.9 mA	**286-319**	1	12 V DC	19.9 mA	**286-327**	1
	24 V DC	7.4 mA	**286-320**	1	24 V DC	7.4 mA	**286-328**	1
	48 V DC	3.9 mA	**286-321**	1	48 V DC	3.9 mA	**286-329**	1
	60 V DC	3.9 mA	**286-322**	1	60 V DC	3.9 mA	**286-330**	1
	220 V DC	3.7 mA	**286-324**	1	220 V DC	3.7 mA	**286-332**	1
	24 V AC	8.3 mA	**286-520**	1				

Technical Data	Accessories see page 138 ... 139	Accessories see page 138 ... 139
Contact material	Ag Sn O_2	Ag Sn O_2
Max. switching voltage	250 V DC / 380 V AC	250 V DC / 380 V AC
Max. make / break current	1 s 15 A / 8 A	1 s 15 A / 8 A
Max. continuous current	6 A	6 A
Max. Switching power (resistive)	150 W / 2000 VA	150 W / 2000 VA
Pull-in / operating power	150 mW / 240 mW	150 mW / 240 mW
Pull-in/drop-out/bounce time typ.	10 ms / 4 ms / 1 ms	10 ms / 4 ms / 1 ms
Dielectric strength contact-coil (AC, 1 min)	3 kV	3 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Mechanical life	5 x 10^7 switching operations	5 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

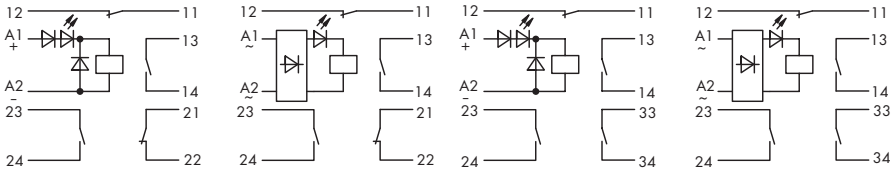
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

	Relay with 2 break contacts and 2 make contacts Module width 25 mm / 0.984 in	Relay with 1 break contact and 3 make contacts Module width 25 mm / 0.984 in



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking 12, A1, A2, 23, 24, 11, 13, 14, 21, 22; Item No.: 209-691
- Marking 12, A1, A2, 23, 24, 11, 13, 14, 33, 34; Item No.: 209-690

5 cards, each containing 10 strips with 10 markers



Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	5/6 V DC	42.3 mA	**286-334**	1	5/6 V DC	42.3 mA	**286-342**	1
	12 V DC	22.2 mA	**286-335**	1	12 V DC	22.2 mA	**286-343**	1
	24 V DC	8.5 mA	**286-336**	1	24 V DC	8.5 mA	**286-344**	1
	48 V DC	5.7 mA	**286-337**	1	48 V DC	5.7 mA	**286-345**	1
	60 V DC	5.7 mA	**286-338**	1	60 V DC	5.7 mA	**286-346**	1
	115 V DC	6.6 mA	**286-339**	1	115 V DC	6.6 mA	**286-347**	1
	24 V AC	11.2 mA	**286-536**	1	24 V AC	11.2 mA	**286-544**	1
	230 V AC	16.2 mA	**286-540**	1	115 V AC	10.6 mA	**286-547**	1
					230 V AC	16.2 mA	**286-548**	1

Technical Data

Accessories see page 138 ... 139

Accessories see page 138 ... 139

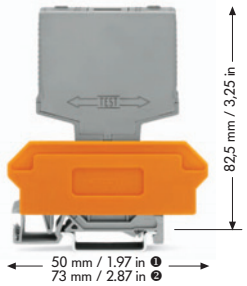
Contact material	AuAg10 over AgNi 15	Au Ag 10 over Ag Ni 15
Max. switching voltage	250 V DC / 250 V AC	250 V DC / 250 V AC
Max. make / break current	20 A / 5 A	20 A / 5 A
Max. continuous current	5 A	5 A
Max. Switching power (resistive)	100 W / 1000 VA	100 W / 1000 VA
Pull-in / operating power	50 mW / 205 mW	50 mW / 205 mW
Pull-in/drop-out/bounce time typ.	8 ms / 5 ms / 1 ms	9 ms / 5 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	1.5 kV	1.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 2.5 kV / 3	250 V / 2.5 kV / 3
Mechanical life	2 x 10^8 switching operations	2 x 10^8 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories

		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules, with 2-conductor terminal blocks, orange separator ❶	27 mm / 1.063 in	**280-639**	1	27 mm / 1.063 in	**280-639**	1
with 4-conductor terminal blocks, orange separator	27 mm / 1.063 in	**280-629**	1	27 mm / 1.063 in	**280-629**	1
with 4-conductor terminal blocks, marker plate ❷	30 mm / 1.181 in	**280-765**	1	30 mm / 1.181 in	**280-765**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in						

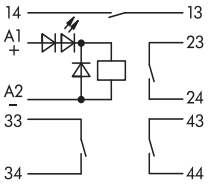
Pluggable Modules - Relays

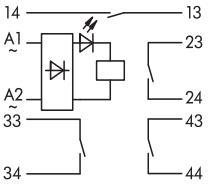
	Relay with 4 make contacts Module width 25 mm / 0.984 in	Relay with 4 changeover contacts Module width 35 mm / 1.378 in

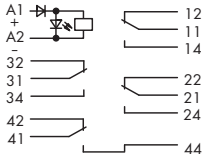


WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking 14, A1, A2, 33, 34, 13, 23, 24, 43, 44; Item No.: 209-692
- Marking A1, A2, 32, 31, 34, 42, 41, 12, 11, 14; Item No.: 249-656

5 cards, each containing 10 strips with 10 markers





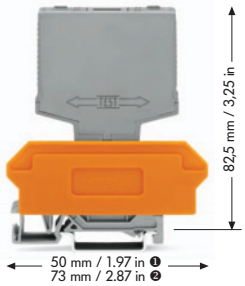


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	5/6 V DC	42.3 mA	**286-350**	1	24 V DC	32 mA	**286-375**	1
	12 V DC	22.2 mA	**286-351**	1	110/120 V AC	9.2 mA	**286-578**	1
	24 V DC	8.5 mA	**286-352**	1	230 V AC	9.9 mA	**286-579**	1
	48 V DC	5.7 mA	**286-353**	1				
	60 V DC	5.7 mA	**286-354**	1				
	115 V DC	6.6 mA	**286-355**	1				
	24 V AC	11.2 mA	**286-552**	1				
	115 V AC	10.6 mA	**286-555**	1				
	230 V AC	16.2 mA	**286-556**	1				

Technical Data	Accessories see page 138 ... 139	Accessories see page 138 ... 139
Contact material	Au Ag 10 over Ag Ni 15	Ag
Max. switching voltage	250 V DC / 250 V AC	60 V DC / 250 V AC
Max. make / break current	20 A / 5 A	4 A AC / 2 A DC
Max. continuous current	5 A	4 A AC/DC
Max. Switching power (resistive)	100 W / 1000 VA	50 W / 1000 VA
Pull-in / operating power	50 mW / 205 mW	50 mW / 205 mW
Pull-in/drop-out/bounce time typ.	10 ms / 5 ms / 2 ms	6 ms / - / 2 ms
Dielectric strength contact-coil (AC, 1 min)	1.5 kV	1.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 2.5 kV / 3	250 V / 4 kV / 3
Mechanical life	2 x 10^8 switching operations	5 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	27 mm / 1.063 in	**280-639**	1			
with 4-conductor terminal blocks, orange separator ❷	27 mm / 1.063 in	**280-629**	1	37 mm / 1.457 in	**280-636**	1
with 4-conductor terminal blocks, marker plate ❷	30 mm / 1.181 in	**280-765**	1			
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

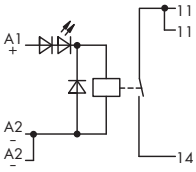
	Relay with 1 make contact for higher DC loads Module width 15 mm / 0.591 in	Relay with 2 changeover contacts Contacts 5 µm Au Module width 20 mm / 0.787 in

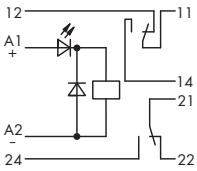


* In order to prevent the gold layer from being damaged these values should not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking 12, A1, A2, 24, 11, 14, 21, 22; Item No.: 209-995

5 cards, each containing 10 strips with 10 markers





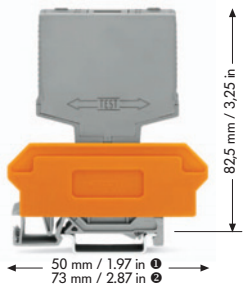
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 V DC	20 mA	**286-376**	1	24 V DC	19.4 mA	**286-384**	1

Technical Data	Accessories see page 138 ... 139	Accessories see page 138 ... 139
Contact material	AgNi 0.15	AgCdO + 5 µm Au
Max. switching voltage	250 V DC / 250 V AC	36 V DC *
Max. make current (resistive)	4 s 14A	
Max. break current 250 V DC/ 110 V DC/ 60 V DC	0.6 A / 1.7 A / 5 A	0.6 A / 1.7 A / 5 A
Recommended minimum load	> 12 V / 10 mA AC/DC	10 µA / 100 mV
Max. switching rate with / without load	10 min^{-1} / 1200 min^{-1}	
Max. continuous current	5 A	50 mA *
Max. Switching power (resistive)	2000 VA	
Max. switching power 250 V DC/ 110 V DC/ 60 V DC	150 W / 187 W / 300 W	150 W / 187 W / 300 W
Pull-in / operating power	480 mW	500 mW
Pull-in/drop-out/bounce time typ.	9 ms / 3 ms / 5 ms	9 ms / 3 ms / 3 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV	4 kV
Dielectric strength open contact	2 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	20 x 10^6 switching operations	1 x 10^7 switching operations
Mechanical life at max. load (resistance)		1 x 10^5 switching operations
Mechanical life at max. load DC (resistive)	2 x 10^5 switching operations	
Mechanical life at max. resistive load AC	3 x 10^5 switching operations	
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Approvals	DIN VDE 01110/1.89 / DIN VDE 0160 and IEC 60255 / DIN VDE 0435 (corresponding parts)	

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in	**280-619**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in	**280-609**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in	**280-763**	1	25 mm / 0.984 in	**280-764**	1
ire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

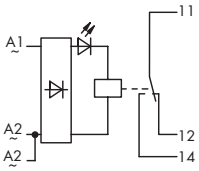
Pluggable Modules - Relays

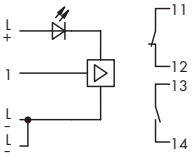
	Switching relay with specified switching treshold: V_{on} 180 V ± 10 % V_{off} 150 V ± 10 %; 1 changeover contact Module width 15 mm / 0.591 in	Low power (≥ 7 mW) relay module Low power drive relay (0.3 mA) through amplifier Vcc = DC 24 V 1 break and 1 make contact Module width 20 mm / 0.787 in



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 11, 12, 14, A1, A2, A2; Item No.: 209-994
- Marking L+, 1, L-, L-, 11, 12, 13, 14; Item No.: 209-954

5 cards, each containing 10 strips with 10 markers





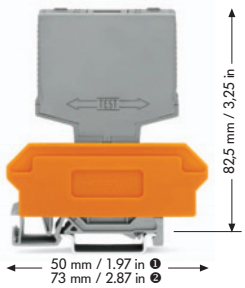
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	230 V AC	4 mA	**286-904**	1	24 V DC	10 mA	**286-906**	1

Technical Data

	Accessories see page 138 ... 139	Accessories see page 138 ... 139
Contact material	AgCdO	AgCdO, with gold flash
Max. switching voltage	250 V DC / 380 V AC	250 V DC / 380 V AC
Max. make / break current	4 s 25 A / 18 A	1 s 15 A / 8 A
Max. continuous current	5 A	6 A
Max. Switching power (resistive)	90 W / 1900 VA	150 W / 2000 VA
Pull-in / operating power	0.8 VA / 1 VA	150 mW / 240 mW
Pull-in/drop-out/bounce time typ.	10 ms / 5 ms / 5 ms	10 ms / 4 ms / 1 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV	3 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Mechanical life	5 x 10^7 switching operations	5 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Turn-on treshold relay / status indication	180 V ± 10 % / 122 V ± 10 %	
Turn-off treshold relay / status indication	150 V ±10 % / 113 V ±10 %	
Control voltage output 0		-2 V ... 3 V DC
Control voltage output 1		8 V ... 30 V DC

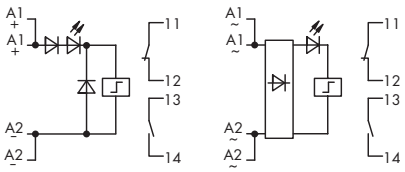
Accessories	Item No.	Pack. Unit	Item No.	Pack. Unit
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in **280-619**	1	22 mm / 0.866 in **280-638**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in **280-609**	1	22 mm / 0.866 in **280-628**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in **280-763**	1	25 mm / 0.984 in **280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;				
stripped length 8 ... 9 mm / 0.33 in				

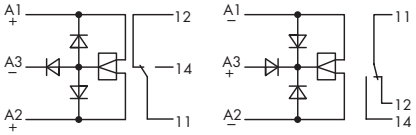
	Latching relay with 1 break contact and 1 make contact Module width 20 mm / 0.787 in	Bistable relay with 1 changeover contact positive switching, negative switching Module width 15 mm / 0.591 in



WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 11, 12, 13, 14, 23, 24; Item No.: 209-693
- Marking A1, A3, A2, 11, 12, 14; Item No.: 249-607

5 cards, each containing 10 strips with 10 markers





Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Switching relay module	24 V DC	20.9 mA	**286-571**	1	24 V DC	41.5 mA	**286-380**	1
	230 V AC	20.9 mA	**286-570**	1	24 V DC	41.5 mA	**286-381**	1

Technical Data

Accessories see page 138 ... 139

Accessories see page 138 ... 139

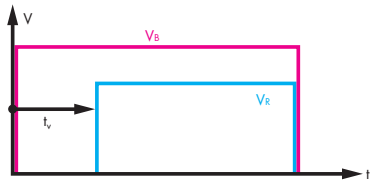
Contact material	AuAg10 over AgNi 15	AgNi 0.15 + HV
Max. switching voltage	30 V DC / 250 V AC	250 V DC / 250 V AC
Max. make / break current	20 A / 5 A	20 A / 8 A
Max. continuous current	5 A	6 A
Max. Switching power (resistive)	100 W / 1000 VA	192 W / 1500 VA
Pull-in / operating power	50 mW / 205 mW	261 mW / 533 mW
Pull-in/drop-out/bounce time typ.	8 ms / 5 ms / 1 ms	9 ms / 3 ms / 2 ms
Dielectric strength contact-coil (AC, 1 min)	1.5 kV	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Mechanical life	2 x 10^8 switching operations	30 x 10^6 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories

		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	17 mm / 0.669 in	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	17 mm / 0.669 in	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	20 mm/ 0.787 in	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in						

Pluggable Modules - Time Relays

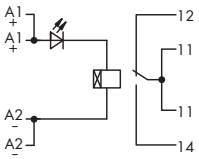
	On-delay timing 1 changeover contact specified time acc. to IEC 255, part 1 Module width 20 mm / 0.787 in	On-delay timing 1 changeover contact specified time acc. to IEC 255, part 1 Module width 20 mm / 0.787 in

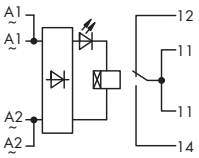


V_B = operating voltage; V_{St} = control voltage; V_R = voltage on relay; t_V = delay time

On-delay time relay
V_B on A1+ and A2- applied: relay stays in rest position
delay time t_V is over: relay switches to working condition
WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 12, 11, 11, 14; Item No.: 209-996

5 cards, each containing 10 strips with 10 markers



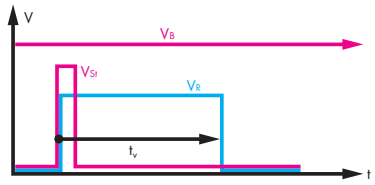


Description	Time range	Item No.	Pack. Unit	Time range	Item No.	Pack. Unit
Time relay module	0.1 - 1 s	**286-600**	1	0.1 - 1 s	**286-610**	1
	1 - 10 s	**286-602**	1	1 - 10 s	**286-612**	1
	10 - 100 s	**286-604**	1	10 - 100 s	**286-614**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal input voltage (V_N)	24 V DC	230 V AC
Current input at rated voltage (coil 20 °C)	12.5 mA	14.4 mA
Contact material	AgCdO, with gold flash	AgCdO, with gold flash
Max. switching voltage	250 V DC / 380 V AC	250 V DC / 380 V AC
Max. make / break current	1 s 15 A / 5 A	1 s 15 A / 5 A
Max. continuous current	6 A	6 A
Max. Switching power (resistive)	150 W / 2000 VA	150 W / 2000 VA
Operating power	300 mW	3.3 VA
Pull-in/drop-out/bounce time typ.	0 ms / 15 ms / 1 ms	0 ms / 15 ms / 1 ms
Reset time	100 ms	100 ms
Repeat accuracy	±0.5 %	±0.5 %
Dielectric strength contact-coil (AC, 1 min)	3 kV	3 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	5 x 10^7 switching operations	5 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x H x W incl. terminal block	20 x 82.5 x 50	20 x 82.5 x 50

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

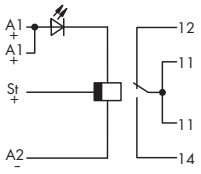
	Pulse lengthening, with trigger voltage **1 changeover contact** **Module width 20 mm / 0.787 in**	



V_B = operating voltage; V_{St} = control voltage; V_R = voltage on relay; t_v = delay time

Pulse lengthening time relay, with auxiliary voltage
V_B on A1+ and A2- applied: relay stays in rest position; V_{St} - pulse on St+: relay switches to working condition and switches off after t_v is over.
WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, St, A2, A2, 12, 11, 11, 14; Item No.: 209-601

5 cards, each containing 10 strips with 10 markers



Description	**Time range**	**Item No.**	**Pack. Unit**	
Time relay module	0.1 - 1 s	**286-426**	1	
	1 - 10 s	**286-427**	1	
	10 - 100 s	**286-428**	1	

Technical Data

Accessories see pages 138 ... 139

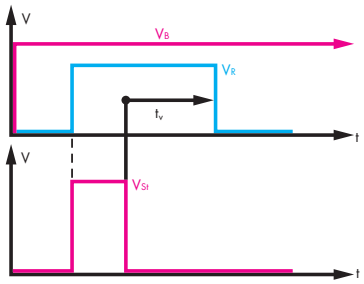
Nominal input voltage (V_N)	24 V DC
Current input at rated voltage (coil 20 °C)	15.0 mA
Contact material	AgCdO, with gold flash
Max. switching voltage	250 V DC / 380 V AC
Max. make / break current	1 s 15 A / 5 A
Max. continuous current	5 A
Max. Switching power (resistive)	150 W / 2000 VA
Operating power	360 mW
Pull-in/drop-out/bounce time typ.	10 ms / 0 ms / 1 ms
Trigger voltage	24 V DC
Reset time	100 ms
Repeat accuracy	±0.5 %
Dielectric strength contact-coil (AC, 1 min)	3 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3
IEC 60664-1	
Mechanical life	5 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C
Dimensions (mm) L x H x W incl. terminal block	20 x 82.5 x 50

Accessories

Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;			
stripped length 8 ... 9 mm / 0.33 in			

Pluggable Modules - Time Relays

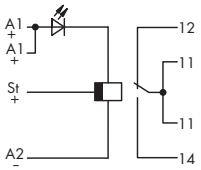
	Off-delay timing with trigger voltage 1 changeover contact specified time acc. to IEC 255, part 1 Module width 20 mm / 0.787 in	Off-delay timing with trigger voltage 1 changeover contact specified time acc. to IEC 255, part 1 Module width 20 mm / 0.787 in

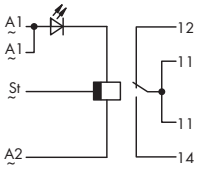


V_B = operating voltage; V_{St} = control voltage; V_R = voltage on relay; t_V = delay time

Off-delay time relay with auxiliary voltage
V_B on A1+ and A2- applied: relay stays in rest position;
V_{St} on St+ applied: relay switches to working condition
V_{St} interrupted: t_V is activated; t_V is over: relay switches off
WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, St, A2, A2, 12, 11, 11, 14; Item No.: 209-601

5 cards, each containing 10 strips with 10 markers



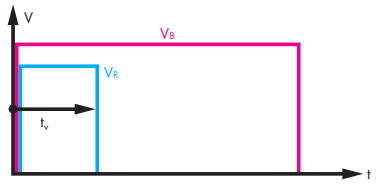


Description	Time range	Item No.	Pack. Unit	Time range	Item No.	Pack. Unit
Time relay module	0.1 - 1 s	**286-440**	1	0.1 - 1 s	**286-446**	1
	1 - 10 s	**286-442**	1	1 - 10 s	**286-448**	1
	10 - 100 s	**286-444**	1	10 - 100 s	**286-450**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal input voltage (V_N)	24 V DC	230 V AC
Current input at rated voltage (coil 20 °C)	16.0 mA	16.8 mA
Contact material	Ag.-Leg., with gold flash	Ag.-Leg., with gold flash
Max. switching voltage	250 V DC / 250 V AC	250 V DC / 250 V AC
Max. make / break current	26 A / 5 A	26 A / 5 A
Max. continuous current	5 A	5 A
Max. Switching power (resistive)	100 W / 1250 VA	100 W / 1250 VA
Operating power	400 mW	3.7 VA
Pull-in/drop-out/bounce time typ.	15 ms / 0 ms / 2 ms	15 ms / 0 ms / 2 ms
Trigger voltage	24 V DC	230 V AC
Reset time	15 ms	15 ms
Repeat accuracy	±0.5 %	±0.5 %
Dielectric strength contact-coil (AC, 1 min)	2 kV	2 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 2.5 kV / 3
IEC 60664-1		
Mechanical life	5 x 10^7 switching operations	5 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x H x W incl. terminal block	20 x 82.5 x 50	20 x 82.5 x 50

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

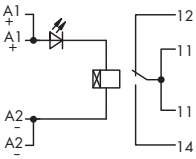
	Pulse time delay relay 1 changeover contact specified time acc. to IEC 255, part 1 Module width 20 mm / 0.787 in	Pulse time delay relay 1 changeover contact specified time acc. to IEC 255, part 1 Module width 20 mm / 0.787 in

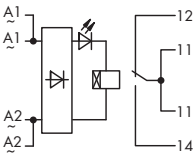


V_B = operating voltage; V_{St} = control voltage; V_R = voltage on relay; t_v = delay time

Pulse time delay relay
V_B on A1+ and A2- applied: relay switches to working condition;
t_v is over: relay switches off
WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 12, 11, 11, 14; Item No.: 209-996

5 cards, each containing 10 strips with 10 markers





Description	Time range	Item No.	Pack. Unit	Time range	Item No.	Pack. Unit
Time relay module	0.1 - 1 s	**286-460**	1	0.1 - 1 s	**286-470**	1
	1 - 10 s	**286-462**	1	1 - 10 s	**286-472**	1
	10 - 100 s	**286-464**	1	10 - 100 s	**286-474**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal input voltage (V_N)	24 V DC	230 V AC
Current input at rated voltage (coil 20 °C)	37.8 mA	39.7 mA
Contact material	AgCdO, with gold flash	AgCdO, with gold flash
Max. switching voltage	250 V DC / 380 V AC	250 V DC / 380 V AC
Max. make / break current	1 s 15 A / 5 A	1 s 15 A / 5 A
Max. continuous current	5 A	5 A
Max. Switching power (resistive)	150 W / 2000 VA	150 W / 2000 VA
Operating power	910 mW	10 VA
Pull-in/drop-out/bounce time typ.	15 ms / 15 ms / 1 ms	15 ms / 15 ms / 1 ms
Reset time	100 ms	100 ms
Repeat accuracy	±0.5 %	±0.5 %
Dielectric strength contact-coil (AC, 1 min)	2.3 kV	3 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 2.5 kV / 3
IEC 60664-1		
Mechanical life	5 x 10^7 switching operations	5 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x H x W incl. terminal block	20 x 82.5 x 50	20 x 82.5 x 50

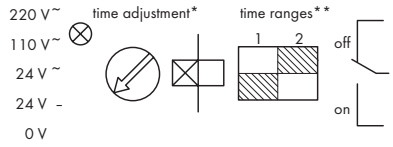
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
ire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

Pluggable Modules - Time Relays

Multirange timing relay, on-delay
4 selectable time ranges,
4 voltage ranges
1 changeover contact

Module width 25 mm / 0.984 in

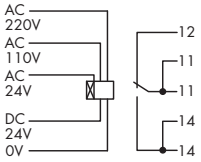
Time range	03-3s	3-12s	10-100s	100-800s	Switch
Switch-position	OFF	ON	ON	OFF	1
	ON	OFF	ON	OFF	2



* with trimming potentiometer; ** DIL switch

Within these time ranges, time adjustment can be mode with the timming potentiometer.
WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking U1, U2, U3, U4, 0V, 12, 11, 11, 14, 14; Item No.: 209-951

5 cards, each containing 10 strips with 10 markers



Description	Item No.	Pack. Unit
Multirange timing relay module; on-delay, 4 voltage ranges 230 V AC, 115 V AC, 24 V AC, 24 V DC; 0.3 s ... 3 s, 3 s ... 12 s, 10 s ... 100 s, 100 s ... 800 s Time ranges selectable with DIL switch	**286-616**	1

Technical Data

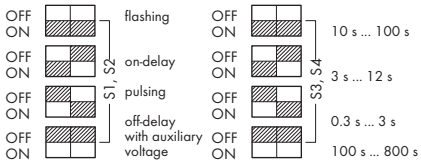
Accessories see pages 138 ... 139

Nominal input voltage (V_N)	230 V AC, 115 V AC, 24 V AC, 24 V DC
Current input at rated voltage (coil 20 °C)	30.4 mA, 32.6 mA, 20.2 mA, 17.5 mA
Contact material	AgNi with gold flash
Max. switching voltage	30 V DC / 240 V AC
Max. make / break current	5 A / 5 A
Max. continuous current	5 A
Max. Switching power (resistive)	120 W / 600 VA
Pull-in/drop-out/bounce time typ.	0 ms / 15 ms / 3 ms
Reset time	100 ms
Repeat accuracy	±0.5 %
Dielectric strength contact-coil (AC, 1 min)	2 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3
Mechanical life	2 x 10^7 switching operations
Mechanical life at max. load (resistance)	1 x 10^5 switching operations
Ambient operating temperature	-25 °C ... +40 °C
Dimensions (mm) L x H x W incl. terminal block	25 x 82.5 x 50

Accessories

		Item No.	Pack. Unit	Item No.	Pack. Unit
Terminal block for pluggable modules,					
with 2-conductor terminal blocks, orange separator ❶	27 mm / 1.063 in	**280-639**	1		
with 4-conductor terminal blocks, orange separator ❷	27 mm / 1.063 in	**280-629**	1		
with 4-conductor terminal blocks, marker plate ❷	30 mm / 1.181 in	**280-765**	1		
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;					
stripped length 8 ... 9 mm / 0.33 in					

	Multifunction timing relay 4 selectable time ranges, 4 functions 1 changeover contact Module width 20 mm / 0.787 in	

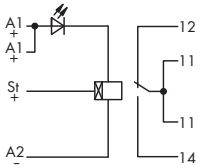


Switch position / Function			Switch position / Time range		
S1	S2		S3	S4	(s)
OFF	OFF	off-delay	OFF	OFF	100 - 800
OFF	ON	pulsing in make pos.	OFF	ON	0,3 - 3
ON	OFF	on-delay	ON	OFF	3 - 12
ON	ON	flashing	ON	ON	10 - 100

Fine adjustment of time within these time ranges can be made with the trimming potentiometer.
St+ will only be connected for the function „off-delay" with auxiliary voltage.
WSB marker cards

- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, St, A2, A2, 12, 11, 11, 14; Item No.: 209-601

5 cards, each containing 10 strips with 10 markers



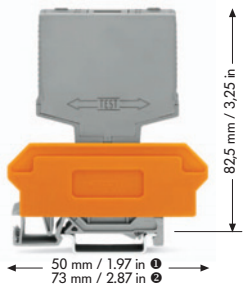
Description	Item No.	Pack. Unit	
Multifunction timing relay module; on-delay, off-delay with auxiliary voltage, pulsing in make position, flashing; input voltage DC 24 V; 0.3 s ... 3 s, 3 s ... 12 s, 10 s ... 100 s, 100 s ... 800 s Function and timing range are selected with a DIL switch	**286-640**	1	

Technical Data	Accessories see pages 138 ... 139	
Nominal input voltage (V_N)	24 V DC	
Current input at rated voltage (coil 20 °C)	24 mA	
Contact material	Ag.-Leg., with gold flash	
Max. switching voltage	300 V DC / 440 V AC	
Max. make / break current	26 A / 5 A	
Max. continuous current	5 A	
Max. Switching power (resistive)	150 W / 1250 VA	
Pull-in/drop-out/bounce time typ.	0 ms / 0 ms / 2 ms	
Trigger voltage	24 V DC	
Reset time	100 ms	
Repeat accuracy	±1 %	
Dielectric strength contact-coil (AC, 1 min)	3 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	
IEC 60664-1		
Mechanical life	1.5 x 10^7 switching operations	
Mechanical life at max. load (resistance)	1 x 10^5 switching operations	
Ambient operating temperature	-25 °C ... +40 °C	
Dimensions (mm) L x H x W incl. terminal block	20 x 82.5 x 50	

Accessories		Item No.	Pack. Unit	
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in				

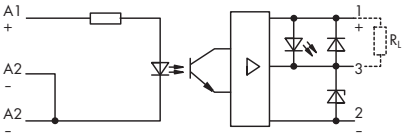
Pluggable Modules - Optocouplers

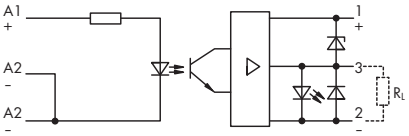
	Optocoupler Input 24 V DC Output 5 V, 15 V, 24 V DC/500 mA Negative switching Module width 15 mm / 0.591 in	Optocoupler Input 24 V DC Output 5 V, 15 V, 24 V DC/500 mA Positive switching Module width 15 mm / 0.591 in



WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 3, 2, A1, A2, A2; Item No.: 209-685

5 cards, each containing 10 strips with 10 markers



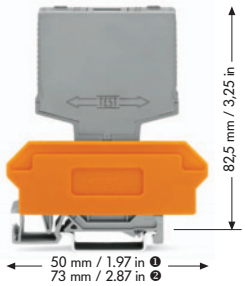


Description	Output	Item No.	Pack. Unit	Output	Item No.	Pack. Unit
Optocoupler module	5 V DC (3 V ... 6 V DC)	**286-700**	1	5 V DC (3 V ... 6 V DC)	**286-750**	1
	15 V DC (10 V ... 20 V DC)	**286-701**	1	15 V DC (10 V ... 20 V DC)	**286-751**	1
	24 V DC (20 V ... 30 V DC)	**286-702**	1	24 V DC (20 V ... 30 V DC	**286-752**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal input voltage (V_N)	24 V DC	24 V DC
Input voltage range	12 V ... 30 V DC	12 V ... 30 V DC
Input current range	5 mA ... 20 mA DC	5 mA ... 20 mA DC
Current at nominal voltage	15 mA DC	15 mA DC
Reverse voltage transistor / Triac	80 V DC	80 V DC
Max. permissible continuous current	500 mA	500 mA
Switch on / Switch off time	< 5 µs / < 15 µs	< 7 µs / < 15 µs
Max. operating frequency	25 kHz	25 kHz
Leakage current at nominal voltage	2.5 µA	2.5 µA
Collector / emitter voltage drop Vce sat	≤ 1.2 V	≤ 1.2 V
Max. output (reverse current)	5 mA ; 10 mA ; 13 mA	5 mA ; 10 mA ; 12 mA
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

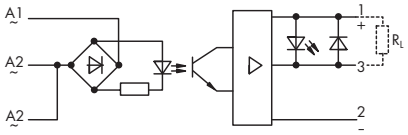
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in	**280-619**	1	17 mm / 0.669 in	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in	**280-609**	1	17 mm / 0.669 in	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in	**280-763**	1	20 mm/ 0.787 in	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

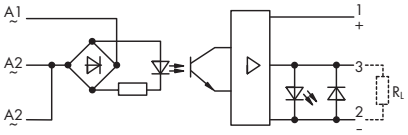
	Optocoupler Input 230 V AC Output 5 V, 15 V, 24 V DC/500 mA Negative switching Module width 15 mm / 0.591 in	Optocoupler Input 230 V AC Output 5 V, 15 V, 24 V DC/500 mA Positive switching Module width 15 mm / 0.591 in



WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 3, 2, A1, A2, A2; Item No.: 209-685

5 cards, each containing 10 strips with 10 markers





Description	Output	Item No.	Pack. Unit	Output	Item No.	Pack. Unit
Optocoupler module	5 V DC (3.5 V ... 7 V DC)	**286-704**	1	5 V DC (3.5 V ... 7 V DC)	**286-754**	1
	15 V DC (10 V ... 20 V DC)	**286-706**	1	15 V DC (10 V ... 20 V DC)	**286-756**	1
	24 V DC (20 V ... 30 V DC)	**286-708**	1	24 V DC (20 V ... 30 V DC)	**286-758**	1

Technical Data

Accessories see pages 138 ... 139

Accessories see pages 138 ... 139

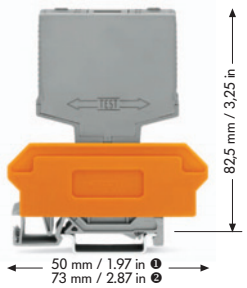
Nominal input voltage (V_N)	230 V AC	230 V AC
Input voltage range	40 V ... 250 V AC	40 V ... 250 V AC
Input current range	0.2 mA ... 2.9 mA AC	0.2 mA ... 2.9 mA AC
Current at nominal voltage	2.6 mA AC	2.6 mA AC
Reverse voltage transistor / Triac	80 V DC	80 V DC
Max. permissible continuous current	500 mA	500 mA
Switch on / Switch off time	< 10 ms / < 50 ms	< 10 ms / < 40 ms
Leakage current at nominal voltage	2.5 µA	2.5 µA
Collector / emitter voltage drop Vce sat	≤ 1.2 V	≤ 1.2 V
Max. output (reverse current)	5 mA ; 6 mA ; 5 mA	5 mA ; 7.5 mA ; 7.5 mA
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories

		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in	**280-619**	1	17 mm / 0.669 in	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in	**280-609**	1	17 mm / 0.669 in	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in	**280-763**	1	20 mm/ 0.787 in	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

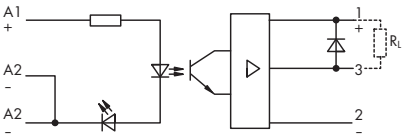
Pluggable Modules - Optocouplers

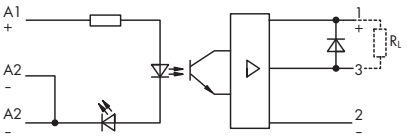
	Optocoupler Input 24 V DC Output 24 V DC/2 A Negative switching Module width 15 mm / 0.591 in	Optocoupler Input 24 V DC Output 24 V DC/5 A Negative switching Module width 15 mm / 0.591 in



WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 3, 2, A1, A2, A2; Item No.: 209-685

5 cards, each containing 10 strips with 10 markers



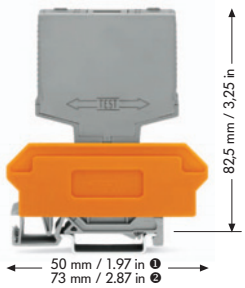


Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Optocoupler module	**286-720**	1	**286-721**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal input voltage (V_N)	24 V DC	24 V DC
Input voltage range	15 V ... 30 V DC	15 V ... 30 V DC
Input current range	7.5 mA ... 18 mA DC	7.5 mA ... 18 mA DC
Current at nominal voltage	13.5 mA DC	13.5 mA DC
Output nominal voltage	24 V DC	24 V DC
Output voltage range	15 V ... 40 V DC	15 V ... 40 V DC
Reverse voltage transistor / Triac	50 V DC	50 V DC
Max. permissible continuous current	2 A	5 A
Switch on / Switch off time	< 15 µs / < 40 µs	< 20 µs / < 80 µs
Max. operating frequency	1 kHz	1 kHz
Leakage current at nominal voltage	2.5 µA	2.5 µA
Collector / emitter voltage drop Vce sat	≤ 0.5 V	≤ 0.5 V
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

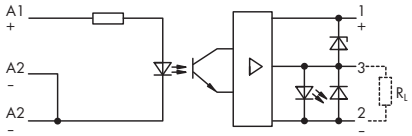
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in	**280-619**	1	17 mm / 0.669 in	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in	**280-609**	1	17 mm / 0.669 in	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in	**280-763**	1	20 mm/ 0.787 in	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

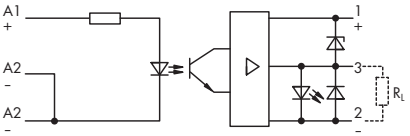
	Optocoupler Input 5 V DC Output 24 V DC/500 mA Positive switching Module width 15 mm / 0.591 in	Optocoupler Input 24 V DC Output 24 V DC/4 A Positive switching Module width 15 mm / 0.591 in



WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 3, 2, A1, A2, A2; Item No.: 209-685

5 cards, each containing 10 strips with 10 markers





Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Optocoupler module	**286-752/002-000**	1	**286-723**	1

Technical Data

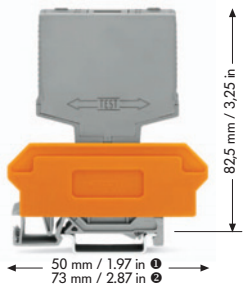
	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal input voltage (V_N)	5 V DC	24 V DC
Input voltage range	2 V ... 6.25 V DC	15 V ... 30 V DC
Input current range	3.3 mA ... > 18.5 mA	7.9 mA ... 18 mA DC
Current at nominal voltage	14 mA DC	14 mA DC
Output nominal voltage	24 V DC	24 V DC
Output voltage range	20 V ... 30 V DC	20 V ... 30 V DC
Reverse voltage transistor / Triac	80 V DC	100 V DC
Max. permissible continuous current	500 mA	4 A at 6 R
Switch on / Switch off time	< 5 µs / < 10 µs	≤ 15 µs / ≤ 25 µs
Max. operating frequency	25 kHz	5 kHz
Leakage current at nominal voltage	2.5 µA	2.5 µA
Collector / emitter voltage drop Vce sat	≤ 1.2 V	≤ 1.2 V
Max. output (reverse current)	12 mA	12 mA
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Approvals	IEC 60664 / IEC 60664A / DIN VDE 0110; pollution degree 2; overvoltage category III	

Accessories

		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules, w						
ith 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in	**280-619**	1	17 mm / 0.669 in	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in	**280-609**	1	17 mm / 0.669 in	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in	**280-763**	1	20 mm/ 0.787 in	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in						

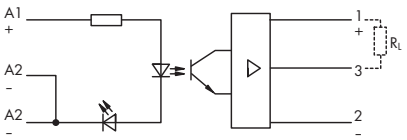
Pluggable Modules - Optocouplers

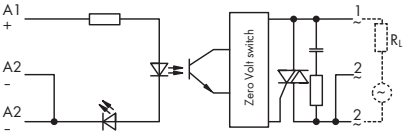
	Optocoupler Input 5 V DC 12 V DC 24 V DC Output 110 V DC/1.6 A Negative switching Module width 15 mm / 0.591 in	Optocoupler Input 5 V DC 12 V DC 24 V DC Output 230 V AC/50 mA ... 1 A Module width 15 mm / 0.591 in



WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 3, 2, A1, A2, A2; Item No.: 209-685
- Marking A1, A2, A2, 1, 2, 2, A1, A2, A2; Item No.: 209-686

5 cards, each containing 10 strips with 10 markers



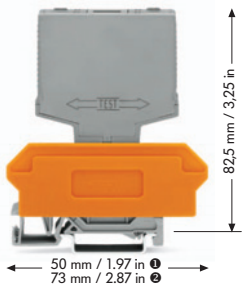


Description	Input	Item No.	Pack. Unit	Input	Item No.	Pack. Unit
Optocoupler module	5 V DC (4.5 V ... 6,5 V DC)	**286-726**	1	5 V DC (3.5 V ... 7.5 V DC)	**286-732**	1
	12 V DC (10 V ... 20 V DC)	**286-728**	1	12 V DC (9 V ... 18 V DC)	**286-733**	1
	24 V DC (15 V ... 30 V DC)	**286-730**	1	24 V DC (10 V ... 30 V DC)	**286-734**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Input current range	6.5 mA ... 20 mA DC	0.5 mA ... 17 mA DC
	4 mA ... 12 mA DC	4 mA ... 11 mA DC
	3.5 mA ... 8 mA DC	2 mA ... 8 mA DC
Current at nominal voltage	6.5 mA DC	6 mA DC
	6.4 mA DC	
	6.2 mA DC	
Output nominal voltage	110 V DC	230 V AC
Output voltage range	99 V ... 121 V DC	24 V ... 280 V AC
Reverse voltage transistor / Triac	150 V DC	600 V AC
Max. permissible continuous current	1.6 A at 69 R	1 A
Switch on / Switch off time	≤ 20 µs / ≤ 0.5 ms	1 half-wave ms / 1 half-wave ms
Max. operating frequency	350 Hz	
Leakage current at nominal voltage	3 µA	5 mA
Collector / emitter voltage drop Vce sat	≤ 0.5 V	
Voltage drop at output		< 1.7 V AC
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

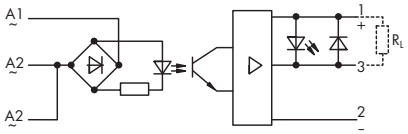
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in	**280-619**	1	17 mm / 0.669 in	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in	**280-609**	1	17 mm / 0.669 in	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in	**280-763**	1	20 mm/ 0.787 in	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

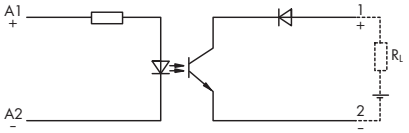
	Optocoupler Input 10 V ... 30 V AC/DC Output 24 V DC/1 mA ... 0.5 A Negative switching Module width 15 mm / 0.591 in	Optocoupler Input 24 V DC Output 60 V DC/100 mA Module width 10 mm / 0.394 in



WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 3, 2, A1, A2, A2; Item No.: 209-685
- Marking A1, A2, A2, 1, 2, 2, A1, A2, A2; Item No.: 209-686

5 cards, each containing 10 strips with 10 markers





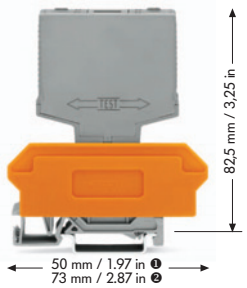
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Optocoupler module	**286-725**	1	**286-791**	1

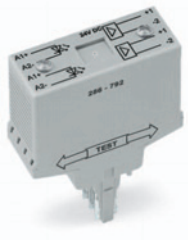
Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal input voltage (V_N)	10 V ... 30 V AC/DC	24 V DC
Input voltage range	10 V ... 30 V AC/DC	15 V ... 30 V DC
Input current range	2 mA ... 7 mA AC/DC	7.5 mA ... 18 mA DC
Current at nominal voltage		14 mA
Output nominal voltage	24 V DC	60 V DC
Output voltage range	20 V ... 30 V DC	20 V ... 60 V DC
Reverse voltage transistor / Triac	80 V DC	80 V DC
Max. permissible continuous current	500 mA	100 mA
Switch on / Switch off time	< 5 ms / < 30 ms	10 µs / 50 µs
Max. operating frequency		3 kHz
Leakage current at nominal voltage	max. 2.5 µA	2.5 µA
Collector / emitter voltage drop Vce sat	≤ 1 V	
Max. output (reverse current)	6.5 mA ... 10 mA DC	
Voltage drop at output		≤ 2 V
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories	Item No.	Pack. Unit	Item No.	Pack. Unit
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in **280-619**	1	12 mm / 0.472 in **280-618**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in **280-609**	1	12 mm / 0.472 in **280-608**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in **280-763**	1	15 mm / 0.591 in **280-762**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;				
stripped length 8 ... 9 mm / 0.33 in				

Pluggable Modules - Optocouplers

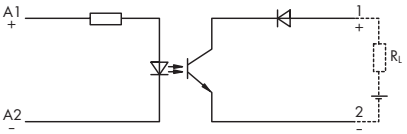
	Optocoupler Input 24 V DC Output 60 V DC/100 mA Module width 10 mm / 0.394 in	Dual channel optocoupler 2 inputs 2 x 24 V DC 2 outputs 2 x 24 V DC/2 x 250 mA Module width 20 mm / 0.787 in

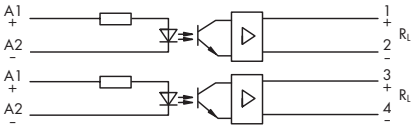




WSB marker cards
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, A2, 1, 2, 2, A1, A2, A2; Item No.: 209-686
- Marking A1+, A1+, A2-, A2-, 1, RL1, Rl2, 2; Item No.: 209-955
- Marking A1+, A1+, A2-, A2-, 1+, 1+, A, 2-; Item No.: 249-651

5 cards, each containing 10 strips with 10 markers





Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Optocoupler module	**286-794**	1	**286-792**	1

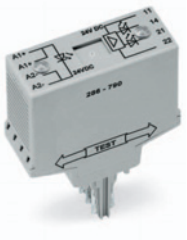
Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal input voltage (V_N)	24 V DC	24 V DC
Input voltage range	18 V ... 30 V DC	7.5 V ... 30 V DC
Input current range	2 mA ... 5 mA DC	4 mA ... 19 mA DC
Current at nominal voltage	4 mA DC	15 mA DC
Output nominal voltage	60 V DC	24 V DC
Output voltage range	20 V ... 60 V DC	20 V ... 30 V DC
Reverse voltage transistor / Triac	80 V DC	80 V DC
Max. permissible continuous current	100 mA	250 mA
Switch on / Switch off time	80 µs / 100 µs	< 60 µs / < 120 µs
Max. operating frequency	1.5 kHz	1.5 kHz
Leakage current at nominal voltage	2.5 µA	2.6 µA
Collector / emitter voltage drop Vce sat		< 2.5 V
Voltage drop at output	≤ 2 V	
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +60 °C	-25 °C ... +40 °C

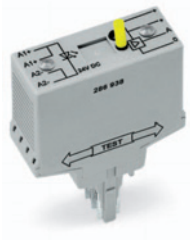
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	12 mm / 0.472 in	**280-618**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	12 mm / 0.472 in	**280-608**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	15 mm / 0.591 in	**280-762**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

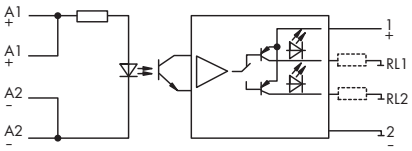
	Optocoupler with 2 inverted outputs Input 24 V DC Output 2 x 24 V DC/500 mA Module width 20 mm / 0.787 in	Optocoupler with bridge plug and programmable outputs Input 24 V DC Output 24 V DC, Short-circuit protected, positive switching Module width 20 mm/ 0.787 in

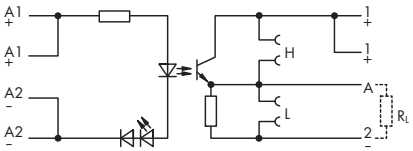
286-938:
Optocoupler module with short-circuit protected, positive switching output.
Two sockets with plug for programming the output.
Independent of the input signal the output can be switched over to “H” (high) or “L” (low) by means of a bridge plug (supplied with the module).
The short-circuit protected output is equipped with a current limiter which limits load currents above 800 mA to 200 mA.
The maximum operating time of the current limiter is 60 s.
Status indication:

- Input green LED
- Output yellow LED
- Short circuit red LED









Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Optocoupler module	**286-790**	1	**286-938**	1

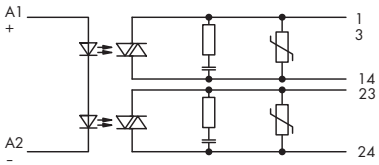
Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal input voltage (V_N)	24 V DC	24 V DC
Input voltage range	20 V ... 30 V DC	10 V ... 30 V DC
Input current range	7 mA ... 12 mA DC	4 mA ... 19 mA DC
Current at nominal voltage	9 mA DC	14 mA DC
Output nominal voltage	24 V DC	24 V DC
Output voltage range	20 V ... 30 V DC	20 V ... 30 V DC
Reverse voltage transistor / Triac	100 V DC	50 V DC
Max. permissible continuous current	500 mA	300 mA (800 mA max. 30 s)
Switch on / Switch off time	4 µs / 15 µs	< 5 µs / < 25 µs
Max. operating frequency	2.5 kHz	20 kHz at 80 R
Leakage current at nominal voltage	2.5 µA	< 1 µA
Collector / emitter voltage drop Vce sat	< 1.2 V	< 1.1 V
Max. output (reverse current)		5.5 mA (Input high, output low); 3 mA (Input low, output low); 11 mA (Output high) programmed with bridge plug
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

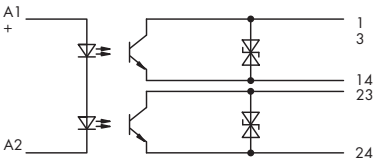
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

Pluggable Modules - S0 Optocouplers

	Power optocoupler for S0 current meter interface with AC output Module width 20 mm / 0.787 in	Power optocoupler for S0 current meter interface with DC output Module width 20 mm / 0.787 in

The optocoupler for the S0 current meter interface sends counter pulses from the supply lines.
Via this interface the user has the possibility to access data which is created by pulse generating current meters with a S0 current meter interface in accordance with DIN 43 864. The user can extract the data without affecting the S0 circuit and use them for their own evaluations, for example, optimizing energy consumption by reducing peak demands.
The optocoupler gets the input signal via a shunt resistance that is integrated in a terminal block for pluggable modules. Two parallel connected electrical contacts at the output allow reading of the S0 counter pulses. The optocoupler can be replaced without having to open the current meter circuit. When using passive metering systems, S0 power packs have to be added.



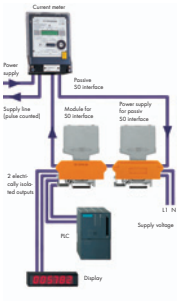


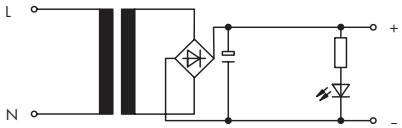
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
S0 interface	**286-740**	1	**286-741**	1
Terminal block for pluggable modules, with shunt resistance	22 mm / 0.866 in wide **286-740/001-000**	1	22 mm / 0.866 in wide **286-740/001-000**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Input current 1-Signal (H)	> 10 mA ... < 27 mA	> 10 mA ... < 27 mA
Input current 0-Signal (L)	< 2 mA	< 2 mA
Switch-on treshold	> 8.5 mA	> 8.5 mA
Switch-off treshold	< 7 mA	< 7 mA
Transmission frequency		<100 Hz
Input wiring	reverse protection diode	reverse protection diode
Operating voltage range	24 V ... 280 V (50 Hz ... 60 Hz) AC	15 V ... 120 V DC
Peak reverse voltage	600 V AC	200 V DC
Continuous current	2 x 1 A	2 x 750 mA
Surge current t = 20 ms	60 A	3 A
Min. load current	30 mA	
Voltage drop at I max	< 1.2 V	< 1.2 V
Leakage current when turned off	< 2 mA	
Switch on / Switch off time	10 ms / 10 ms	5 ms / 3 ms
Output circuit	RC module / varistor	suppressor diode
Test voltage input / output	2.5 kV eff.	2.5 kV eff.
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Ambient operating temperature	-25 °C ... +60 ° C (at 0.4 A continuous current)	-25 °C ... +60 ° C (at 200 mA continuous current)
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Approvals	DIN VDE 0110	DIN VDE 0110
Mounting position	any	any
Dimensions (mm) L x H x W incl. terminal block	20 x 82.5 x 73	20 x 82.5 x 73

Pluggable Modules - S0 Optocouplers

	Supply module **for passive S0 current meter interface** **Module width 25 mm / 0.984 in**	





This compact module supplies power to passive S0 current meter interfaces.

Description	**Item No.**	**Pack. Unit**
S0 supply module	**286-742**	1

Technical Data

Accessories see pages 138 ... 139

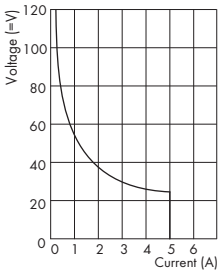
Nominal input voltage (V_N)	230 V AC
Frequency	50 Hz
Max. output voltage DC (acc. to DIN 43 864)	27 V
Max. output current (acc. to DIN 43 864)	27 mA
Switch on / Switch off time	
Test voltage input / output	2.5 kV eff.
Ambient operating temperature	0 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C
Approvals	IEC 60664/ IEC 60664A/ DIN VDE 0110; IEC 60742/ EN 60742/ VDE 0551
Mounting position	any
Dimensions (mm) L x H x W incl. terminal block	25 x 82.5 x 73

Accessories

		Item No.	**Pack. Unit**
Terminal block for pluggable modules, **with 4-conductor terminal blocks, orange separator** **Wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;** **Stripped lengths 8 ... 9 mm / 0.33 in**	27 mm / 1.063 in wide	**280-629**	1
WSB marker card with marking: +/-		**209-552**	5

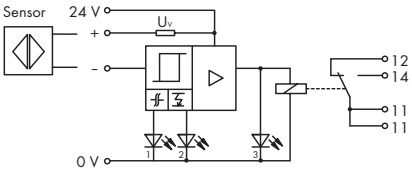
Pluggable Modules - NAMUR Switching Amplifiers

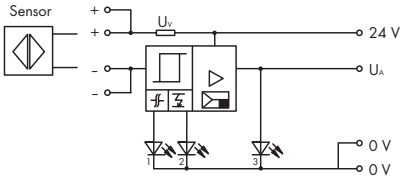
	NAMUR switching amplifier with relay output (the switching amplifier has got an isolated output, e.g. for the connection of a PLC) Module width 20 mm / 0.787 in	NAMUR switching amplifier with relay output (the electronic output VA provides the status of the NAMUR sensor) Module width 20 mm / 0.787 in



NAMUR switching amplifier for the supply of NAMUR sensors and the evaluation and amplification of the sensor signals in accordance with DIN 19234 and DIN 50 227. A line break or a sensor short circuit are monitored by the module and indicated via LEDs.

- LED 1 yellow: Line break
- LED 2 yellow: Short circuit
- LED 3 red: Output active



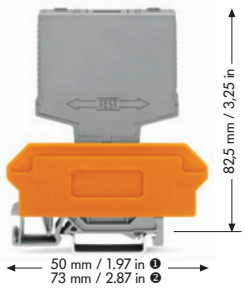


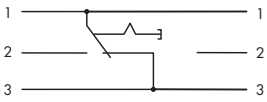
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
NAMUR switching amplifier	**286-880**	1	**286-881**	1

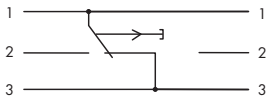
Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Supply voltage V_B	24 V DC (± 10 %)	24 V DC (± 10 %)
Nominal input current	20 mA	20 mA
Input	2-wire NAMUR proximity sensor	2-wire NAMUR proximity sensor
Nominal voltage	8 V DC	8 V DC
Current limitation	8 mA	8 mA
Signal current (1)	≥ 2 mA	≥ 2 mA
Signal current (0)	≤ 1.7 mA	≤ 1.7 mA
Switching delay	10 ms	10 ms
Max. operating frequency		50 Hz
Short circuit monitoring	I ≥ 7 mA	I ≥ 7 mA
Line break monitoring	I ≤ 0.2 mA	I ≤ 0.2 mA
Output	relay 1 changeover contact	transistor
Contact material	AgNi 0.15	
Max. switching voltage	250 V AC / 120 V DC	24 V DC
Switching current	3 A	0.5 A
Output voltage VA		22 V ± 10 %
Max. breaking capacity (resistive)	750 VA AC; DC see load limit curve	
Recommended minimum load	100 mA / 10 V AC/DC (1 W, 1VA)	
Pull-in/drop-out/bounce time typ.	8 ms / 5 ms / 4 ms	8 ms / 5 ms / 4 ms
Dielectric strength contact-coil (AC, 1 min)	4 kV	
Dielectric strength open contact	1 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	
Mechanical life	1 x 10^8 switching operations	
Mechanical life at max. load (resistance)	3 x 10^5 switching operations	
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Approvals	DIN VDE 0160 and IEC 60255, DIN VDE 0435 (corresponding parts) DIN 19234, DIN 50227	DIN VDE 0160 and IEC 60255, DIN VDE 0435 (corresponding parts) DIN 19234, DIN 50227

Pluggable Modules - Switches

	1-pole changeover with changeover rocker switch Module width 15 mm / 0.591 in	1-pole changeover with momentary switch Module width 15 mm / 0.591 in







WSB marker card
- Marking S; Item No.: 209-682
- Marking 1 ... 10; Item No.: 209-702

5 cards, each containing 10 strips with 10 markers

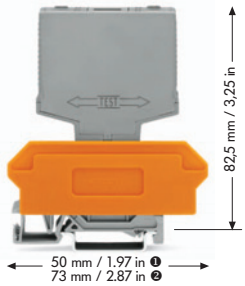
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching module	**286-895**	1	**286-896**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Max. switching voltage	24 V DC / 250 V AC	24 V DC / 250 V AC
Switching current, resistive	6 A AC	6 A AC
Switching current, inductive	4 A AC	4 A AC
Electrical life	≥ 50.000 switching operations	≥ 50.000 switching operations
Contact gap	≥ 3 mm	≥ 3 mm
Isolation voltage	1250 V	1250 V
Ambient operating temperature	-20 °C ... +40 °C	-20 °C ... +40 °C
Approvals	Switch tested acc. to EN 61058-1	Switch tested acc. to EN 61058-1

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in wide	**280-619**	1	17 mm / 0.669 in wide	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in wide	**280-609**	1	17 mm / 0.669 in wide	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in wide	**280-763**	1	20 mm/ 0.787 in wide	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

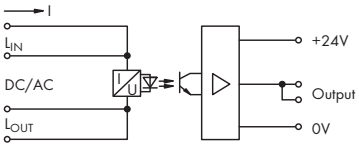
Pluggable Modules - Current Flow Monitoring

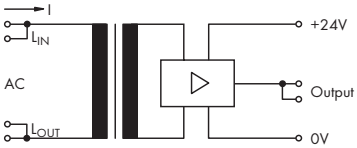
	AC/DC current flow monitoring module 15 mA DC/35 mA ... 300 mA AC Module width 20 mm / 0.787 in	AC current flow monitoring module 80 mA ... 6 A Module width 20 mm / 0.787 in



WSB marker card
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking Lin, Lin, Lout, Lout, 24V, UA, UA, 0V; Item No.: 209-957

5 cards, each containing 10 strips with 10 markers



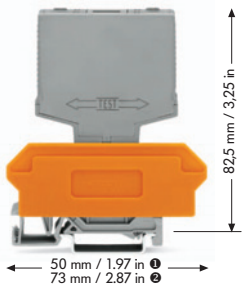


Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Current flow monitoring module	**286-659**	1	**286-661**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Current monitoring range	15 mA DC / 35 mA ... 300 mA AC	80 mA ... 6 A AC
	Current < 15/35 mA Output 24 V DC	Current < 80 mA Output 24 V DC
	Current > 15/35 mA Output 0 V	Current > 80 mA Output 0 V
Voltage range	10 V ... 250 V AC/DC	5 V ... 250 V AC
Nominal power consumption min / max	45 mW / 900 mW	1 mVA / 2.8 VA
Voltage drop	3 V	13 mV ... 460 mV
Response time	5 ms	40 ms
Operating voltage	24 V DC	24 V DC
Power consumption	61 mA	41 mA
Switching current	50 mA	50 mA
Switching voltage	24 V DC	24 V DC
Switching power	1.2 W	1.2 W
Dielectric strength input / output	2 kV	2 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Status indication	Operation: LED = green output LOW, current interruption: LED = red output HIGH	Operation: LED = green output LOW, current interruption: LED = red output HIGH

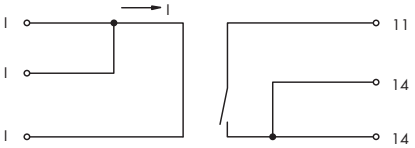
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in wide	**280-638**	1	22 mm / 0.866 in wide	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in wide	**280-628**	1	22 mm / 0.866 in wide	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in wide	**280-764**	1	25 mm / 0.984 in wide	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

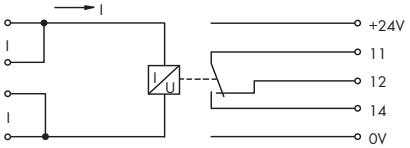
	DC current flow monitoring module 0.4 A ... 3.5 A 1 make contact Module width 15 mm / 0.591 in	AC current flow monitoring module 0.2 A ... 3 A, adjustable (286-664) 1 A ... 10 A, adjustable (286-665) 1 changeover contact (1 u) Module width 25 mm / 0.984 in



WSB marker card
- Marking U; Item No.: 209-789
- Marking 1 ... 10; Item No.: 209-702
- Marking Lin, Lin, Lout, 11, 14, 14, Lin, Lin, Lout; Item No.: 249-654
- Marking Lin, Lin, Lout, Lout, 24V, 11, 12, 14, 0V; Item No.: 209-997

5 cards, each containing 10 strips with 10 markers





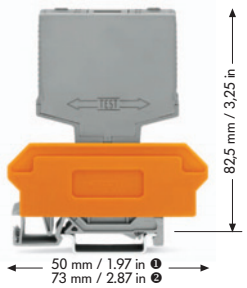
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Current flow monitoring module	**286-662**	1	**286-664**	1
			286-665	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Current monitoring range	0.4 A ... 3.5 A DC (-20 °C ... +40 °C);	0.2 A ... 3 A AC (286-664)
	0.4 A ... 3 A DC (-20 °C ... +60 °C);	1 A ... 10 A AC (286-665)
	0.4 A ... 2 A DC (-20 °C ... +70 °C)	
Voltage range	12 V ... 28 V DC	
Nominal power consumption min / max	45 mW / 630 mW	9 mVA / 1.3 VA (286-664)
		23 mVA / 8.5 VA (286-665)
Switching treshold		min. 0.2 A (adjustable) (286-664)
		min. 1 A (adjustable) (286-665)
Turn on / off point	0.35 A / 0.07 A	
Voltage drop	24 mV ... 210 mV	44 mV ... 430 mV (286-664)
		23 mV ... 850 mV (286-665)
Response time	0.5 ms	300 ms (286-664)
		200 ms (286-665)
Output	1 make contact	1 changeover contact
Operating voltage		24 V DC
Power consumption		17 mA (286-664)
		28 mA (286-665)
Switching current	0.5 A	5 A
Switching voltage	200 V DC	250 V AC
Switching power	10 W	1250 VA
Dielectric strength input / output	1.5 kV	2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,		250 V / 4 kV / 3
IEC 60664-1		
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Status indication		Current < switching treshold LED red, Relay switched

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in wide	**280-619**	1	27 mm / 1.063 in wide	**280-639**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in wide	**280-609**	1	27 mm / 1.063 in wide	**280-629**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in wide	**280-763**	1	30 mm / 1.181 in wide	**280-765**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

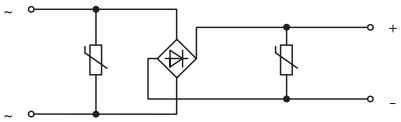
Pluggable Modules - Bridge Rectifiers

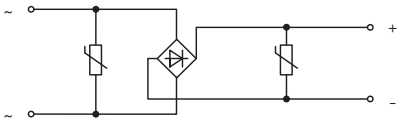
	Bridge with varistor protection for input voltage 24 V AC/1 A Module width 15 mm / 0.591 in	Bridge with varistor protection for input voltage 250 V AC/1 A Module width 15 mm / 0.591 in



WSB marker card
- Marking V; Item No.: 209-784
- Marking 1 ... 10; Item No.: 209-702
- Marking +/-; Item No.: 209-652

5 cards, each containing 10 strips with 10 markers



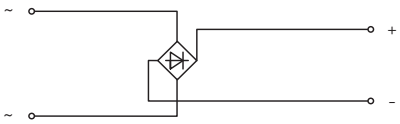


Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Bridge rectifiers	**286-830**	1	**286-840**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Input voltage	24 V AC	250 V AC
Nominal current	1 A	1 A
Current pulse limit	10 A (10 ms)	10 A (10 ms)
Max. charging capacitor	2200 µF	500 µF
Max. nominal operating voltage input (Varistor)	35 V	250 V
Max. nominal operating voltage output (Varistor)	60 V	300 V
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in wide	**280-619**	1	17 mm / 0.669 in wide	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in wide	**280-609**	1	17 mm / 0.669 in wide	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in wide	**280-763**	1	20 mm/ 0.787 in wide	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

	Bridge rectifier for input voltage 250 V AC/1 A **Module width 10 mm / 0.394 in**	



Description	Item No.	Pack. Unit	
Bridge rectifiers	**280-804/281-419**	1	

Technical Data

Accessories see pages 138 ... 139

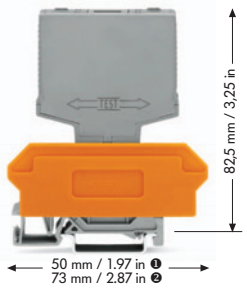
Input voltage	250 V AC
Nominal current	1 A
Max. charging capacitor	500 µF
Ambient operating temperature	-25 °C ... +40 °C

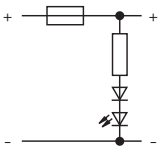
Accessories

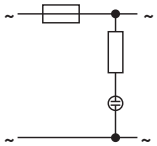
		Item No.	Pack. Unit	
Terminal block for pluggable modules,				
with 2-conductor terminal blocks, orange separator ❶	12 mm / 0.472 in wide	**280-618**	1	
with 4-conductor terminal blocks, orange separator ❷	12 mm / 0.472 in wide	**280-608**	1	
with 4-conductor terminal blocks, marker plate ❷	15 mm / 0.591 in wide	**280-762**	1	
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;				
stripped length 8 ... 9 mm / 0.33 in				

Pluggable Modules - Fuses

	Fuse modules for replaceable microfuses 5 x 20 mm; max. 6.3 A with blown fuse indication LED green 24 V AC/DC Module width 10 mm / 0.394 in	Fuse modules for replaceable microfuses 5 x 20 mm; max. 6.3 A with blown fuse indication Neon lamp 230 V AC/DC Module width 10 mm / 0.394 in







WSB marker card
- Marking F1 ... F10; Item No.: 209-787
- Marking 1 ... 10; Item No.: 209-702
- Marking +/-; Item No.: 209-652

5 cards, each containing 10 strips with 10 markers

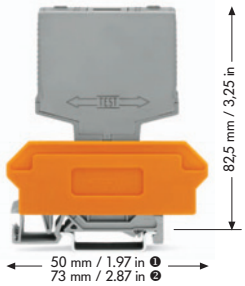
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Fuse module, with blown fuse indication	**286-890**	1	**286-891**	1

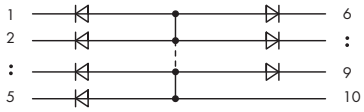
Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Operating voltage	24 V AC/DC	230 V AC/DC
Max. fuse capacity	6.3 A	6.3 A
Operating power	100 mW	100 mW
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Leakage current in case of blown fuse	5 mA	0.5 mA
Test voltage	2.5 kV	2.5 kV

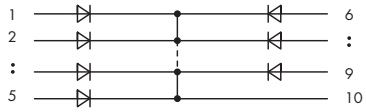
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator	12 mm / 0.472 in wide	**280-618**	1	12 mm / 0.472 in wide	**280-618**	1
with 4-conductor terminal blocks, orange separator	12 mm / 0.472 in wide	**280-608**	1	12 mm / 0.472 in wide	**280-608**	1
with 4-conductor terminal blocks, marker plate ❷	15 mm / 0.591 in wide	**280-762**	1	15 mm / 0.591 in wide	**280-762**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

Pluggable Modules - Diode Gates

	Diode gate module with 3, 5, 7 or 9 diodes 1 N 4007, common anode Module width see Item No.	Diode gate module with 3, 5, 7 or 9 diodes 1 N 4007, common cathode Module width see Item No.







WSB marker card
- Marking V; Item No.: 209-784
- Marking 1 ... 10; Item No.: 209-702
- Marking +/-; Item No.: 209-652

5 cards, each containing 10 strips with 10 markers

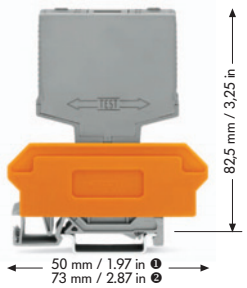
Description	Module width	Item No.	Pack. Unit	Module width	Item No.	Pack. Unit
Diode gate module with 3 diodes	10 mm / 0.394 in	**286-803**	1	10 mm / 0.394 in	**286-813**	1
with 5 diodes	15 mm / 0.591 in	**286-805**	1	15 mm / 0.591 in	**286-815**	1
with 7 diodes	20 mm / 0.787 in	**286-807**	1	20 mm / 0.787 in	**286-817**	1
with 9 diodes	25 mm / 0.984 in	**286-809**	1	25 mm / 0.984 in	**286-819**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Operating voltage	250 V AC/DC	250 V AC/DC
Peak reverse voltage	1000 V	1000 V
Rectified current for each diode, resistive	1 A	1 A
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	12 mm / 0.472 in wide	**280-618**	1	12 mm / 0.472 in wide	**280-618**	1
with 4-conductor terminal blocks, orange separator ❷	12 mm / 0.472 in wide	**280-608**	1	12 mm / 0.472 in wide	**280-608**	1
with 4-conductor terminal blocks, marker plate ❷	15 mm / 0.591 in wide	**280-762**	1	15 mm / 0.591 in wide	**280-762**	1
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in wide	**280-619**	1	17 mm / 0.669 in wide	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in wide	**280-609**	1	17 mm / 0.669 in wide	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in wide	**280-763**	1	20 mm/ 0.787 in wide	**280-763**	1
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in wide	**280-638**	1	22 mm / 0.866 in wide	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in wide	**280-628**	1	22 mm / 0.866 in wide	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in wide	**280-764**	1	25 mm / 0.984 in wide	**280-764**	1
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	27 mm / 1.063 in wide	**280-639**	1	27 mm / 1.063 in wide	**280-639**	1
with 4-conductor terminal blocks, orange separator ❷	27 mm / 1.063 in wide	**280-629**	1	27 mm / 1.063 in wide	**280-629**	1
with 4-conductor terminal blocks, marker plate ❷	30 mm / 1.181 in wide	**280-765**	1	30 mm / 1.181 in wide	**280-765**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

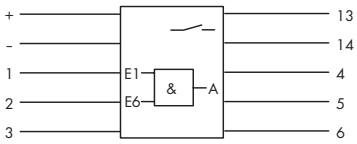
Pluggable Modules - AND Gate and LED Indicator

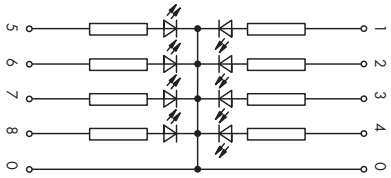
	AND gate module with 6 inputs Relay output with 1 make contact Module width 25 mm / 0.984 in	LED indicator module with 8 LED, common cathode Module width 25 mm / 0.984 in



WSB marker card
- Marking D; Item No.: 209-783
- Marking 1 ... 10; Item No.: 209-702
- Marking +, -, 1, 2, 3, 13, 14, 4, 5, 6; Item No.: 249-608

5 cards, each containing 10 strips with 10 markers





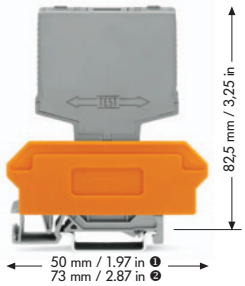
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Gate module	**286-826**	1	**286-822**	1

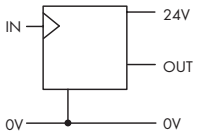
Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Operating voltage	24 V DC	24 V DC
Operating voltage range	24 V ... 27.5 V DC	20 V ... 26 V DC
Gate voltage - input	DC 24 V	
Power consumption at V_N	max. 34.6 mA	5.1 mA each LED
Relay output	make contact	
Max. switching voltage	250 V AC / 120 V DC	
Max. continuous current	3 A	
Max. Switching power (resistive)	120 W / 750 VA	
Dielectric strength input / output	2.5 kV	
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	27 mm / 1.063 in wide	**280-639**	1	27 mm / 1.063 in wide	**280-639**	1
with 4-conductor terminal blocks, orange separator ❷	27 mm / 1.063 in wide	**280-629**	1	27 mm / 1.063 in wide	**280-629**	1
with 4-conductor terminal blocks, marker plate ❷	30 mm / 1.181 in wide	**280-765**	1	30 mm / 1.181 in wide	**280-765**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

Pluggable Modules - Flip-Flop

	Flip-Flop **Operating voltage 24 V DC** **Module width 15 mm / 0.591 in**	





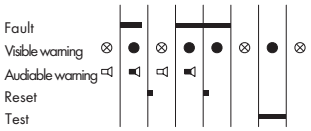
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Flip Flop module	**286-825**	1		

Technical Data	Accessories see pages 138 ... 139
Input voltage	24 V DC (± 10 %)
Input current	0.25 mA
Input voltage (High Signal)	> 7 V
Input voltage (Low Signal)	< 3 V
Pulse frequency	5 kHz
Min. output voltage	V_B - 1.5 V
Max. output current	0.5 A
Operating voltage	24 V DC
Operating voltage range	20 V ... 30 V DC
Power consumption	7.5 mA
Reverse voltage transistor	80 V
Test voltage input/output	2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3
Ambient operating temperature	0 °C ... +55 °C

Accessories		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in wide	**280-619**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in wide	**280-609**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm/ 0.787 in wide	**280-763**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;			
stripped length 8 ... 9 mm / 0.33 in			

Pluggable Modules - Fault Indication

	Fault indicator module with reset Alarm with continuous light with outputs for visible and audible warning Auxiliary and fault indication voltage 230 V AC Module width 20 mm / 0.787 in	Fault indicator module with reset Alarm with continuous light with outputs for visible and audible warning Extensible to collective fault indicator by means of diode gates Auxiliary and fault indication voltage 60 V DC Module width 20 mm / 0.787 in



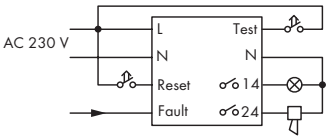
Explanation of signs

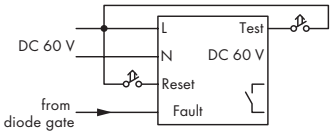
Audiable warning	out	on
Visible warning	out	permanent light

Accessories for collective fault indication (for 286-684)
- Diode gate 286-813 to 286-819, see page 442
- Diode gate 289-111 with common cathode, see page 504

WSB marker card
- Marking D; Item No.: 209-783
- Marking 1 ... 10; Item No.: 209-702
- Marking L, N, Quitt, Stör, A1, A2, Test, N, 14, 24; Item No.: 249-606

5 cards, each containing 10 strips with 10 markers



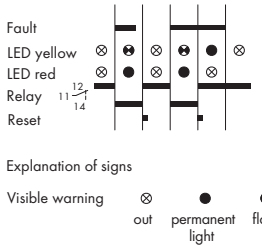


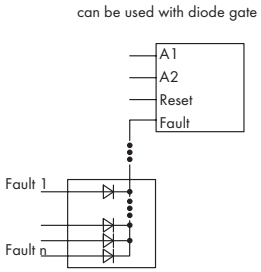
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Fault indicator module with reset	**286-681**	1	**286-684**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal voltage	230 V AC	60 V DC / RW ≤ 6%
Tolerance	-10 % ... +5 %	± 10 %
Power consumption	15 mA	9 mA
Output for visible warning	230 V AC / 0.5 A	60 V DC / 0.5 A
Output for audible warning	230 V AC/2 A	electrically isolated make contact
Max. switching voltage		250 V AC
Max. switching current		2 A
Max. switching capacity		500 VA
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in wide	**280-638**	1	22 mm / 0.866 in wide	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in wide	**280-628**	1	22 mm / 0.866 in wide	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in wide	**280-764**	1	25 mm / 0.984 in wide	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

Fault indicator module with reset
Indication of original fault with single flashing light
Output for audible warning
Visible warning by LED Extensible to collective fault indicator by means of diode gates
Module width 20 mm / 0.787 in

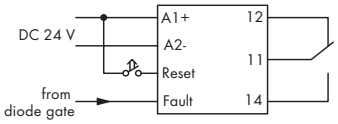




Accessories for collective fault indication
- Diode gate 286-813 to 286-819, see page 442
- Diode gate 289-111 with common cathode, see page 504

WSB marker card
- Marking D; Item No.: 209-783
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A2, Quitt, Stör, 12, 11, 11, 14; Item No.: 249-653

5 cards, each containing 10 strips with 10 markers



Description	Item No.	Pack. Unit
Fault indicator module with reset	**286-683**	1

Technical Data

Accessories see pages 138 ... 139

Nominal voltage	24 V DC / RW ≤ 6%
Tolerance	± 10 %
Power consumption	25 mA
Flashing frequency LED (yellow)	1 Hz
Relay output	1 electrically isolated changeover contact
Max. switching voltage	250 V AC / 120 V DC
Max. switching current	5 A
Max. switching capacity	120 W / 1250 VA
Contact material	AgNi 0.15
Dielectric strength contact-coil (AC, 1 min)	2.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C

Accessories

		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in wide	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in wide	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in wide	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;			
stripped length 8 ... 9 mm / 0.33 in			

Overview Pluggable Modules – Switching Relays

with an extended input voltage and operating temperature range V_N -30 % ... +25 % Ambient operating temperature -25 °C ... +70 °C

Switching relay module

Description	Nominal Input Voltage (V_N)	Input Voltage Range	Max. Switching Voltage	Module Width	Item No.	Pack. Unit
Switching relay module, Relay with 1 changeover contact	24 V DC	V_N -30 % ...+25 %	250 V AC/DC	15 mm / 0.591 in	**286-304/004-000**	1
Relay with 1 changeover contact	110 V DC	V_N -30 % ...+25 %	250 V AC/DC	15 mm / 0.591 in	**286-307/004-000**	1
Relay with 2 changeover contacts	24 V DC	V_N -30 % ...+25 %	250 V AC / 200 V DC	20 mm / 0.787 in	**286-312/004-000**	1
Relay with 1 break contact and 1 make contact	24 V DC	V_N -30 % ...+25 %	250 V AC / 200 V DC	20 mm / 0.787 in	**286-320/004-000**	1
Relay with 2 make contacts	24 V DC	V_N -30 % ...+25 %	250 V AC / 200 V DC	20 mm / 0.787 in	**286-328/004-000**	1
Relais with 2 make contacts and 2 make contacts	24 V DC	V_N -30 % ...+25 %	250 V AC / 200 V DC	25 mm / 0.984 in	**286-336/001-000**	1
Relay with 3 make contacts and 1 break contact	24 V DC	V_N -30 % ...+25 %	250 V AC / 200 V DC	25 mm / 0.984 in	**286-344/004-000**	1
Relay with 4 make contacts	24 V DC	V_N -30 % ...+25 %	250 V AC / 30 V DC	25 mm / 0.984 in	**286-352/004-000**	1
Relay with 1 make contact	24 V DC	V_N -30 % ...+25 %	250 V AC	10 mm / 0.394 in	**286-364/004-000**	1
Relay with 1 changeover contact	24 V DC	V_N -30 % ...+25 %	36 V DC	15 mm / 0.591 in	**286-394/004-000**	1
Time relay (on-delay timing) with 1 changeover contact	24 V DC	V_N -30 % ...+25 %	250 V AC / 200 V DC	20 mm / 0.787 in	**286-604/004-000**	1
Multifunction timing relay with1 changeover contact	24 V DC	V_N -30 % ...+25 %	250 V AC / 120 V DC	20 mm / 0.787 in	**286-640/004-000**	1
Relay with 1 break contact and 1 make contact	24 V DC	V_N -30 % ...+25 %	250 V AC / 250 V DC	15 mm / 0.591 in	**286-906/004-000**	1

For additional technical data see: www.wago.com

2-conductor terminal block

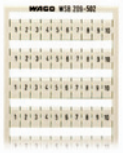
4-conductor terminal block

Description		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	12 mm / 0.472 in wide	**280-618**	1
with 4-conductor terminal blocks, orange separator	12 mm / 0.472 in wide	**280-608**	1
with 4-conductor terminal blocks, marker plate	15 mm / 0.591 in wide	**280-762**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	17 mm / 0.669 in wide	**280-619**	1
with 4-conductor terminal blocks, orange separator	17 mm / 0.669 in wide	**280-609**	1
with 4-conductor terminal blocks, marker plate	20 mm / 0.787 in wide	**280-763**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	22 mm / 0.866 in wide	**280-638**	1
with 4-conductor terminal blocks, orange separator	22 mm / 0.866 in wide	**280-628**	1
with 4-conductor terminal blocks, marker plate	25 mm / 0.984 in wide	**280-764**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	27 mm / 1.063 in wide	**280-639**	1
with 4-conductor terminal blocks, orange separator	27 mm / 1.063 in wide	**280-629**	1
with 4-conductor terminal blocks, marker plate	30 mm / 1.181 in wide	**280-765**	1
Terminal block for pluggable modules,			
with 4-conductor terminal blocks, orange separator	37 mm / 1.457 in wide	**280-636**	1

Wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; Stripped lengths 8 ... 9 mm / 0.33 in

WSB Marker Cards

Miniature quick marking card



Description		Item No.	Pack. Unit
Marking:	K	209-782	5 cards
	1 ... 10 (10 x)	209-702	5 cards
	A1, A2, 13, 14	209-952	5 cards
	A1, A2, 11, 12	209-953	5 cards
	11, 12, 14, A1, A2, A2, 11, 12, 14	209-994	5 cards
	12, A1, A2, 24, 11, 14, 21, 22	209-995	5 cards
	A1, A1, A2, A2, 11, 12, 13, 14, 23, 24	209-693	5 cards
	12, A1, A2, 23, 24, 11, 13, 14, 21, 22	209-691	5 cards
	12, A1, A2, 23, 24, 11, 13, 14, 33, 34	209-690	5 cards
	14, A1, A2, 33, 34, 13, 23, 24, 43, 44	209-692	5 cards
	A1, A2, 32, 31, 34, 42, 41, 12, 11, 14, 22, 21, 24, 44	249-656	5 cards
	L+, 1, L-, L-, 11, 12, 13, 14	209-954	5 cards
	A1, A2, A3, 11, 12, 14	249-607	5 cards
	A1, A1, A2, A2, 12, 11, 11, 14	209-996	5 cards
	A1, A1, St, A2, A2, 12, 11, 11, 14	209-601	5 cards
	U1, U2, U3, U4, 0V, 12, 11, 11, 14, 14	209-951	5 cards
	U	209-789	5 cards
	A1, A2, A2, 1, 3, 2	209-685	5 cards
	A1, A2, A2, 1, 2, 2	209-686	5 cards
	A1+, A1+, A2-, A2-, 1, RL1, RL2, 2	209-955	5 cards
	A1+, A1+, A2-, A2-, 1+, 1+, A, 2-	249-651	5 cards
	+/-	209-552	5 cards
	1, 2, 3, 0V, +UB, OUT, ERR., 0V	249-622	5 cards
	1, 2, 0V, +UB, OUT, ERR., 0V	249-623	5 cards
	Lin, Lin, Lout, Lout, 24V, UA, UA, 0V	209-957	5 cards
	Lin, Lin, Lout, 11, 14, 14, Lin, Lin, Lout	249-654	5 cards
	Iin, Iin, Iout, Iout, 24V, 11, 12, 14, 0V	209-997	5 cards
	S	209-682	5 cards
	V	209-784	5 cards
	F1 ... F10	209-787	5 cards
	D	209-783	5 cards
	+, -, 1, 2, 3, 13, 14, 4, 5, 6	249-608	5 cards
	L, N, Quitt, Störung, Test, N, 14, 24	249-606	5 cards
	A1, A2, Quitt, Störung, 12, 11, 11, 14	249-653	5 cards

5 cards, each containing 10 strips with 10 markers

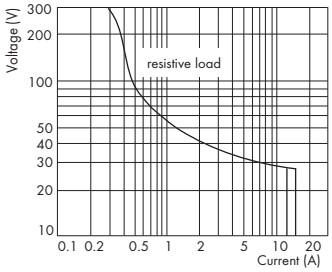
Colored marker cards

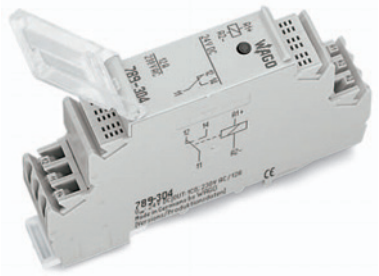
Description		Item No.	Pack. Unit
Marker cards and tags WSB 4 mm/0.157 in (plain)	white	209-701	5 cards
Marking software and printer/plotter see Section 8	yellow	209-701/000-002	5 cards
	red	209-701/000-005	5 cards
	blue	209-701/000-006	5 cards
	gray	209-701/000-007	5 cards
	orange	209-701/000-012	5 cards
	light green	209-701/000-017	5 cards
	green	209-701/000-023	5 cards
	violet	209-701/000-024	5 cards

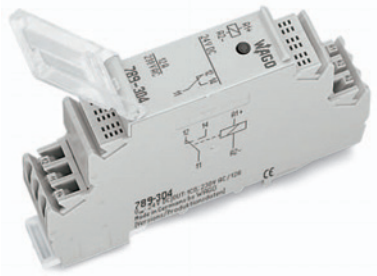
5 cards, each containing 10 strips with 10 markers

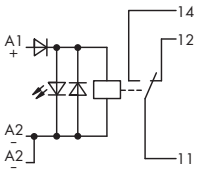
Relay Modules in DIN-Rail Mounted Enclosure

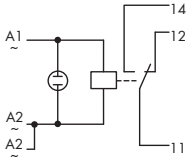
	Relay with 1 changeover contact (1 u) Nominal input voltage V_N 24 V DC	Relay with 1 changeover contact (1 u) Nominal input voltage V_N 24 V DC, 230 V AC/DC









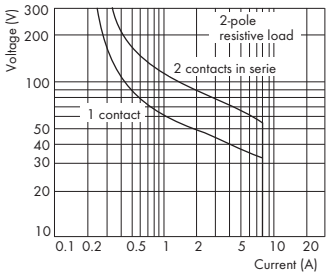


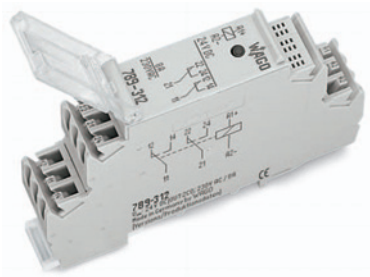
Other coil voltages contact factory

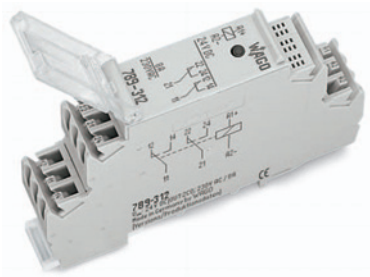
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay modules in DIN-rail mounted enclosure, for DIN 35 rail	24 V DC	19 mA	**789-304**	1	24 V AC/DC 230 V AC	20 mA 4.2 mA	**789-504** **789-508**	1 1

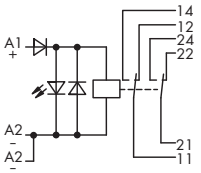
Technical Data	Accessories see page 146	Accessories see page 146
Contact material	AgNi 90/10	AgNi 90/10
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +10 %
Max. switching voltage	250 V AC/DC	250 V AC/DC
Max. make current (resistive) at a 10 % duty cycle	4 s 25 A (AC)	4 s 25 A (AC)
Max. continuous current	12 A	12 A
Max. Switching power (resistive)	3000 VA AC, DC see load limit curve	3000 VA AC, DC see load limit curve
Recommended minimum load	> 100 mA / 12 V AC/DC	> 100 mA / 12 V AC/DC
Operating power	400 mW	0.96 VA
Pull-in/drop-out/bounce time typ.	7 ms / 3 ms / 3 ms	15 ms / 15 ms / 3 ms
Nominal operating mode	continuous duty	continuous duty
Dielectric strength contact-coil (AC, 1 min)	5 kV	5 kV
Dielectric strength open contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Mechanical life at 1000 W, AC 250 V	30 x 10^6 switching operations	30 x 10^6 switching operations
Service life at lamp load	1.2 x 10^3 switching operations	1.2 x 10^3 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	DIN VDE 0160 and IEC 60255; DIN VDE 0435 (corresp. parts)	DIN VDE 0160 and IEC 60255; DIN VDE 0435 (corresp. parts)

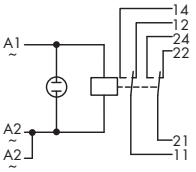
	Relay with 2 changeover contacts (2 u) Nominal input voltage V_N 24 V, 48 V, 110 V DC	Relay with 2 changeover contacts (2 u) Nominal input voltage V_N 24 V AC/DC, 115 V, 230 V AC











Other coil voltages contact factory

Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay modules in DIN-rail mounted enclosure, for DIN 35 rail	24 V DC	21 mA	**789-312**	1	24 V AC/DC	22 mA	**789-512**	1
	48 V DC	13 mA	**789-313**	1	115 V AC	7.6 mA	**789-515**	1
	110 V DC	6 mA	**789-315**	1	230 V AC	4.2 mA	**789-516**	1

Technical Data

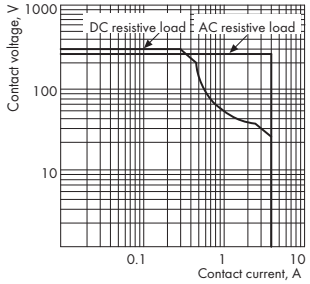
Accessories see page 146

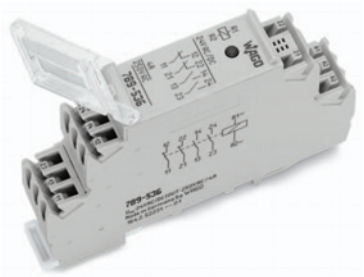
Accessories see page 146

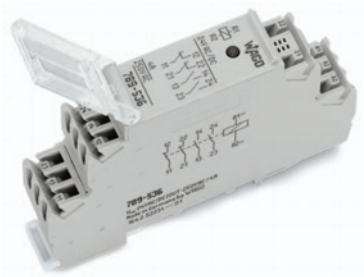
Contact material	AgNi 90/10	AgNi 90/10
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +10 %
Max. switching voltage	250 V AC/DC	250 V AC/DC
Max. make current (resistive) at a 10 % duty cycle	4 s / 15 A	4 s / 15 A
Max. continuous current	8 A	8 A
Max. Switching power (resistive)	2000 VA AC, DC see load limit curve	2000 VA AC, DC see load limit curve
Recommended minimum load	> 100 mA / 12 V AC/DC	> 100 mA / 12 V AC/DC
Operating power	400 mW	0.96 VA
Pull-in/drop-out/bounce time typ.	7 ms / 2 ms / 3 ms	7 ms / 2 ms / 3 ms
Nominal operating mode	continuous duty	continuous duty
Dielectric strength contact-coil (AC, 1 min)	5 kV	5 kV
Dielectric strength open contact	1 kV	1 kV
Dielectric strength contact-contact	2.5 kV	1.5 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	3 x 10^7 switching operations	5 x 10^6 switching operation
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	DIN VDE 0160 and IEC 60255; DIN VDE 0435 (corresp. parts)	DIN VDE 0160 and IEC 60255; DIN VDE 0435 (corresp. parts)

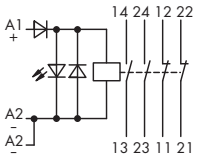
Relay Modules in DIN-Rail Mounted Enclosure

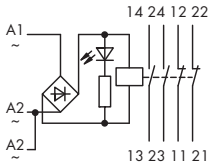
	Relay with 2 break and 2 make contacts (2 ar) Nominal input voltage V_N 24 V DC	Relay with 2 break and 2 make contacts (2 ar) Nominal input voltage V_N 12 V, 24 V AC/DC









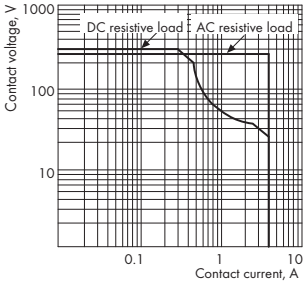


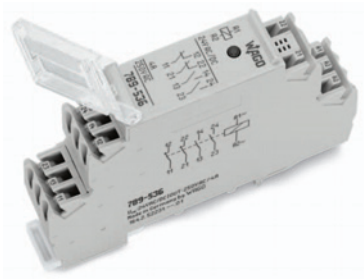
Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts!

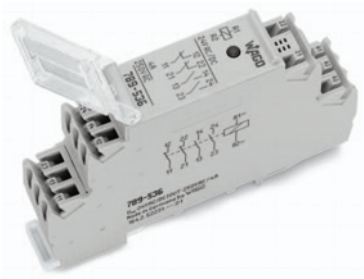
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay modules in DIN-rail mounted enclosure, for DIN 35 rail	24 V DC	12 mA	**789-336**	1	12 V AC/DC	21 mA	**789-535**	1
					24 V AC/DC	12 mA	**789-536**	1

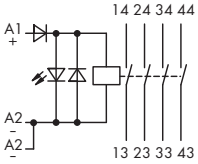
Technical Data	Accessories see page 146	Accessories see page 146
Contact material	AuAg10 over AgNi 15	AuAg10 over AgNi 15
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +10 %
Max. switching voltage	250 V AC / 30 V DC	250 V AC / 30 V DC
Max. switching current	4 A AC / 3 A DC	4 A AC / 3 A DC
Max. Switching power (resistive)	1000 VA / 90 W, resistive see load limit curve	1000 VA / 90 W, resistive see load limit curve
Recommended minimum load	> 100 µA / 100 mV DC	> 100 µA / 100 mV DC
Pull-in/drop-out/bounce time typ.	15 ms / 10 ms / 1 ms	20 ms / 20 ms / 1 ms
Nominal operating mode	continuous duty	continuous duty
Max. switching frequency with load	6 min^{-1}	6 min^{-1}
Dielectric strength contact-coil (AC, 1 min)	1.5 kV	1.5 kV
Dielectric strength open contact	0.75 kV	0.75 kV
Dielectric strength contact-contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	230 V / 2.5 kV / 3	230 V / 2.5 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	DIN VDE 0110 Part1 / 4.97 IEC 60 664-1;	DIN VDE 0110 Part1 / 4.97 IEC 60 664-1;
	DIN VDE 0435 (corresp. parts), EN 61 810	DIN VDE 0435 (corresp. parts), EN 61 810

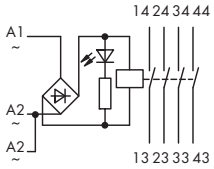
	Relay with 4 make contacts (4 a) Nominal input voltage V_N 24 V DC	Relay with 4 make contacts (4 a) Nominal input voltage V_N 12 V, 24 V AC/DC









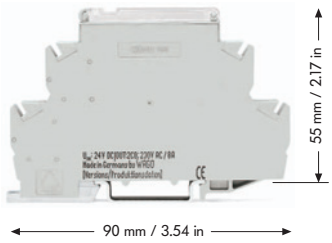


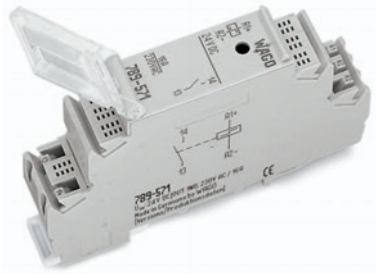
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay modules in DIN-rail mounted enclosure, for DIN 35 rail	24 V DC	12 mA	**789-352**	1	12 V AC/DC	21 mA	**789-551**	1
					24 V AC/DC	12 mA	**789-552**	1

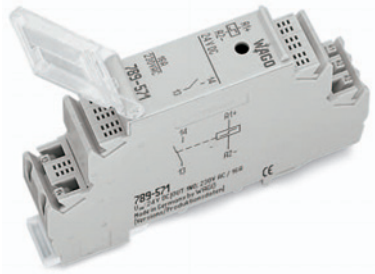
Technical Data	Accessories see page 146	Accessories see page 146
Contact material	AuAg10 over AgNi 15	AuAg10 over AgNi 15
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +10 %
Max. switching voltage	250 V AC / 30 V DC	250 V AC / 30 V DC
Max. switching current	4 A AC / 3 A DC	4 A AC / 3 A DC
Max. Switching power (resistive)	1000 VA / 90 W, resistive see load limit curve	1000 VA / 90 W, resistive see load limit curve
Recommended minimum load	> 100 µA / 100 mV DC	> 100 µA / 100 mV DC
Pull-in/drop-out/bounce time typ.	15 ms / 10 ms / 1 ms	20 ms / 20 ms / 1 ms
Nominal operating mode	continuous duty	continuous duty
Max. switching frequency with load	6 min^{-1}	6 min^{-1}
Dielectric strength contact-coil (AC, 1 min)	1.5 kV	1.5 kV
Dielectric strength open contact	0.75 kV	0.75 kV
Dielectric strength contact-contact	1 kV	1 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	230 V / 2.5 kV / 3	230 V / 2.5 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	DIN VDE 0110 Part1 / 4.97 IEC 60 664-1;	DIN VDE 0110 Part1 / 4.97 IEC 60 664-1;
	DIN VDE 0435 (corresp. parts), EN 61 810	DIN VDE 0435 (corresp. parts), EN 61 810

Relay Modules in DIN-Rail Mounted Enclosure

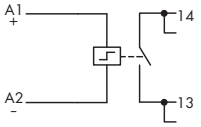
	Latching relay with 1 make contact (1 a) Nominal input voltage V_N 24 V DC	Latching relay with 1 make contact (1 a) Nominal input voltage V_N 230 V AC

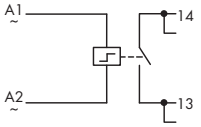






Lamp load: max. load 1500 W
Fluorescent lamp, dual circuit:
max. load 20 x 58 W series compensated
Electronic ballasts: 10 x 58 W

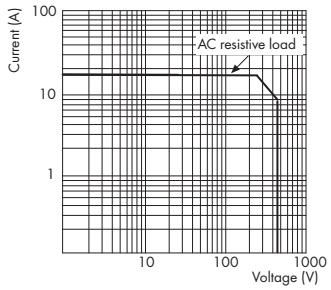




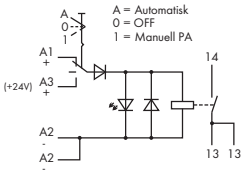
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay modules in DIN-rail mounted enclosure, for DIN 35 rail	24 V DC	42 mA	**789-571**	1	230 V AC	10 mA	**789-570**	1

Technical Data	Accessories see page 146	Accessories see page 146
Contact material	AgCdO	AgCdO
Input voltage range	V_N -15 % ... +10 %	V_N -15 % ... +10 %
Max. switching voltage	400 V AC	400 V AC
Min. switching current	0.1 A	0.1 A
Max. switching current	50 A (20 ms)	50 A (20 ms)
Max. continuous current	16 A	16 A
Max. Switching power (resistive)	4000 VA AC / 300 W DC	4000 VA AC / 300 W DC
Minimum switch-on time	40 ms	40 ms
Minimum break time	180 ms	180 ms
Coil control	Impuls	Impuls
Fuse protection	circuit breaker max. 16 A B-charakteristic	circuit breaker max. 16 A B-charakteristic
Nominal operating mode	continuous duty	continuous duty
Max. switching frequency with load	6 min^{-1}	6 min^{-1}
Max. switching frequency without load	4 s^{-1}	4 s^{-1}
Dielectric strength contact-coil (AC, 1 min)	4 kV	4 kV
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	250 V / 4 kV / 3
IEC 60664-1		
Mechanical life	1 x 10^5 switching operations	1 x 10^5 switching operations
Mechanical life at max. load (resistance)	5 x 10^4 switching operations	5 x 10^4 switching operations
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90	17.5 x 55 x 90
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	DIN VDE 0160 and IEC 60255; DIN VDE 0435 (corresp. parts); DIN VDE 0632	DIN VDE 0160 and IEC 60255; DIN VDE 0435 (corresp. parts); DIN VDE 0632

	Relay with 1 make contact (1a), manual-0-automatic switch	Capability of different lamp loads: (switching operations acc. to EN 60669)



Type of load	Capability	Electrical life
Incandescent lamp	2200 W	20.000
Halogen lamp 230 V AC	1400 W	50.000
Halogen trafo	120 VA	20.000
Fluorescent lamp not comp., CB, cos φ 0,4-0,6	20 x 58 W	25.000
Fluorescent lamp comp., Conv. ballast, C parallel	9 x 58 W	25.000
Fluorescent lamp comp., Conv. ballast, Duo-circuit	600 W	20.000
Fluorescent lamp with electronic ballast	12 x 58 W	25.000
Energy saving lamp 15 W	25 pcs	20.000
Energy saving lamp 13 W	30 pcs	20.000
Energy saving lamp 9 W	38 pcs	20.000
Gas discharge lamp	1000 W	20.000
Dulux-Lamp not compensated	800 W	20.000
Dulux-Lamp compensated	500 W	20.000
Max. capacitance at 230 V AC	60 µF	min. 5.000



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts!

Description	V_N	Item No.	Pack. Unit	
Relay modules in DIN-rail mounted enclosure, for DIN 35 rail	24 V DC	**789-323**	1	

Technical Data

Accessories see page 146

Contact material	Ag-Legierung	
Input voltage range	V_N -15 % ... +20 %	
Current input at rated voltage (coil 20 °C)	19 mA	
Max. switching voltage	250 V AC	
Max. make current	120 A at 230 V AC (50 ms)	
Max. continuous current	16 A	
Max. Switching power (resistive)	4000 VA AC, resistance see load limit curve	
Recommended minimum load	> 100 mA / 12 V AC/DC	
Operating power	400 mW	
Pull-in/drop-out/bounce time typ.	15 ms / 5 ms	
Nominal operating mode	continuous duty	
Dielectric strength contact-coil	4	
Surge capacity open contact	1	
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	
IEC 60664-1		
Mechanical life	10 x 10^6 switching operations	
Mechanical life at max. load (resistance)	min. 100.000 switching operations	
Mechanical life at max. lamp load	see "Lamp loads" table	
Ambient operating temperature	-25 °C ... +40 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) W x H x L	17,5 x 55 x 90	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	
Stripped lengths	5 ... 6 mm / 0.22 in	
Approvals	DIN VDE 0140 part 1, DIN EN 61140;	
	DIN VDE 0160, EN 50178;	
	degree of protection II	

Accessories, 789 Series

Push-in type jumper bars

Commoning

Description		Item No.	Pack. Unit
Push-in type jumper bars	uninsulated, 12-way, to be cut to the required length	**789-112**	100 (4x25)

Operating tool

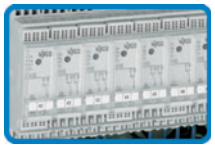
Wire connection

Marking pen with fibre tip

Description		Item No.	Pack. Unit
Marking pen	for permanent marking	**210-110**	1
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1

Miniature quick marking card

Marking



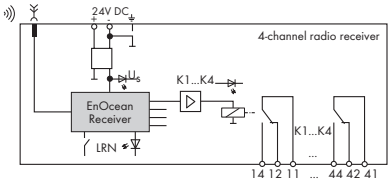
Description		Item No.	Pack. Unit
Miniature WSB Quick marking system	**plain**	**248-501**	5 cards
Marking software and printer/plotter see Section 8			
Marking	**1 ...10 (10 x)**	**248-502**	5 cards
	11 ... 20 (10x)	**248-503**	5 cards
	21 ... 30 (10x)	**248-504**	5 cards
	31 ... 40 (10x)	**248-505**	5 cards
	41 ... 50 (10 x)	**248-506**	5 cards
	1 ... 50 (2 x)	**248-566**	5 cards
	K 1 ... K 10 (10 x)	**248-450**	5 cards
	K 11 ... K 20 (10 x)	**248-451**	5 cards
	K 100 (10 x)	**248-452**	5 cards
	U 1 ... U 10 (10 x)	**248-453**	5 cards
	U 11 ... U 20 (10 x)	**248-454**	5 cards
	U 100 (10 x)	**248-455**	5 cards
10 strips with 10 markers, white with black printing			

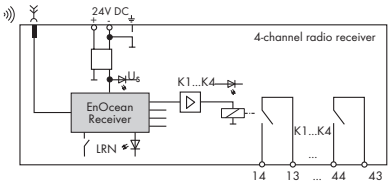
4-Channel EnOcean Radio Receivers in DIN-Rail Mount Enclosure

	4-channel EnOcean radio receiver with 4 changeover contacts, 8 A	4-channel EnOcean radio receiver with 4 make contacts, 16 A

The 4-channel radio receiver in DIN-rail mount enclosure is used to switch 4 independent electrical devices or loads. The radio receiver processes telegrams transmitted by sensors (binary information) using EnOcean radio technology (PTM + STM modules).
The outputs are switched via relay contacts.

- Radio receiver for battery-less and wireless sensors
- LED indication of switch status
- External antenna for optimum transmission range (required)
- Frequency band 868 MHz
- Transmitter-to-receiver assignment via learn mode





Description	Item No.	Pack. unit	Item No.	Pack. unit
4-channel EnOcean radio receiver	**789-602**	1	**789-601**	1

Technical Data

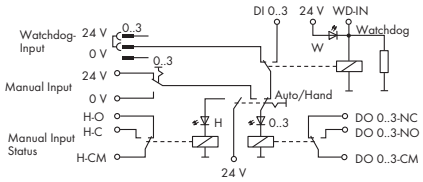
Voltage supply	24 V DC	24 V DC
Voltage range	-15 % ... + 20 %	-15 % ... + 20 %
Current consumption (internal)	max. 90 mA	max. 90 mA
Number of receive channels	40 (10 per output)	40 (10 per output)
Number of channels	4 (relay outputs)	4 (relay outputs)
Output current (per channel)	max. 8 A, AC1	max. 16 A, AC1
Type of load	resistive / motor load	resistive / lamp load
Switching frequency	max. < 5 Hz	max. < 5 Hz
Delay time transmitter /output command	< 100 ms; 40 ms ... 70 ms typ.	< 100 ms; 40 ms ... 70 ms typ.
Switching voltage	230 V AC	230 V AC
Fuse protection	Loads: wire breaker, max.16 A	Loads: wire breaker, max.16 A
Isolation	potential free contacts	potential free contacts
Ambient operating temperature	0 °C ... +55 °C	0 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Relative air humidity (no condensation)	85 %	85 %
Degree of pollution	2	2
Degree of protection	IP20	IP20
Mounting position	any	any
Dimensions (mm) W x H x L	70 x 55 x 90	70 x 55 x 90
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	Vibration and shock resistance acc. to IEC 60068-2-6 and	Vibration and shock resistance acc. to IEC 60068-2-6 and
	IEC 60068-2-27	IEC 60068-2-27
Accessories: RF magnetic antenna incl. 3m connecting	758-910	758-910
cable with SMA connector		

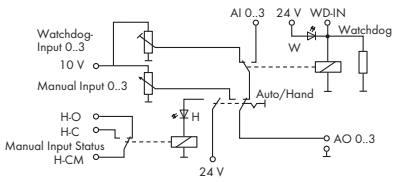
Manual Control Modules

	Manual control module, digital, 4 outputs	Manual control module, analog, 4 outputs

The digital manual control module 789-810 controls the different outputs 0 ... 3 and indicates their status via green LEDs and the changeover contact of the power relay. Depending on both the manual/automatic switch and watchdog input, the states 0 or 1 are transmitted in an electrically isolated from to the output via a relay.

The analog manual control module 789-811 controls the different analog outputs 0 ... 3.
Depending on both the manual/automatic switch and watchdog input, the voltages set between 0 ... 10 V are transmitted to the output.





Description	Item No.	Pack. unit	Item No.	Pack. unit
Hand / Auto module	**789-810**	1	**789-811**	1

Technical Data

Voltage supply	24 V DC ± 20 %	24 V DC ± 20 %
Dielectric strength input / output	4 kV	
Ambient operating temperature	0 °C ... +50 °C	0 °C ... +50 °C
Storage temperature	-25 °C ... +70 °C	-25 °C ... +70 °C
Dimensions (mm) W x H x L	106 x 58 x 90	106 x 58 x 90
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 734 and 231 Series)	CAGE CLAMP® (WAGO 734 and 231 Series)
Cross sections	0.08 mm² ... 1.5 mm² / AWG 28 ... 14	0.08 mm² ... 1.5 mm² / AWG 28 ... 14
	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	7 mm / 0.28 in	7 mm / 0.28 in
	8 ... 9 mm / 0.33 in	8 ... 9 mm / 0.33 in
Approvals	VDE 0110 (corresponding parts)	VDE 0110 (corresponding parts)
Inputs		
No. 1/10	24 V Operating voltage supply	24 V Operating voltage supply
No. 2	GND ground	GND ground
No. 3 ... 6	DI-0 ... 3; Input 0 ... 3; 24 V/max. 20 mA	AI-0 ... 3; Input 0 ... 3; 0-10 V/max. 20 mA
No. 11	WD-IN; Watchdog input; 24 V/max. 20 mA	WD-IN; Watchdog input; 24 V/max. 20 mA
Outputs		
No. 7	H-C; Manual operation "closed"	H-C; Manual operation "closed"
No. 8	H-CM; Manual operation "common"	H-CM; Manual operation "common"
No. 9	H-O; Manual operation "open"	H-O; Manual operation "open"
No. 12/15/18/21	DO-0 ... 3-NC; Break contact; channel 0 ... 3	GND
No. 13/16/19/22	DO-0 ... 3-CM; Common; channel 0 ... 3	AO-0 ... 3; Output 0 ... 3; 0-10 V/max. 20 mA
No. 14/17/20/23	DO-0 ... 3-NO; Make contact; channel 0 ... 3	GND
Max. switching voltage channel nos. 12 ... 23	250 V AC / 30 V DC	
Max. switching current channel nos. 12 ... 23	8 A AC / 8 A DC	

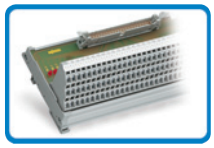
WAGO Application: Traffic Control System in Canton of Tessin (Gotthard Route), Switzerland

WAGO Products:
WAGO-I/O-SYSTEM (ETHERNET, CANopen),
WAGO X-COM®-SYSTEM,
MULTICONNECTION SYSTEM,
TOPJOB®S Rail-Mounted Terminal Blocks

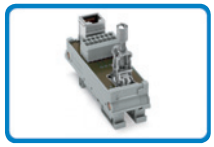
2

289 Series
Interface Modules with D-Subminiature Male and Female Connector 152 – 159

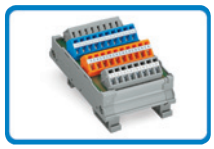
289 Series
Interface Modules for Ribbon Cable Connectors 160 – 165
Interface Module with High Density D-Sub Header for 19" Racks 166



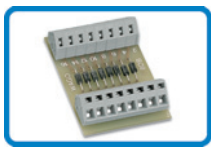
289, 704, 706 Series
Interface Modules for System Wiring
- Interface Modules for Siemes-SIMATIC 168 – 171
- Relay Output Module with Miniature Switching Relay 172 – 178
WAGO Ribbon Cables 179



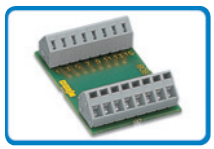
289 Series
RJ-45 Interface Modules 180 – 182



289 Series
Connection Modules for Sensors and Actuators 184 – 185



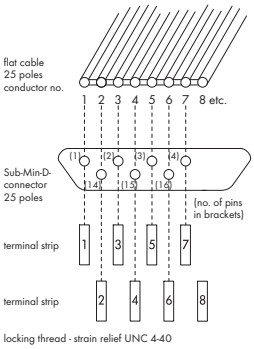
289 Series
Rail-Mounted Modules - Diode Gates 186 – 189
Rail-Mounted Modules - Resistor Gates 190

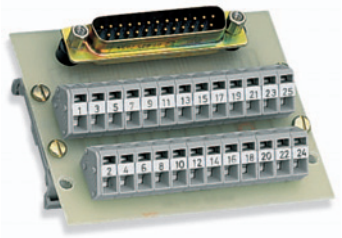


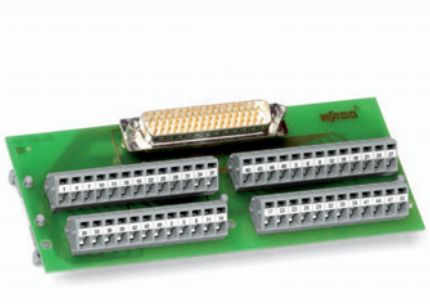
289 Series
Rail-Mounted Modules for Building Custom Circuits 191

Interface Modules

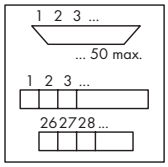
	Interface module with D-subminiature male connector, for mating connectors with solder connection, mating direction vertical Mounting carrier for DIN 35 rail	Interface module with D-subminiature male connector, for mating connectors with IDC, mating direction vertical Mounting carrier for DIN 35 rail

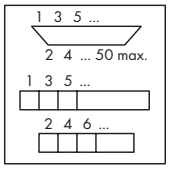






289-440 to 289-444



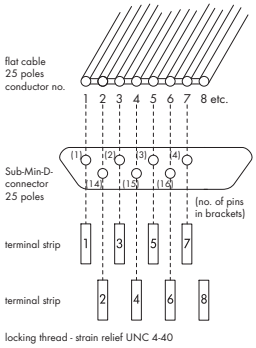


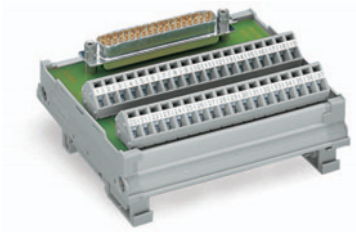
Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	38	**289-445**	1	9	38	**289-440**	1
	15	53.5	**289-446**	1	15	53.5	**289-441**	1
	25	79	**289-447**	1	25	79	**289-442**	1
	37	120	**289-448**	1	37	120	**289-443**	1
	50	157	**289-449**	1	50	157	**289-444**	1

Technical Data

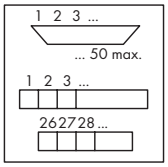
Operating voltage	125 V AC / DC	125 V AC / DC
Nominal current	1 A	1 A
Connector contact	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni
Contact resistance	≤ 3 mΩ	≤ 3 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	50 V / 0.8 kV / 2	50 V / 0.8 kV / 2
IEC 60664-1		
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L incl.	W x 19 x 63,5	W x 19 x 63,5
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

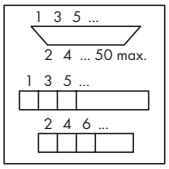
	Interface module with D-subminiature male connector, for mating connectors with solder connection, mating direction vertical Mounting carrier for DIN 35 rail	Interface module with D-subminiature male connector, for mating connectors with IDC, mating direction vertical Mounting carrier for DIN 35 rail





289-540 to 289-544





Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	38	**289-545**	1	9	38	**289-540**	1
	15	46	**289-546**	1	15	46	**289-541**	1
	25	72	**289-547**	1	25	72	**289-542**	1
	37	102	**289-548**	1	37	102	**289-543**	1
	50	94	**289-549**	1	50	94	**289-544**	1

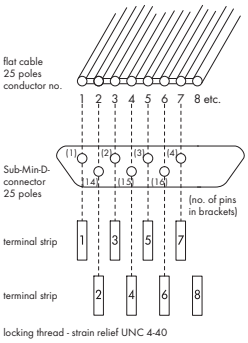
Technical Data

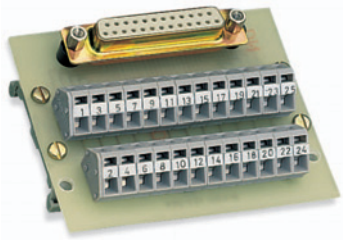
Operating voltage	125 V AC / DC	125 V AC / DC
Nominal current	2 A	2 A
Connector contact	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni
Contact resistance	≤ 3 mΩ	≤ 3 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
IEC 60664-1		
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L incl.	W x 34 x 85	W x 34 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

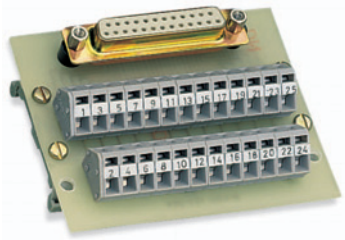
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Interface Modules

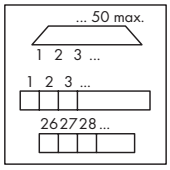
	Interface module with D-subminiature female connector, for mating connectors with solder connection, mating direction vertical Mounting carrier for DIN 35 rail	Interface module with D-subminiature female connector, for mating connectors with IDC, mating direction vertical Mounting carrier for DIN 35 rail

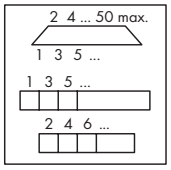






289-450 to 289-454



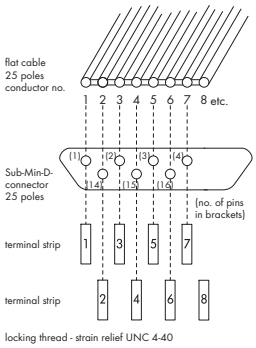


Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	38	**289-455**	1	9	38	**289-450**	1
	15	53.5	**289-456**	1	15	53.5	**289-451**	1
	25	79	**289-457**	1	25	79	**289-452**	1
	37	120	**289-458**	1	37	120	**289-453**	1
	50	157	**289-459**	1	50	157	**289-454**	1

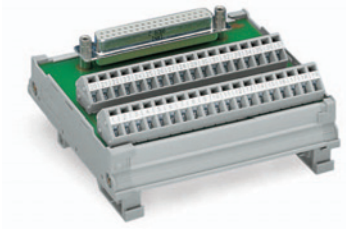
Technical Data

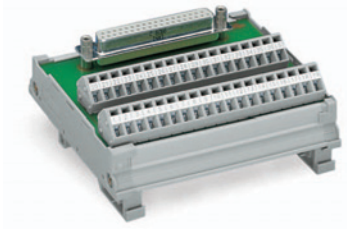
Operating voltage	125 V AC / DC	125 V AC / DC
Nominal current	1 A	1 A
Connector contact	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni
Contact resistance	≤ 10 mΩ	≤ 10 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	50 V / 0.8 kV / 2	50 V / 0.8 kV / 2
IEC 60664-1		
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L incl.	W x 19 x 63,5	W x 19 x 63,5
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

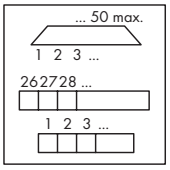
	Interface module with D-subminiature female connector, for mating connectors with solder connection, mating direction vertical Mounting carrier for DIN 35 rail	Interface module with D-Subminiature female connector, for mating connectors with IDC, mating direction vertical Mounting carrier for DIN 35 rail

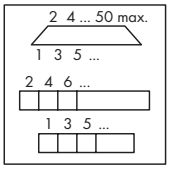


289-550 to 289-554









Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	38	**289-555**	1	9	38	**289-550**	1
	15	46	**289-556**	1	15	46	**289-551**	1
	25	72	**289-557**	1	25	72	**289-552**	1
	37	102	**289-558**	1	37	102	**289-553**	1
	50	94	**289-559**	1	50	94	**289-554**	1

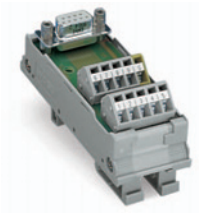
Technical Data

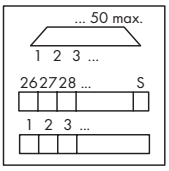
Operating voltage	125 V AC / DC	125 V AC / DC
Nominal current	2 A	2 A
Connector contact	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni
Contact resistance	≤ 10 mΩ	≤ 10 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
IEC 60664-1		
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L incl.	W x 34 x 85	W x 34 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

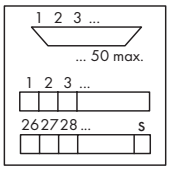
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Interface Modules

	Interface module with D-subminiature female connector, for mating connectors with solder connection, mating direction vertical, shield (screen) connection Mounting carrier for DIN 35 rail	Interface module with D-subminiature male connector, for mating connectors with solder connection, mating direction vertical, shield (screen) connection Mounting carrier for DIN 35 rail



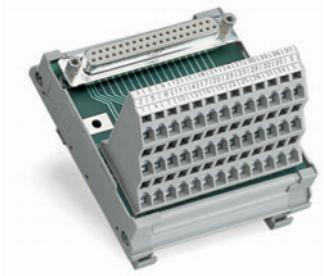


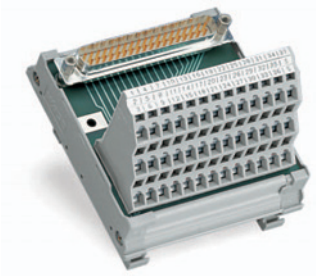


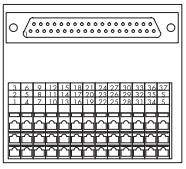
Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	33	**289-575**	1	9	38.5	**289-585**	1
	15	43	**289-576**	1	15	46	**289-586**	1
	25	68.5	**289-577**	1	25	71.5	**289-587**	1
	37	99	**289-578**	1	37	102	**289-588**	1

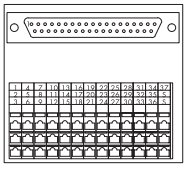
Technical Data		
Operating voltage	125 V AC / DC	125 V AC / DC
Nominal current	2 A	2 A
Connector contact	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni
Contact resistance	≤ 10 mΩ	≤ 10 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
IEC 60664-1		
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L incl.	W x 34 x 85	W x 34 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

	Interface module with D-subminiature female connector, for mating connectors with solder connection, mating direction vertical, shield (screen) connection Mounting carrier for DIN 35 rail	Interface module with D-subminiature male connector, for mating connectors with solder connection, mating direction vertical, shield (screen) connection Mounting carrier for DIN 35 rail









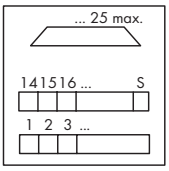
Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	25	56	**289-623**	1	25	56	**289-620**	1
	37	74	**289-624**	1	37	74	**289-621**	1

Technical Data

Operating voltage	125 V AC / DC	125 V AC / DC
Nominal current	2 A	2 A
Connector contact	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni
Contact resistance	≤ 10 mΩ	≤ 10 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
IEC 60664-1		
Mounting direction	vertical	
Pull relief stud bolt	UNC 4-40	
Ambient operating temperature	-20 °C ... +55 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L incl.	W x 62 x 85	W x 62 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 737 Series)	CAGE CLAMP® (WAGO 737 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

	Interface module **with D-subminiature female connector** **with shield (screen) connection** **Mounting carrier for DIN 35 rail**	



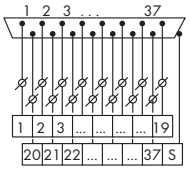
Description	No. of Poles	Width	Item No.	Pack. Unit	
Interface module	9	33	**289-650**	1	
	25	68.5	**289-652**	1	

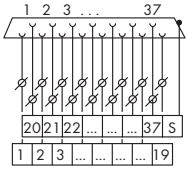
Technical Data

Operating voltage	125 V AC / DC
Nominal current	2 A
Connector contact	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni
Contact resistance	< 10 mΩ
Performance level	2 / 200 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2
IEC 60664-1	
Mounting direction	vertical
Pull relief stud bolt	UNC 4-40
Ambient operating temperature	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L incl.	W x 48 x 85
mounting feet or mounting carrier	
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 736 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in

Accessories	
WMB Multi marking system for mounting carrier	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197

	Interface module with D-subminiature male connector Mounting carrier for DIN 35 rail	Interface module with D-subminiature female connector Mounting carrier for DIN 35 rail





1 solder pin per pole is available for testing and patching (except for shield (screen) contact)

Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	9	33.5	**289-720**	1	9	33.5	**289-725**	1
	15	43.5	**289-721**	1	15	43.5	**289-726**	1
	25	69	**289-722**	1	25	69	**289-727**	1
	37	99.5	**289-723**	1	37	99.5	**289-728**	1

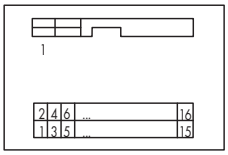
Technical Data

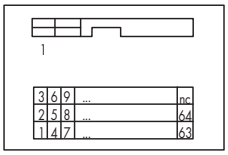
Operating voltage	125 V AC / DC	125 V AC / DC
Nominal current	2 A	2 A
Connector contact	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni	plating, 0.5 µm ... 0.8 µm Au over 2 µm Ni
Contact resistance	≤ 10 mΩ	≤ 10 mΩ
Performance level	2 / 200 mating cycles	2 / 200 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
IEC 60664-1		
Mounting direction	vertical	vertical
Pull relief stud bolt	UNC 4-40	UNC 4-40
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L incl.	W x 48 x 85	W x 48 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 736 Series)	CAGE CLAMP® (WAGO 736 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Interface Modules

	Interface module for ribbon cable connectors acc. to DIN 41651 Mounting carrier for DIN 35 rail	Interface module for ribbon cable connectors acc. to DIN 41651 Mounting carrier for DIN 35 rail





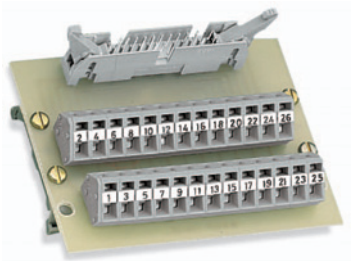
Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	10	35	**289-611**	1	20	47	**289-614**	1
	14	40	**289-612**	1	26	55	**289-615**	1
	16	45	**289-613**	1	34	65	**289-616**	1
					40	74	**289-617**	1
					50	88	**289-618**	1
					64	114	**289-619**	1

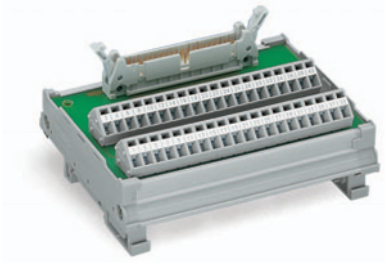
Technical Data

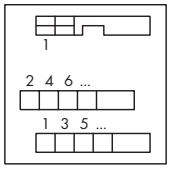
Operating voltage	125 V AC / DC	125 V AC / DC
Nominal current	1 A	1 A
Connector contact	phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni	phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni
Performance level	3	3
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
IEC 60664-1		
Mounting direction	vertical	vertical
Ambient operating temperature	-20 °C ... +55 °C	-20 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L incl.	W x 48 x 85	W x 62 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 736 Series)	CAGE CLAMP® (WAGO 737 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	IEC 60603-1 / DIN 41651 Part 1 and 2	IEC 60603-1 / DIN 41651 Part 1 and 2

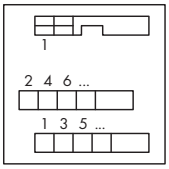
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

	Interface module with header acc. to DIN 41 651 Mounting carrier for DIN 35 rail	Interface module with header acc. to DIN 41 651 Mounting carrier for DIN 35 rail



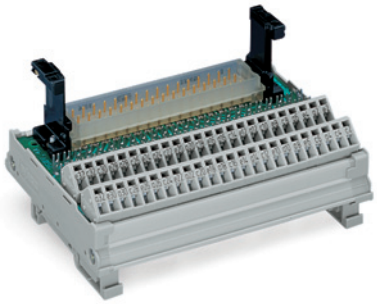
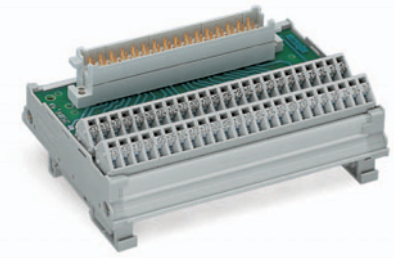
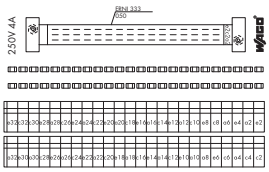
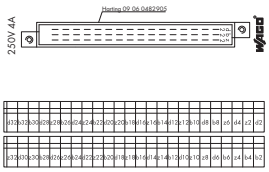






Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	10	41	**289-401**	1	10	38	**289-501**	1
	14	51.5	**289-402**	1	14	43	**289-502**	1
	16	56.5	**289-403**	1	16	46	**289-503**	1
	20	66.5	**289-404**	1	20	53.5	**289-504**	1
	26	81	**289-405**	1	26	71	**289-505**	1
	34	102	**289-406**	1	34	94	**289-506**	1
	40	126	**289-407**	1	40	114	**289-507**	1
	50	151	**289-408**	1	50	132	**289-508**	1
	64	187	**289-409**	1	64	170	**289-509**	1
					64	120	**289-510**	1
Technical Data								
Operating voltage	125 V AC / DC				125 V AC / DC			
Nominal current	1 A				1 A			
Connector contact	phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni				phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni			
Performance level	3				3			
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	50 V / 0.8 kV / 2				50 V / 0.8 kV / 2			
Dimensions (mm) W x H x L incl. mounting feet or mounting carrier	W x 28 x 63,5 Height from upper-edge of DIN 35 rail				W x 36 x 85 Height from upper-edge of DIN 35 rail			
Wire connection	CAGE CLAMP® (WAGO 236 Series)				CAGE CLAMP® (WAGO 236 Series)			
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12				0.08 mm² ... 2.5 mm² / AWG 28 ... 12			
Stripped lengths	5 ... 6 mm / 0.22 in				5 ... 6 mm / 0.22 in			
Accessories								
WMB Multi marking system for mounting carrier					see page 323			
Marker strips for mounting carrier					white 709-198 / transparent 709-197			

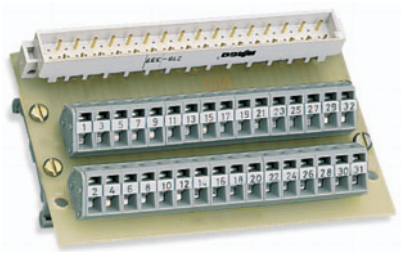
Interface Modules

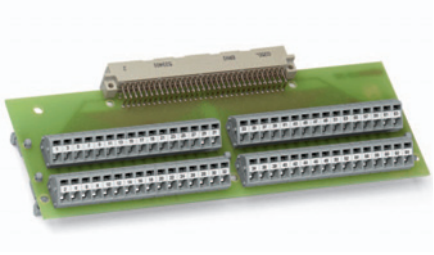
	Interface module for connectors acc. to DIN 41 612, with male connector, type E, with strain relief device for ERNI mating connector Mounting carrier for DIN 35 rail	Interface module for connectors acc. to DIN 41 612, with male connector, type F, with strain relief device for Harting mating connector Mounting carrier for DIN 35 rail
		
		

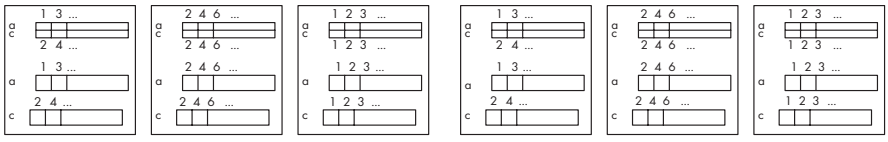
Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	48	128	**289-434**	1	48	128	**289-436**	1

Technical Data		
Operating voltage	250 V AC / DC	250 V AC / DC
Nominal current	4 A	4 A
Connector contact	Copper alloy, gold plated	Copper alloy, gold plated
Contact resistance	≤ 16 mΩ	≤ 16 mΩ
Performance level	2 / 400 mating cycles	1 / 500 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 1.5 kV / 2	250 V / 1.5 kV / 2
IEC 60664-1		
Dimensions (mm) W x H x L incl.	W x 55 x 85	W x 39 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

	Interface module for connectors acc. to DIN 41 612, with male connector, type C, mating direction vertical Mounting carrier for DIN 35 rail	Interface module for connectors acc. to DIN 41 612, with male connector, type C, mating direction horizontal Mounting carrier for DIN 35 rail







289-422 289-424 289-426 289-423 289-425 289-427

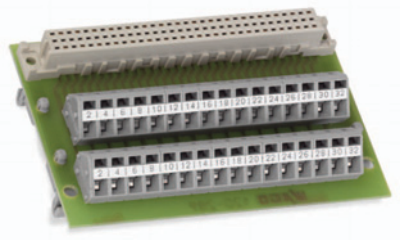
Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module, for female connector with IDC	64	187	**289-422**	1	64	187	**289-423**	1
Interface module, for female connector with solder contact	32	97	**289-424**	1	32	97	**289-425**	1
Interface module, for female connector with solder contact	64	187	**289-426**	1	64	187	**289-427**	1

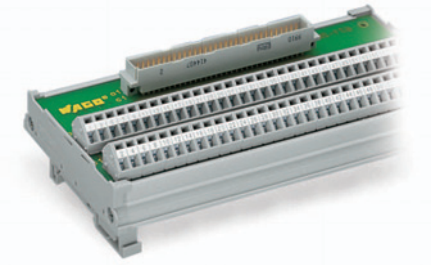
Technical Data

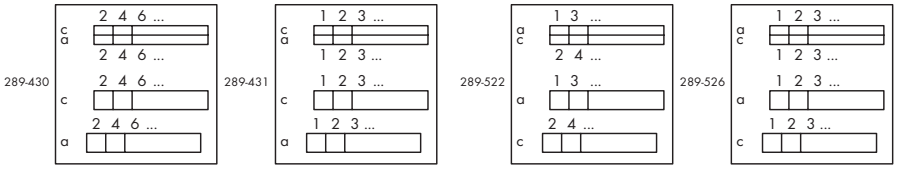
Operating voltage	125 V AC / DC	125 V AC / DC
Nominal current	1 A	1 A
Connector contact	Copper alloy, gold plated	Copper alloy, gold plated
Contact resistance	≤ 20 mΩ	≤ 20 mΩ
Performance level	2 / 400 mating cycles	2 / 400 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	50 V / 0.8 kV / 2	50 V / 0.8 kV / 2
IEC 60664-1		
Dimensions (mm) W x H x L incl.	W x 21 x 63,5	W x 21 x 63,5
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

Interface Modules

	Interface module for connectors acc. to DIN 41 612, with female connector, type C, mating direction vertical, for male connector with solder contact Mounting carrier for DIN 35 rail	Interface module for connectors acc. to DIN 41 612, with female connector, type C, mating direction vertical, for female connector with IDC connection or with solder contact Mounting carrier for DIN 35 rail



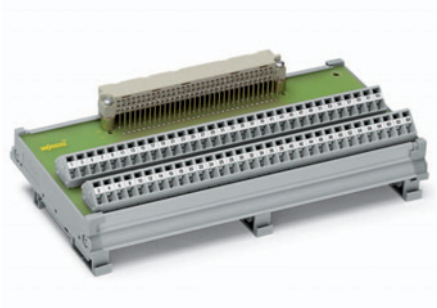


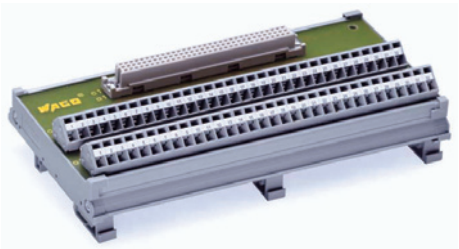


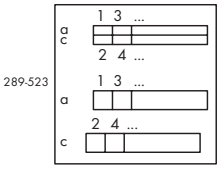
Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	32	97	**289-430**	1	64	171	**289-522**	1
	64	187	**289-431**	1	64	171	**289-526**	1

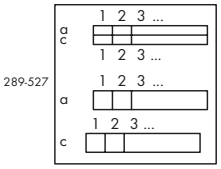
Technical Data		
Operating voltage	125 V AC / DC	125 V AC / DC
Nominal current	1 A	1 A
Connector contact	Copper alloy, gold plated	Copper alloy, gold plated
Contact resistance	≤ 20 mΩ	≤ 20 mΩ
Performance level	2 / 400 mating cycles	2 / 400 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	50 V / 0.8 kV / 2	125 V / 0.8 kV / 2
IEC 60664-1		
Dimensions (mm) W x H x L incl.	W x 21 x 63,5	W x 34 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

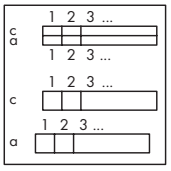
	Interface module for connectors acc. to DIN 41 612, with female connector, type C, mating direction horizontal, for female connector with IDC connection or with solder contact Mounting carrier for DIN 35 rail	Interface module for connectors acc. to DIN 41 612, with female connector, type C, mating direction vertical, for male connector with solder contact Mounting carrier for DIN 35 rail











Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	64	171	**289-523**	1	64	171	**289-531**	1
	64	171	**289-527**	1				

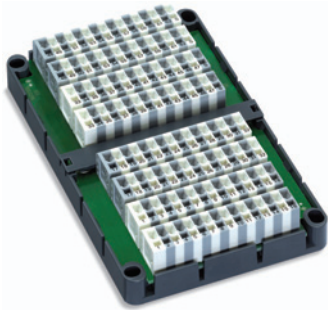
Technical Data

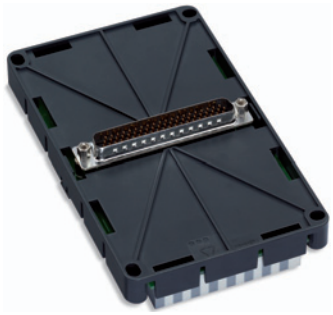
Operating voltage	125 V AC / DC	125 V AC / DC
Nominal current	1 A	1 A
Connector contact	Copper alloy, gold plated	Copper alloy, gold plated
Contact resistance	≤ 20 mΩ	≤ 20 mΩ
Performance level	2 / 400 mating cycles	2 / 400 mating cycles
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
IEC 60664-1		
Dimensions (mm) W x H x L incl.	W x 34 x 85	W x 34 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

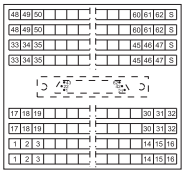
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Interface Modules

	Interface module with high density D-sub header for 19" racks	





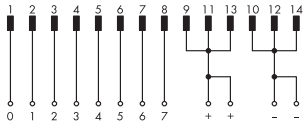
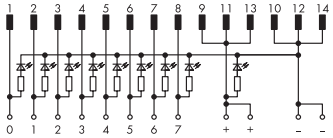


Description	**No. of Poles**	**Width**	**Item No.**	**Pack. Unit**	
Interface module for 19" racks	62	80	**289-822**	1	

Technical Data		
Operating voltage	125 V AC / DC	
Nominal current	1 A	
Connector contact	Copper alloy, gold-plated 0.8 µm	
Contact resistance	≤ 10 mΩ	
Performance level	2 to DIN 41652 400 mating cycles, without corrosion	
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	125 V / 0.8 kV / 2	
Touch-proof terminal strip	IP20	
Touch-proof HD D-sub header	IP00	
Dimensions (mm) W x H x L incl. mounting feet or mounting carrier	W x 27 x 132	
Wire connection	CAGE CLAMP® (WAGO 739 Series)	
Cross sections	0.08 mm² ... 1.5 mm² / AWG 28 ... 14 *	
	* (AWG14: THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.22 in	
Mounting direction	vertical	
Pull relief stud bolt	UNC 4-40	
Ambient operating temperature	-20 °C ... +55 °C	
Storage temperature	-40 °C ... +70 °C	
Approvals	EN 60664	

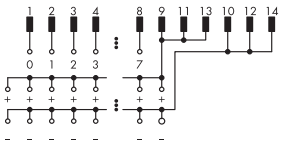
Interface Modules

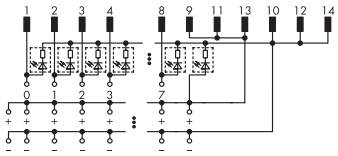
for Siemens-SIMATIC® S5-95 U to 155 U, S7-300/ET 200 M and S7-400

SIMATIC® is a registered trademark of the Siemens AG	Interface module, 8-pole, for Siemens-SIMATIC® S5-95 U to 155 U, S7-300/ET 200 M und S7-400 Single-wire connection, without LED Mounting carrier for DIN 35 rail	Interface module, 8-pole, for Siemens-SIMATIC® S5-95 U to 155 U, S7-300/ET 200 M und S7-400 Single-wire connection, with LED Mounting carrier for DIN 35 rail
		

Description	Width	Item No.	Pack. Unit	Width	Item No.	Pack. Unit
Interface module	44	**289-680**	1	44	**289-681**	1
Technical Data						
Operating voltage	125 V AC/DC			24 V DC		
Nominal current per signal wire	1 A			1 A		
Max. total current (supply)	2 A			2 A		
Connector contact	phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni			phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni		
Performance level	3			3		
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2					
IEC 60664-1						
Dimensions (mm) W x H x L incl.	W x 48 x 85			W x 48 x 85		
mounting feet or mounting carrier						
	Height from upper-edge of DIN 35 rail			Height from upper-edge of DIN 35 rail		
Wire connection	CAGE CLAMP® (WAGO 736 Series)			CAGE CLAMP® (WAGO 736 Series)		
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12			0.08 mm² ... 2.5 mm² / AWG 28 ... 12		
Stripped lengths	5 ... 6 mm / 0.22 in			5 ... 6 mm / 0.22 in		
Accessories						
WMB Multi marking system for mounting carrier	see page 323			see page 323		
Marker strips for mounting carrier	white 709-198 / transparent 709-197			white 709-198 / transparent 709-197		

SIMATIC® is a registered trademark of the Siemens AG	Interface module, 8-pole, for Siemens-SIMATIC® S5-95 U to 155 U, S7-300/ET 200 M und S7-400 3-wire sensors, without LED Mounting carrier for DIN 35 rail	Interface module, 8-pole, for Siemens-SIMATIC® S5-95 U to 155 U, S7-300/ET 200 M und S7-400 3-wire sensors, with LED Mounting carrier for DIN 35 rail





Description	Width	Item No.	Pack. Unit	Width	Item No.	Pack. Unit
Interface module	54	**289-682**	1	54	**289-683**	1

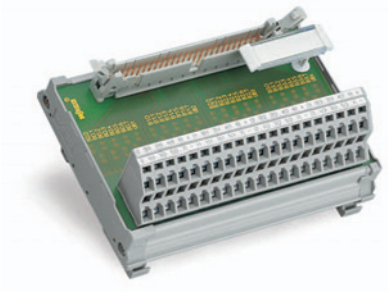
Technical Data

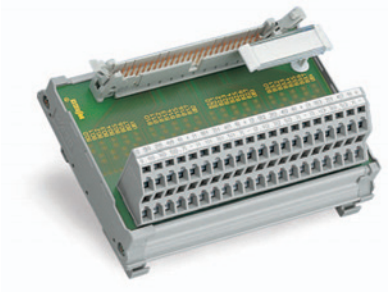
Operating voltage	125 V AC/DC	24 V DC
Nominal current per signal wire	1 A	1 A
Max. total current (supply)	2 A	2 A
Connector contact	phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni	phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni
Performance level	3	3
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2	
IEC 60664-1		
Dimensions (mm) W x H x L incl.	W x 62 x 85	W x 62 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 737 Series)	CAGE CLAMP® (WAGO 737 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

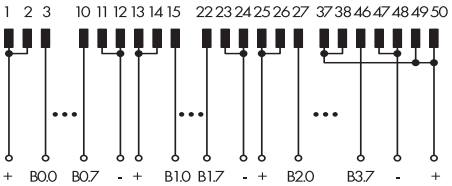
Interface Modules

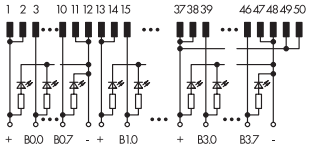
for Siemens-SIMATIC® S5-95 U to 155 U, S7-300/ET 200 M and S7-400

SIMATIC® is a registered trademark of the Siemens AG	Interface module, 32-pole, for Siemens-SIMATIC® S5-95 U to 155 U, S7-300/ET 200 M und S7-400 Single-wire connection, without LED Mounting carrier for DIN 35 rail	Interface module, 32-pole, for Siemens-SIMATIC® S5-95 U to 155 U, S7-300/ET 200 M und S7-400 Single-wire connection, with LED Mounting carrier for DIN 35 rail





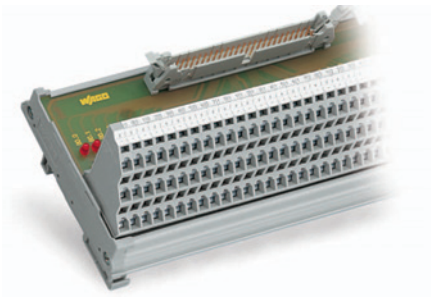


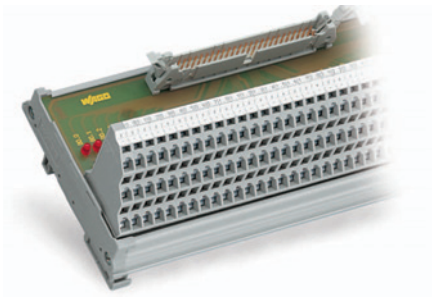


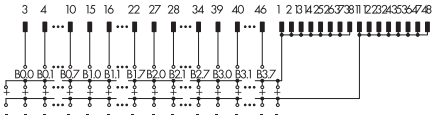
Description	Width	Item No.	Pack. Unit	Width	Item No.	Pack. Unit
Interface module	112	**289-684**	1	112	**289-685**	1

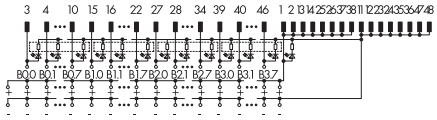
Technical Data		
Operating voltage	125 V AC/DC	24 V DC
Nominal current per signal wire	1 A	1 A
Max. total current (supply)	2 A / byte	2 A / byte
Connector contact	phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni	phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni
Performance level	3	3
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2	
IEC 60664-1		
Dimensions (mm) W x H x L incl.	W x 48 x 85	W x 48 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 736 Series)	CAGE CLAMP® (WAGO 736 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

SIMATIC® is a registered trademark of the Siemens AG	Interface module, 32-pole, for Siemens-SIMATIC® S5-95 U to 155 U, S7-300/ET 200 M und S7-400 3-wire sensors, without LED Mounting carrier for DIN 35 rail	Interface module, 32-pole, for Siemens-SIMATIC® S5-95 U to 155 U, S7-300/ET 200 M und S7-400 3-wire sensors, with LED Mounting carrier for DIN 35 rail









Description	Width	Item No.	Pack. Unit	Width	Item No.	Pack. Unit
Interface module	176	**289-686**	1	176	**289-687**	1

Technical Data

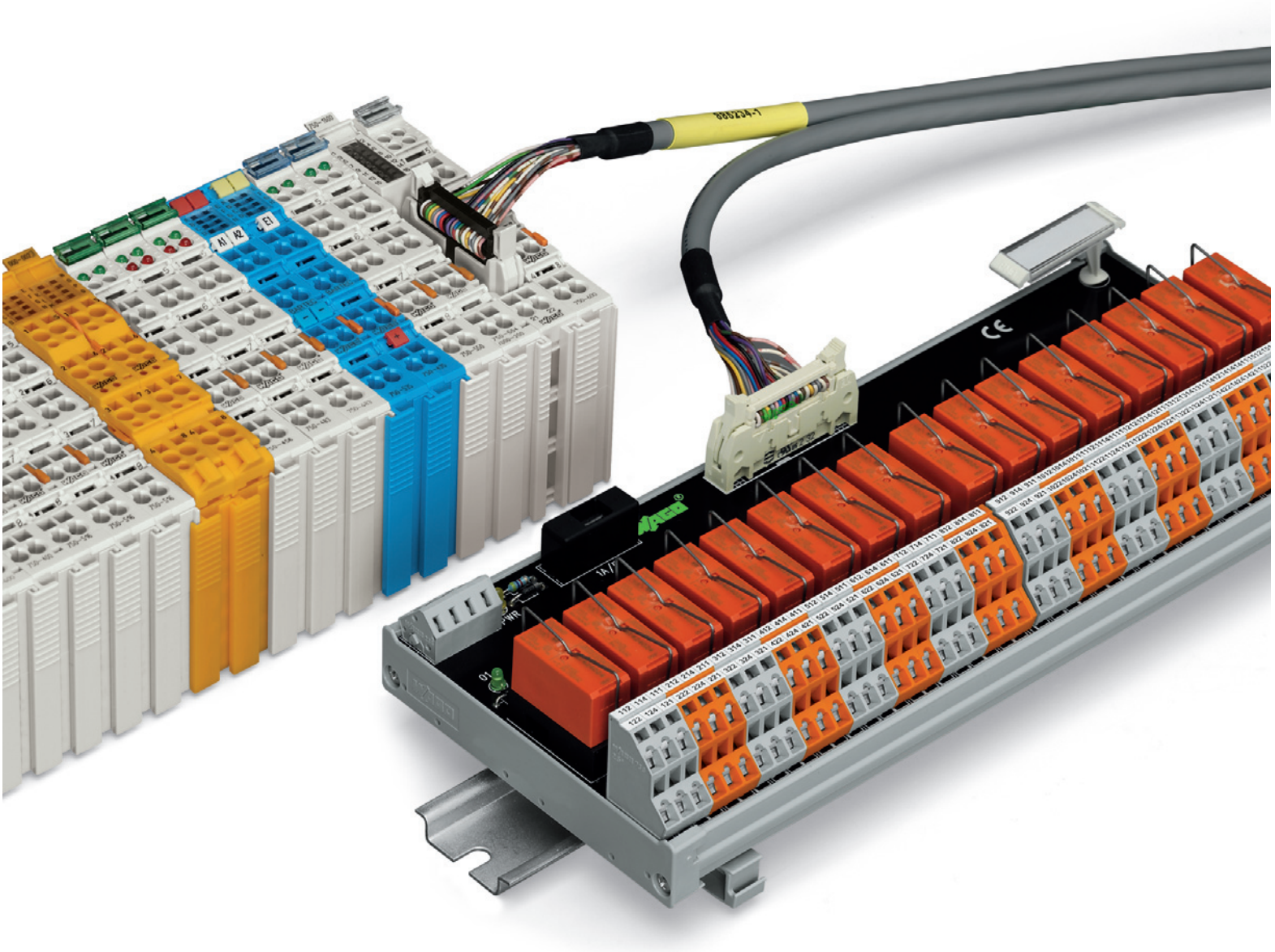
Operating voltage	125 V AC/DC	24 V DC
Nominal current per signal wire	1 A	1 A
Max. total current (supply)	2 A / byte	2 A / byte
Connector contact	phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni	phosphor-bronze, 0.38 µm Au selectively over 1.3 µm Ni
Performance level	3	3
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 0.8 kV / 2	
IEC 60664-1		
Dimensions (mm) W x H x L incl.	W x 62 x 85	W x 62 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 737 Series)	CAGE CLAMP® (WAGO 737 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

16-Channel I/O Module with Interface Module

The new 750-14xx and 750-15xx Series I/O Modules with flat ribbon cable connection offer 16 digital channels in a module less than 1⁄2 inch (12mm) wide. Offering quick connections and a space-efficient design, the DIN-rail mount interface modules simplify installation in confined areas and relocate the termination point. When combined with WAGO interface modules (e.g., item no. 289-614, 289-611), a switch cabinet can be pre-wired before install to minimize wiring time and errors. This is beneficial as wiring can be performed independently of a plant's construction. Pre-wired electronics can be installed right before start-up, saving valuable time during final stages of project completion. The modules are also ideal for connecting series machines or relay modules tasked with the higher loads common to buildings and industrial applications. The interface module also combines the advantages of relays (e.g., manual operation or rapid replacement with socked-mounted versions) with the benefits of a modern I/O system.
Another ideal application would be the integration of pneumatic controllers into a fieldbus network.
Most pneumatic modules have an appropriate connector and can be controlled by the WAGO-I/O-SYSTEM.

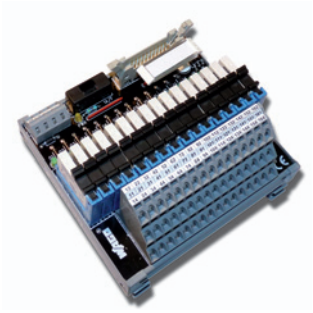
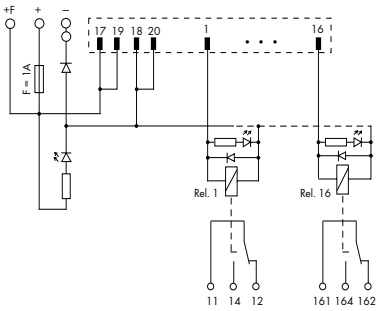
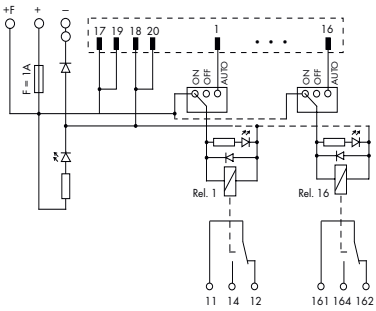
Five variants are available: two 16-channel input or output modules (one high-side and one low-side switching variant), as well as a version combining 8 inputs and 8 outputs.



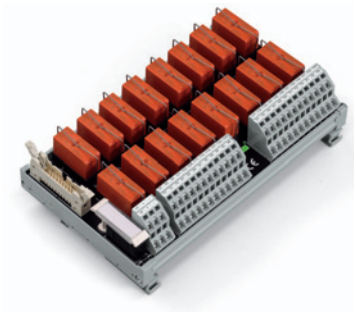
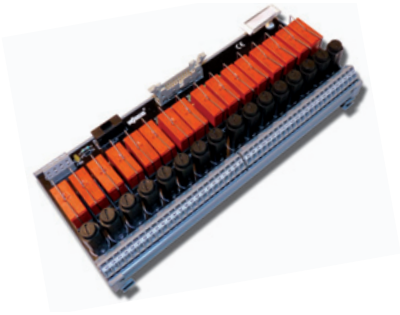
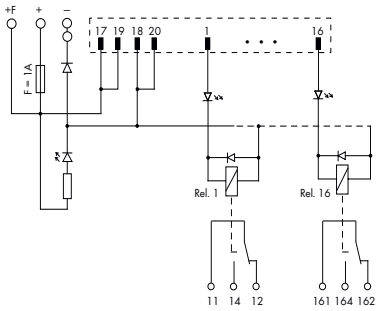
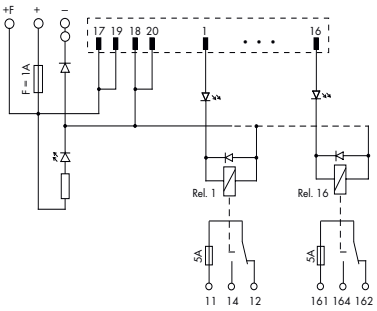
Application Examples

Item. No.	Designation	PLC	Card	
704-5024 704-5044 704-5004 704-5014 704-5034 704-5054 704-5074 704-5064	T16S	Siemens S7-300	6ES7 313-5BE01-0AB0	6ES7 314-6CG03-0AB0
			6ES7 313-5BF03-0AB0	6ES7 322-1BH01-0AA0
			6ES7 313-6BE01-0AB0	6ES7 322-1BH10-0AA0
			6ES7 313-6BF03-0AB0	6ES7 322-1BH80-0AA0
			6ES7 313-6CE01-0AB0	6ES7 322-1BL00-0AA0
			6ES7 313-6CF03-0AB0	6ES7 322-1BP00-0AA0
			6ES7 314-6BF01-0AB0	6ES7 322-1EH01-0AA0
			6ES7 314-6BG03-0AB0	6ES7 323-1BL00-0AA0
			6ES7 314-6CF01-0AB0	
		GEFANUC 90-30 / ALSPA 80-35	IC693 MDL740	IC693 MDL753
			IC693 MDL742	
		SCHNEIDER TSX 37 (Micro)	TSX DMZ 28DT	TSX DMZ 64DTK
			TSX DMZ 28DTK	
		SCHNEIDER TSX 57 (Premium)	TSX DSY 16T2	TSX DMY 28FK
			TSX DSY 32T2K	TSX DMY 28RFK
			TSX DSY 64T2K	
		SCHNEIDER M340	BMX DDO 1602	BMX DDO 6402K
			BMX DDO 3202K	BMX DDM 3202K
		SCHNEIDER QUANTUM	140 DDO 353 00	140 DDO 843 00
			140 DDO 353 01	140 DVO 853 00
			140 DDO 364 00	
		ROCKWELL COMPACT-LOGIX (1769)	1769 - OB16	1769 - OB32
			1769 - OB16P	1769 - OB32T
		ROCKWELL CONTROL-LOGIX (1756)	1756 - OB16D	1756 - OB32
			1756 - OB16E	
		WAGO-I/O-SYSTEM 750/753	753-530 (x2)	
			750-1500	
704-5003 704-5013	T8S	SIEMENS S7-300	6ES7 312-5BD01-0AB0	6ES7 322-8BF00-0AB0
			6ES7 312-5BE03-0AB0	6ES7 323-1BH01-0AA0
			6ES7 322-1BF01-0AA0	6ES7 327-1BH00-0AB0
		GEFANUC 90-30 / ALSPA 80-35	IC693 MDL730	TSX DSZ 08T2
			IC693 MDL732	TSX DSZ 08T2K
			TSX DSZ 04T22	TSX DMZ 16DTK
		SCHNEIDER TSX 57 (Premium)	TSX DSY 08T2	
		SCHNEIDER M340	BMX DDM 16022	
		SCHNEIDER QUANTUM	140 DDM 390 00	
		ROCKWELL COMPACT LOGIX (1769)	1769 - OB8	
		ROCKWELL CONTROL LOGIX (1756)	1756 - OB8	1756 - OB8I
			1756 - OB8EI	
		WAGO-I/O-SYSTEM 750/753	753-530	
			750-1502, -1500	

Interface Modules for System Wiring

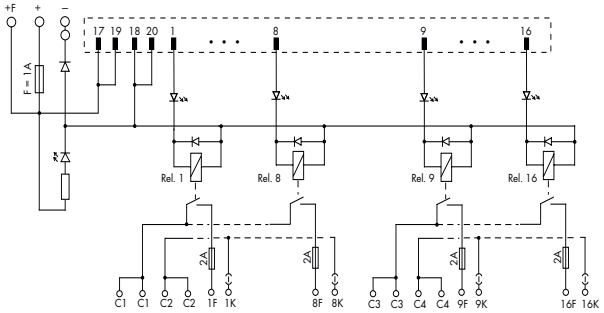
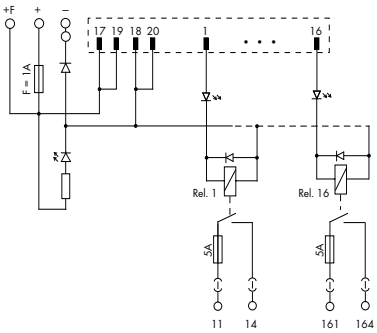
	Relay output module with miniature switching relay for 16 channels, 1 changeover contact each (1 u) with integrated status indication, 20-pole ribbon cable connector to DIN 41651	Relay output module with miniature switching relay for 16 channels, 1 changeover contact each (1 u) with integrated status indication and manual operation, 20-pole ribbon cable connector to DIN 41651
		
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching relay module, for DIN 35 rail	**704-5024**	1	**704-5044**	1
Technical Data				
Contact material	AgNi 90/10		AgNi 90/10	
Contact type	1 changeover contact		1 changeover contact	
Operating voltage	24 V DC (± 10 %)		24 V DC (± 10 %)	
Max. switching voltage	250 V AC / 48 V DC		250 V AC / 48 V DC	
Max. continuous current	5 A		5 A	
Max. switching power (resistive)	1250 VA / 50 W		1250 VA / 50 W	
Status indication	LED green : Channel		LED green : Channel	
	LED yellow : Power supply		LED yellow : Power supply	
Mechanical life	10 x 10^6 switching operations		10 x 10^6 switching operations	
Dielectric strength contact-coil (AC, 1 min)	4 kV		4 kV	
Dielectric strength contact-contact	1 kV		1 kV	
Fuse	Supply: 1 A		Supply: 1 A	
	Relay output: –		Relay output: –	
Ambient operating temperature	-25 °C ... +40 °C		-25 °C ... +40 °C	
Storage temperature	-40 °C ... +70 °C		-40 °C ... +70 °C	
Dimensions (mm) L x W x H incl. mounting carrier and relay	111 x 65 x 105		121 x 65 x 105	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	Input: 20-pole ribbon cable connector to DIN 41651		Input: 20-pole ribbon cable connector to DIN 41651	
	Output: CAGE CLAMP®		Output: CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12		0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
Stripped lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Application examples	see page 173		see page 173	
Accessories	Spare relay 857-152		Spare relay 857-152	

	Relay output module with miniature switching relay for 16 channels, 1 changeover contact each (1 u) with integrated status indication, 20-pole ribbon cable connector to DIN 41651	Relay output module with miniature switching relay for 16 channels, 1 changeover contact each (1 u) with integrated status indication and output fuse, 20-pole ribbon cable connector to DIN 41651
		
		

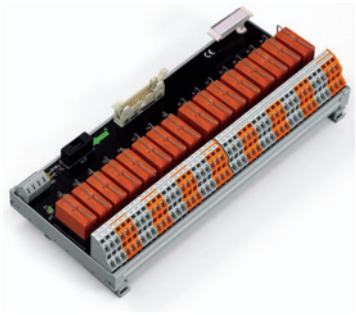
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching relay module, for DIN 35 rail	**704-5004**	1	**704-5034**	1
Switching relay module without miniature switching relay, for DIN 35 rail	**704-5014**	1		
Technical Data				
Contact material	AgNi 90/10		AgNi 90/10	
Contact type	1 changeover contact		1 changeover contact	
Operating voltage	24 V DC (± 10 %)		24 V DC (± 10 %)	
Max. switching voltage	250 V AC / 48 V DC		250 V AC / 48 V DC	
Max. continuous current	5 A		5 A	
Inrush current	2 s 16 A		2 s 16 A	
Max. switching power (resistive)	1250 VA / 50 W		1250 VA / 50 W	
Status indication	LED green : Channel		LED green : Channel	
	LED yellow : Power supply		LED yellow : Power supply	
Mechanical life	30 x 10^6 switching operations		30 x 10^6 switching operations	
Dielectric strength contact-coil (AC, 1 min)	3 kV		4 kV	
Dielectric strength contact-contact	1 kV		1 kV	
Fuse	Supply: 1 A		Supply: 1 A	
	Relay output: –		Relay output: 5 A	
Ambient operating temperature	-25 °C ... +50 °C		-25 °C ... +50 °C	
Storage temperature	-40 °C ... +70 °C		-40 °C ... +70 °C	
Dimensions (mm) L x W x H incl. mounting carrier and relay	180 x 50 x 105		247 x 55 x 105	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	Input: 20-pole ribbon cable connector to DIN 41651		Input: 20-pole ribbon cable connector to DIN 41651	
	Output: CAGE CLAMP®		Output: CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12		0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
Stripped lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Application examples	see page 173		see page 173	
Accessories	Spare relay 788-154		Spare relay 788-154	

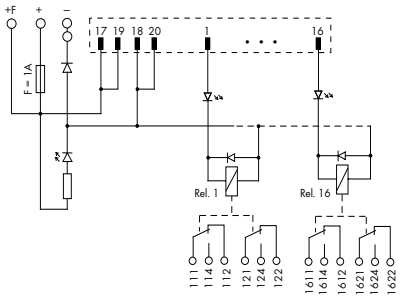
Interface Modules for System Wiring

	Relay output module with miniature switching relay for 16 channels, 1 make contact each (1 a) with integrated status indication, disconnect terminal block and output fuse, 20-pole ribbon cable connector to DIN 41651	Relay output module with miniature switching relay for 16 channels, 1 make contact each (1 a) with integrated status indication, double disconnect terminal block and output fuse, 20-pole ribbon cable connector to DIN 41651
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching relay module, for DIN 35 rail	**704-5054**	1	**704-5074**	1
Technical Data				
Contact material	AgNi 90/10		AgNi 90/10	
Contact type	1 make contact		1 make contact	
Operating voltage	24 V DC (± 10 %)		24 V DC (± 10 %)	
Max. switching voltage	250 V AC / 48 V DC		250 V AC / 48 V DC	
Max. continuous current	2 A		5 A	
Max. switching power (resistive)	500 VA / 50 W		1250 VA / 50 W	
Status indication	LED green : Channel		LED green : Channel	
	LED yellow : Power supply		LED yellow : Power supply	
Mechanical life	30 x 10^6 switching operations		30 x 10^6 switching operations	
Dielectric strength contact-coil (AC, 1 min)	4 kV		4 kV	
Dielectric strength contact-contact	1 kV		1 kV	
Fuse	Supply: 1 A		Supply: 1 A	
	Relay output: 2 A		Relay output: 5 A	
Ambient operating temperature	-25 °C ... +50 °C		-25 °C ... +50 °C	
Storage temperature	-40 °C ... +70 °C		-40 °C ... +70 °C	
Dimensions (mm) L x W x H incl. mounting carrier and relay	240 x 55 x 105		240 x 55 x 105	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	Input: 20-pole ribbon cable connector to DIN 41651		Input: 20-pole ribbon cable connector to DIN 41651	
	Output: CAGE CLAMP®		Output: CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12		0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
Stripped lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Application examples	see page 173		see page 173	
Accessories	Spare relay 788-154		Spare relay 788-154	

	Relay output module with miniature switching relay for 16 channels, 2 changeover contacts each (2 u) with integrated status indication, 20-pole ribbon cable connector to DIN 41651	



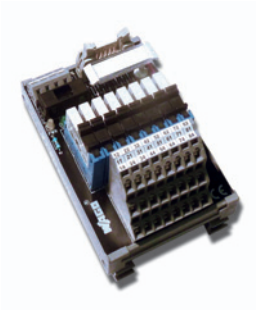
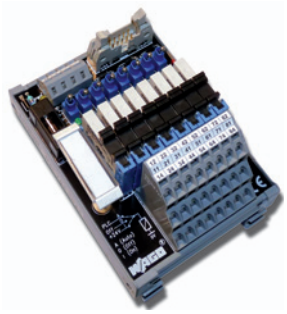
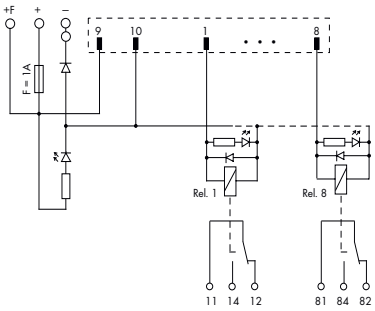
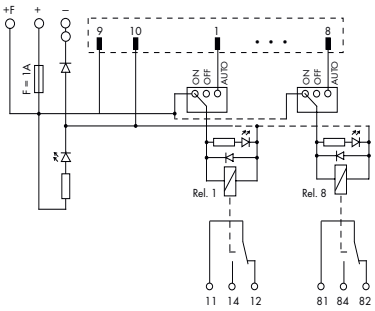


Description	Item No.	Pack. Unit	
Switching relay module, for DIN 35 rail	**704-5064**	1	

Technical Data

Contact material	AgNi 90/10	
Contact type	2 changeover contact	
Operating voltage	24 V DC (± 10 %)	
Max. switching voltage	250 V AC / 48 V DC	
Max. continuous current	5 A	
Inrush current	2 s 8 A	
Max. switching power (resistive)	1000 VA / 50 W	
Status indication	LED green : Channel	
	LED yellow : Power supply	
Mechanical life	30 x 10^6 switching operations	
Dielectric strength contact-coil (AC, 1 min)	4 kV	
Dielectric strength contact-contact	1 kV	
Fuse	Supply: 1 A	
	Relay output: –	
Ambient operating temperature	-25 °C ... +50 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) L x W x H incl. mounting carrier and relay	247 x 50 x 105	
	Height from upper-edge of DIN 35 rail	
Wire connection	Input: 20-pole ribbon cable connector to DIN 41651	
	Output: CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
Stripped lengths	5 ... 6 mm / 0.22 in	
Application examples	see page 173	
Accessories	Spare relay 788-156	

Interface Modules for System Wiring

	Relay output module with miniature switching relay for 8 channels, 1 changeover contact each (1 u) with integrated status indication, 10-pole ribbon cable connector to DIN 41651	Relay output module with miniature switching relay for 8 channels, 1 changeover contact each (1 u) with integrated status indication and manual operation, 10-pole ribbon cable connector to DIN 41651
		
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching relay module, for DIN 35 rail	**704-5003**	1	**704-5013**	1
Technical Data				
Contact material	AgNi 90/10		AgNi 90/10	
Contact type	1 changeover contact		1 changeover contact	
Operating voltage	24 V DC (± 10 %)		24 V DC (± 10 %)	
Max. switching voltage	250 V AC / 48 V DC		250 V AC / 48 V DC	
Max. continuous current	5 A		5 A	
Max. switching power (resistive)	1250 VA / 50 W		1250 VA / 50 W	
Status indication	LED green : Channel		LED green : Channel	
	LED yellow : Power supply		LED yellow : Power supply	
Mechanical life	10 x 10^6 switching operations		10 x 10^6 switching operations	
Dielectric strength contact-coil (AC, 1 min)	4 kV		4 kV	
Dielectric strength contact-contact	1 kV		1 kV	
Fuse	Supply: 1 A		Supply: 1 A	
	Relay output: –		Relay output: –	
Ambient operating temperature	-25 °C ... +40 °C		-25 °C ... +40 °C	
Storage temperature	-40 °C ... +70 °C		-40 °C ... +70 °C	
Dimensions (mm) L x W x H incl. mounting carrier and relay	70 x 65 x 105		75 x 65 x 105	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	Input: 10-pole ribbon cable connector to DIN 41651		Input: 10-pole ribbon cable connector to DIN 41651	
	Output: CAGE CLAMP®		Output: CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12		0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
Stripped lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Application examples	see page 173		see page 173	
Accessories	Spare relay 857-152		Spare relay 857-152	

WAGO Ribbon Cables

WAGO ribbon cables provide fast and easy connection of WAGO I/O modules equipped with a ribbon cable connector (750-1400, -1402, -1500, -1501, 1502) to appropriate interface or relay modules (16-channel) featuring a 20-pole female connector. The cables are available in 1-, 2- and 3-meter lengths; each has one 20-pole female connector at both ends.

WAGO ribbon cables provide fast and easy connection of WAGO I/O modules equipped with a ribbon cable connector (750-1400, -1402, -1500, -1501, 1502) to appropriate interface or relay modules featuring a 10-pole female connector. For example, this cable connects 2 relay modules (8-channel) to a WAGO I/O module. The cables are available in 1- and 2-meter lengths; each has one 20-pole and two 10-pole female connectors on the ends.

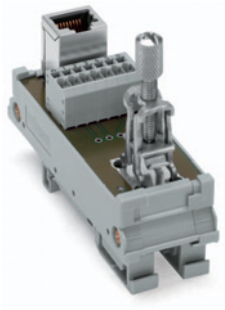
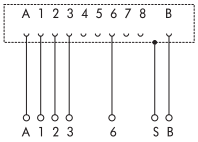
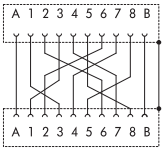
Description	Item No.	Pack. Unit
WAGO ribbon cable 20/20, lenght 1 m	**706-3057/300-100**	1
WAGO ribbon cable 20/20, lenght 2 m	**706-3057/300-200**	1
WAGO ribbon cable 20/20, lenght 3 m	**706-3057/300-300**	1

Technical Data	
Connections	2 x 20-pole female connector acc. to DIN 41651
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	1 m (706-3057/300-100) 2 m (706-3057/300-200) 3 m (706-3057/300-300)

Description	Item No.	Pack. Unit
WAGO ribbon cable 20/2x10, lenght 1 m	**706-7753/302-100**	1
WAGO ribbon cable 20/2x10, lenght 2 m	**706-7753/302-200**	1

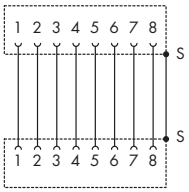
Technical Data	
Connections	1 x 20-pole / 2 x 10-pole female connector
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	1 m (706-7753/302-100) 2 m (706-7753/302-200)

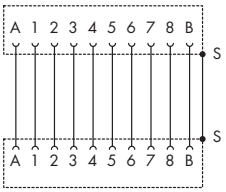
Interface Modules

	RJ-45 interface module with shield clamping unit for WAGO shield (screen) clamping saddle Mounting carrier for DIN 35 rail	RJ-45 interface module cross-over connection Mounting carrier for DIN 35 rail
		
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Interface module	**289-178**	1	**289-177**	1
Technical Data				
Connecting cable	min. CAT5		min. CAT5	
Max. transmission length	100 m		100 m	
Connector	RJ-45 shielded		RJ-45 shielded	
Min. mating cycles	1000		1000	
Current load	≤ 2.1 A		≤ 2.1 A	
Voltage load	35 V AC / 50 V DC		35 V AC / 50 V DC	
Insulation resistance	> 500 MΩ		> 500 MΩ	
Dielectric strength contact-contact	1 kV eff.		1 kV eff.	
Contact resistance	typ. 40 mΩ		typ. < 40 mΩ	
WAGO shield (screen) clamping saddle	11 mm wide; cable diameter up to 8 mm			
Ambient operating temperature	-20 °C ... +85 °C		-20 °C ... +85 °C	
Dimensions (mm) W x H x L incl.	30 x 67 x 85		30 x 51 x 85	
mounting feet or mounting carrier				
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 739 Series)			
Cross sections	0.08 mm² ... 1.5 mm² / AWG 28 ... 14			
Stripped lengths	5 ... 6 mm / 0.22 in			
Approvals	ISO/IEC 11801: 2002-09; EN 55022		ISO/IEC 11801: 2002-09; EN 55022	
Accessories				
WMB Multi marking system for mounting carrier	see page 323		see page 323	
Marker strips for mounting carrier	white 709-198 / transparent 709-197		white 709-198 / transparent 709-197	

	RJ-45 interface module Mounting carrier for DIN 35 rail	RJ-45 interface module Mounting carrier for DIN 35 rail





Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Interface module	**289-172**	1	**289-176**	1

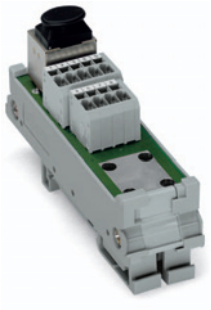
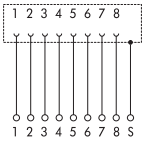
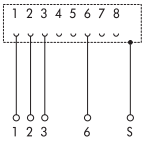
Technical Data

Connecting cable	min. CAT5	min. CAT5
Max. transmission length	100 m	100 m
Connector	RJ-45 shielded	RJ-45 shielded
Min. mating cycles	500	1000
Current load	≤ 1.5 A	≤ 2.1 A
Voltage load	30V AC / 42 V DC	35 V AC / 50 V DC
Insulation resistance	> 500 MΩ	> 500 MΩ
Dielectric strength contact-contact	1 kV eff.	1 kV eff.
Contact resistance typ.	< 20 mΩ	< 40 mΩ
Ambient operating temperature	-20 °C ... +85 °C	-20 °C ... +85 °C
Dimensions (mm) W x H x L incl.	20,5 x 51 x 85	30 x 51 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Approvals	ISO/IEC 11801: 2002-09; EN 55022	ISO/IEC 11801: 2002-09; EN 55022

Accessories

WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

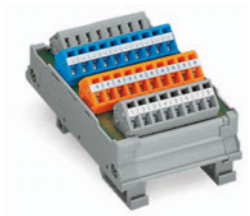
Interface Modules

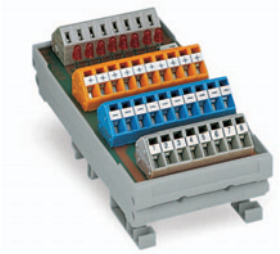
	RJ-45 interface module with shield clamping unit for WAGO shield (screen) clamping saddle Mounting carrier for DIN 35 rail	RJ-45 interface module with shield clamping unit for WAGO shield (screen) clamping saddle Mounting carrier for DIN 35 rail
		
		
Description	**Item No.** / **Pack. Unit**	**Item No.** / **Pack. Unit**
Interface module	**289-175** / 1	**289-174** / 1
Technical Data		
Connecting cable	min. CAT5	min. CAT5
Max. transmission length	100 m	100 m
Connector	RJ-45 shielded	RJ-45 shielded
Min. mating cycles	500	500
Current load	≤ 1.5 A	≤ 1.5 A
Insulation resistance	> 500 MΩ	> 500 MΩ
Dielectric strength contact-contact	1 kV eff.	1 kV eff.
Contact resistance	typ. < 20 mΩ	typ. < 20 mΩ
Ambient operating temperature	-20 °C ... +85 °C	-20 °C ... +85 °C
Dimensions (mm) W x H x L incl.	24 x 40 x 85	24 x 40 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 739 Series)	CAGE CLAMP® (WAGO 739 Series)
Cross sections	0.08 mm² ... 1.5 mm² / AWG 28 ... 14	0.08 mm² ... 1.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	ISO/IEC 11801: 2002-09; EN 55022	ISO/IEC 11801: 2002-09; EN 55022
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197
WAGO shield (screen) clamping saddle	790-108 (11 mm wide; cable diameter up to 8 mm)	790-108 (11 mm wide; cable diameter up to 8 mm)

Connection Modules for Sensors and Actuators

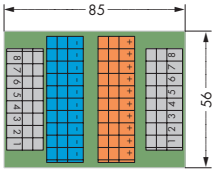
Front-entry

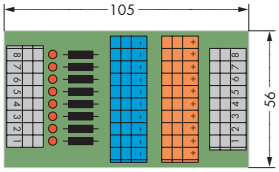
	Connection module for 8 x 3-conductor sensors	Connection module for 8 x 3-conductor sensors LED indicator for positive or negative switching





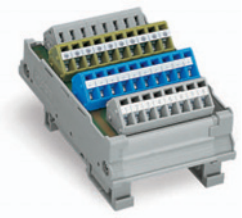
Graphic 289-665

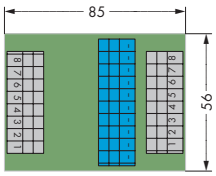


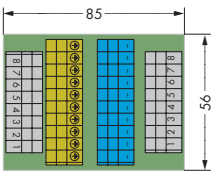


Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Connection module	**289-664**	1	**289-665**	1
			289-666	1
Technical Data				
Operating voltage	125 V AC/DC		24 V DC (± 10 %)	
Max. current per connection	1 A		1 A	
Max. total current	8 A		8 A	
Power consumption LED			5.2 mA	
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	125 V / 1.5 kV / 2			
Dimensions (mm) W x H x L incl. mounting feet or mounting carrier	56 x 34 x 85		56 x 34 x 105	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 236 Series)		CAGE CLAMP® (WAGO 236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12		0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
Stripped lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Accessories				
WMB Multi marking system for mounting carrier	see page 323		see page 323	
Marker strips for mounting carrier	white 709-198 / transparent 709-197		white 709-198 / transparent 709-197	

	Connection module for 8 actuators	Connection module for 8 actuators with ground (earth) contact







Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Connection module	**289-667**	1	**289-671**	1

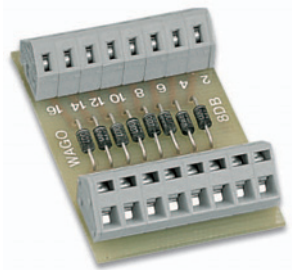
Technical Data

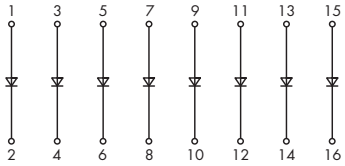
Operating voltage	125 V AC/DC	125 V AC/DC
Max. current per connection	1 A	1 A
Max. total current	8 A	8 A
Nominal voltage acc. to VDE 0110 Part 1/4.97,	125 V / 1.5 kV / 2	125 V / 1.5 kV / 2
IEC 60664-1		
Dimensions (mm) W x H x L incl.	56 x 34 x 85	56 x 34 x 85
mounting feet or mounting carrier		
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

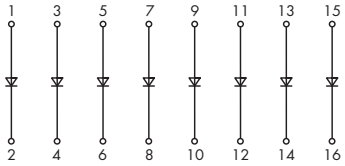
Accessories		
WMB Multi marking system for mounting carrier	see page 323	see page 323
Marker strips for mounting carrier	white 709-198 / transparent 709-197	white 709-198 / transparent 709-197

Rail-Mounted Modules - Diode Gates

	Open diode gate with 8 diodes 1 N 4007 can be connected individually	Open diode gate with 8 diodes P 600 B can be connected individually







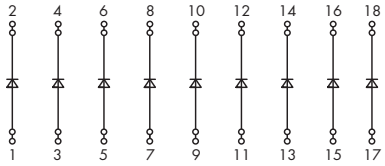
* Max. admissible current acc. to the manufacter's data sheet. With all diodes loaded, the continuous current must be reduced.

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Open diode gate	**289-101**	1	**289-103**	1

Technical Data		
Operating voltage	250 V AC/DC	100 V AC/DC
Peak reverse voltage	1000 V	100 V
Rectified current for each diode *	1 A	6 A
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +30 °C
Dimensions (mm) L x W x H incl. mounting carrier and universal mounting feet	47 x 31.5 x 65.5	47 x 31.5 x 65.5
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

Accessories	Item No.	Pack. Unit	Item No.	Pack. Unit
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1	**288-001**	1
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails (also see page 258)	**288-002**	10	**288-002**	10

	Open diode gate with 9 diodes 1 N 5408 can be connected individually 2 inputs/2 outputs per diode including Mounting carrier for DIN 35 rail	



* Max. admissible current acc. to the manufacter's data sheet. With all diodes loaded, the continuous current must be reduced.

Description	Item No.	Pack. Unit	
Open diode gate	**289-105**	1	

Technical Data

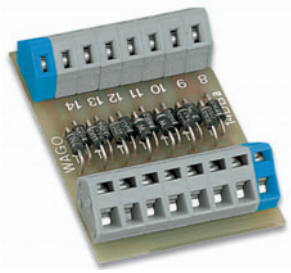
Operating voltage	250 V AC/DC	
Peak reverse voltage	1000 V	
Rectified current for each diode *	3 A	
Rectified current for each diode	10 µA	
Forward voltage for each Diode	1.3 V	
Forward current (resistent) for each diode	3 A	
Nominal voltage acc. to VDE 0110 Part 1/4.97,	250 V / 4 kV / 3	
IEC 60664-1		
Ambient operating temperature	-25 °C ... +40 °C	
Dimensions (mm) L x W x H incl. mounting carrier and	51 x 48 x 85	
universal mounting feet		
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 736 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
Stripped lengths	5 ... 6 mm / 0.22 in	

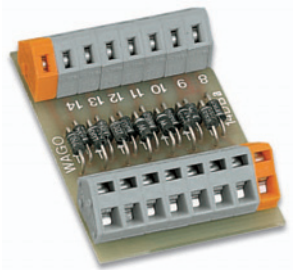
Accessories

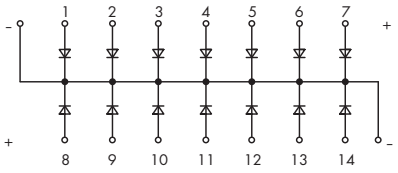
WMB Multi marking system for mounting carrier	see page 323	
Marker strips for mounting carrier	white 709-198 / transparent 709-197	

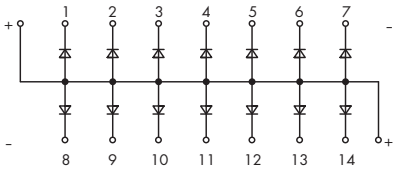
Rail-Mounted Modules - Diode Gates

	Polarized diode gate with 14 diodes 1 N 4007 common cathode	Polarized diode gate with 14 diodes 1 N 4007 common anode









* Max. admissible current acc. to the manufacter's data sheet. With all diodes loaded, the continuous current must be reduced.

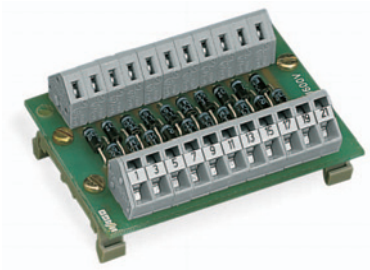
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Polarized diode gate	**289-111**	1	**289-121**	1

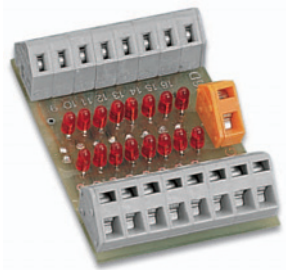
Technical Data

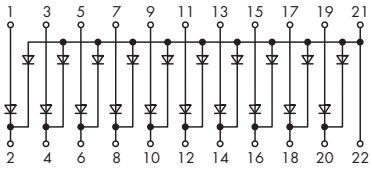
Operating voltage	250 V AC/DC	250 V AC/DC
Peak reverse voltage	1000 V	1000 V
Rectified current for each diode *	1 A	1 A
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x W x H incl. mounting carrier and universal mounting feet	47 x 31.5 x 65.5	47 x 31.5 x 65.5
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

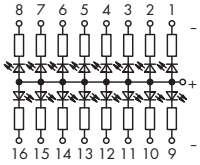
Accessories	Item No.	Pack. Unit	Item No.	Pack. Unit
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1	**288-001**	1
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails (also see page 258)	**288-002**	10	**288-002**	10

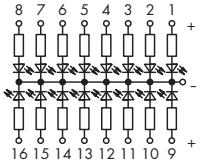
	Lamp test circuit module with 20 diodes for testing 10 lamps with Mounting feet for DIN 35 rail	LED gate module with 16 LEDs, common anode or cathode











Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Gate module	**289-151**	1	**289-202**	1
			289-201	1

Technical Data

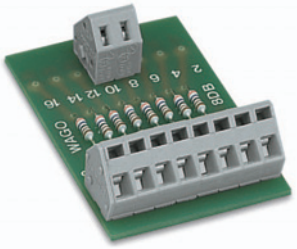
Operating voltage	250 V AC/DC	24 V DC
Operating voltage range	0 V ... 250 V AC/DC	20 V ... 26 V DC
Power consumption at V_N		5.6 mA each LED
Peak reverse voltage	1600 V	
Rectified current for each diode, resistive	1 A	
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) W x H x L incl. mounting feet or mounting carrier	69 x 21 x 50	47 x 31.5 x 65.5
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

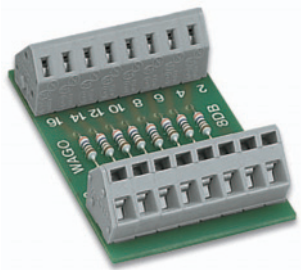
Accessories

	Item No.	Pack. Unit
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails (also see page 258)	**288-002**	10

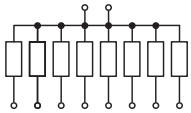
Rail-Mounted Modules - Resistor Gates

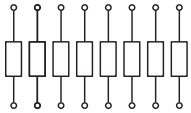
	Resistor gate with 1 end commoned, 8 resistors 2 k 2; 1 W	Open resistor gate with 8 resistors 2 k 7; 0.6 W individual connection possible





other resistors – contact factory



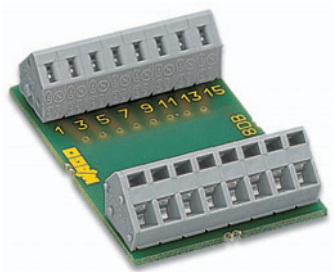


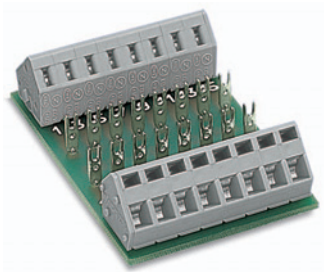
* Max. admissible power dissipation of a single resistor. With all resistors loaded, the max. admissible power dissipation must be reduced.

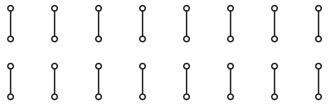
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Resistor gate	**289-113**	1	**289-114**	1
Technical Data				
Operating voltage	40 V AC/DC		40 V AC/DC	
Resistor type	DIN 0414		DIN 0207	
Temperature coefficient	50 ppm		50 ppm	
Tolerance	± 1%		± 1%	
Power dissipation *	1 W		0.6 W	
Ambient operating temperature	-25 °C ... +40 °C		-25 °C ... +40 °C	
Dimensions (mm) L x W x H incl. mounting carrier and universal mounting feet	47 x 31.5 x 65.5		47 x 31.5 x 65.5	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 236 Series)		CAGE CLAMP® (WAGO 236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12		0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
Stripped lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Accessories	**Item No.**	**Pack. Unit**	**Item No.**	**Pack. Unit**
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1	**288-001**	1
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails (also see page 258)	**288-002**	10	**288-002**	10

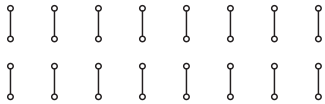
Rail-Mounted Modules for Building Custom Circuits

	Module with 2 x 8 drilled holes Diameter of drilled holes 1 mm, Pin spacing 3.83 mm x 16 mm	Module with 2 x 8 soldering points Pin spacing 5 mm x 12 mm









Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Module for building custom circuits	**289-102**	1	**289-131**	1

Technical Data		
Operating voltage	250 V AC/DC	250 V AC/DC
Nominal current	3 A	3 A
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Dimensions (mm) L x W x H incl. mounting carrier and universal mounting feet	42.5 x 32 x 62.5	42.5 x 32 x 62.5
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

Accessories	Item No.	Pack. Unit	Item No.	Pack. Unit
Mounting carrier, for screw-fixing or DIN-rail mounting (with snap-fit type universal mounting feet to be ordered separately)	**288-001**	1	**288-001**	1
Universal mounting foot; snap-fit type; suitable for DIN 15, 32 and 35 rails (also see page 258)	**288-002**	10	**288-002**	10

WAGO Application: Danone Group, Ochsenfurt Plant, Germany
Producer of yogurt and other dairy-based products

WAGO Products:
WAGO-I/O-SYSTEM with PROFIBUS Couplers

3

857 Series

JUMPFLEX® Transducers 194 – 219
WAGOframe 220
WAGO USB Service Cable 221
Accessories, 857 Series 222
JUMPFLEX® 8-Channel Adapters for System Wiring 223

286 Series

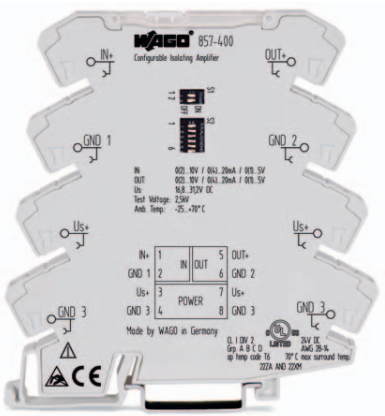
Pluggable Modules - Temperature Transducers 224 – 228

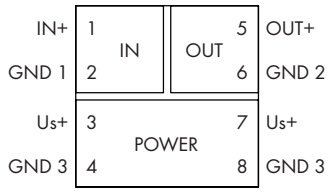
786 Series

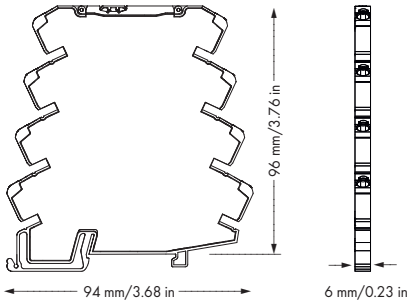
Pluggable Modules - Analog Signal Conditioning 230 – 232
Accessories 233

JUMPFLEX® Transducers

Isolation amplifier, with zero/span adjustment







Short description:
The configurable 857-400 Isolation Amplifier is used to convert, amplify, filter and electrically isolate analog standard signals. The device has a 3-way isolation with a 2.5kV test voltage. On the input and output side, the following signals can be configured via DIP switches that are accessible from the side of the housing:
0 - 10V, 2 - 10V, 0 - 20mA, 4 - 20mA, 0 - 5V and 1 - 5V.
Measurement range switching is calibrated.

The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way. A green LED on the front panel indicates normal operation. The isolation amplifier meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Isolation amplifier, with zero/span adjustment	**857-400**	1

Accessories

General accessories	see pages 222 - 223

Approvals

Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

Configuration	DIP switch
Input signal	0 ... 20 mA, 4 ... 20 mA,
	0... 5 V, 0 ... 10 V, 2 ... 10 V, 1 ... 5 V
	(calibrated switchable)
Input resistance	≤ 50 Ω (In = mA)
	≥ 100 kΩ (In = V)
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0... 5 V, 0 ... 10 V, 2 ... 10 V, 1 ... 5 V
	(calibrated switchable)
Load impedance	600 Ω (Out = mA)
	2 kΩ (Out = V)
Max. operating frequency	100 Hz / > 5 kHz
	(switchable via DIP switch)
Response time (T_{10-90})	< 3.5 ms / < 100 µs
Zero/span adjustment	± 3 %
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 V DC	< 25 mA
Transmission error	< 0.1 % of the full scale value
Temperature coefficient	0.01 % /K
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

DIP Switch Adjustability

● = ON

857-400

Dip Switch S1 (2-fold)

Input Signal		
1	2	
●		0 ... 20 mA
●		4 ... 20 mA
	●	0 ... 10 V
	●	2 ... 10 V
		0 ... 5 V
		1 ... 5 V

Dip Switch S2 (6-fold)

Output Signal				Transmission			Max. Operating Frequency	
1	2	3		4	5		6	
			0 ... 20 mA			Input / Output 1 : 1		$f_{max.}$ approx.. 5 kHz
			4 ... 20 mA		●	Input LZ / Output DZ	●	$f_{max.}$ < 100 Hz
●	●		0 ... 10 V	●		Input DZ / Output LZ		
●	●		2 ... 10 V					
●	●	●	0 ... 5 V					
●	●	●	1 ... 5 V					

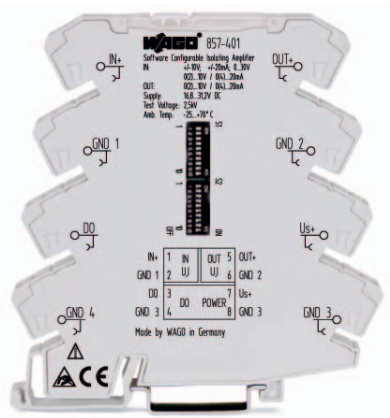
LZ = Live Zero (displaced zero-point, e.g., 4 - 20 mA)
DZ = Dead Zero (e.g., 0 - 20 mA)

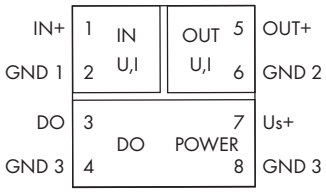
Default Settings

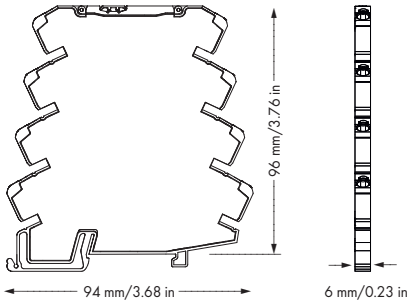
- Input: 0 ... 20 mA
- Output: 0 ... 20 mA
- Max. Operating Frequency: > 5 kHz

JUMPFLEX® Transducers

Isolation amplifier, configurable with digital output







Short description:
The software-configurable 857-401 Isolation Amplifier is used to convert, amplify, filter and electrically isolate analog standard signals. The device has a 3-way isolation with a 2.5kV test voltage. DIP switches accessible from the side can be used to configure the signals in both input and output.
In addition to standard signals, bipolar (± 10V, ± 20mA) and 0 to 30V signals can also be set on the input side. The analog output supports standard unipolar signals. In addition, the devices can be configured using FDT/DTM software. The software offers additional setting options such as special input and output signal combinations with intermediate values or inversion of the analog output. Measurement range switching is calibrated. A digital switching output is available that can also be configured using software.

The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way. A green LED on the front panel indicates normal operation. The isolation amplifier meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Isolation amplifier, configurable with digital output	**857-401**	1

Accessories

Configuration software	- 759-370 FDT Frame Application
	- DTM (Device Tool Manager)
	Download: see www.wago.com
WAGO USB Service Cable	750-923
General accessories	see pages 222 - 223

Approvals

Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I Div2 ABCD T4
Conformity marking	CE

General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

Configuration	DIP switch or configuration software
Input signal	-10 ... +10 V, -20 ... +20 mA, 0 ... +30 V
Max. input signal	(31.2 V (U_{IN}) 100 mA (I_{IN})
Input resistance	≤ 200 Ω (I input)
	> 100 kΩ (U input)
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0 ... 10 V, 2 ... 10 V, 0... 5 V, 1 ... 5 V,
	0 ... 10 mA, 2 ... 10 mA
Load impedance	≤ 600 Ω (I output)
	≥ 2 kΩ (U output)
Step response	≤ 8 ms
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 V DC	< 40 mA
Transmission error	< 0.1 % of upper range value
Temperature coefficient	0.01 % /K
Min. measuring span	1 V, 2 mA (configurable)
Output - Digital	
Max. switching voltage	Supply voltage applied
Max. continuous current	500 mA (up to 60 °C)
	100 mA (60 °C ... 70 °C)
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

DIP Switch Adjustability

● = ON

857-401

Input Signal		Start Value															
DIP S1																	
1		2	3	4	5	6	7	V	mA	2	3	4	5	6	7	V	mA
	Voltage							0	0						●	5.5	11
●	Current	●						-10	-20	●					●	6	12
			●					-9.5	-19		●				●	6.5	13
		●	●					-9	-18	●	●				●	7	14
				●				-8.5	-17			●			●	7.5	15
		●		●				-8	-16	●		●			●	8	16
			●	●				-7.5	-15		●	●			●	8.5	17
		●	●	●				-7	-14	●	●	●			●	9	18
					●			-6.5	-13				●		●	9.5	19
		●			●			-6	-12	●			●		●	10	20
			●		●			-5.5	-11		●		●		●	10.5	
		●	●		●			-5	-10	●	●		●		●	11	
				●	●			-4.5	-9			●	●		●	11.5	
		●		●	●			-4	-8	●		●	●		●	12	
			●	●	●			-3.5	-7		●	●	●		●	13	
		●	●	●	●			-3	-6	●	●	●	●		●	14	
						●		-2.5	-5					●	●	15	
		●				●		-2	-4	●				●	●	16	
			●			●		-1.5	-3		●			●	●	17	
		●	●			●		-1	-2	●	●			●	●	18	
				●		●		-0.5	-1			●		●	●	19	
		●		●		●		0	0	●		●		●	●	20	
			●	●		●		0.5	1		●	●		●	●	21	
		●	●	●		●		1	2	●	●	●		●	●	22	
					●	●		1.5	3				●	●	●	23	
		●			●	●		2	4	●			●	●	●	24	
			●		●	●		2.5	5		●		●	●	●	25	
		●	●		●	●		3	6	●	●		●	●	●	26	
				●	●	●		3.5	7			●	●	●	●	27	
		●		●	●	●		4	8	●		●	●	●	●	28	
			●	●	●	●		4.5	9		●	●	●	●	●	29	
		●	●	●	●	●		5	10	●	●	●	●	●	●	30	

End Value																	
DIP S1			DIP S2					DIP S1			DIP S2						
8	9	10	1	2	3	V	mA	8	9	10	1	2	3	V	mA
						10	20						●	5.5	11
●						-10	-20	●					●	6	12
	●					-9.5	-19		●				●	6.5	13
●	●					-9	-18	●	●				●	7	14
		●				-8.5	-17			●			●	7.5	15
●		●				-8	-16	●		●			●	8	16
	●	●				-7.5	-15		●	●			●	8.5	17
●	●	●				-7	-14	●	●	●			●	9	18
			●			-6.5	-13				●		●	9.5	19
●			●			-6	-12	●			●		●	10	20
	●		●			-5.5	-11		●		●		●	10.5	
●	●		●			-5	-10	●	●		●		●	11	
		●	●			-4.5	-9			●	●		●	11.5	
●		●	●			-4	-8	●		●	●		●	12	
	●	●	●			-3.5	-7		●	●	●		●	13	
●	●	●	●			-3	-6	●	●	●	●		●	14	
				●		-2.5	-5					●	●	15	
●				●		-2	-4	●				●	●	16	
	●			●		-1.5	-3		●			●	●	17	
●	●			●		-1	-2	●	●			●	●	18	
		●		●		-0.5	-1			●		●	●	19	
●		●		●		0	0	●		●		●	●	20	
	●	●		●		0.5	1		●	●		●	●	21	
●	●	●		●		1	2	●	●	●		●	●	22	
			●	●		1.5	3				●	●	●	23	
●			●	●		2	4	●			●	●	●	24	
	●		●	●		2.5	5		●		●	●	●	25	
●	●		●	●		3	6	●	●		●	●	●	26	
		●	●	●		3.5	7			●	●	●	●	27	
●		●	●	●		4	8	●		●	●	●	●	28	
	●	●	●	●		4.5	9		●	●	●	●	●	29	
●	●	●	●	●		5	10	●	●	●	●	●	●	30	

Output Signal Range						Measuring Range Overflow	Measuring Range Underflow		Measuring Range Overflow/ Measuring Range Underflow Signalisation*	DO	
4	5	6		7	8			9		10	
			0 ... 20 mA			Upper limit of output range +2.5%	Lower limit of output range -5%		DO Us+ switched		not active
	●		4 ... 20 mA					●	DO GND switched	●	active
		●	0 ... 10 mA	●		Upper limit of output range +2.5%	Lower limit of output range				
	●	●	2 ... 10 mA								
●			0 ... 10 V		●	Upper limit of output range	Lower limit of output range				
●	●		2 ... 10 V								
●		●	0 ... 5 V	●	●	Upper limit of output range	Lower limit of output range				
●	●	●	1 ... 5 V								

* related to input signal

Default Settings

In delivery status all DIP switches are in the position "OFF".

Input

- Input signal: Voltage
- Start value: 0 V
- End value: 10 V

Output

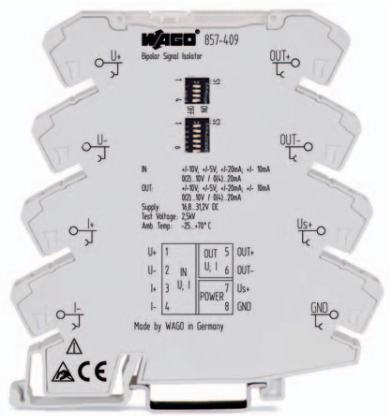
- Output signal: Current
- Start value: 0 mA
- End value: 20 mA
- Measuring range underflow: 0 mA
- Measuring range overflow: 20.5 mA

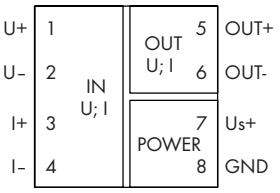
Digital output

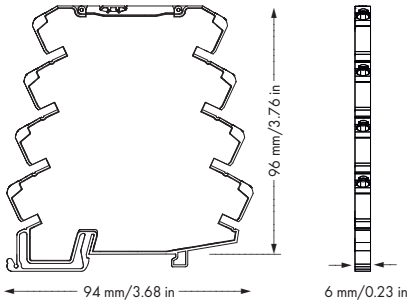
- not active

JUMPFLEX® Transducers

Bipolar isolation amplifier







Short description:
The 857-409 Bipolar Isolation Amplifier records bipolar analog signals (e.g., ±10V or ± 20mA) and converts them into bipolar, analog standard signals. After conversion, the isolated signals are transmitted with high accuracy to the output where they are available in an amplified form and are electrically isolated. In addition, unipolar signals (e.g., 0 - 20mA or 0 - 10V) and live zero signals (e.g., 4 - 20mA or 2 - 10V) can be adjusted independently of one another at both input and ouput via DIP switches.

Adjusting the limiting frequency is also performed via DIP switches. Measured distance adjustment is carried out via zero/span potentiometers on the front of the device, while signal switching is performed in a calibrated way, which requires no additional adjustment when switching to another range. The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way. A green LED on the front panel indicates normal operation.
The bipolar isolation amplifier meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Bipolar isolation amplifier	**857-409**	1

Accessories

General accessories	see pages 222 - 223

Approvals

Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

Configuration	DIP switch
Input signal	± 5 V, 0 ... 5 V, 1 ... 5 V,
	± 10 V, 0 ... 10 V, 2 ... 10 V,
	± 10 mA, 0 ... 10 mA, 2 ... 10 mA,
	± 20 mA, 0 ... 20 mA, 4 ... 20 mA
Output signal	± 5 V, 0 ... 5 V, 1 ... 5 V,
	± 10 V, 0 ... 10 V, 2 ... 10 V,
	± 10 mA, 0 ... 10 mA, 2 ... 10 mA,
	± 20 mA, 0 ... 20 mA, 4 ... 20 mA
Load impedance	≤ 600 Ω (I output)
	≥ 2 kΩ (U output)
Max. operating frequency	100 Hz / > 5 kHz
	(switchable via DIP switch)
Zero/span adjustment	± 5 %
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Transmission error	< 0.1 % of upper range value
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

DIP Switch Adjustability

● = ON

857-409

DIP Switch S1 (4-fold)				Input
1	2	3	4	
●				± 20 mA
●	●			± 10 mA
●				± 10 V
●	●			± 5 V
				0 ... 20 mA
		●		4 ... 20 mA
	●			0 ... 10 mA
	●	●		2 ... 10 mA
				0 ... 10 V
		●		2 ... 10 V
	●			0 ... 5 V
	●	●		1 ... 5 V

DIP Switch S2 (6-fold)					Output	Max. Operating Frequency	
1	2	3	4	5		6	
			●		± 20 mA	●	< 100 Hz
		●	●		± 10 mA		approx. 5 kHz
●	●		●		± 10 V		
●	●	●	●		± 5 V		
					0 ... 20 mA		
				●	4 ... 20 mA		
		●			0 ... 10 mA		
		●		●	2 ... 10 mA		
●	●				0 ... 10 V		
●	●			●	2 ... 10 V		
●	●	●			0 ... 5 V		
●	●	●		●	1 ... 5 V		

Default Settings

- Input: ± 10 V

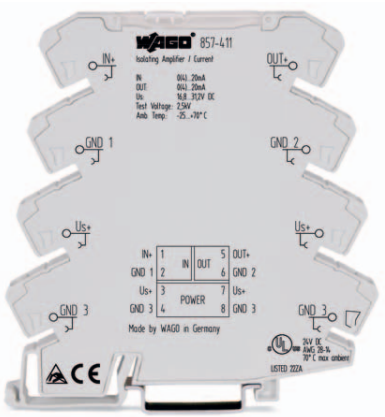
- Output: ± 10 V

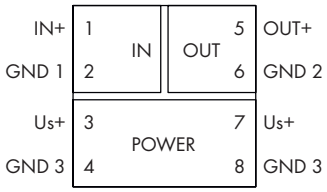
- Max. Operating Frequency: > 5 kHz

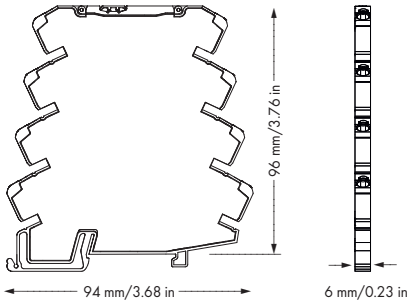
JUMPFLEX® Transducers

CAGE CLAMP®S

Isolation amplifiers, fixed setting for voltage or current signals







Short description:
The configurable isolation amplifiers convert, amplify, filter and electrically isolate analog standard signals. The devices have a 3-way isolation with a 2.5kV test voltage. The 857-411 Isolation Amplifier provides electrical isolation between the 0(4) - 20mA input and the 0(4) - 20mA output analog current signals. The 857-412 Isolation Amplifier provides electrical isolation between the 0(2) - 10V input and the 0(2) - 10V output analog voltage signals. The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way. A green LED on the front panel indicates normal operation. The isolation amplifiers meet the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Isolation amplifier, fixed setting for current signals	**857-411**	1
Isolation amplifier, fixed setting for voltage signals	**857-412**	1

Accessories

General accessories	see pages 222 - 223

Approvals

Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

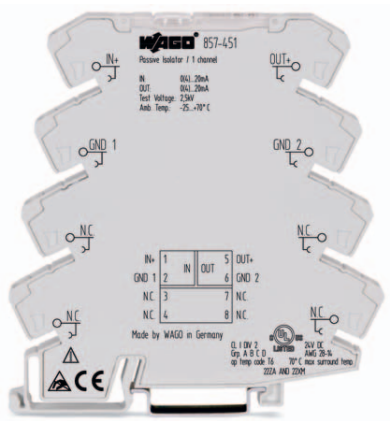
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in
Dimensions (mm) W x H x L	6 x 96 x 94

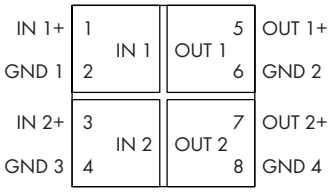
Technical Data

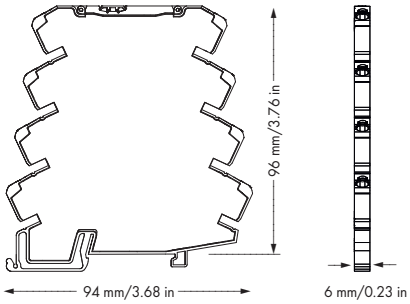
Input signal	0(4) ... 20 mA (857-411)
	0(2) ... 10 V (857-412) (857-411)
Input resistance	≤ 50 Ω (In = mA)
	≥ 100 kΩ (In = V)
Output signal	0(4) ... 20 mA (857-411) (857-411)
	0(2) ... 10 V (857-412) (857-412)
Load impedance	600 Ω (857-411)
	2 kΩ (857-412)
Max. operating frequency	100 Hz
Response time (T_{10-90})	< 3.5 ms
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 V DC	< 25 mA
Transmission error	< 0.1 % of the full scale value
Temperature coefficient	0.01 % /K
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

JUMPFLEX® Transducers

Passive isolator, 1 channel, 2 channels







Short description:
The 1- and 2-channel passive isolators filter and electrically isolate 0(4) - 20mA analog standard signals. The devices have a 2-way isolation with a 2.5kV test voltage. The passive isolators require no additional power supply. The power required for signal isolation is derived from the input circuit.

Description	Item No.	Pack. Unit
Passive isolator, 1 channel	**857-451**	1
Passive isolator, 2 channels	**857-452**	1

Accessories

General accessories	see pages 222 - 223

Approvals

Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

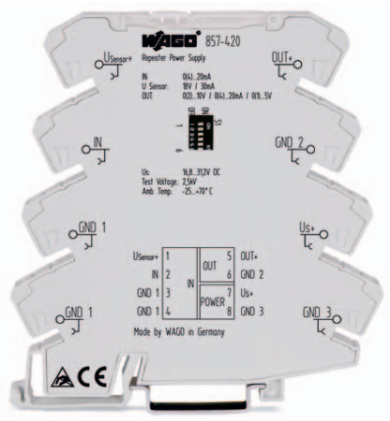
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

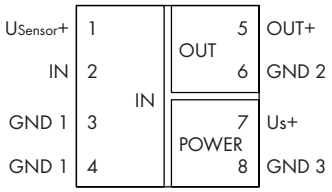
Technical Data

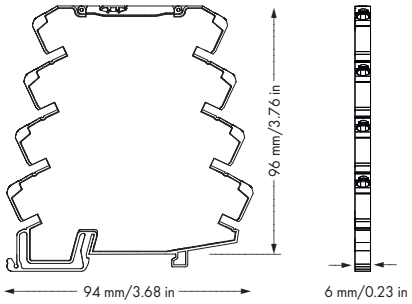
Input signal	0(4) ... 20 mA
Voltage drop intput	< 2.0 V
Output signal	0(4) ... 20 mA
Load impedance	600 Ω
Max. operating frequency	100 Hz
Response time (T_{10-90})	< 3.5 ms
Transmission error	< 0.1 % of the full scale value
Temperature coefficient	0.01 % /K
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

JUMPFLEX® Transducers

Repeater power supply, configurable with current and voltage output







Short description:
The 857-420 Repeater Power Supply links 2- or 3-wire transmitters located in the field. It provides the power required and transmits the analog signals in an electrically isolated way. On the output side, the repeater power supply can be configured for the following analog signals: 0 - 20mA, 4 - 20mA, 0 - 10V, 2 - 10V, 0 - 5V, 1 - 15V. The device has a 3-way isolation with a 2.5kV test voltage. The devices can be configured via DIP switches that are accessible from the side of the housing. Measurement range switching is calibrated.
In addition, the device can also be operated as a mere isolation amplifier.
Terminal assignment: [IN+(2) and GND1(3)].
The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way.

A green LED on the front panel indicates normal operation. The repeater power supply meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Repeater power supply, configurable with current and voltage output	**857-420**	1

Accessories

General accessories	see pages 222 - 223

Approvals

Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

Configuration	DIP switch
Input signal	0 ... 20 mA, 4 ... 20 mA
	(calibrated switchable)
Input resistance	≤ 50 Ω
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0... 5 V, 0 ... 10 V, 2 ... 10 V, 1 ... 5 V
	(calibrated switchable)
Load impedance	600 Ω (Out = mA)
	2 kΩ (Out = V)
Max. operating frequency	100 Hz
Response time (T_{10-90})	< 3.5 ms
Voltage supply V_N	DC 24 V
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 V DC	< 45 mA
Transmitter supply	V_v = 18 V at 30 mA
Transmission error	< 0.1 % of the full scale value
Temperature coefficient	0.01 % /K
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

DIP Switch Adjustability

● = ON

857-420

		DIP 1					
Input	Output	1	2	3	4	5	6
0 ... 20 mA	0 ... 20 mA						n.c.
0 ... 20 mA	4 ... 20 mA				●		n.c.
0 ... 20 mA	0 ... 10 V	●	●				n.c.
0 ... 20 mA	2 ... 10 V	●	●		●		n.c.
0 ... 20 mA	0 ... 5 V	●	●	●			n.c.
0 ... 20 mA	1 ... 5 V	●	●	●	●		n.c.
4 ... 20 mA	0 ... 20 mA					●	n.c.
4 ... 20 mA	4 ... 20 mA						n.c.
4 ... 20 mA	0 ... 10 V	●	●			●	n.c.
4 ... 20 mA	2 ... 10 V	●	●				n.c.
4 ... 20 mA	0 ... 5 V	●	●	●		●	n.c.
4 ... 20 mA	1 ... 5 V	●	●	●			n.c.

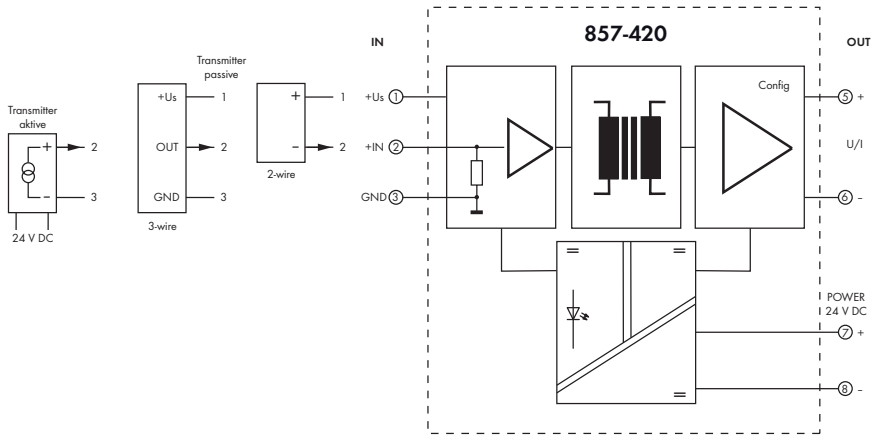
Default Settings:

- Input: 0 ... 20 mA

- Output: 0 ... 20 mA

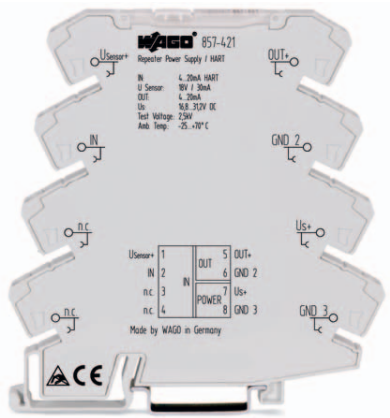
- DIP 6: n.c. - not connected

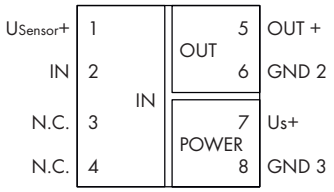
Connection assignment

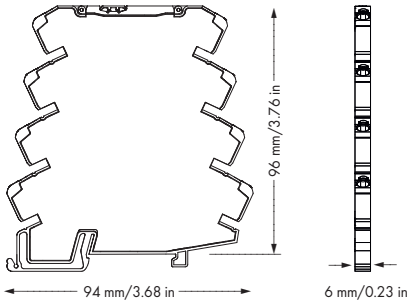


JUMPFLEX® Transducers

Repeater power supply, HART







Short description:
The 857-421 HART Repeater Power Supply links SMART transmitters located in the field. It provides the power required and transmits the analog signals in an electrically isolated way. Transmission of the data protocol (e.g., HART) is bi-directional for SMART transmitters. Digital signals for data communication between transmitter and process controller are superimposed on the analog current signal, and they are used for diagnosing and calibrating the field transmitters. The device has a 3-way isolation with a 2.5kV test voltage.
The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way.

A green LED on the front panel indicates normal operation. The repeater power supply meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Repeater power supply, HART	**857-421**	1

Accessories

General accessories	see pages 222 - 223

Approvals

Shipbuilding	GL (pending)
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

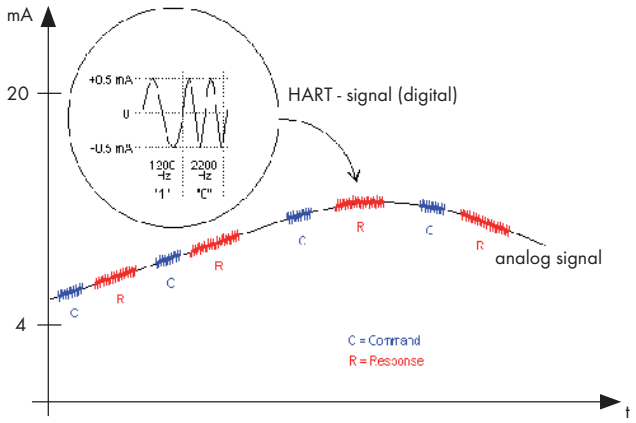
General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

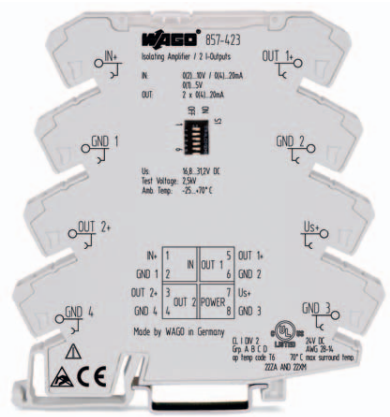
Input signal	4 ... 20 mA
Input resistance	≤ 50 Ω
Output signal	4 ... 20 mA
Load impedance	600 Ω
Max. operating frequency	100 Hz signal / ≥ 2.5 kHz HART
Response time (T_{10-90})	< 3.5 ms signal
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 V DC	< 45 mA
Transmitter supply	V_v = 18 V at 30 mA
Transmission error	< 0.1 % of the full scale value
Temperature coefficient	0.01 % /K
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

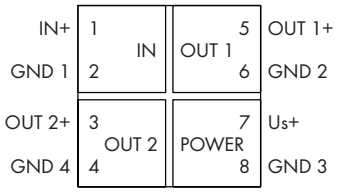
Simultaneous transmission of analog and digital signals **857-421**

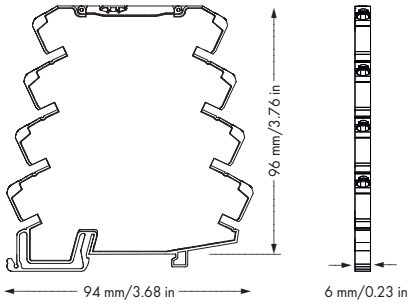


JUMPFLEX® Transducers

Signal splitter with 2 configurable current outputs







Short description:
The 857-423 Signal Splitter is used to convert, amplify, filter and electrically isolate analog standard signals. The device has a 3-way isolation with a 2.5kV test voltage. The signal splitter transmits the configurable input signal (0 - 10V, 2 - 10V, 0 - 20mA, 4 - 20mA, 0 - 5V or 1 - 5V) in two analog current outputs that can be set independently of one another between 0 - 20mA and 4 - 20mA. Measurement range switching is calibrated.
The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way.
A green LED on the front panel indicates normal operation. The signal splitter meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Signal splitter with 2 configurable current outputs	**857-423**	1

Accessories

General accessories	see pages 222 - 223

Approvals

Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

Configuration	DIP switch
Input signal	0 ... 20 mA, 4 ... 20 mA, 0... 5 V,
	0 ... 10 V, 2 ... 10 V, 1 ... 5 V
	(calibrated switchable)
Input resistance	≤ 50 Ω (In = mA)
	≥ 100 kΩ (In = V)
Output signal	2 x 0(4) ... 20 mA
	(calibrated switchable)
Load impedance	2 x 300 Ω
Max. operating frequency	100 Hz / 1 kHz
	(switchable via DIP switch)
Response time (T_{10-90})	< 3.5 ms / < 300 µs
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 V DC	< 35 mA
Transmission error	< 0.1 % of the full scale value
Temperature coefficient	0.01 % /K
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

DIP Switch Adjustability

● = ON

857-423

DIP Switch S1 (6-fold)

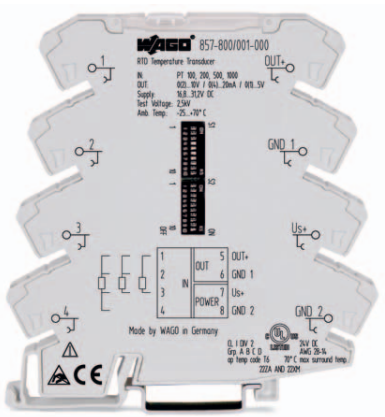
Input Signal				Max. Operating Frequency		Output 1		Output 2	
1	2	3		4		5		6	
●			0 ... 20 mA		$f_{max.}$ approx. 1 kHz		0 ... 20 mA		0 ... 20 mA
●		●	4 ... 20 mA	●	$f_{max.}$ < 100 Hz	●	4 ... 20 mA	●	4 ... 20 mA
	●		0 ... 10 V						
	●	●	2 ... 10 V						
			0 ... 5 V						
		●	1 ... 5 V						

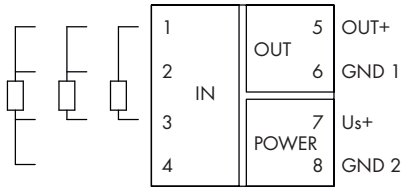
Default Settings

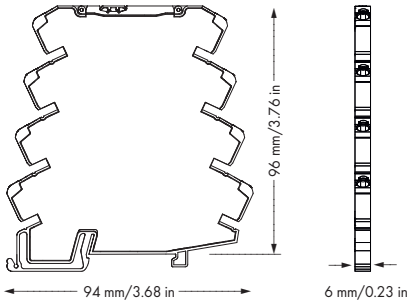
- Input: 0 ... 20 mA
- Output 1: 0 ... 20 mA
- Output 2: 0 ... 20 mA
- Max. Operating Frequency: < 100 Hz

JUMPFLEX® Transducers

Temperature transducer for Pt100, Pt200, Pt500 and Pt1000 as well as resistors 0 ... 1 kΩ; 0 ... 4.5 kΩ







Short description:
The 857-800 Temperature Transducer is suitable for the connection of Pt100, Pt200, Pt500 and Pt1000 sensors in 2-, 3- and 4-conductor connection technology. On the input side, 0 - 1kΩ or 0 - 4.5kΩ resistance values can be measured. On the output side, the Pt100 temperature transducer converts the temperature signal into an analog standard signal. The following signals are available: 0 - 20mA, 4 - 20mA, 0 - 10V, 2 - 10V, 0 - 5V, 1 - 5V, 0 - 10mA and 2 - 10mA. The device has a 3-way isolation with a 2.5kV test voltage. The devices can be configured via DIP switches that are accessible from the side of the housing. Measurement range switching is calibrated.
The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way.

A green LED on the front panel indicates normal operation. The temperature transducer meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Temperature transducer for Pt100, Pt200, Pt500 und Pt1000 as well as resistors 0 ... 1 kΩ; 0 ... 4.5 kΩ	**857-800**	1

Accessories

General accessories	see pages 222 - 223

Approvals

Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

Configuration	DIP switch
Input signal	PT sensors and resistors
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0 ... 10 V, 2 ... 10 V,
	0... 5 V, 1 ... 5 V,
	0 ... 10 mA, 2 ... 10 mA
Load impedance	≤ 600 Ω (Out = mA)
	≥ 2 kΩ (Out = V)
Step response	180 ms (360 ms at 3-wire)
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 V DC	< 40 mA
Sensor types	Pt100, Pt200, Pt500, Pt1000
Sensor connection	2-wire, 3-wire, 4-wire (switchable)
Temperature range	-200 °C ... +850 °C
Resistor input	0 ... 1 kΩ , 0 ... 4.5 kΩ
Transmission error	≤ 0.1 % at max. measuring span
Transmission error of set measuring span	((10 K / set measuring span [K]) + 0.1) %
Temperature coefficient	0.02 % /K
Min. measuring span	50 K (50 Ω) (configurable)
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

DIP Switch Adjustability

● = ON

857-800

DIP Switch S1

Wire connection			Sensor type				Output signal						Measuring range underflow	Measuring range overflow	Wire break	Short circuit
1	2		3	4	5		6	7	8		9	10				
		2-wire				Pt100				0 ... 20 mA			Lower limit of output range -5 %	Upper limit of output range +2.5 %	Upper limit of output range 5 %	Lower limit of output range -12.5 %
●		3-wire	●			Pt200	●			4 ... 20 mA						
	●	4-wire		●		Pt500		●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range +2.5 %	Upper limit of output range 5 %	Lower limit of output range
			●	●		Pt1000	●	●		2 ... 10 mA						
					●	1 kΩ			●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range 5 %	Upper limit of output range 5 %
			●		●	4.5 kΩ	●		●	2 ... 10 V						
								●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range	Lower limit of output range
							●	●	●	1 ... 5 V						

According to Namur NE 43

DIP Switch S2

Start temperature						End temperature																													
1	2	3	4	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F
																		●		75	167						●	210	410					●	●	475	887
●				-200	-328	●						0	32	●				●		80	176	●					●	220	428	●				●	●	500	932
	●			-175	-283		●					5	41		●			●		85	185		●				●	230	446		●			●	●	525	997
●	●			-150	-238	●	●					10	50	●	●			●		90	194	●	●				●	240	464	●	●			●	●	550	1022
		●		-125	-193			●				15	59			●		●		95	203			●			●	250	482			●		●	●	575	1067
●		●		-100	-148	●		●				20	68	●		●		●		100	212	●		●			●	260	500	●		●		●	●	600	1022
	●	●		-90	-130		●	●				25	77		●	●		●		110	230		●	●			●	270	518		●	●		●	●	625	1112
●	●	●		-80	-112	●	●	●				30	86	●	●	●		●		120	248	●	●	●			●	280	536	●	●	●		●	●	650	1202
			●	-70	-94				●			35	95				●	●		130	266				●		●	290	554				●	●	●	675	1247
●			●	-60	-76	●			●			40	104	●			●	●		140	284	●			●		●	300	572	●			●	●	●	700	1292
	●		●	-50	-58		●		●			45	113		●		●	●		150	302		●		●		●	325	617		●		●	●	●	725	1337
●	●		●	-40	-40	●	●		●			50	122	●	●		●	●		160	320	●	●		●		●	350	662	●	●		●	●	●	750	1382
		●	●	-30	-22			●	●			55	131			●	●	●		170	338			●	●		●	375	707			●	●	●	●	775	1427
●		●	●	-20	-4	●		●	●			60	140	●		●	●	●		180	356	●		●	●		●	400	752	●		●	●	●	●	800	1472
	●	●	●	-10	14		●	●	●			65	149		●	●	●	●		190	374		●	●	●		●	425	797		●	●	●	●	●	825	1517
●	●	●	●	0	32	●	●	●	●			70	158	●	●	●	●	●		200	392	●	●	●	●		●	450	842	●	●	●	●	●	●	850	1562

The minimum distance from the start temperature to the end temperature may not fall short of 50K degrees on the Celsius (C) scale or 122K degrees on the Fahrenheit (F) scale.

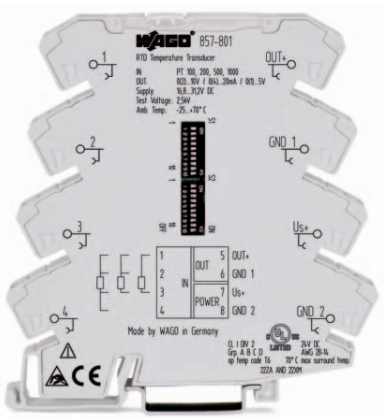
Default settings

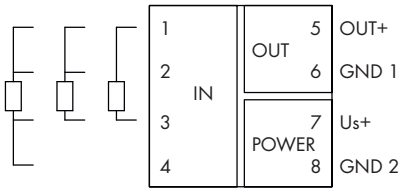
In delivery status all DIP switches are in the position "OFF".

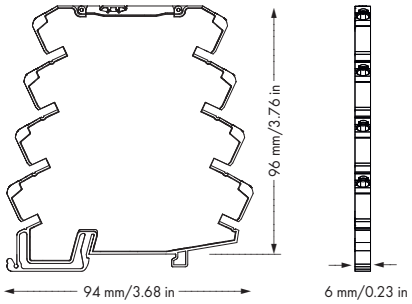
- 2-wire
- Pt100
- Start temperature 0 °C
- End temperature 100 °C
- 0 ... 20 mA
- Measuring range underflow 0 mA
- Measuring range overflow 20.5 mA
- Wire break 21 mA
- Short circuit 0 mA

JUMPFLEX® Transducers

Temperature transducer for Pt100, Pt200, Pt500 and Pt1000 * as well as resistors 0 ... 1 kΩ; 0 ... 4.5 kΩ







Short description:
The 857-801 Temperature Transducer is suitable for the connection of Pt100, Pt200, Pt500 and Pt1000 sensors in 2-, 3- and 4-conductor connection technology. On the input side, 0 - 1kΩ or 0 - 4.5kΩ resistance values can be measured. On the output side, the Pt100 temperature transducer converts the temperature signal into an analog standard signal. The following signals are available: 0 - 20mA, 4 - 20mA, 0 - 10V, 2 - 10V, 0 - 5V, 1 - 5V, 0 - 10mA and 2 - 10mA. The device has a 3-way isolation with a 2.5kV test voltage. The devices can be configured both via DIP switches that are accessible from the side of the housing and using a FDT/DTM software. The software offers additional setting options such as additional types of sensors at the input or inversion of the analog output. Measurement range switching is calibrated.

The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way.
A green LED on the front panel indicates normal operation. The temperature transducer meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Temperature transducer for	**857-801**	1
Pt100, Pt200, Pt500 und Pt1000		
* as well as resistors		
0 ... 1 kΩ; 0 ... 4.5 kΩ		

Accessories

Configuration software	- 759-370 FDT Frame Application
	- DTM (Device Tool Manager)
	Download: see www.wago.com
WAGO USB Service Cable	750-923
General accessories	see pages 222 - 223

Approvals

Shipbuilding	GL (pending)
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

Configuration	DIP switch or via software
Input signal	PT sensors and resistors
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0 ... 10 V, 2 ... 10 V,
	0... 5 V, 1 ... 5 V,
	0 ... 10 mA, 2 ... 10 mA
Load impedance	≤ 600 Ω (Out = mA)
	≥ 2 kΩ (Out = V)
Step response	180 ms (360 ms at 3-wire)
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 V DC	< 40 mA
Sensor types	Pt100, Pt200, Pt500, Pt1000 *
Sensor connection	2-wire, 3-wire, 4-wire (switchable)
Temperature range	-200 °C ... +850 °C
Resistor input	0 ... 1 kΩ , 0 ... 4.5 kΩ
Transmission error	≤ 0.1 % at max. measuring span
Transmission error of set measuring span	((10 K / set measuring span [K]) + 0.1) %
Temperature coefficient	0.02 % /K
Min. measuring span	50 K (50 Ω) (configurable)
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

(* Setting of other types of sensors as well as output signal inversion using the configuration software)

DIP Switch Adjustability

● = ON

857-801

DIP Switch S1

Wire connection			Sensor type				Output signal						Measuring range underflow	Measuring range overflow	Wire break	Short circuit
1	2		3	4	5		6	7	8		9	10				
		2-wire				Pt100				0 ... 20 mA			Lower limit of output range -5 %	Upper limit of output range +2.5 %	Upper limit of output range 5 %	Lower limit of output range -12.5 %
●		3-wire	●			Pt200	●			4 ... 20 mA						
	●	4-wire		●		Pt500		●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range +2.5 %	Upper limit of output range 5 %	Lower limit of output range
			●	●		Pt1000	●	●		2 ... 10 mA						
					●	1 kΩ			●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range 5 %	Upper limit of output range 5 %
			●		●	4.5 kΩ	●		●	2 ... 10 V						
								●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range	Lower limit of output range
							●	●	●	1 ... 5 V						

According to Namur NE 43

DIP Switch S2

Start temperature						End temperature																													
1	2	3	4	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F
																		●		75	167						●	210	410					●	●	475	887
●				-200	-328	●						0	32	●				●		80	176	●					●	220	428	●				●	●	500	932
	●			-175	-283		●					5	41		●			●		85	185		●				●	230	446		●			●	●	525	997
●	●			-150	-238	●	●					10	50	●	●			●		90	194	●	●				●	240	464	●	●			●	●	550	1022
		●		-125	-193			●				15	59			●		●		95	203			●			●	250	482			●		●	●	575	1067
●		●		-100	-148	●		●				20	68	●		●		●		100	212	●		●			●	260	500	●		●		●	●	600	1022
	●	●		-90	-130		●	●				25	77		●	●		●		110	230		●	●			●	270	518		●	●		●	●	625	1112
●	●	●		-80	-112	●	●	●				30	86	●	●	●		●		120	248	●	●	●			●	280	536	●	●	●		●	●	650	1202
			●	-70	-94				●			35	95				●	●		130	266				●		●	290	554				●	●	●	675	1247
●			●	-60	-76	●			●			40	104	●			●	●		140	284	●			●		●	300	572	●			●	●	●	700	1292
	●		●	-50	-58		●		●			45	113		●		●	●		150	302		●		●		●	325	617		●		●	●	●	725	1337
●	●		●	-40	-40	●	●		●			50	122	●	●		●	●		160	320	●	●		●		●	350	662	●	●		●	●	●	750	1382
		●	●	-30	-22			●	●			55	131			●	●	●		170	338			●	●		●	375	707			●	●	●	●	775	1427
●		●	●	-20	-4	●		●	●			60	140	●		●	●	●		180	356	●		●	●		●	400	752	●		●	●	●	●	800	1472
	●	●	●	-10	14		●	●	●			65	149		●	●	●	●		190	374		●	●	●		●	425	797		●	●	●	●	●	825	1517
●	●	●	●	0	32	●	●	●	●			70	158	●	●	●	●	●		200	392	●	●	●	●		●	450	842	●	●	●	●	●	●	850	1562

The minimum distance from the start temperature to the end temperature may not fall short of 50K degrees on the Celsius (C) scale or 122K degrees on the Fahrenheit (F) scale.

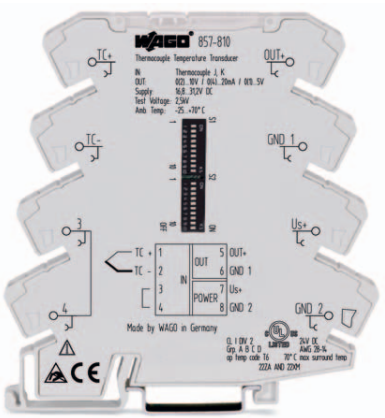
Default settings

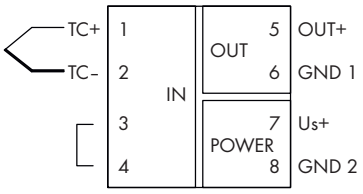
In delivery status all DIP switches are in the position "OFF".

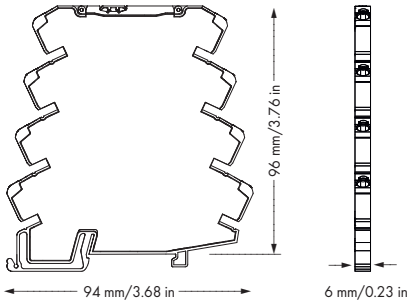
- 2-wire
- Pt100
- Start temperature 0 °C
- End temperature 100 °C
- 0 ... 20 mA
- Measuring range underflow 0 mA
- Measuring range overflow 20.5 mA
- Wire break 21 mA
- Short circuit 0 mA

JUMPFLEX® Transducers

Temperature transducer for thermocouples of types J and K







Short description:
The 857-810 Thermocouple Temperature Transducer is suitable for the connection of type J and K thermocouples. On the output side, the thermocouple temperature transducer converts the temperature signal into an analog standard signal. The following signals are available: 0 - 20mA, 4 - 20mA, 0 - 10V, 2 - 10V, 0 - 5V, 1 - 5V, 0 - 10mA and 2 - 10mA. The device has a 3-way isolation with a 2.5kV test voltage. It can be configured via DIP switches that are accessible from the side of the housing. Measurement range switching is calibrated.
The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way.

A green LED on the front panel indicates normal operation. The temperature transducer meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Temperature transducer for thermocouples of types J and K	**857-810**	1

Accessories

General accessories	see pages 222 - 223

Approvals

Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.20 mm² ... 2.5 mm² /
	AWG 24 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

Configuration	DIP switch
Input signal	Thermocouples
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0 ... 10 V, 2 ... 10 V,
	0... 5 V, 1 ... 5 V,
	0 ... 10 mA, 2 ... 10 mA
Load impedance	≤ 600 Ω (Out = mA)
	≥ 2 kΩ (Out = V)
Step response	60 ms / 120 ms with cold junction
	compensation
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 V DC	< 40 mA
Sensor types	Thermocouples of types J and K
Temperature range	Type J: -150 °C ... +1200 °C
	Type K: -150 °C ... +1350 °C
Cold junction compensation	on / off (default: on)
Cold junction error	3 K (typ. 2 K)
Transmission error	≤ 0.1 % at max. measuring span (Typ J, K)
Transmission error of set measuring span	(150 K / set measuring span [K]) %
Temperature coefficient	0.04 % /K
Min. measuring span	100 K (configurable)
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

DIP Switch Adjustability

● = ON

857-810

DIP Switch S1

Cold junction compensation		Sensor type			Output signal						Measuring range underflow	Measuring range overflow	Wire break
1		2	3		4	5	6		7	8			
	on			J				0 ... 20 mA			Lower limit of output range -5 %	Upper limit of output range +2.5 %	Upper limit of output range 5 %
●	off	●		K	●			4 ... 20 mA					
						●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range +2.5 %	Upper limit of output range 5 %
					●	●		2 ... 10 mA					
							●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range 5 %
					●		●	2 ... 10 V					
						●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range
					●	●	●	1 ... 5 V					

According to Namur NE 43

DIP Switch S2

Start temperature						End temperature																							
1	2	3	4	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F
																		●		225	437						●	625	1157					●	●	1025	1877
●				-200	-328	●						0	32	●				●		250	482	●					●	650	1202	●				●	●	1050	1922
	●			-175	-283		●					10	50		●			●		275	527		●				●	675	1247		●			●	●	1075	1967
●	●			-150	-283	●	●					20	68	●	●			●		300	572	●	●				●	700	1292	●	●			●	●	1100	2012
		●		-125	-193			●				30	86			●		●		325	617			●			●	725	1337			●		●	●	1125	2057
●		●		-100	-148	●		●				40	104	●		●		●		350	662	●		●			●	750	1382	●		●		●	●	1150	2102
	●	●		-90	-130		●	●				50	122		●	●		●		375	707		●	●			●	775	1427		●	●		●	●	1175	2147
●	●	●		-80	-112	●	●	●				60	140	●	●	●		●		400	752	●	●	●			●	800	1472	●	●	●		●	●	1200	2192
			●	-70	-94				●			70	158				●	●		425	797				●		●	825	1517				●	●	●	1225	2237
●			●	-60	-76	●			●			80	176	●			●	●		450	842	●			●		●	850	1562	●			●	●	●	1250	2282
	●		●	-50	-58		●		●			90	194		●		●	●		475	887		●		●		●	875	1607		●		●	●	●	1275	2327
●	●		●	-40	-40	●	●		●			100	212	●	●		●	●		500	932	●	●		●		●	900	1652	●	●		●	●	●	1300	2372
		●	●	-30	-22			●	●			125	257			●	●	●		525	977			●	●		●	925	1697			●	●	●	●	1325	2417
●		●	●	-20	-4	●		●	●			150	302	●		●	●	●		550	1022	●		●	●		●	950	1742	●		●	●	●	●	1350	2462
	●	●	●	-10	14		●	●	●			175	347		●	●	●	●		575	1067		●	●	●		●	975	1787		●	●	●	●	●	1375	2507
●	●	●	●	0	32	●	●	●	●			200	392	●	●	●	●	●		600	1112	●	●	●	●		●	1000	1832	●	●	●	●	●	●	1400	2552

The minimum distance from the start temperature to the end temperature may not fall short of 100K degrees on the Celsius (C) scale or 212K degrees on the Fahrenheit (F) scale.

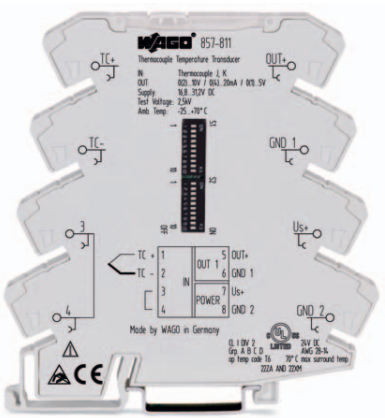
Default settings

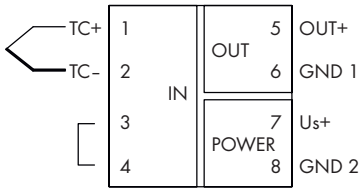
In delivery status all DIP switches are in the position "OFF".

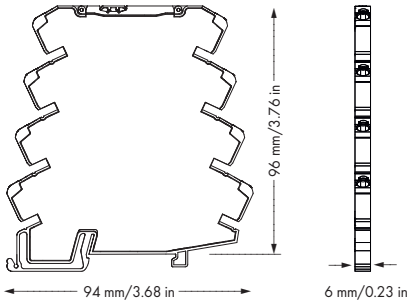
- Cold junction compensation "On"
- Termocouple of type J
- Start temperature 0 °C
- End temperature 1000 °C
- 0 ... 20 mA
- Measuring range underflow 0 mA
- Measuring range overflow 20.5 mA
- Wire break 21 mA

JUMPFLEX® Transducers

Temperature transducer for thermocouples of types J and K *







Short description:
The 857-811 Thermocouple Temperature Transducer is suitable for the connection of type J and K thermocouples. On the output side, the thermocouple temperature transducer converts the temperature signal into an analog standard signal. The following signals are available: 0 - 20mA, 4 - 20mA, 0 - 10V, 2 - 10V, 0 - 5V, 1 - 5V, 0 - 10mA and 2 - 10mA. The device has a 3-way isolation with a 2.5kV test voltage. It can be configured both via DIP switches that are accessible from the side of the housing and using a FDT/DTM software. The software offers additional setting options such as additional types of sensors at the input or inversion of the analog output.
The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way.

A green LED on the front panel indicates normal operation. The temperature transducer meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Temperature transducer for thermocouples of types J and K *	**857-811**	1

Accessories	
Configuration software	- 759-370 FDT Frame Application
	- DTM (Device Tool Manager)
	Download: see www.wago.com
WAGO USB Service Cable	750-923
General accessories	see pages 222 - 223

Approvals	
Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications	
Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data	
Configuration	DIP switch or via software
Input signal	Thermocouples
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0 ... 10 V, 2 ... 10 V,
	0... 5 V, 1 ... 5 V,
	0 ... 10 mA, 2 ... 10 mA
Load impedance	≤ 600 Ω (Out = mA)
	≥ 2 kΩ (Out = V)
Step response	60 ms / 120 ms with cold junction
	compensation
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 V DC	< 40 mA
Sensor types	Thermocouples of types J and K *
Temperature range	Type J: -150 °C ... +1200 °C
	Type K: -150 °C ... +1350 °C
Cold junction compensation	on / off (default: on)
Cold junction error	3 K (typ. 2 K)
Transmission error	≤ 0.1 % at max. measuring span (Typ J, K)
Transmission error of set measuring span	(150 K / set measuring span [K]) %
Temperature coefficient	0.04 % /K
Min. measuring span	100 K (configurable)
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

(* Setting of other types of sensors as well as output signal inversion using the configuration software)

DIP Switch Adjustability

● = ON

857-811

DIP Switch S1

Cold junction compensation		Sensor type			Output signal						Measuring range underflow	Measuring range overflow	Wire break
1		2	3		4	5	6		7	8			
	on			J				0 ... 20 mA			Lower limit of output range -5 %	Upper limit of output range +2.5 %	Upper limit of output range 5 %
●	off	●		K	●			4 ... 20 mA					
						●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range +2.5 %	Upper limit of output range 5 %
					●	●		2 ... 10 mA					
							●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range 5 %
					●		●	2 ... 10 V					
						●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range
					●	●	●	1 ... 5 V					

According to Namur NE 43

DIP Switch S2

Start temperature						End temperature																							
1	2	3	4	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F
																		●		225	437						●	625	1157
●				-200	-328	●						0	32	●				●		250	482	●					●	650	1202
	●			-175	-283		●					10	50		●			●		275	527		●				●	675	1247
●	●			-150	-283	●	●					20	68	●	●			●		300	572	●	●				●	700	1292
		●		-125	-193			●				30	86			●		●		325	617			●			●	725	1337
●		●		-100	-148	●		●				40	104	●		●		●		350	662	●		●			●	750	1382
	●	●		-90	-130		●	●				50	122		●	●		●		375	707		●	●			●	775	1427
●	●	●		-80	-112	●	●	●				60	140	●	●	●		●		400	752	●	●	●			●	800	1472
			●	-70	-94				●			70	158				●	●		425	797				●		●	825	1517
●			●	-60	-76	●			●			80	176	●			●	●		450	842	●			●		●	850	1562
	●		●	-50	-58		●		●			90	194		●		●	●		475	887		●		●		●	875	1607
●	●		●	-40	-40	●	●		●			100	212	●	●		●	●		500	932	●	●		●		●	900	1652
		●	●	-30	-22			●	●			125	257			●	●	●		525	977			●	●		●	925	1697
●		●	●	-20	-4	●		●	●			150	302	●		●	●	●		550	1022	●		●	●		●	950	1742
	●	●	●	-10	14		●	●	●			175	347		●	●	●	●		575	1067		●	●	●		●	975	1787
●	●	●	●	0	32	●	●	●	●			200	392	●	●	●	●	●		600	1112	●	●	●	●		●	1000	1832

The minimum distance from the start temperature to the end temperature may not fall short of 100K degrees on the Celsius (C) scale or 212K degrees on the Fahrenheit (F) scale.

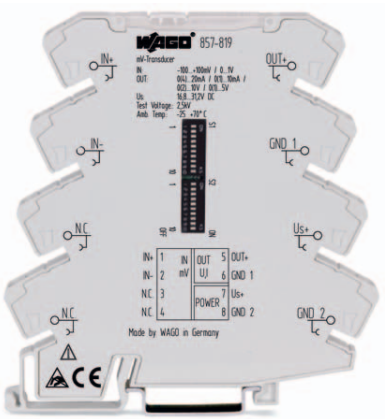
Default settings

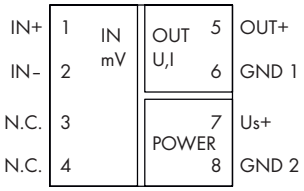
In delivery status all DIP switches are in the position "OFF".

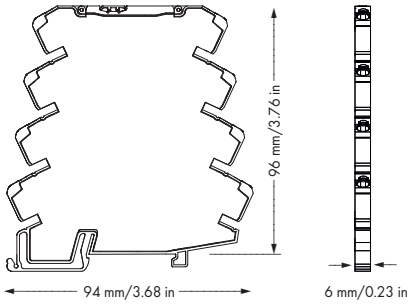
- Cold junction compensation "On"
- Termocouple of type J
- Start temperature 0 °C
- End temperature 1000 °C
- 0 ... 20 mA
- Measuring range underflow 0 mA
- Measuring range overflow 20.5 mA
- Wire break 21 mA

JUMPFLEX® Transducers

Millivolt transducer; Records all mV signals ranging from -100 mV to +100 mV; 0 mV ... 1000 mV. Application: Recording of lambda probes







Short description:
The 857-819 Millivolt Transducer converts input millivolt signals into an analog standard signal on the output side. The following signals are available:
0 - 20mA, 4 - 20mA, 0 - 10V, 2 - 10V, 0 - 5V, 1 - 5V, 0 - 10mA and 2 - 10mA.
The device has a 3-way isolation with a 2.5kV test voltage. The transducer can be configured either using FDT/DTM software or via DIP switches that are accessible from the side of the housing. The software offers additional setting options such as the ability to invert the output signal.
The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way.

A green LED on the front panel indicates normal operation. The millivolt transducer meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Millivolt transducer, with millivolt input as well as current and voltage output	**857-819**	1

Accessories

Configuration software	- 759-370 FDT Frame Application
	- DTM (Device Tool Manager)
	Download: see www.wago.com
WAGO USB Service Cable	750-923
General accessories	see pages 222 - 223

Approvals

Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

Configuration	DIP switch or configuration software
Input signal	-100 mV ... +100 mV, 0 mV ... 200 mV,
	0 mV ... 300 mV, 0 mV ... 1000 mV
	(in 100 mV increments)
Max. input signal	30 V
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0 ... 10 V, 2 ... 10 V, 0... 5 V, 1 ... 5 V,
	0 ... 10 mA, 2 ... 10 mA
Load impedance	≤ 600 Ω (I output)
	≥ 2 kΩ (U output)
Step response	50 ms
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Transmission error	< 0.1 % of upper range value
Temperature coefficient	0.01 %/K
Min. measuring span	10 mV (configurable)
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

DIP Switch Adjustability

● = ON

857-819

Start value

DIP S1

1	2	3	4	5	6	7	mV	1	2	3	4	5	6	7	mV	1	2	3	4	5	6	7	mV
									●				●		-34			●				●	34
●							-100	●	●				●		-32	●		●				●	36
	●						-98			●			●		-30		●	●				●	38
●	●						-96	●		●			●		-28	●	●	●				●	40
		●					-94		●	●			●		-26				●			●	42
●		●					-92	●	●	●			●		-24	●			●			●	44
	●	●					-90				●		●		-22		●		●			●	46
●	●	●					-88	●			●		●		-20	●	●		●			●	48
			●				-86		●		●		●		-18			●	●			●	50
●			●				-84	●	●		●		●		-16	●		●	●			●	52
	●		●				-82			●	●		●		-14		●	●	●			●	54
●	●		●				-80	●		●	●		●		-12	●	●	●	●			●	56
		●	●				-78		●	●	●		●		-10					●		●	58
●		●	●				-76	●	●	●	●		●		-8	●				●		●	60
	●	●	●				-74					●	●		-6		●			●		●	62
●	●	●	●				-72	●				●	●		-4	●	●			●		●	64
				●			-70		●			●	●		-2			●		●		●	66
●				●			-68	●	●			●	●		0	●		●		●		●	68
	●			●			-66			●		●	●		2		●	●		●		●	70
●	●			●			-64	●			●	●	●		4	●	●	●		●		●	72
		●		●			-62		●	●		●	●		6				●	●		●	74
●		●		●			-60	●	●	●		●	●		8	●			●	●		●	76
	●	●		●			-58				●	●	●		10		●		●	●		●	78
●	●	●		●			-56	●			●	●	●		12	●	●		●	●		●	80
			●	●			-54		●		●	●	●		14			●	●	●		●	82
●			●	●			-52	●	●		●	●	●		16	●		●	●	●		●	84
	●		●	●			-50			●	●	●	●		18		●	●	●	●		●	86
●	●		●	●			-48	●		●	●	●	●		20	●	●	●	●	●		●	88
		●	●	●			-46		●	●	●	●	●		22						●	●	90
●		●	●	●			-44	●	●	●	●	●	●		24	●					●	●	92
	●	●	●	●			-42							●	26		●				●	●	94
●	●	●	●	●			-40	●						●	28	●	●				●	●	96
					●		-38		●					●	30			●			●	●	98
●					●		-36	●	●					●	32	●		●			●	●	100

End value

DIP S1			DIP S2					DIP S1			DIP S2					DIP S1			DIP S2					DIP S1			DIP S2				
8	9	10	1	2	3	4	mV	8	9	10	1	2	3	4	mV	8	9	10	1	2	3	4	mV	8	9	10	1	2	3	4	mV
									●				●		-34			●				●	34	●		●			●	●	100
●							-100	●	●				●		-32	●		●				●	36		●	●			●	●	200
	●						-98			●			●		-30		●	●				●	38	●	●	●			●	●	300
●	●						-96	●		●			●		-28	●	●	●				●	40				●		●	●	400
		●					-94		●	●			●		-26				●			●	42	●			●		●	●	500
●		●					-92	●	●	●			●		-24	●			●			●	44		●		●		●	●	600
	●	●					-90				●		●		-22		●		●			●	46	●	●		●		●	●	700
●	●	●					-88	●			●		●		-20	●	●		●			●	48			●	●		●	●	800
			●				-86		●		●		●		-18			●	●			●	50	●		●	●		●	●	900
●			●				-84	●	●		●		●		-16	●		●	●			●	52		●	●	●		●	●	1000
	●		●				-82			●	●		●		-14		●	●	●			●	54								
●	●		●				-80	●			●		●		-12	●	●	●	●			●	56								
		●	●				-78		●	●	●		●		-10					●		●	58								
●		●	●				-76	●	●	●	●		●		-8	●				●		●	60								
	●	●	●				-74					●	●		-6		●			●		●	62								
●	●	●	●				-72	●				●	●		-4	●	●			●		●	64								
				●			-70		●			●	●		-2			●		●		●	66								
●				●			-68	●	●			●	●		0	●		●		●		●	68								
	●			●			-66			●		●	●		2		●	●		●		●	70								
●	●			●			-64	●			●	●	●		4	●	●	●		●		●	72								
		●		●			-62		●	●		●	●		6				●	●		●	74								
●		●		●			-60	●	●	●		●	●		8	●			●	●		●	76								
	●	●		●			-58				●	●	●		10		●		●	●		●	78								
●	●	●		●			-56	●			●	●	●		12	●	●		●	●		●	80								
			●	●			-54		●		●	●	●		14			●	●	●		●	82								
●			●	●			-52	●	●		●	●	●		16	●		●	●	●		●	84								
	●		●	●			-50			●	●	●	●		18		●	●	●	●		●	86								
●	●		●	●			-48	●		●	●	●	●		20	●	●	●	●	●		●	88								
		●	●	●			-46		●	●	●	●	●		22						●	●	90								
●		●	●	●			-44	●	●	●	●	●	●		24	●					●	●	92								
	●	●	●	●			-42							●	26		●				●	●	94								
●	●	●	●	●			-40	●						●	28	●	●				●	●	96								
					●		-38		●					●	30			●			●	●	98								
●					●		-36	●	●					●	32	●		●			●	●	100								

DIP Switch S2

Output Signal						Measuring Range Underflow	Measuring Range Overflow
6	7	8		9	10		
			0 ... 20 mA			Lower limit of output range -5 %	Upper limit of output range +2.5 %
●			4 ... 20 mA				
	●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range +2.5 %
●	●		2 ... 10 mA				
		●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range
●		●	2 ... 10 V				
	●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range
●	●	●	1 ... 5 V				

According to Namur NE 43

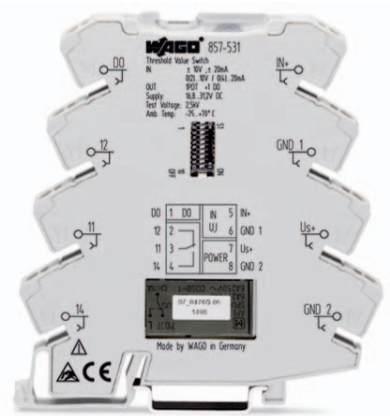
Default settings

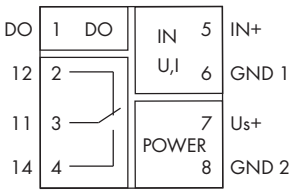
In delivery status all DIP switches are in the position "OFF".

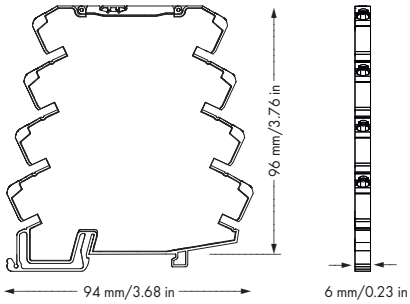
- Measuring range 0 ... 100 mV
- Output range 0 ... 20 mA
- Measuring range overflow 20.5 mA
- Measuring range underflow 0 mA

JUMPFLEX® Transducers

Threshold value switch with analog input and changeover relay output







Short description:
The threshold value switch for analog signals monitors analog standard signals and reports signals exceeding a preset threshold. It is equipped with an analog input and a changeover relay output. The device features a 24VDC nominal voltage supply. In addition, the device has a digital output (DO) to indicate other conditions, such as a range overflow or underflow. The threshold value switch can be configured via DIP switches and teach-in function via push-slider switch. Configuration via FDT/DTM software is also possible.

Description	Item No.	Pack. Unit
Threshold value switch with analog input, changeover relay output and digital output	**857-531**	1

Accessories

Configuration software	- 759-370 FDT Frame Application
	- DTM (Device Tool Manager)
	Download: see www.wago.com
WAGO USB Service Cable	750-923
General accessories	see pages 222 - 223

Approvals

Shipbuilding	(pending)
ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

Configuration	DIP switch, teach-in function,
	configuration software
Input signal	-10...+10 V, -20...+20 mA, 0...+30 V
Max. input signal	(31.2 V (U_{IN}) 100 mA (I_{IN})
Input resistance	≤ 200 Ω (I input)
	> 100 kΩ (U input)
Output - Relay	
Contact type	1 changeover contact
Max. switching voltage	250 V AC
Max. continuous current (terminal	max.6 A (to 60 °C),
	3 A (60 to 70 °C)
Max. Switching power (resistive)	1250 VA AC
Switching treshold	1 bzw. 2 (adjustable)
Configurable rise and fall delay time	
	10 s (via DIP switch),
Output - Digital	
Max. switching voltage	Supply voltage
Max. continuous current	500 mA (to 60 °C)
	100 mA (60 to 70 °C)
Supply voltage range	16.8 V ... 31.2 V
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

DIP Switch Adjustability

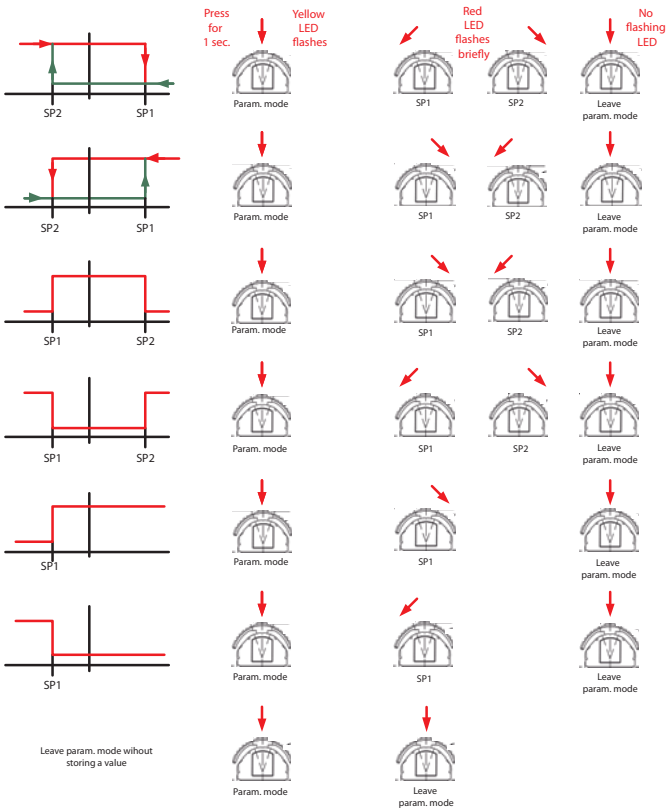
● = ON

857-531

DIP S1						
1	2	3	4	Input signal limits ± 0.25 V; ± 0.5 mA	5	Hysteresis
				±10 V		5 mV; 10 µA
	●			0 ... 10 V	●	10 mV, 20 µA
		●		2 ... 10 V		
	●	●		0 ... 5 V		
			●	1 ... 5 V		
	●		●	± 5 V		
		●	●	0 ... 15 V		
	●	●	●	0 ... 30 V		
●				± 20 mA		
●	●			0 ... 20 mA		
●		●		4 ... 20 mA		
●	●	●		0 ... 10 mA		
●			●	2 ... 10 mA		
●	●		●	± 10 mA		

DIP S1							
6	7	8	Configurable rise/ fall delay time in sec.	9	Measuring range overflow indication	10	DO
			0		DO Ub switched		not active
●			1	●	DO GND switched	●	active
	●		2				
●	●		3				
		●	4				
●		●	5				
	●	●	8				
●	●	●	10				

"Teach-In" Switch Operation



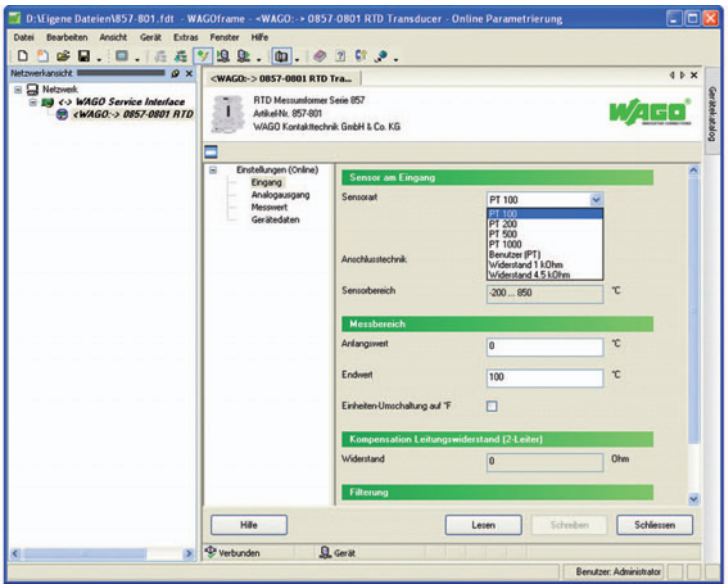
Default settings

In delivery status all DIP switches are in the position "OFF".

- Input range: ± 10 V
- Hysteresis: 5 mV
- Configurable rise/fall delay time: 0 s
- DO: not active

WAGOframe

FDT frame application for parameterization, commissioning and diagnostics of devices with DTM device driver



WAGOframe: Parameterizing a *JUMPLEX*® transducer

WAGOframe: Wizard function

WAGOframe is an FDT/DTM-based software used for parameterization, commissioning and diagnostics of field devices.
DTM device drivers for the devices employed are required to use the WAGOframe FDT frame application.
The WAGOframe FDT frame application provides a wizard, which simplifies the operation of components, such as WAGO *JUMPFLEX*® DTMs.
For example, this wizard guides the user through the different operating modes of DTM device drivers.
Depending on the PC communication interface used, an appropriate communication cable including DTM is required.

Description	Item No.	Pack. Unit
WAGOframe	**759-370**	1

Accessories	Item No.	Pack. Unit
857 Series *JUMPFLEX*®		
WAGO USB service cable	**750-923**	1
767 Series SPEEDWAY configuration		
USB communication cable	**756-4101/042-030**	1

Technical Data	
System requirements:	
PC	Pentium 1 GHz or higher
Operating system	Microsoft® Windows® 2000;
	Microsoft® Windows® XP Professional;
	Microsoft® Windows® Vista®
RAM memory	min. 512 Mbytes (Windows® 2000 + XP);
	min. 1024 Mbytes (Windows® Vista®)
Hard disk storage	min. 50 Mbytes
CD-ROM	required
Graphics resolution	XGA or higher
Mouse	required
Other	Free interface in PC for
	communication with the device
	(e.g., USB, Serial, ETHERNET, ...)
Included:	CD ROM with software and documentation
Additional requirements:	Cable between PC communication
	interface and device.
	DTM software for the communication
	interface used in the PC.
	DTM software of the device.
	Cable between PC communication

Windows® is a registered trademark of Microsoft Corporation

WAGO USB Service Cable

The WAGO USB Service Cable connects a PC (notebook) to either the service Interface of the 857 Series Signal Conditioners and Relay Modules (*JUMPFLEX*®) or to WAGO-I/O-SYSTEM buscouplers/controllers.

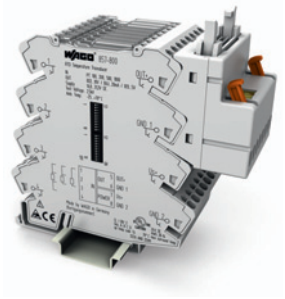
Notice:
Using the WAGO 759-923 USB Service Cable in combination with some of the programmable fieldbus controllers requires a certain firmware version or higher:
750-841 as from firmware version 12
750-872/0020-0000 as from firmware version 2

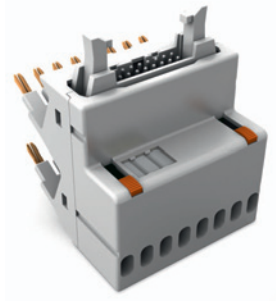
Description	Item No.	Pack. Unit
WAGO USB service cable	**750-923**	1

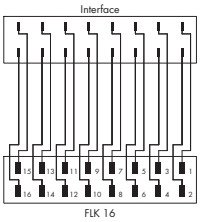
Technical Data	
USB specification	2.0 compatible/full-speed device
Operating system	Windows 98/2000/XP/VISTA
Operating temperature	-25 °C ... +70 °C
Interface USB	type A/m
Length	2.5 m
Connector dimensions (WxHxD)	15 x 50 x 19 mm
Test voltage	2.5 kV, 50 Hz, 1 min.
Conformity marking	CE
EMC CE-Immunity to interference	acc. to EN 61000-4-3, EN 61000-4-6
EMC CE-Emission of interference	acc. to EN 55022

JUMPFLEX® 8-Channel Adapter for System Wiring

	8-channel adapter with 16-pin ribbon cable connector Analog	







Description	Item No.	Pack. unit	
***JUMPFLEX*® 8-channel adapter for system wiring**	**857-980**	1	

Technical Data

Connection type, signal level	16-pin ribbon cable connector acc. to DIN 41651	
Performance level	3	
Contact resistance	≤ 20 mΩ	
Current carrying capacity	1 A	
Test voltage	500 V / 50 Hz / 1 min.	
Overvoltage category	III	
Degree of pollution	2	
Accessories	**WAGO ribbon cable on request**	

Accessories, 857 Series

Push-in type jumper bar

Commoning

Description		Item No.	Pack. Unit
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	**859-402**	200 (8x25)
	3-way	**859-403**	200 (8x25)
	4-way	**859-404**	200 (8x25)
	5-way	**859-405**	200 (8x25)
	6-way	**859-406**	100 (4x25)
	7-way	**859-407**	100 (4x25)
	8-way	**859-408**	100 (4x25)
	9-way	**859-409**	100 (4x25)
	10-way	**859-410**	100 (4x25)
Item no. suffix for colored push-in type jumper bars	**yellow**	**... /000-029**	
	red	**... /000-005**	
	blue	**... /000-006**	

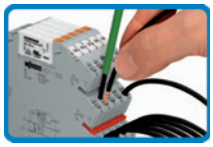
WMB Multi marking system

Marking

Description		Item No.	Pack. Unit
WMB Multi marking system	**plain**	**793-501**	5 cards
Marking software and printer/plotter see Section 8			
Marking	**1 ... 10 (10x)**	**793-502**	5 cards
	11 ... 20 (10x)	**793-503**	5 cards
	21 ... 30 (10x)	**793-504**	5 cards
	31 ... 40 (10x)	**793-505**	5 cards
	41 ... 50 (10x)	**793-506**	5 cards
	1 ... 50 (2x)	**793-566**	5 cards
10 strips with 10 markers, white with black printing			

Operating tool

Wire connection



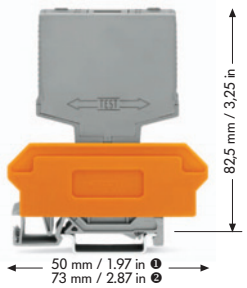
WAGO USB service cable

Configuration

Description		Item No.	Pack. Unit
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1
WAGO USB service cable		**750-923**	1

Pluggable Modules - Temperature Transducers

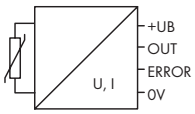
	Input: Pt100 type RTD element 2-wire, with error output for broken wire and short circuit of sensor Module width 20 mm / 0.787 in	Input: Pt100 type RTD element 3-wire, with error output for broken wire and short circuit of sensor Module width 20 mm / 0.787 in

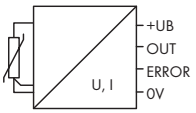


Other temperature ranges contact factory.
LED indication of broken wire or short circuit
WSB marker card

- Marking 1 ... 10; Item No.: 209-702
- Marking 1, 2, 3, 0V, +UB, OUT, ERR., 0V; Item No.: 249-622
- Marking 1, 2, 0V, +UB, OUT, ERR., 0V; Item No.: 249-623

5 cards, each containing 10 strips with 10 markers



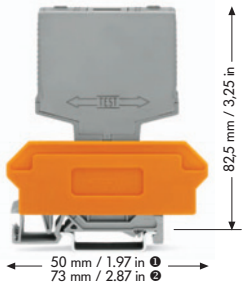


Description	Output	Item No.	Pack. Unit	Output	Item No.	Pack. Unit
Temperature transducer	0 - 10 V	**286-860**	1	0 - 10 V	**286-870**	1
	0 - 20 mA	**286-861**	1	0 - 20 mA	**286-871**	1
	4 - 20 mA	**286-862**	1	4 - 20 mA	**286-872**	1

Technical Data	Accessories see page 233	Accessories see page 233
Temperature range	0 °C ... 100 °C	0 °C ... 100 °C
Operating voltage	24 V DC (± 10 %)	24 V DC (± 10 %)
Nominal current	I_{BN} 30 mA	I_{BN} 30 mA
Load impedance	≥ 2 kΩ (Out = V)	≥ 2 kΩ (Out = V)
	≤ 500 Ω (Out = mA)	≤ 500 Ω (Out = mA)
Error output - low upon error (fail safe)	V_B / max. 20 mA	V_B / max. 20 mA
Transmission error (measuring range)	≤ 0.3 %	≤ 0.3 %
Temperature coefficient	0.02 %/K	0.02 %/K
Ambient operating temperature	0 °C ... +55 °C	0 °C ... +55 °C
Electromagnetic compatibility test acc. to IEC 801-2/4/5	B acc. to EN 50082 T2 (E3.94)	B acc. to EN 50082 T2 (E3.94)

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

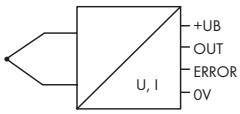
	Input: Thermocouple J (Fe-CuNi) with error output for broken wire Module width 20 mm / 0.787 in	Input: Thermocouple K (NiCr-Ni) with error output for broken wire Module width 20 mm / 0.787 in

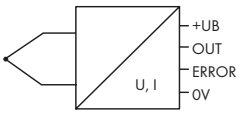


Other temperature ranges contact factory.
LED indication of broken wire or short circuit
WSB marker card

- Marking 1 ... 10; Item No.: 209-702
- Marking 1, 2, 3, 0V, +UB, OUT, ERR., 0V; Item No.: 249-622
- Marking 1, 2, 0V, +UB, OUT, ERR., 0V; Item No.: 249-623

5 cards, each containing 10 strips with 10 markers





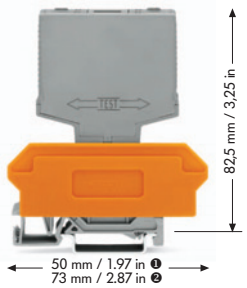
Description	Output	Item No.	Pack. Unit	Output	Item No.	Pack. Unit
Temperature transducer	0 - 10 V	**286-863**	1	0 - 10 V	**286-864**	1
	0 - 20 mA	**286-865**	1	0 - 20 mA	**286-866**	1
	4 - 20 mA	**286-867**	1	4 - 20 mA	**286-868**	1

Technical Data	Accessories see page 233	Accessories see page 233
Temperature range	0 °C ... 750 °C	0 °C ... 1000 °C
Operating voltage	24 V DC (± 10 %)	24 V DC (± 10 %)
Nominal current	I_{BN} ≤ 30 mA (Out = V)	I_{BN} ≤ 30 mA (Out = V)
	I_{BN} ≤ 50 mA (Out = mA)	I_{BN} ≤ 50 mA (Out = mA)
Load impedance	≥ 2 kΩ (Out = V)	≥ 2 kΩ (Out = V)
	≤ 500 Ω (Out = mA)	≤ 500 Ω (Out = mA)
Error output - low upon error (fail safe)	V_B / max. 20 mA	V_B / max. 20 mA
Transmission error (measuring range)	≤ 2 %	≤ 2 %
Temperature coefficient	0.02 %/K	0.02 %/K
Ambient operating temperature	0 °C ... +55 °C	0 °C ... +55 °C
Electromagnetic compatibility test acc. to IEC 801-2/4/5	B acc. to EN 50082 T2 (E3.94)	B acc. to EN 50082 T2 (E3.94)

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

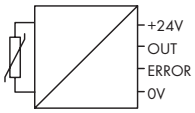
Pluggable Modules - Temperature Transducers

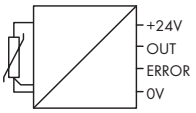
	Input: Pt100 type RTD element 2-wire, with error output for broken wire and short circuit of sensor -30 °C ... +150 °C Module width 20 mm / 0.787 in	Input: Pt100 type RTD element 3-wire, with error output for broken wire and short circuit of sensor -30 °C ... +150 °C Module width 20 mm / 0.787 in



Linear temperature curve
Other temperature ranges contact factory.
LED indication of broken wire or short circuit
WSB marker card
- Marking 1 ... 10; Item No.: 209-702
- Marking 1, 2, 3, 0V, +UB, OUT, ERR., 0V; Item No.: 249-622
- Marking 1, 2, 0V, +UB, OUT, ERR., 0V; Item No.: 249-623

5 cards, each containing 10 strips with 10 markers



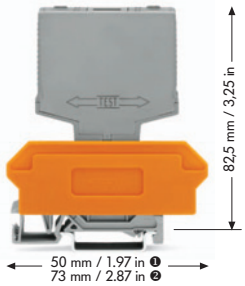


Description	Output	Item No.	Pack. Unit	Output	Item No.	Pack. Unit
Temperature transducer	0 ... 10 V	**286-860/150-030**	1	0 ... 10 V	**286-870/150-030**	1
	0 ... 20 mA	**286-861/150-030**	1	0 ... 20 mA	**286-871/150-030**	1
	4 ... 20 mA	**286-862/150-030**	1	4 ... 20 mA	**286-872/150-030**	1

Technical Data	Accessories see page 233	Accessories see page 233
Temperature range	-30 °C ... 150 °C	-30 °C ... 150 °C
Operating voltage	24 V DC (± 10 %)	24 V DC (± 10 %)
Nominal current	I_N 30 mA	I_N 30 mA
Load impedance	≥ 2 kΩ (Out = V)	≥ 2 kΩ (Out = V)
	≤ 500 Ω (Out = mA)	≤ 500 Ω (Out = mA)
Error output (closed-current principle)	V_B / 20 mA	V_B / 20 mA
Transmission error (full scale)	≤ 0.2 %	≤ 0.2 %
Temperature coefficient	≤ 0.02 %/K	≤ 0.02 %/K
Ambient operating temperature	0 °C ... +55 °C	0 °C ... +55 °C
Electromagnetic compatibility test acc. to IEC 801-2/4/5	B acc. to EN 50082 T2 (E3.94)	B acc. to EN 50082 T2 (E3.94)

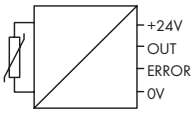
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

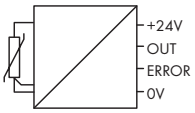
	Input: Pt100 type RTD element 2-wire, with error output for broken wire and short circuit of sensor 0 °C ... +300 °C Module width 20 mm / 0.787 in	Input: Pt100 type RTD element 3-wire, with error output for broken wire and short circuit of sensor 0 °C ... +300 °C Module width 20 mm / 0.787 in



Linear temperature curve
Other temperature ranges contact factory.
LED indication of broken wire or short circuit
WSB marker card

- Marking 1 ... 10; Item No.: 209-702
- Marking 1, 2, 3, 0V, +UB, OUT, ERR., 0V; Item No.: 249-622
- Marking 1, 2, 0V, +UB, OUT, ERR., 0V; Item No.: 249-623





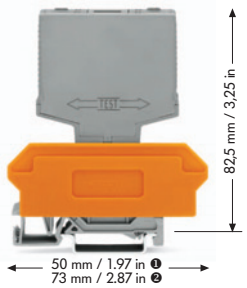
Description	Output	Item No.	Pack. Unit	Output	Item No.	Pack. Unit
Temperature transducer	0 ... 10 V	**286-860/000-300**	1	0 ... 10 V	**286-870/000-300**	1
	0 ... 20 mA	**286-861/000-300**	1	0 ... 20 mA	**286-871/000-300**	1
	4 ... 20 mA	**286-862/000-300**	1	4 ... 20 mA	**286-872/000-300**	1

Technical Data	Accessories see page 233	Accessories see page 233
Temperature range	0 °C ... 300 °C	0 °C ... 300 °C
Operating voltage	24 V DC (± 10 %)	24 V DC (± 10 %)
Nominal current	I_N 30 mA	I_N 30 mA
Load impedance	≥ 2 kΩ (Out = V)	≥ 2 kΩ (Out = V)
	≤ 500 Ω (Out = mA)	≤ 500 Ω (Out = mA)
Error output (closed-current principle)	V_B / 20 mA	V_B / 20 mA
Transmission error (full scale)	≤ 0.2 %	≤ 0.2 %
Temperature coefficient	≤ 0.02 %/K	0.02 %/K
Ambient operating temperature	0 °C ... +55 °C	0 °C ... +55 °C
Electromagnetic compatibility test acc. to IEC 801-2/4/5	B acc. to EN 50082 T2 (E3.94)	B acc. to EN 50082 T2 (E3.94)

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14;						
stripped length 8 ... 9 mm / 0.33 in						

Pluggable Modules - Temperature Transducers

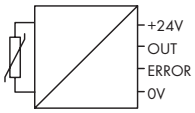
	Input: Pt1000 type RTD element 2-wire, with error output for broken wire and short circuit of sensor 0 °C ... +100 °C Module width 20 mm / 0.787 in	



Linear temperature curve
Other temperature ranges contact factory.
LED indication of broken wire or short circuit

WSB marker card
- Marking 1 ... 10; Item No.: 209-702
- Marking 1, 2, 0V, +UB, OUT, ERR., 0V; Item No.: 249-623

5 cards, each containing 10 strips with 10 markers



Description	Output	Item No.	Pack. Unit	
Temperature transducer	0 ... 10 V	**286-873**	1	
	0 ... 20 mA	**286-874**	1	
	4 ... 20 mA	**286-875**	1	

Technical Data

Accessories see page 233

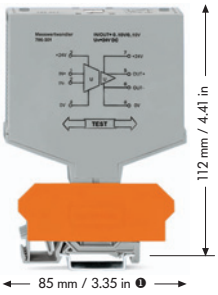
Temperature range	0 °C ... 100 °C
Operating voltage	24 V DC (± 10 %)
Nominal current	I_N 30 mA
Load impedance	≥ 2 kΩ (Out = V)
	≤ 500 Ω (Out = mA)
Error output (closed-current principle)	V_B / 20 mA
Transmission error (full scale)	≤ 0.3 %
Temperature coefficient	0.02 %/K
Ambient operating temperature	0 °C ... +55 °C
Electromagnetic compatibility test acc. to IEC 801-2/4/5	B acc. to EN 50082 T2 (E3.94)

Accessories

		Item No.	Pack. Unit
Terminal block for pluggable modules, with 2-conductor terminal blocks, orange separator ❶ with 4-conductor terminal blocks, marker plate ❷ wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in	22 mm / 0.866 in	**280-628**	1

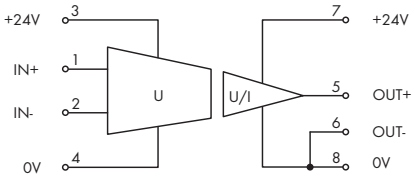
Pluggable Modules - Analog Signal Conditioning

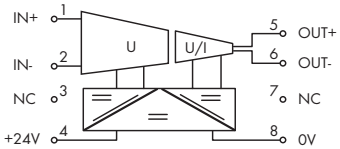
	Separate supply voltage for input/output Isolation voltage input/output 4 kV Input signal 0 V ... 10 V Module width 20 mm/ 0.787 in	Electrically isolated supply of input/output via DC/DC converter Isolation voltage input/ output/supply voltage 4 kV Input signal 0 V ... 10 V Module width 20 mm/ 0.787 in



WSB marker card
- Marking V; Item No.: 209-784
- Marking 1 ... 10; Item No.: 209-702
- Marking +/-; Item No.: 209-652

5 cards, each containing 10 strips with 10 markers



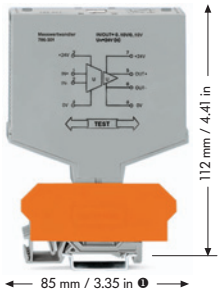


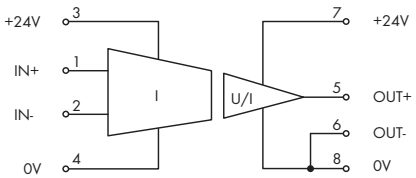
Description	Output signal	Item No.	Pack. Unit	Output signal	Item No.	Pack. Unit
Analog signal conditioning modules, for signal transformation, amplification and transmission with electrical isolation of input and output of standard signals.	0 - 10 V	**786-301**	1	0 - 10 V	**786-321**	1
	0 - 20 mA	**786-302**	1	0 - 20 mA	**786-322**	1
	4 - 20 mA	**786-303**	1	4 - 20 mA	**786-323**	1

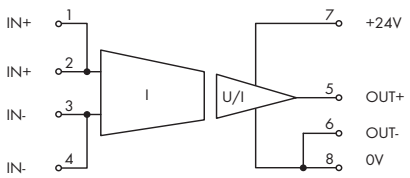
Technical Data	Accessories see page 233	Accessories see page 233
Input signal	0 V ... 10 V	0 V ... 10 V
Max. input voltage	13 V	13 V
Input resistance	100 kΩ	100 kΩ
Load impedance	≥ 2 kΩ (Out = V); ≤ 750 Ω (Out = mA)	≥ 2 kΩ (Out = V); ≤ 750 Ω (Out = mA)
Line break detection	Measuring output (LED green = off)	Measuring output (LED green = off)
Transmission error (full scale)	≤ 0.15 %	≤ 0.15 %
Error of transmission typ.	≤ 0.1 %	≤ 0.1 %
Temperature coefficient (full scale)	≤ 0.02 %/K	≤ 0.02 %/K
Critical frequency (sinus)	1 kHz	1 kHz
Isolation voltage input / output	4 kV, 50 Hz, 1 min	4 kV, 50 Hz, 1 min
Supply voltage RR ≤ 6 % input/output	20 V ... 30 V DC	20 V ... 28 V DC
Power consumption input	8 mA ... 20 mA	60 mA
Power consumption output	15 mA ... 40 mA	60 mA
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	0 °C ... + 55 °C	0 °C ... + 55 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Approvals	EMC testing IEC 60801-2/4/5, Grade B met acc. to EN 50 082 Part 2 (suppl. 3.94)	EMC testing IEC 60801-2/4/5, Grade B met acc. to EN 50 082 Part 2 (suppl. 3.94)

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules, with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in						

	Separate supply voltage for input/output Isolation voltage input/output 4 kV Input signal 0 mA ... 20 mA Module width 20 mm/ 0.787 in	Separate supply voltage for input/output Isolation voltage input/output 4 kV Input signal 4 mA ... 20 mA Module width 20 mm/ 0.787 in







WSB marker card
- Marking V; Item No.: 209-784
- Marking 1 ... 10; Item No.: 209-702
- Marking +/-; Item No.: 209-652

5 cards, each containing 10 strips with 10 markers

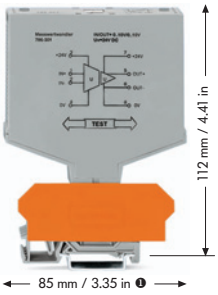
Description	Output signal	Item No.	Pack. Unit	Output signal	Item No.	Pack. Unit
Analog signal conditioning modules, for signal transformation, amplification and transmission with electrical isolation of input and output of standard signals.	0 - 10 V	**786-304**	1	0 - 10 V	**786-307**	1
	0 - 20 mA	**786-305**	1	0 - 20 mA	**786-308**	1
	4 - 20 mA	**786-306**	1	4 - 20 mA	**786-309**	1

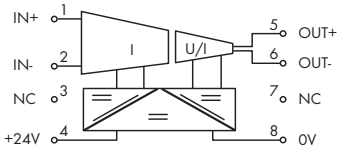
Technical Data	Accessories see page 233	Accessories see page 233
Input signal	0 mA ... 20 mA	4 mA ... 20 mA
Max. input current	22 mA	22 mA
Input resistance	≤ 50 Ω	≤ 400 Ω
Max. voltage drop at input		≤ 8 V
Load impedance	≥ 2 kΩ (Out = V); ≤ 750 Ω (Out = mA)	≥ 2 kΩ (Out = V); ≤ 750 Ω (Out = mA)
Line break detection	Measuring output (LED green = off)	Measuring input (LED green = off) and Measuring output (LED green = off) (786-309)
Transmission error (full scale)	≤ 0.15 %	≤ 0.15 %
Error of transmission typ.	≤ 0.1 %	≤ 0.1 %
Temperature coefficient (full scale)	≤ 0.02 %/K	≤ 0.02 %/K
Critical frequency (sinus)	1 kHz	1 kHz
Isolation voltage input / output	4 kV, 50 Hz, 1 min	4 kV, 50 Hz, 1 min
Supply voltage RR ≤ 6 % input/output	20 V ... 30 V DC	20 V ... 30 V DC
Power consumption input	7 mA ... 18 mA	7 mA ... 18 mA
Power consumption output	9 ... 16 mA; 13 ... 35 mA; 22 ... 40 mA	25 mA; 50 mA; 50 mA
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	0 °C ... + 55 °C	0 °C ... + 55 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C

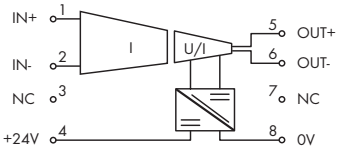
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in						

Pluggable Modules - Analog Signal Conditioning

	Electrically isolated supply of input/output via DC/DC converter Isolation voltage input/output/supply voltage 4 kV Input signal 0 mA ... 20 mA Module width 20 mm/ 0.787 in	Electrically isolated supply of input/output via DC/DC converter Isolation voltage input/output/supply voltage 4 kV Input signal 0 mA ... 20 mA Module width 20 mm/ 0.787 in







WSB marker card
- Marking V; Item No.: 209-784
- Marking 1 ... 10; Item No.: 209-702
- Marking +/-; Item No.: 209-652

5 cards, each containing 10 strips with 10 markers

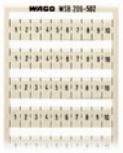
Description	Output signal	Item No.	Pack. Unit	Output signal	Item No.	Pack. Unit
Analog signal conditioning modules, for signal transformation, amplification and transmission with electrical isolation of input and output of standard signals.	0 - 10 V	**786-324**	1	0 - 10 V	**786-337**	1
	0 - 20 mA	**786-325**	1	0 - 20 mA	**786-338**	1
	4 - 20 mA	**786-326**	1	4 - 20 mA	**786-339**	1

Technical Data	Accessories see page 233	Accessories see page 233
Input signal	0 mA ... 20 mA	4 mA ... 20 mA
Max. input current	22 mA	22 mA
Input resistance	≤ 50 Ω	≤ 400 Ω
Max. voltage drop at input		≤ 8 V
Load impedance	≥ 2 kΩ (Out = V); ≤ 750 Ω (Out = mA)	≥ 2 kΩ (Out = V); ≤ 750 Ω (Out = mA)
Line break detection	Measuring input (LED green = off)	Measuring input (LED green = off) and Measuring output (LED green = off) (786-339)
Transmission error (full scale)	≤ 0.15 %	≤ 0.15 %
Error of transmission typ.	≤ 0.1 %	≤ 0.1 %
Temperature coefficient (full scale)	≤ 0.02 %/K	≤ 0.02 %/K
Critical frequency (sinus)	1 kHz	1 kHz
Isolation voltage input / output	4 kV, 50 Hz, 1 min	4 kV, 50 Hz, 1 min
Supply voltage RR ≤ 6 % input/output	20 V ... 28 V DC	20 V ... 28 V DC
Power consumption input	70 mA; 90 mA; 95 mA	35 mA; 60 mA; 60 mA
Power consumption output	70 mA; 90 mA; 95 mA	35 mA; 60 mA; 60 mA
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	0 °C ... + 55 °C	0 °C ... + 55 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in						

WSB Marker Cards

Miniature quick marking card



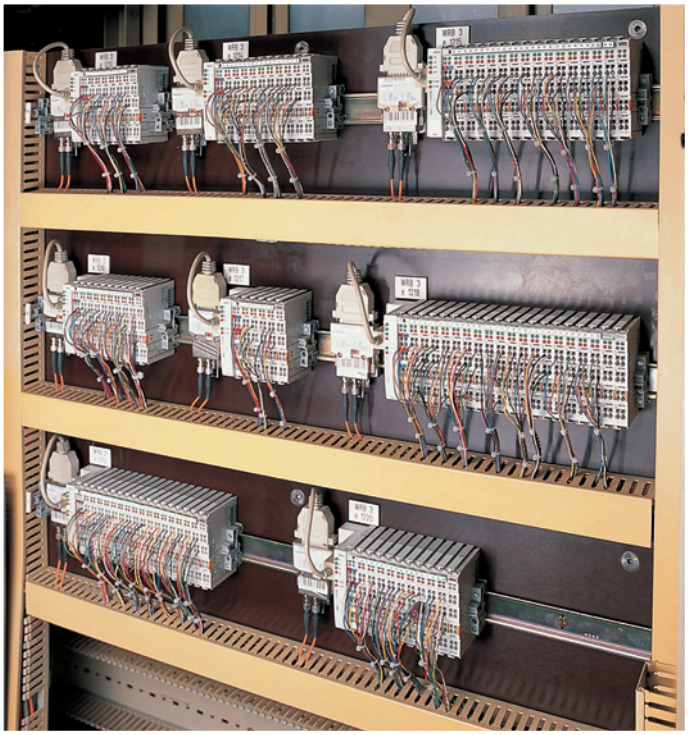
Description		Item No.	Pack. Unit
Marking:	K	209-782	5 cards
	1 ... 10 (10 x)	209-702	5 cards
	A1, A2, 13, 14	209-952	5 cards
	A1, A2, 11, 12	209-953	5 cards
	11, 12, 14, A1, A2, A2, 11, 12, 14	209-994	5 cards
	12, A1, A2, 24, 11, 14, 21, 22	209-995	5 cards
	A1, A1, A2, A2, 11, 12, 13, 14, 23, 24	209-693	5 cards
	12, A1, A2, 23, 24, 11, 13, 14, 21, 22	209-691	5 cards
	12, A1, A2, 23, 24, 11, 13, 14, 33, 34	209-690	5 cards
	14, A1, A2, 33, 34, 13, 23, 24, 43, 44	209-692	5 cards
	A1, A2, 32, 31, 34, 42, 41, 12, 11, 14, 22, 21, 24, 44	249-656	5 cards
	L+, 1, L-, L-, 11, 12, 13, 14	209-954	5 cards
	A1, A2, A3, 11, 12, 14	249-607	5 cards
	A1, A1, A2, A2, 12, 11, 11, 14	209-996	5 cards
	A1, A1, St, A2, A2, 12, 11, 11, 14	209-601	5 cards
	U1, U2, U3, U4, 0V, 12, 11, 11, 14, 14	209-951	5 cards
	U	209-789	5 cards
	A1, A2, A2, 1, 3, 2	209-685	5 cards
	A1, A2, A2, 1, 2, 2	209-686	5 cards
	A1+, A1+, A2-, A2-, 1, RL1, RL2, 2	209-955	5 cards
	A1+, A1+, A2-, A2-, 1+, 1+, A, 2-	249-651	5 cards
	+/-	209-552	5 cards
	1, 2, 3, 0V, +UB, OUT, ERR., 0V	249-622	5 cards
	1, 2, 0V, +UB, OUT, ERR., 0V	249-623	5 cards
	Lin, Lin, Lout, Lout, 24V, UA, UA, 0V	209-957	5 cards
	Lin, Lin, Lout, 11, 14, 14, Lin, Lin, Lout	249-654	5 cards
	Iin, Iin, Iout, Iout, 24V, 11, 12, 14, 0V	209-997	5 cards
	S	209-682	5 cards
	V	209-784	5 cards
	F1 ... F10	209-787	5 cards
	D	209-783	5 cards
	+, -, 1, 2, 3, 13, 14, 4, 5, 6	249-608	5 cards
	L, N, Quitt, Störung, Test, N, 14, 24	249-606	5 cards
	A1, A2, Quitt, Störung, 12, 11, 11, 14	249-653	5 cards

5 cards, each containing 10 strips with 10 markers

Colored marker cards

Description		Item No.	Pack. Unit
Marker cards and tags WSB 4 mm/0.157 in (plain)	white	209-701	5 cards
Marking software and printer/plotter see Section 8	yellow	209-701/000-002	5 cards
	red	209-701/000-005	5 cards
	blue	209-701/000-006	5 cards
	gray	209-701/000-007	5 cards
	orange	209-701/000-012	5 cards
	light green	209-701/000-017	5 cards
	green	209-701/000-023	5 cards
	violet	209-701/000-024	5 cards

5 cards, each containing 10 strips with 10 markers



WAGO Application: Steag, Power Plant in Voerde, Germany

WAGO Products:
WAGO-I/O-SYSTEM with MODBUS Couplers

4

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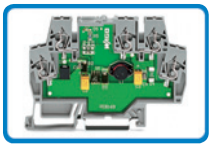

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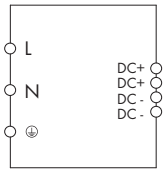
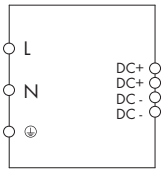
Primary Switch Mode Power Supplies

***EPSITRON* - PRO - Power**

	Output voltage 24 V DC; 5 A, open circuit and short-circuit protected, adjustable output voltage, LED status indication, PowerBoost	**Output voltage 24 V DC; 10 A, open circuit and short-circuit protected, adjustable output voltage, LED status indication, PowerBoost**

- Primary switch mode power supply with PowerBoost and TopBoost
- Stand-by input for switching off the output and minimizing power consumption
- Parallel operation, series connection possible
- Prepared for class I equipment
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets





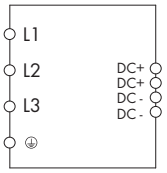
Description	**Vo nom**	**Item No.**	**Pack. unit**	**Vo nom**	**Item No.**	**Pack. unit**
Primary switch mode power supplies, for DIN 35 rail	24 V DC, SELV	**787-822**	1	24 V DC, SELV	**787-832**	1

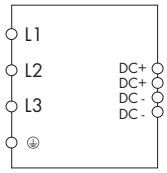
Technical Data

Nominal input voltage Vi nom	100 V ... 240 V AC	100 V ... 240 V AC
Input voltage range	85 V ... 264 V AC (120 V ... 373 V DC)	85 V ... 264 V AC (120 V ... 373 V DC)
Frequency	44 Hz ... 66 Hz	44 Hz ... 66 Hz
Input current Ii	0.97 A at 230 V AC and 5 A DC	1.2 A at 230 V AC and 10 A DC
Inrush current	< 15 A	≤ Ie (active inrush current limitation)
Mains failure hold-up time	35 ms typ. at 230 V AC	24 ms typ. at 230 V AC
Internal/external fuse	4 AT	6.3 AT
Nominal output voltage Vo nom	24 V DC, SELV	24 V DC, SELV
Output voltage range	22 V... 29.5 V DC adjustable	22 V... 29.5 V DC adjustable
Output current Io	5 A at 24 V DC	10 A at 24 V DC
PowerBoost	10 A DC (for 4 sec.); 7.5 A DC (for another 2 sec.)	20 A DC (for 4 sec.); 15 A DC (for another 2 sec.)
TopBoost	23 A DC (for 25 ms)	60 A DC (for 25 ms)
Residual ripple	< 70 mVpp	< 70 mVpp
Derating	-2.5 % / K (> 55 °C)	-2.5 % / K (> 55 °C)
Adjustment accuracy	1 %	1 %
Current limitation	1.1 x Io typ.	1.1 x Io typ.
Efficiency	87.8 % typ.	91.8 % typ.
Test voltage pri.-gr./pri.-sec./sec.-gr.	- / 4.2 kV / -	- / 4.2 kV / -
Degree of protection	IP20	IP20
Operational indication	LED green (Vo), LED red (error)	LED green (Vo), LED red (error)
Power loss P_V	0.5 W (stand-by) / 5.0 W (no load) / 14.6 W (rated load)	0.8 W (stand-by) / 3.5 W (no load) / 19.7 W (rated load)
Signaling	Relay contact DC O.K. (changeover contact)	Relay contact DC O.K. (changeover contact)
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions	DIN-rail mounting (EN 60715) in 2 positions
Ambient operating temperature	-10 °C ... +70 °C	-10 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Dimensions (mm) W x H x L	57 x 163 x 163	57 x 163 x 179
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	Input/Output: WAGO 231 Series / WAGO 231 Series	Input/Output: WAGO 231 Series / WAGO 231 Series
	Signalising: WAGO 733 Series	Signalising: WAGO 733 Series
Cross sections	Input: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	Input: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
	Output: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	Output: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
	Signalising: 0.08 mm² ... 0.5 mm² / AWG 28 ... 20	Signalising: 0.08 mm² ... 0.5 mm² / AWG 28 ... 20
Stripped lengths	Input: 8 ... 9 mm / 0.33 in	Input: 8 ... 9 mm / 0.33 in
	Output: 8 ... 9 mm / 0.33 in	Output: 8 ... 9 mm / 0.33 in
	Signalising: 5 ... 6 mm / 0.22 in	Signalising: 5 ... 6 mm / 0.22 in
Weight	1100 g	1300 g
Approvals	EN 60950, EN 61204-3, UL 60950*, UL 508*,	EN 60950, EN 61204-3, UL 60950*, UL 508*,
	EN 61000-6-2, EN 61000-6-3 (* pending)	EN 61000-6-2, EN 61000-6-3 (* pending)

	Output voltage 24 V DC; 10 A open circuit and short-circuit protected, adjustable output voltage, LED status indication; PowerBoost	Output voltage 24 V DC; 10 A open circuit and short-circuit protected, adjustable output voltage, LED status indication; PowerBoost; LineMonitor

- Primary switch mode power supply with PowerBoost and TopBoost
- Line monitor for parameter setting and monitoring
- prepared for class I equipment
- natural convection cooling when horizontally mounted
- encapsulated, for use in switchgear cabinets





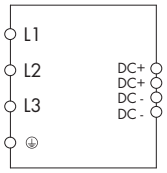
Description	Vo nom	Item No.	Pack. unit	Vo nom	Item No.	Pack. unit
Primary switch mode power supplies, for DIN 35 rail	24 V DC, SELV	**787-840**	1	24 V DC, SELV	**787-850**	1
Technical Data						
Nominal input voltage Vi nom	3x (2x) 400 V ... 500 V AC			3x (2x) 400 V ... 500 V AC		
Input voltage range	340 V ... 550 V AC / 480 V ... 780 V DC			340 V ... 550 V AC / 480 V ... 780 V DC		
Frequency	50 Hz ... 60 Hz			50 Hz ... 60 Hz		
Input current Ii	3 x 0.6 A at 340 V AC and 10 A DC			3 x 0.6 A at 340 V AC and 10 A DC		
Inrush current	< 30 A			< 30 A		
Mains failure hold-up time	22 ms typ. at 3 x 400 V AC			22 ms typ. at 3 x 400 V AC		
Internal/external fuse	3 x 1.6 AT / -			3 x 1.6 AT / -		
Nominal output voltage Vo nom	24 V DC, SELV			24 V DC, SELV		
Output voltage range	22.8 V ... 28.8 V DC adjustable			22.8 V ... 28.8 V DC adjustable		
Output current Io	10 A at 24 V DC			10 A at 24 V DC		
PowerBoost	20 A DC (for 4 s); 15 A DC (for 8 s)			20 A DC (for 4 s); 15 A DC (for 8 s)		
TopBoost	70 A DC (for 50 ms)			70 A DC (for 50 ms)		
Residual ripple	< 70 mVpp			< 70 mVpp		
Derating	-3 % / K (> 50 °C)			-3 % / K (> 50 °C)		
Adjustment accuracy	1 %			1 %		
Current limitation	1.1 x Io typ.			1.1 x Io typ.		
Efficiency	91.7 % typ.			91.7 % typ.		
Test voltage pri.-gr./pri.-sec./sec.-gr.	- / 4.2 kV / -			- / 4.2 kV / -		
Degree of protection	IP20			IP20		
Operational indication	LED green (Vo), LED red (error)			LED green (Vo), LED yellow (warning), LED red (error)		
Signaling				LED, LCD, 4 x signal output 24 V DC, 25 mA		
LineMonitor, parameter setting				via LCD and RS-232 serial interface		
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions			DIN-rail mounting (EN 60715) in 2 positions		
Ambient operating temperature	-10 °C ... +70°C			-10 °C ... +70°C		
Storage temperature	-25 °C ... +85 °C			-25 °C ... +85 °C		
Dimensions (mm) W x H x L	57 x 163 x 179			57 x 163 x 179		
	Height from upper-edge of DIN 35 rail			Height from upper-edge of DIN 35 rail		
Wire connection	Input/Output: WAGO 231 Series / WAGO 231 Series			Input/Output: WAGO 231 Series / WAGO 231 Series		
				Signalising: WAGO 733 Series		
Cross sections	Input: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12			Input: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12		
	Output: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12			Output: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12		
				Signalising: 0.08 mm² ... 0.5 mm² / AWG 28 ... 20		
Stripped lengths	Input: 8 ... 9 mm / 0.33 in			Input: 8 ... 9 mm / 0.33 in		
	Output: 8 ... 9 mm / 0.33 in			Output: 8 ... 9 mm / 0.33 in		
				Signalising: 5 ... 6 mm / 0.22 in		
Weight	1000 g			1000 g		
Approvals	EN 60950, EN 61204-3, UL 60950, UL 508,			EN 60950, EN 61204-3, UL 60950, UL 508,		
	EN 61000-6-2, EN 61000-6-3			EN 61000-6-2, EN 61000-6-3		

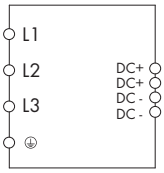
Primary Switch Mode Power Supplies

***EPSITRON* - PRO - Power**

	Output voltage 24 V DC; 10 A open circuit and short-circuit protected, adjustable output voltage, LED status indication; PowerBoost	**Output voltage 24 V DC; 10 A open circuit and short-circuit protected, adjustable output voltage, LED status indication; PowerBoost; LineMonitor**

- Primary switch mode power supply with PowerBoost and TopBoost
- Line monitor for parameter setting and monitoring
- prepared for class I equipment
- natural convection cooling when horizontally mounted
- encapsulated, for use in switchgear cabinets

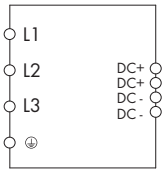


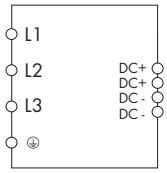


Description	**Vo nom**	**Item No.**	**Pack. unit**	**Vo nom**	**Item No.**	**Pack. unit**
Primary switch mode power supplies, for DIN 35 rail	24 V DC, SELV	**787-842**	1	24 V DC, SELV	**787-852**	1
Technical Data						
Nominal input voltage Vi nom	3x (2x) 400 V ... 500 V AC			3x (2x) 400 V ... 500 V AC		
Input voltage range	340 V ... 550 V AC / 480 V ... 780 V DC			340 V ... 550 V AC / 480 V ... 780 V DC		
Frequency	50 Hz ... 60 Hz			50 Hz ... 60 Hz		
Input current Ii	3 x 1.0 A at 340 V AC and 20 A DC			3 x 1.0 A at 340 V AC and 20 A DC		
Inrush current	< 30 A			< 30 A		
Mains failure hold-up time	13 ms typ. at 3 x 400 V AC			13 ms typ. at 3 x 400 V AC		
Internal/external fuse	3 x 2.5 AT / -			3 x 2.5 AT / -		
Nominal output voltage Vo nom	24 V DC, SELV			24 V DC, SELV		
Output voltage range	22.8 V ... 28.8 V DC adjustable			22.8 V ... 28.8 V DC adjustable		
Output current Io	20 A at 24 V DC			20 A at 24 V DC		
PowerBoost	40 A DC (for 4 s); 30 A DC (for 8 s)			40 A DC (for 4 s); 30 A DC (for 8 s)		
TopBoost	80 A DC (for 50 ms)			80 A DC (for 50 ms)		
Residual ripple	< 70 mVpp			< 70 mVpp		
Derating	-3 % / K (> 50 °C)			-3 % / K (> 50 °C)		
Adjustment accuracy	1 %			1 %		
Current limitation	1.1 x Io typ.			1.1 x Io typ.		
Efficiency	92.9 % typ.			92.9 % typ.		
Test voltage pri.-gr./pri.-sec./sec.-gr.	- / 4.2 kV / -			- / 4.2 kV / -		
Degree of protection	IP20			IP20		
Operational indication	LED green (Vo), LED red (error)			LED green (Vo), LED yellow (warning), LED red (error)		
Signaling				LED, LCD, 4 x signal output 24 V DC, 25 mA		
LineMonitor, parameter setting				via LCD and RS-232 serial interface		
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions			DIN-rail mounting (EN 60715) in 2 positions		
Ambient operating temperature	-10 °C ... +70°C			-10 °C ... +70°C		
Storage temperature	-25 °C ... +85 °C			-25 °C ... +85 °C		
Dimensions (mm) W x H x L	77 x 171 x 179			77 x 171 x 179		
	Height from upper-edge of DIN 35 rail			Height from upper-edge of DIN 35 rail		
Wire connection	Input/Output: WAGO 231 Series / WAGO 831 Series			Input/Output: WAGO 231 Series / WAGO 831 Series		
				Signalising: WAGO 733 Series		
Cross sections	Input: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12			Input: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12		
	Output: 0.5 mm² ... 10 mm² / AWG 20 ... 8			Output: 0.5 mm² ... 10 mm² / AWG 20 ... 8		
				Signalising: 0.08 mm² ... 0.5 mm² / AWG 28 ... 20		
Stripped lengths	Input: 8 ... 9 mm / 0.33 in			Input: 8 ... 9 mm / 0.33 in		
	Output: 13 ... 15 mm / 0.55 in			Output: 13 ... 15 mm / 0.55 in		
				Signalising: 5 ... 6 mm / 0.22 in		
Weight	1300 g			1300 g		
Approvals	EN 60950, EN 61204-3, UL 60950, UL 508,			EN 60950, EN 61204-3, UL 60950, UL 508,		
	EN 61000-6-2, EN 61000-6-3			EN 61000-6-2, EN 61000-6-3		

	Output voltage 24 V DC; 10 A open circuit and short-circuit protected, adjustable output voltage, LED status indication; PowerBoost	Output voltage 24 V DC; 10 A open circuit and short-circuit protected, adjustable output voltage, LED status indication; PowerBoost; LineMonitor

- Primary switch mode power supply with PowerBoost and TopBoost
- Line monitor for parameter setting and monitoring
- prepared for class I equipment
- natural convection cooling when horizontally mounted
- encapsulated, for use in switchgear cabinets





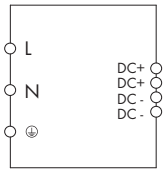
Description	Vo nom	Item No.	Pack. unit	Vo nom	Item No.	Pack. unit
Primary switch mode power supplies, for DIN 35 rail	24 V DC, SELV	**787-844**	1	24 V DC, SELV	**787-854**	1
Technical Data						
Nominal input voltage Vi nom	3x (2x) 400 V ... 500 V AC			3x (2x) 400 V ... 500 V AC		
Input voltage range	340 V ... 550 V AC / 480 V ... 780 V DC			340 V ... 550 V AC / 480 V ... 780 V DC		
Frequency	50 Hz ... 60 Hz			50 Hz ... 60 Hz		
Input current Ii	3 x 2.0 A at 340 V AC and 40 A DC			2.0 A at 340 V AC		
Inrush current	< 30 A			< 30 A		
Mains failure hold-up time	15 ms typ. at 3 x 400 V AC			15 ms typ. at 3 x 400 V AC		
Internal/external fuse	3 x 3.2 AT / -			3 x 3.2 AT / -		
Nominal output voltage Vo nom	24 V DC, SELV			24 V DC, SELV		
Output voltage range	22.8 V ... 28.8 V DC adjustable			22.8 V ... 28.8 V DC adjustable		
Output current Io	40 A at 24 V DC			40 A at 24 V DC		
PowerBoost	60 A DC (for 4 s); 50 A DC (for 8 s)			60 A DC (for 4 s); 50 A DC (for 8 s)		
TopBoost	100 A DC (for 50 ms)			100 A DC (for 50 ms)		
Residual ripple	< 70 mVpp			< 70 mVpp		
Derating	-5 % / K (> 45 °C)			-5 % / K (> 45 °C)		
Adjustment accuracy	1 %			1 %		
Current limitation	1.1 x Io typ.			1.1 x Io typ.		
Efficiency	93.6 % typ.			93.6 % typ.		
Test voltage pri.-gr./pri.-sec./sec.-gr.	- / 4.2 kV / -			- / 4.2 kV / -		
Degree of protection	IP20			IP20		
Operational indication	LED green (Vo), LED red (error)			LED green (Vo), LED yellow (warning), LED red (error)		
Signaling				LED, LCD, 4 x signal output 24 V DC, 25 mA		
LineMonitor, parameter setting				via LCD and RS-232 serial interface		
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions			DIN-rail mounting (EN 60715) in 2 positions		
Ambient operating temperature	-10 °C ... +55°C			-10 °C ... +55°C		
Storage temperature	-25 °C ... +85 °C			-25 °C ... +85 °C		
Dimensions (mm) W x H x L	128 x 171 x 205			128 x 171 x 205		
	Height from upper-edge of DIN 35 rail			Height from upper-edge of DIN 35 rail		
Wire connection	Input/Output: WAGO 231 Series / WAGO 831 Series			Input/Output: WAGO 231 Series / WAGO 831 Series		
				Signalising: WAGO 733 Series		
Cross sections	Input: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12			Input: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12		
	Output: 0.5 mm² ... 10 mm² / AWG 20 ... 8			Output: 0.5 mm² ... 10 mm² / AWG 20 ... 8		
				Signalising: 0.08 mm² ... 0.5 mm² / AWG 28 ... 20		
Stripped lengths	Input: 8 ... 9 mm / 0.33 in			Input: 8 ... 9 mm / 0.33 in		
	Output: 13 ... 15 mm / 0.55 in			Output: 13 ... 15 mm / 0.55 in		
				Signalising: 5 ... 6 mm / 0.22 in		
Weight	2500 g			2500 g		
Approvals	EN 60950, EN 61204-3, UL 60950, UL 508,			EN 60950, EN 61204-3, UL 60950, UL 508,		
	EN 61000-6-2, EN 61000-6-3			EN 61000-6-2, EN 61000-6-3		

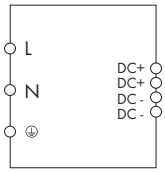
Primary Switch Mode Power Supplies

***EPSITRON* - CLASSIC - Power**

	Output voltage 12 V DC; 2 A **open circuit and short-circuit protected,** **adjustable output voltage,** **LED status indication**	**Output voltage 12 V DC; 4 A** **open circuit and short-circuit protected,** **adjustable output voltage,** **LED status indication,** **parallel connection possible,** **thermal overload protection**

- prepared for class I equipment
- natural convection cooling when horizontally mounted
- encapsulated, for use in switchgear cabinets

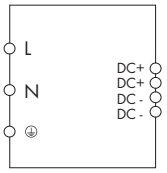


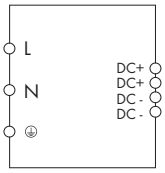


Description	**Vo nom**	**Item No.**	**Pack. unit**	**Vo nom**	**Item No.**	**Pack. unit**
Primary switch mode power supplies, for DIN 35 rail	12 V DC, SELV	**787-601**	1	12 V DC, SELV	**787-611**	1
Technical Data						
Nominal input voltage Vi nom	110 V ... 230 V AC			110 V ... 230 V AC		
Input voltage range	90 V ... 264 V AC; 130 V ... 300 V DC			90 V ... 264 V AC; 130 V ... 300 V DC		
	(use of DC requires external protection)			(use of DC requires external protection)		
Frequency	50 Hz ... 60 Hz			50 Hz ... 60 Hz		
Input current Ii	0.3 A typ. at 230 V AC			0.6 A typ. at 230 V AC		
Inrush current	< 10 A			< 15 A		
Mains failure hold-up time	> 20 ms at 230 V AC			> 20 ms at 230 V AC		
Nominal output voltage Vo nom	12 V DC, SELV			12 V DC, SELV		
Output voltage range	11 V ... 15 V DC adjustable			11 V ... 15 V DC adjustable		
Output current Io	2 A at 12 V DC			4 A at 12 V DC		
Residual ripple	< 100 mVpp to 20 MHz			< 100 mVpp to 20 MHz		
Derating	-3 % / K (>50 °C)			-3 % / K (>50 °C)		
Adjustment accuracy	1.5 %			2 %		
Current limitation	from approx. 1.5 x Io			from approx. 1.1 x Io		
Efficiency	78 % typ.			84 % typ.		
Test voltage pri.-gr./pri.-sec./sec.-gr.	4.2 kV			4.2 kV		
Degree of protection	IP20			IP20		
Operational indication	LED green (12 V o.k.)			LED green (12 V o.k.)		
Type of mounting	DIN-rail mounting (DIN EN 50022)			DIN-rail mounting (DIN EN 50022)		
Ambient operating temperature	-10 °C ... +70 °C			-10 °C ... +70 °C		
Storage temperature	-25 °C ... +85 °C			-25 °C ... +85 °C		
Dimensions (mm) W x H x L	40 x 95 x 90			51 x 133 x 120		
	Height from upper-edge of DIN 35 rail			Height from upper-edge of DIN 35 rail		
Wire connection	CAGE CLAMP® (WAGO 231 Series)			CAGE CLAMP® (WAGO 231 Series)		
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)			0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)		
Stripped lengths	8 ... 9 mm / 0.33 in			8 ... 9 mm / 0.33 in		
Weight	300 g			690 g		
Approvals	EN 60950-1, EN 61204-3, EN 61204-7			EN 60950-1, EN 61204-3, EN 61204-7		

	Output voltage 12 V DC; 8 A open circuit and short-circuit protected, adjustable output voltage, LED status indication, parallel connection possible, thermal overload protection	Output voltage 24 V DC; 1 A open circuit and short-circuit protected, adjustable output voltage, LED status indication

- prepared for class I equipment
- Natural convection cooling when horizontally mounted
- encapsulated, for use in switchgear cabinets





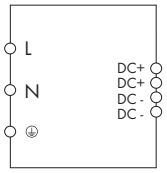
Description	Vo nom	Item No.	Pack. unit	Vo nom	Item No.	Pack. unit
Primary switch mode power supplies, for DIN 35 rail	12 V DC, SELV	**787-621**	1	24 V DC, SELV	**787-602**	1
Technical Data						
Nominal input voltage Vi nom	110 V ... 230 V AC			110 V ... 230 V AC		
Input voltage range	90 V ... 264 V AC; 130 V ... 300 V DC			90 V ... 264 V AC; 130 V ... 300 V DC		
	(use of DC requires external protection)			(use of DC requires external protection)		
Frequency	50 Hz ... 60 Hz			50 Hz ... 60 Hz		
Input current Ii	1.2 A typ. at 230 V AC			0.3 A typ. at 230 V AC		
Inrush current	< 15 A			< 10 A		
Discharge current				900 µA typ.		
Mains failure hold-up time	> 20 ms at 230 V AC			> 20 ms at 230 V AC		
Nominal output voltage Vo nom	12 V DC, SELV			24 V DC, SELV		
Output voltage range	11 V ... 15 V DC adjustable			21.6 V ... 26.4 V DC adjustable		
Output current Io	8 A at 12 V DC			1.3 A at 24 V DC		
Residual ripple	< 100 mVpp to 20 MHz			< 100 mVpp to 20 MHz		
Derating	-3 % / K (>50 °C)			-3 % / K (>50 °C)		
Adjustment accuracy	2 %			1.5 %		
Current limitation	from approx. 1.1 x Io			from approx. 1.5 x Io		
Efficiency	85 % typ.			81 % typ.		
Test voltage pri.-gr./pri.-sec./sec.-gr.	4.2 kV			4.2 kV		
Degree of protection	IP20			IP20		
Operational indication	LED green (12 V o.k.)			LED green (24 V o.k.)		
Type of mounting	DIN-rail mounting (DIN EN 50022)			DIN-rail mounting (DIN EN 50022)		
Ambient operating temperature	-10 °C ... +70 °C			-10 °C ... +70 °C		
Storage temperature	-25 °C ... +85 °C			-25 °C ... +85 °C		
Dimensions (mm) W x H x L	67 x 133 x 120			40 x 95 x 90		
	Height from upper-edge of DIN 35 rail			Height from upper-edge of DIN 35 rail		
Wire connection	CAGE CLAMP® (WAGO 231 Series)			CAGE CLAMP® (WAGO 231 Series)		
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)			0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)		
Stripped lengths	8 ... 9 mm / 0.33 in			8 ... 9 mm / 0.33 in		
Weight	952 g			300 g		
Approvals	EN 60950-1, EN 61204-3, EN 61204-7			EN 60950-1, EN 61204-3, EN 61204-7, UL 60950, UL 508		

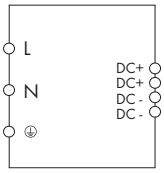
Primary Switch Mode Power Supplies

***EPSITRON* - CLASSIC - Power**

	Output voltage 24 V DC; 2.5 A **open circuit and short-circuit protected,** **adjustable output voltage,** **LED status indication,** **parallel connection possible,** **thermal overload protection**	**Output voltage 24 V DC; 5 A** **open circuit and short-circuit protected,** **adjustable output voltage,** **LED status indication,** **parallel connection possible,** **thermal overload protection**

- prepared for class I equipment
- natural convection cooling when horizontally mounted
- encapsulated, for use in switchgear cabinets

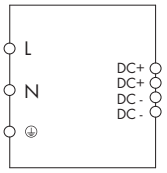


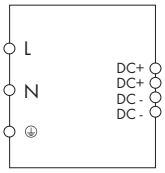


Description	**Vo nom**	**Item No.**	**Pack. unit**	**Vo nom**	**Item No.**	**Pack. unit**
Primary switch mode power supplies, for DIN 35 rail	24 V DC, SELV	**787-612**	1	24 V DC, SELV	**787-622**	1
Technical Data						
Nominal input voltage Vi nom	110 V ... 230 V AC			110 V ... 230 V AC		
Input voltage range	90 V ... 264 V AC; 130 V ... 300 V DC			90 V ... 264 V AC; 130 V ... 300 V DC		
	(use of DC requires external protection)			(use of DC requires external protection)		
Frequency	50 Hz ... 60 Hz			50 Hz ... 60 Hz		
Input current Ii	0.6 A typ. at 230 V AC			1.2 A typ. at 230 V AC		
Inrush current	< 10 A			< 50 A		
Discharge current	940 µA typ.			550 µA typ.		
Mains failure hold-up time	> 20 ms at 230 V AC			> 20 ms at 230 V AC		
Nominal output voltage Vo nom	24 V DC, SELV			24 V DC, SELV		
Output voltage range	22 V ... 28.8 V DC adjustable			22 V ... 28.8 V DC adjustable		
Output current Io	2.5 A at 24 V DC			5 A at 24 V DC		
Residual ripple	< 100 mVpp to 20 MHz			< 100 mVpp to 20 MHz		
Derating	-3 % / K (>55 °C)			-3 % / K (>55 °C)		
Adjustment accuracy	1.5 %			1.5 %		
Current limitation	from approx. 1.1 x Io			from approx. 1.1 x Io		
Efficiency	88 % typ.			89 % typ.		
Test voltage pri.-gr./pri.-sec./sec.-gr.	4.2 kV			4.2 kV		
Degree of protection	IP20			IP20		
Operational indication	LED green (24 V o.k.)			LED green (24 V o.k.)		
Type of mounting	DIN-rail mounting (DIN EN 50022)			DIN-rail mounting (DIN EN 50022)		
Ambient operating temperature	-10 °C ... +70 °C			-10 °C ... +70 °C		
Storage temperature	-25 °C ... +85 °C			-25 °C ... +85 °C		
Dimensions (mm) W x H x L	51 x 133 x 120			67 x 133 x 120		
	Height from upper-edge of DIN 35 rail			Height from upper-edge of DIN 35 rail		
Wire connection	CAGE CLAMP® (WAGO 231 Series)			CAGE CLAMP® (WAGO 231 Series)		
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)			0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)		
Stripped lengths	8 ... 9 mm / 0.33 in			8 ... 9 mm / 0.33 in		
Weight	622 g			790 g		
Approvals	EN 60950-1, EN 61204-3, EN 61204-7,			EN 60950-1, EN 61204-3, EN 61204-7,		
	UL 60950, UL 508			UL 60950, UL 508		

	Output voltage 24 V DC; 10 A open circuit and short-circuit protected, adjustable output voltage, LED status indication, parallel connection possible, thermal overload protection	Output voltage 48 V DC; 1 A open circuit and short-circuit protected, adjustable output voltage, LED status indication, parallel connection possible

- prepared for class I equipment
- natural convection cooling when horizontally mounted
- encapsulated, for use in switchgear cabinets





Description	Vo nom	Item No.	Pack. unit	Vo nom	Item No.	Pack. unit
Primary switch mode power supplies, for DIN 35 rail	24 V DC, SELV	**787-632**	1	48 V DC, SELV	**787-613**	1

Technical Data

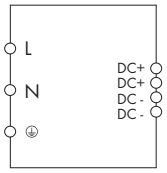
Nominal input voltage Vi nom	110 V ... 230 V AC	110 V ... 230 V AC
Input voltage range	85 V ... 264 V AC; 90 V ... 350 V DC	90 V ... 264 V AC; 130 V ... 300 V DC
		(use of DC requires external protection)
Frequency	50 Hz ... 60 Hz	50 Hz ... 60 Hz
Input current Ii	2.8 A at 230 V AC (6 A at 115 V AC)	0.6 A typ. at 230 V AC
Inrush current	< 30 A	< 50 A
Discharge current	1 mA typ.	
Mains failure hold-up time	>20 ms at 230 V AC, 24 V DC, 10 A	> 20 ms at 230 V AC
Internal/external fuse	6.3 A / 16 A recommended	
Nominal output voltage Vo nom	24 V DC, SELV	48 V DC, SELV
Output voltage range	22.8 V ... 28.8 V DC adjustable	43.2 V ... 52.8 V DC adjustable
Output current Io	10 A at 24 V DC	1 A at 48 V DC
Residual ripple	< 100 mVpp	< 200 mVpp at 20 MHz
Derating	-3 % / K (>50 °C)	-3 % / K (>60 °C)
Adjustment accuracy	3 %	2 %
Current limitation	from 1.2 x Ia	from 1.1 x Ia
Efficiency	88 % typ.	85 % typ.
Test voltage pri.-gr./pri.-sec./sec.-gr.	1.5 kV / 4.2 kV / 0.5 kV	4.2 kV
Degree of protection	IP20 (EN 60529, 1991)	IP20
Operational indication	LED green at Vo > DC 18 V /LED red at overcurrent	LED green (48 V o.k.)
Type of mounting	DIN-rail mounting (DIN EN 50022)	DIN-rail mounting (DIN EN 50022)
Ambient operating temperature	-10 °C ... +70 °C	-10 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Dimensions (mm) W x H x L	115 x 87 x 140	51 x 133 x 120
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 231 Series)	CAGE CLAMP® (WAGO 231 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)
Stripped lengths	8 ... 9 mm / 0.33 in	8 ... 9 mm / 0.33 in
Weight	950 g	690 g
Approvals	EN 60950-1, EN 61204-3, EN 61204-7, UL 60950, UL 508	EN 60950-1, EN 61204-3, EN 61204-7

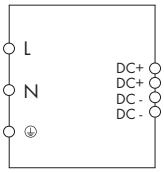
Primary Switch Mode Power Supplies

***EPSITRON* - CLASSIC - Power**

	Output voltage 48 V DC; 2 A **open circuit and short-circuit protected,** **adjustable output voltage,** **LED status indication,** **parallel connection possible**	**Output voltage 48 V DC; 5 A** **open circuit and short-circuit protected,** **adjustable output voltage,** **LED status indication,** **parallel connection possible**

- Thermal overload protection
- Parallel connection possible
- Prepared for class I equipment
- Natural convection cooling when horizontally mounted
- Encapsulated, for use in switchgear cabinets

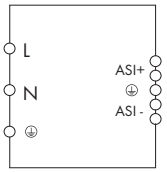




Description	**Vo nom**	**Item No.**	**Pack. unit**	**Vo nom**	**Item No.**	**Pack. unit**
Primary switch mode power supplies, for DIN 35 rail	48 V DC, SELV	**787-623**	1	48 V DC	**787-633**	1
Technical Data						
Nominal input voltage Vi nom	110 V ... 230 V AC			110 V ... 230 V AC		
Input voltage range	90 V ... 264 V AC; 130 V ... 300 V DC			176 V ... 264 V AC / 90 V ... 132 V		
	(use of DC requires external protection)					
Frequency	50 Hz ... 60 Hz			50 Hz ... 60 Hz		
Input current Ii	1.2 A typ. at 230 V AC			2.8 A typ. at 230 V AC / 6.0 A typ. at 115 V AC		
Inrush current	< 50 A			< 50 A		
Mains failure hold-up time	> 20 ms at 230 V AC			> 20 ms at 230 V AC		
Nominal output voltage Vo nom	48 V DC, SELV			48 V DC		
Output voltage range	42 V ... 52.8 V DC adjustable			43.2 V ... 52.8 V DC adjustable		
Output current Io	2 A at 48 V DC			5 A at 48 V DC		
Residual ripple	< 200 mVpp at 20 MHz			< 200 mVpp at 20 MHz		
Derating	-3 % / K (>55 °C)			-3 % / K (>50 °C)		
Adjustment accuracy	2 %			3 %		
Current limitation	from 1.1 x Ia			from 1.2 x Ia		
Efficiency	90 % typ.			85 % typ.		
Test voltage pri.-gr./pri.-sec./sec.-gr.	4.2 kV			4.2 kV		
Degree of protection	IP20			IP20		
Operational indication	LED green (48 V o.k.)			LED green (48 V o.k.)		
Type of mounting	DIN-rail mounting (DIN EN 50022)			DIN-rail mounting (DIN EN 50022)		
Ambient operating temperature	-10 °C ... +70 °C			-10 °C ... +70 °C		
Storage temperature	-25 °C ... +85 °C			-25 °C ... +85 °C		
Dimensions (mm) W x H x L	67 x 133 x 120			115 x 87 x 140		
	Height from upper-edge of DIN 35 rail			Height from upper-edge of DIN 35 rail		
Wire connection	CAGE CLAMP® (WAGO 231 Series)			CAGE CLAMP® (WAGO 231 Series)		
Cross sections	0.1 mm² ... 2.5 mm² / AWG 28 ... 12			0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)		
	0.5 mm² ... 10 mm² / AWG 20 ... 8 (THHN, THWN)					
Stripped lengths	8 ... 9 mm / 0.33 in			8 ... 9 mm / 0.33 in		
Weight	800 g			940 g		
Approvals	EN 60950-1, EN 61204-3, EN 61204-7			EN 60950-1, EN 61204-3, EN 61204-7		

	Power supply for AS-Interface; Input 115V/230V AC; Output 30.5V DC; 3A	

- Min. cond. cross section acc. to AS-Interface specification: 1.5 mm²
- natural convection cooling when horizontally mounted
- encapsulated, for use in switchgear cabinets



Description	**Vo nom**	**Item No.**	**Pack. unit**	
Primary switch mode power supply, for DIN 35 rail	30.5 V DC (PELV)	**787-692**	1	

Technical Data

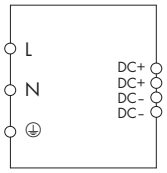
Nominal input voltage Vi nom	110 V ... 230 V AC	
Input voltage range	90 V ... 264 V AC; 130 V ... 300 V DC	
	(use of DC requires external protection)	
Frequency	50 Hz ... 60 Hz	
Input current Ii	2 A at 115 V AC / 1 A at 230 V AC	
Inrush current	< 50 A (cold)	
Mains failure hold-up time	> 15 ms at 115 V AC / > 50 ms at 230 V AC	
Internal/external fuse	4 AT	
Nominal output voltage Vo nom	30.5 V DC (PELV)	
Output voltage range	26 V ... 33 V DC	
Output current Io	3 A at 30.5 V DC; 2.5 A at Vi < 97 V AC	
Residual ripple	< 300 mVpp to 20 MHz	
Mains / load regulation	< 750 mV	
Derating	-3 % / K (>55 °C)	
Current limitation	3.4 A typ.	
Efficiency	89 % typ.	
Test voltage pri.-gr./pri.-sec./sec.-gr.	4.2 kV	
Degree of protection	IP20	
Operational indication	LED green (operating condition at Vo)	
Type of mounting	DIN-rail mounting (DIN EN 50022)	
Ambient operating temperature	-10 °C ... +70 °C	
Storage temperature	-25 °C ... +85 °C	
Dimensions (mm) W x H x L	51 x 133 x 120	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 231 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Stripped lengths	8 ... 9 mm / 0.33 in	
Weight	690 g	
Approvals	EN 60950-1, EN 61204-3, EN 61204-7,	
	UL 60950, UL 508	

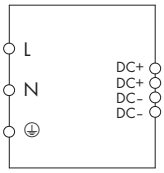
Primary Switch Mode Power Supplies

***EPSITRON* - ECO - Power**

	Output voltage 24 V DC; 2.5 A open circuit and short-circuit protected, adjustable output voltage, LED status indication	**Output voltage 24 V DC; 5 A open circuit and short-circuit protected, adjustable output voltage, LED status indication**

- prepared for class I equipment
- natural convection cooling when horizontally mounted
- encapsulated, for use in switchgear cabinets





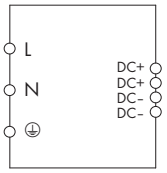
Description	**Vo nom**	**Item No.**	**Pack. unit**	**Vo nom**	**Item No.**	**Pack. unit**
Primary switch mode power supplies, for DIN 35 rail	24 V DC, SELV	**787-712**	1	24 V DC, SELV	**787-722**	1

Technical Data

Nominal input voltage Vi nom	230 V AC	230 V AC
Input voltage range	85 V ... 264 V AC*	85 V ... 264 V AC*
	*with derating -3 % / V (< 90 V)	*with derating -0.8 % / V (< 110 V)
Frequency	47 Hz ... 63 Hz	47 Hz ... 63 Hz
Input current Ii	0.7 A typ. at 230 V AC	1.0 A typ. at 230 V AC
Inrush current	< 30 Ap	< 30 Ap
Mains failure hold-up time	> 20 ms at 230 V AC	> 20 ms at 230 V AC
Nominal output voltage Vo nom	24 V DC, SELV	24 V DC, SELV
Output voltage range	22 V ... 28 V DC adjustable	22 V ... 28 V DC adjustable
Output current Io	2.5 A at 24 V DC	5 A at 24 V DC
Residual ripple	< 100 mVpp to 20 MHz	< 100 mVpp to 20 MHz
Derating	-3.3 % / K (>55 °C at 230 V AC)	-2.67 % / K (> 40 °C)
Adjustment accuracy	1 %	1 %
Current limitation	from 1.15 to 1.4 x Io	from 1.15 to 1.4 x Io
Efficiency	82 % typ.	82 % typ.
Test voltage pri.-gr./pri.-sec./sec.-gr.	1.5 kV / 3 kV / 0.5 kV	1.5 kV / 3 kV / 0.5 kV
Degree of protection	IP20	IP20
Operational indication	LED green (24 V DC o.k.), LED red (overload)	LED green (24 V DC o.k.), LED red (overload)
Type of mounting	DIN-rail mounting (DIN EN 50022)	DIN-rail mounting (DIN EN 50022)
Ambient operating temperature	-10 °C ... +70°C	-10 °C ... +70°C
Storage temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Dimensions (mm) W x H x L	50 x 92 x 136	75 x 92 x 136
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 745 Series)	CAGE CLAMP® (WAGO 745 Series)
Cross sections	0.08 mm² ... 4 mm² / AWG 28 ... 12 (THHN, THWN)	0.08 mm² ... 4 mm² / AWG 28 ... 12 (THHN, THWN)
Stripped lengths	8 ... 9 mm / 0.33 in	8 ... 9 mm / 0.33 in
Weight	470 g	740 g
Approvals	EN 60950, EN 61000-6-2, EN 61000-6-3	EN 60950, EN 61000-6-2, EN 61000-6-3
	UL 60950, UL 508* (* pending)	UL 60950, UL 508* (* pending)

	Output voltage 24 V DC; 10 A open circuit and short-circuit protected, adjustable output voltage, LED status indication	

- prepared for class I equipment
- natural convection cooling when horizontally mounted
- encapsulated, for use in switchgear cabinets



Description	**Vo nom**	**Item No.**	**Pack. unit**	
Primary switch mode power supply, for DIN 35 rail	24 V DC, SELV	**787-732**	1	
Technical Data				
Nominal input voltage Vi nom	230 V AC			
Input voltage range	85 V ... 264 V AC*			
	*with derating -0.8 % / V (< 110 V)			
Frequency	47 Hz ... 63 Hz			
Input current Ii	1.5 A typ. at 230 V AC			
Inrush current	< 30 Ap			
Mains failure hold-up time	> 20 ms at 230 V AC			
Nominal output voltage Vo nom	24 V DC, SELV			
Output voltage range	22 V ... 28 V DC adjustable			
Output current Io	10 A at 24 V DC			
Residual ripple	< 100 mVpp to 20 MHz			
Derating	-2.67 % / K (>55 °C at 230 V AC)			
Adjustment accuracy	1 %			
Current limitation	from 1.15 to 1.4 x Io			
Efficiency	82 % typ.			
Test voltage pri.-gr./pri.-sec./sec.-gr.	1.5 kV / 3 kV / 0.5 kV			
Degree of protection	IP20			
Operational indication	LED green (24 V DC o.k.), LED red (overload)			
Type of mounting	DIN-rail mounting (DIN EN 50022)			
Ambient operating temperature	-10 °C ... +70 °C			
Storage temperature	-25 °C ... +85 °C			
Dimensions (mm) W x H x L	110 x 92 x 136			
	Height from upper-edge of DIN 35 rail			
Wire connection	CAGE CLAMP® (WAGO 745 Series)			
Cross sections	0.08 mm² ... 4 mm² / AWG 28 ... 12 (THHN, THWN)			
Stripped lengths	8 ... 9 mm / 0.33 in			
Weight	1030 g			
Approvals	EN 60950, EN 61000-6-2, EN 61000-6-3			
	UL 60950, UL 508* (* pending)			

EPSITRON - Electronic Circuit Breakers

	Electronic circuit breaker 4-channel, 1 A ... 6 A DC, parametrizable	**Electronic circuit breaker 4-channel, 1 A ... 10 A DC, parametrizable**

- Electronic circuit breaker with 4 channels, parametrizable
- Time-delayed switching of channels
- Floating switch contact
- Current and voltage monitoring via RS-232 interface and LCD
- Watchdog functions with active signal ports

Description	**Vo nom**	**Item No.**	**Pack. unit**	**Vo nom**	**Item No.**	**Pack. unit**
Electronic circuit breakers, for DIN 35 rail	4 x 24 V DC	**787-860**	1	4 x 24 V DC	**787-862**	1
Technical Data						
Nominal input voltage Vi nom	24 V DC			24 V DC		
Input voltage range	18 ... 30 V DC			18 ... 30 V DC		
Internal/external fuse	6.3 AT			15 AT		
Nominal output voltage Vo nom	4 x 24 V DC			4 x 24 V DC		
Nominal current	4 x 1 ... 6 A DC			4 x 1 ... 10 A DC		
	(adjustable for each channel in 1 A steps)			(adjustable for each channel in 1 A steps)		
Voltage drop	120 mV at 6 A			120 mV at 6 A, 240 mV at 10 A		
Trip time	100 s (100 ms .. 600 s; adjustable)			100 s (100 ms .. 600 s; adjustable)		
Switch-on capacity	1000 µF per 1 A DC (max. 7000 µF)			1000 µF per 1 A DC (max. 7000 µF)		
Switch-on behavior	time-delayed channel switching (250 ms each)			time-delayed channel switching (250 ms each)		
Parallel operation of single channels	not permitted			not permitted		
Series connection of several devices	not permitted			not permitted		
Degree of protection	IP20			IP20		
Operational indication	LED green (all channels o.k.), LED yellow (warning),			LED green (all channels o.k.), LED yellow (warning),		
	LED red (at least one channel has tripped)			LED red (at least one channel has tripped)		
Signaling	LCD, 4 x signal output 24 V DC, 25 mA and 1 x floating			LCD, 4 x signal output 24 V DC, 25 mA and 1 x floating		
	relay contact 60 V DC, 3 A			relay contact 60 V DC, 3 A		
Remote input	Reactivation of all tripped channels via 18 V ... 30 V DC			Reactivation of all tripped channels via 18 V ... 30 V DC		
	impulse for min. 50 ms			impulse for min. 50 ms		
LineMonitor, parameter setting	via LCD and RS-232 serial interface			via LCD and RS-232 serial interface		
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions			DIN-rail mounting (EN 60715) in 2 positions		
Ambient operating temperature	-10 °C ... +60°C			-10 °C ... +60°C		
Storage temperature	-25 °C ... +85 °C			-25 °C ... +85 °C		
Dimensions (mm) W x H x L	40 x 171 x 163			40 x 171 x 163		
	Height from upper-edge of DIN 35 rail			Height from upper-edge of DIN 35 rail		
Wire connection	Input: (WAGO 831 Series)			Input: (WAGO 831 Series)		
	Output: (WAGO 231 Series)			Output: (WAGO 231 Series)		
Cross sections	Input: 0.5 mm² ... 10 mm² / AWG 20 ... 8			Input: 0.5 mm² ... 10 mm² / AWG 20 ... 8		
	Output: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12			Output: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12		
Stripped lengths	Input: 13 ... 15 mm / 0.55 in			Input: 13 ... 15 mm / 0.55 in		
	Output: 8 ... 9 mm / 0.33 in			Output: 8 ... 9 mm / 0.33 in		
Weight	800 g			800 g		
Approvals	EN 60950, UL 508*, EN 61000-6-2,			EN 60950, UL 508*, EN 61000-6-2,		
	EN 61000-6-3 (* pending)			EN 61000-6-3 (* pending)		

	Electronic circuit breaker 4-channel, 1 A ... 8 A DC, parametrizable, active current limitation	

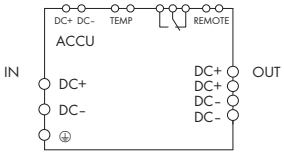
- Electronic circuit breaker with 4 channels, parametrizable
- Features active current limitation, reliably prevents voltage drops
- Time-delayed switching of channels
- Current and voltage monitoring via RS-232 interface and LCD
- Watchdog functions with active signal ports

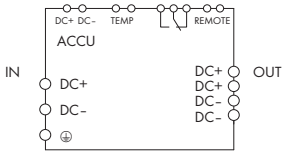
Description	**Vo nom**	**Item No.**	**Pack. unit**	
Electronic circuit breakers, for DIN 35 rail	4 x 24 V DC	**787-861**	1	
Technical Data				
Nominal input voltage Vi nom	24 V DC			
Input voltage range	18 ... 30 V DC			
Internal/external fuse	15 AT			
Nominal output voltage Vo nom	4 x 24 V DC			
Nominal current	4 x 1 ... 8 A DC			
	(adjustable for each channel in 1 A steps)			
Voltage drop	240 mV at 8 A			
Trip time	100 ms (100 ms .. 1.5 s;			
	adjustable, depending on nominal current)			
Switch-on capacity	max. 20,000 µF			
Switch-on behavior	time-delayed channel switching (250 ms each)			
Parallel operation of single channels	not permitted			
Series connection of several devices	not permitted			
Trip current	1.1 x nominal current typ.			
Current limitation	1.5 x nominal current typ.			
Degree of protection	IP20			
Operational indication	LED green (all channels o.k.), LED yellow (warnings),			
	LED red (at least one channel has tripped)			
Signaling	LCD, 4 x signal output 24 V DC, 25 mA			
LineMonitor, parameter setting	via LCD and RS-232 serial interface			
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions			
Ambient operating temperature	-10 °C ... +60°C			
Storage temperature	-25 °C ... +85 °C			
Dimensions (mm) W x H x L	40 x 171 x 163			
	Height from upper-edge of DIN 35 rail			
Wire connection	Input: (WAGO 831 Series)			
	Output: (WAGO 231 Series)			
Cross sections	Input: 0.5 mm² ... 10 mm² / AWG 20 ... 8			
	Output: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12			
Stripped lengths	Input: 13 ... 15 mm / 0.55 in			
	Output: 8 ... 9 mm / 0.33 in			
Weight	800 g			
Approvals	EN 60950, UL 2367*, EN 61000-6-2,			
	EN 61000-6-3 (* pending)			

EPSITRON - UPS Charger and Controller

	UPS charger and controller 24 V DC, 10 A, parametrizable	UPS charger and controller 24 V DC, 20 A parametrizable

- Charger and controller for uninterruptible power supply (UPS)
- Current and voltage monitoring, as well as parameter setting via LCD and RS-232 interface
- Active signal outputs for watchdog functions
- Remote input for switching off buffered output
- Input for temperature control of connected battery





Description	Vo nom	Item No.	Pack. unit	Vo nom	Item No.	Pack. unit
UPS charger and controller, for DIN 35 rail	24 V DC	**787-870**	1	24 V DC	**787-875**	1

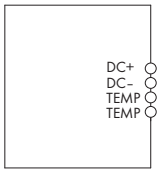
Technical Data

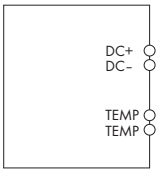
Nominal input voltage Vi nom	24 V DC	24 V DC
Input voltage range	20.4 V ... 28.8 V DC	20.4 V ... 28.8 V DC
Input current Ii	0.1 A (no-load running); 0.8 A (charging); 10.8 A (max.)	0.1 A (no-load running); 1.5 A (charging); 21.5 A (max.)
Inrush current	< 4 A (no load)	< 4 A (no load)
Switch-on threshold (adjustable)	20 V ... 25.5 V DC	20 V ... 25.5 V DC
Internal/external fuse	15 AT / -	15 AT / -
Nominal output voltage Vo nom	24 V DC	24 V DC
Output voltage range	Vi - 0.5 V DC (below switch-on threshold);	Vi - 1 V DC (below switch-on threshold);
	20 V ... 25.5 V DC (during buffer operation)	20 V ... 25.5 V DC (buffer mode)
Output current Io	10 A	20 A
Current limitation	typ. 11 A ... 14 A	typ. 22 A ... 26 A
Buffer time	10 s ... 600 s or constant (adjustable)	10 s ... 600 s or constant (adjustable)
Final load voltage	26 V ... 29.5 V DC or temperature controlled (adjustable)	26 V ... 29.5 V DC or temperature controlled (adjustable)
Charging current	max. 0.6 A	max. 1.0 A
Degree of protection	IP20	IP20
Operational indication	LED green (Vo), LED yellow (warning), LED red (error)	LED green (Vo), LED yellow (warning), LED red (error)
Signaling	LCD, 3 x signal output 24 V DC, 25 mA and 1 x floating	LCD, 3 x signal output 24 V DC, 25 mA and 1 x floating
	relay contact 30 V DC, 1 A	relay contact 30 V DC, 1 A
Remote input	to switch off buffer operation	to switch off buffer operation
LineMonitor, parameter setting	via LCD and RS-232 serial interface	via LCD and RS-232 serial interface
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions	DIN-rail mounting (EN 60715) in 2 positions
Ambient operating temperature	-10 °C ... +60°C	-10 °C ... +60 °C
Storage temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Dimensions (mm) W x H x L	40 x 163 x 163	57 x 163 x 171
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	Input: (WAGO 231 Series)	Intput/Output: (WAGO 831 Series)
	Output: (WAGO 231 Series)	Signalising: (WAGO 733 Series)
Cross sections	Input: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	Input/Output: 0.5 mm² ... 10 mm² / AWG 20 ... 8
	Output: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	Signalising: 0.08 mm² ... 0.5 mm² / AWG 28 ... 20
Stripped lengths	Input: 8 ... 9 mm / 0.33 in	Input/Output: 13 ... 15 mm / 0.55 in
	Output: 8 ... 9 mm / 0.33 in	Signalising: 5 ... 6 mm / 0.22 in
Weight	800 g	1200 g
Approvals	EN 60950, UL 60950*, UL 508*,	EN 60950, UL 60950*, UL 508*,
	EN 61000-6-2, EN 61000-6-3 (* pending)	EN 61000-6-2, EN 61000-6-3 (* pending)

EPSITRON - Lead Gel Battery Modules

	Lead gel battery module 24 V DC, 3.2 Ah	Lead gel battery module 24 V DC, 7 Ah

- Lead gel battery module for uninterruptible power supply (UPS)
- Can be connected to 787-873 and 787-875 (only 787-872) UPS Controllers
- Parallel connection to increase the buffer time
- Features built-in NTC K164 temperature sensor



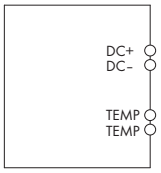


Description	Vo nom	Item No.	Pack. unit	Vo nom	Item No.	Pack. unit
Lead gel battery modules	24 V DC	**787-871**	1	24 V DC	**787-872**	1
Technical Data						
Nominal input voltage Vi nom		24 V DC			24 V DC	
Internal/external fuse		15 AT / -			25 AT / -	
Nominal output voltage Vo nom		24 V DC			24 V DC	
Output current Io		12 A			21 A	
Final load voltage		max. 27 V DC (at 25 °C)			max. 27 V DC (at 25 °C)	
Charging current		max. 0.8 A			max. 1.8 A	
Capacity		3.2 Ah			7 Ah	
Temperature sensor		NTC K164 (4.7 kΩ)			NTC K164 (4.7 kΩ)	
Service life		typ. 5/ 4/ 2 years at 20 °C/ 30 °C/ 40 °C			typ. 5/ 4/ 2 years at 20 °C/ 30 °C/ 40 °C	
Degree of protection		IP20			IP20	
Type of mounting		Screw mount			Screw mount	
Ambient operating temperature		-10 °C ... +40 °C			-10 °C ... +40 °C	
Storage temperature		-20 °C ... +40 °C			-20 °C ... +40 °C	
Dimensions (mm) W x H x L		76.2 x 168 x 175,5			86 x 239 x 217.5	
Wire connection		Input/Output: (WAGO 231 Series)			Input/Output: (WAGO 831 Series)	
		Temperature sensor: (WAGO 231 Series)			Temperature sensor: (WAGO 231 Series)	
Cross sections		Input/Output: 0.08 mm² ... 2.5 mm² / AWG 20 ... 12			Input/Output: 0.5 mm² ... 10 mm² / AWG 20 ... 8	
		Temperature sensor: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12			Temperature sensor: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	
Stripped lengths		Input/Output: 8 ... 9 mm / 0.33 in			Input/Output: 13 ... 15 mm / 0.55 in	
		Temperature sensor: 8 ... 9 mm / 0.33 in			Temperature sensor: 8 ... 9 mm / 0.33 in	
Weight		4200 g			6500 g	
Approvals		battery is tested to VdS			battery is tested to VdS	

EPSITRON - Lead Gel Battery Modules

	Lead gel battery module **24 V DC, 12 Ah**	

- Lead gel battery module for uninterruptible power supply (UPS)
- Can be connected to 787-873 and 787-875 UPS Controllers
- Parallel connection to increase the buffer time
- Features built-in NTC K164 temperature sensor



Description	**Vo nom**	**Item No.**	**Pack. unit**	**Vo nom**	**Item No.**	**Pack. unit**
Lead gel battery module	24 V DC	**787-873**	1			

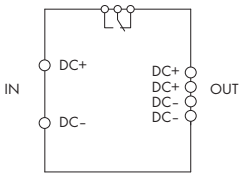
Technical Data

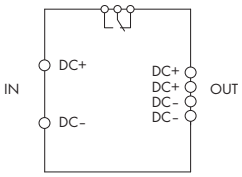
Nominal input voltage Vi nom	24 V DC
Internal/external fuse	25 AT / -
Nominal output voltage Vo nom	24 V DC
Output current Io	21 A
Final load voltage	max. 27 V DC (at 25 °C)
Charging current	max. 3 A
Capacity	12 Ah
Temperature sensor	NTC K164 (4.7 kΩ)
Service life	typ. 5/ 4/ 2 years at 20 °C/ 30 °C/ 40 °C
Degree of protection	IP20
Type of mounting	Screw mount
Ambient operating temperature	-10 °C ... +40 °C
Storage temperature	-20 °C ... +40 °C
Dimensions (mm) W x H x L	120.5 x 239 x 217.5
Wire connection	Input/Output: (WAGO 831 Series)
	Temperature sensor: (WAGO 231 Series)
Cross sections	Input/Output: 0.5 mm² ... 10 mm² / AWG 20 ... 8
	Temperature sensor: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	Input/Output: 13 ... 15 mm / 0.55 in
	Temperature sensor: 8 ... 9 mm / 0.33 in
Weight	10600 g
Approvals	Battery is tested to VdS

EPSITRON - Capacitive Buffer Modules

	Capacitive buffer module 24 V DC, 10 A	Capacitive buffer module 24 V DC, 20 A

- Capacitive buffer module bridges short duration voltage drops
- For uninterruptible power supply
- Potential-free contact for charge condition monitoring





Description	Vo nom	Item No.	Pack. unit	Vo nom	Item No.	Pack. unit
Capacitive buffer modules, for DIN 35 rail	24 V DC	**787-880**	1	24 V DC	**787-881**	1

Technical Data

Nominal input voltage Vi nom	24 V DC	24 V DC
Input voltage range	20 V ... 30 V DC	20 V ... 30 V DC
Input current Ii	60 mA (no-load running); 1 A (charging); 11 A (max.)	60 mA (no-load running); 1 A (charging); 22 A (max.)
Switch-on threshold (adjustable)	20 V ... 24 V DC	20 V ... 24 V DC
Charging time	typ. 5 minutes	typ. 5 minutes
Nominal output voltage Vo nom	24 V DC	24 V DC
Output voltage range	Vi - 0.5 V DC (below switch-on threshold);	Vi - 1 V DC (below switch-on threshold);
	20.4 V ... 24 V DC (during buffer operation)	20.4 V ... 24 V DC (during buffer operation)
Output current Io	10 A	20 A
Current limitation	electronic, typ. 11 A	electronic, typ. 22 A
Buffer time	0.06 s ... 7.2 s	0.17 s ... 16.5 s
	(depends on load current and switch-on threshold)	(depends on load current and switch-on threshold)
Parallel operation	yes	yes
Power loss P_V	1.5 W open circuit	1.5 W open circuit
	6.5 W nominal load	15 W nominal load
Feedback voltage	max. 35 V DC	max. 35 V DC
Degree of protection	IP20	IP20
Operational indication	LED green (Va > 20 V), LED yellow (charging),	LED green (Va > 20 V), LED yellow (charging),
	LED red (Va < 20 V)	LED red (Va < 20 V)
Signaling	1 x floating relay contact 30 V DC, 1 A	1 x floating relay contact 30 V DC, 1 A
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions	DIN-rail mounting (EN 60715) in 2 positions
Ambient operating temperature	-10 °C ... +50°C	-10 °C ... +50°C
Storage temperature	-10 °C ... +60 °C	-10 °C ... +60 °C
Dimensions (mm) W x H x L	57 x 179 x 163	57 x 179 x 181
Wire connection	Input/Output: (WAGO 231 Series)	Input/Output: (WAGO 831 Series)
	Relay: (WAGO 231 Series)	Relay: (WAGO 231 Series)
Cross sections	Input/Output: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	Input/Output: 0.5 mm² ... 10 mm² / AWG 20 ... 8
	Relay: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12	Relay: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	Input/Output: 8 ... 9 mm / 0.33 in	Input/Output: 13 ... 15 mm / 0.55 in
	Relay: 8 ... 9 mm / 0.33 in	Relay: 8 ... 9 mm / 0.33 in
Weight	1000 g	1000 g
Approvals	EN 60950, UL 60950*, UL 508*,	EN 60950, UL 60950*, UL 508*,
	EN 61000-6-2, EN 61000-6-3 (* pending)	EN 61000-6-2, EN 61000-6-3 (* pending)

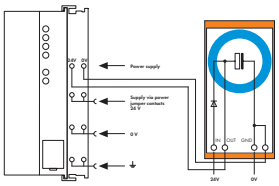
EPSITRON - Back-Up Capacitor Module

	Back-up capacitor module smoothes unstable 24 V DC power supplies Mounting carrier for DIN 35 rail	

This module is equipped with a capacitor which smoothes unstable 24VDC power supplies in case the voltage tolerances mentioned in our data sheets cannot be ensured. Reasons for voltage transients could be:

- Voltage disconnections (switching transients) on primary side
- Overloads on secondary side
- Switching of inductive or capacitive loads

The back-up capacitor module is connected between the 24V power supply and the electronic device which has to be protected.
Notice:
If using a non-filtered single-phase power supply, the capacitor causes a voltage increase.

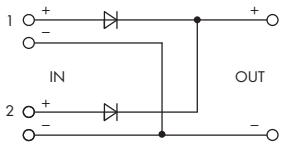


Description	Item No.	Pack. Unit	
Back-up capacitor module	**288-824**	1	
Technical Data			
Nominal voltage	24 V DC (+25 %)		
Nominal current	1 A		
Nominal capacity	10000 µF		
Weight	104.4 g		
Dimensions (mm) W x H x L	38 x 81 x 85		
	Height from upper-edge of DIN 35 rail		
Wire connection	CAGE CLAMP® (236 Series)		
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12		
Stripped lengths	5 ... 6 mm / 0.22 in		
Accessories			
WMB Multi marking system for mounting carrier	see page 323		
Marker strips for mounting carrier	white 709-198 / transparent 709-196		

EPSITRON - Redundancy Module

	Redundancy module **24 V DC, 20 A**	

- Redundancy module with 2 inputs for decoupling 2 power supplies
- For redundant or uninterruptible power supply
- With potential-free contact for input voltage monitoring

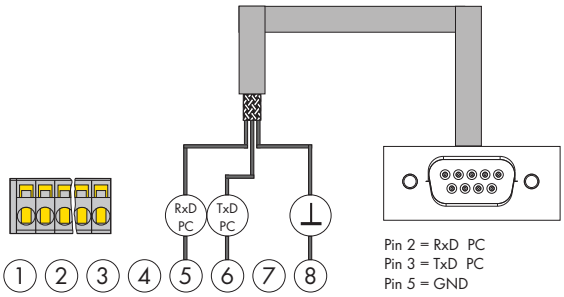


Description	**Vo nom**	**Item No.**	**Pack. unit**	
Redundancy module, for DIN 35 rail	24 V DC	**787-885**	1	

Technical Data

Nominal input voltage Vi nom	2 x 24 V DC
Input voltage range	18 V ... 30 V DC
Input current Ii	2 x 20 A, max. 1 x 40 A
Nominal output voltage Vo nom	24 V DC
Output current Io	20 A, max. 40 A
Parallel operation	yes
Power loss P_V	1.5 W open circuit
	14 W nominal load (20 A) / 26 W nominal load (40 A)
Efficiency	97 % typ.
Degree of protection	IP20
Operational indication	LED green (Vo), 2 x LED yellow (Vi)
Signaling	1 x floating relay contact 30 V DC, 1 A
Type of mounting	DIN-rail mounting (EN 60715) in 2 positions
Ambient operating temperature	-10 °C ... +60 °C
Storage temperature	-25 °C ... +85 °C
Dimensions (mm) W x H x L	40 x 163 x 181
	Height from upper-edge of DIN 35 rail
Wire connection	Input/Output: (WAGO 831 Series)
	Relay: (WAGO 231 Series)
Cross sections	Input/Output: 0.5 mm² ... 10 mm² / AWG 20 ... 8
	Relay: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	Input/Output: 13 ... 15 mm / 0.55 in
	Relay: 8 ... 9 mm / 0.33 in
Weight	800 g
Approvals	EN 60950, UL 60950*, UL 508*,
	EN 61000-6-2, EN 61000-6-3 (* pending)

EPSITRON - RS-232 Communication Cable



The 787-890 Communication Cable is used for configuration and visualization via PC or controller.
It is suitable for all 787 Series devices equipped with an RS-232 serial interface.
PC software for 787 Series devices can be downloaded at: www.wago.com/epsitron

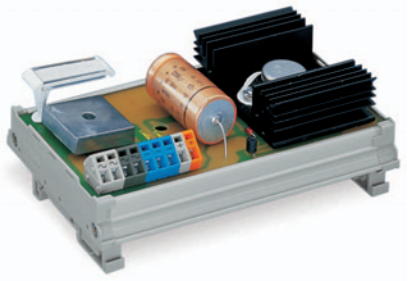
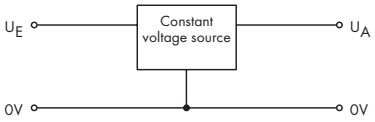
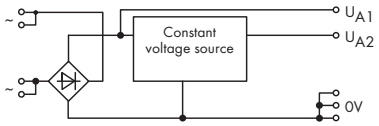
Function blocks for communication with WAGO-I/O-SYSTEM 750 are also available.

NOTE:
The 787-890 Communication Cable is not electrically isolated.

Description	Item No.	Pack. unit
RS-232 communication cable	**787-890**	1

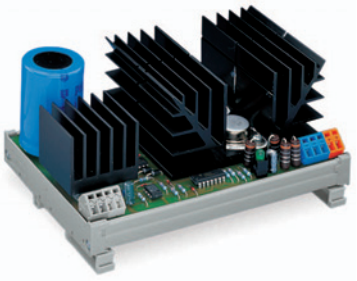
Technical Data	
Type of signal	RS-232
Connections	1 x 8-pole 231-108 Female Connector with strain relief (787-8xx Module side), 1x 9-pole SUB-D female connector (PC/controller side)
Isolation	No
Cross sections	3 x 0.34 mm² (AWG 22), shielded
Ambient operating temperature	-10 °C ... +70 °C
Degree of protection	IP20
Length	1.8 m

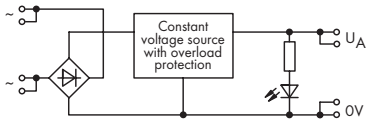
Rail-Mounted Modules - Constant Voltage Sources

	24 V DC; 3 A Input 27 V ... 35 V DC Mounting feet for DIN 35 rail	24 V DC; 3 A Input 24 V AC +10 %, 50 Hz ... 60 Hz Mounting carrier for DIN 35 rail
		
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Constant voltage source 24 V DC	**289-907**	1	**288-800**	1
Technical Data				
Input voltage	27 V ... 35 V DC		24 V AC +10%	
Output voltage	24 V DC (± 10 %)		24 V DC (± 10 %)	
Nominal output current	3 A		3 A	
Ambient operating temperature	-25 °C ... +40 °C		-25 °C ... +40 °C	
Weight	88 g		209 g	
Dimensions (mm) W x H x L	78.5 x 39 x 66		140 x 44 x 85	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (236 Series)		CAGE CLAMP® (236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)		0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Accessories				
WMB Multi marking system for mounting carrier			see page 323	
Marker strips for mounting carrier			white 709-198 / translucent 709-196	

	24 V DC; 5 A **Input 24 V AC +10 %** **Electronic overload protection** **Output voltage indication by LED** **Mounting carrier for DIN 35 rail**	





Description	Item No.	Pack. Unit	
Constant voltage source 24 V DC	**288-801**	1	

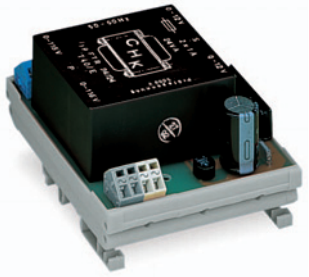
Technical Data

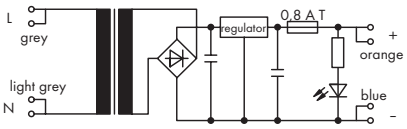
Input voltage	24 V AC +10%	
Output voltage	24 V DC (± 10 %)	
Nominal output current	5 A	
Overload protection	electronic	
Voltage returns after removal of overload	after 4s	
Ambient operating temperature	0 °C ... +30 °C	
Weight	600.5 g	
Dimensions (mm) W x H x L	170 x 85 x 108	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.22 in	

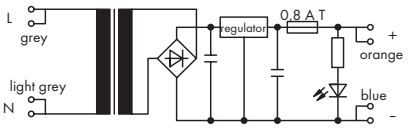
Accessories		
WMB Multi marking system for mounting carrier	see page 323	
Marker strips for mounting carrier	white 709-198 / translucent 709-196	

Rail-Mounted Modules - Power Supplies

	115 V AC / 24 V DC; 0.5 A Output voltage indication by LED Mounting carrier for DIN 35 rail	230 V AC / 24 V DC; 0.5 A Output voltage indication by LED Mounting carrier for DIN 35 rail

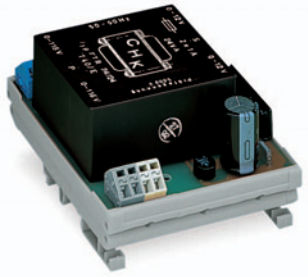


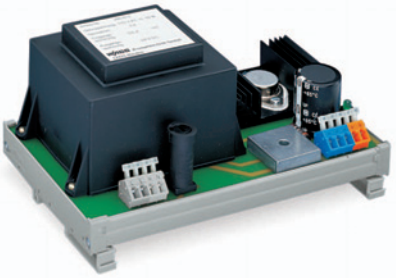


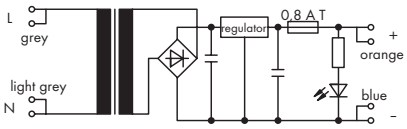


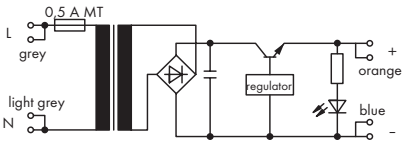
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Power supply, with universal mounting carrier	**288-809**	1	**288-810**	1
Technical Data				
Nominal input voltage Vi nom	115 V AC		230 V AC	
Input voltage range	± 10 %		± 10 %	
Frequency	50 Hz ... 60 Hz		50 Hz ... 60 Hz	
Power consumption at nominal load	30 VA		30 VA	
Nominal output voltage Vo nom	24 V DC		24 V DC	
Output voltage range	± 4 %		± 4 %	
Output current Io	0.5 A		0.5 A	
Residual ripple	≤ 10 mVss		≤ 10 mVss	
Output fuse	0.8 A slow		0.8 A slow	
Ambient operating temperature	0 °C ... +50 °C		0 °C ... +50 °C	
Weight	579 g		552 g	
Dimensions (mm) W x H x L	77 x 52 x 106		77 x 52 x 106	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (236 Series)		CAGE CLAMP® (236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)		0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Approvals	Transformer acc. to VDE 0551		Transformer acc. to VDE 0551	
Accessories				
WMB Multi marking system for mounting carrier	see page 323		see page 323	
Marker strips for mounting carrier	white 709-198 / translucent 709-196		white 709-198 / translucent 709-196	

	230 V AC / 12 V DC; 0.5 A Output voltage indication by LED Mounting carrier for DIN 35 rail	115 V AC / 24 V DC; 2 A Output voltage indication by LED Mounting carrier for DIN 35 rail



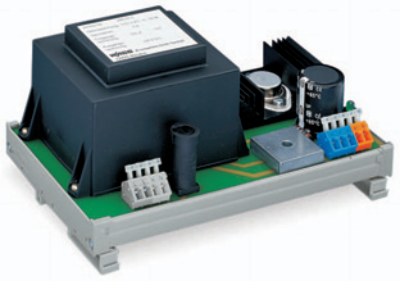
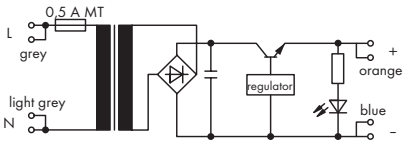
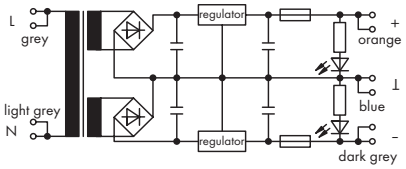






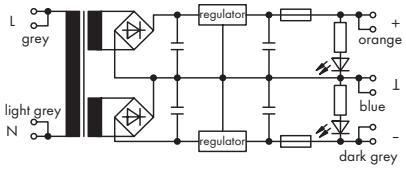
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Power supply, with universal mounting carrier	**288-808**	1	**288-813**	1
Technical Data				
Nominal input voltage Vi nom	230 V AC		115 V AC	
Input voltage range	± 10 %		± 10 %	
Frequency	50 Hz ... 60 Hz		50 Hz ... 60 Hz	
Power consumption at nominal load	23 VA		80 VA	
Nominal output voltage Vo nom	12 V DC		24 V DC	
Output voltage range	± 4 %		± 10 %	
Output current Io	0.5 A		2 A	
Residual ripple	≤ 10 mVss		≤ 80 mVss	
Input fuse			0.8 A medium-slow	
Output fuse	0.8 A slow		electronic, short-circuit protected	
Short-circuit current			2.5 A	
Ambient operating temperature	0 °C ... +50 °C		0 °C ... +40 °C	
Weight	574 g		1969 g	
Dimensions (mm) W x H x L	77 x 52 x 106		182 x 98 x 106	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (236 Series)		CAGE CLAMP® (256 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)		0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Approvals	Transformer acc. to VDE 0551		Transformer acc. to VDE 0551	
Accessories				
WMB Multi marking system for mounting carrier	see page 323		see page 323	
Marker strips for mounting carrier	white 709-198 / translucent 709-196		white 709-198 / translucent 709-196	

Rail-Mounted Modules - Power Supplies

	230 V AC / 24 V DC; 2 A Output voltage indication by LED Mounting carrier for DIN 35 rail	230 V AC / ± 12 V DC; 0.5 A 230 V AC / ± 15 V DC; 0.5 A Output voltage indication by LED Mounting carrier for DIN 35 rail
		
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Power supply, with universal mounting carrier	**288-812**	1	**288-814**	1
			288-815	1
Technical Data				
Nominal input voltage Vi nom	230 V AC		230 V AC	
Input voltage range	± 10 %		± 10 %	
Frequency	50 Hz ... 60 Hz		50 Hz ... 60 Hz	
Power consumption at nominal load	80 VA		27 VA	
Nominal output voltage Vo nom	24 V DC		± 12 V DC (288-814)	
			± 15 V DC (288-815)	
Output voltage range	± 10 %		± 4 %	
Output current Io	2 A		2 x 0.5 A	
Residual ripple	≤ 80 mVss		≤ 10 mVss	
Input fuse	0.5 A medium-slow			
Output fuse	electronic, short-circuit protected		2 x 0.8 A slow	
Short-circuit current	2.5 A			
Ambient operating temperature	0 °C ... +40 °C		0 °C ... +40 °C	
Weight	1900 g		675 g (288-814)	
			665 g (288-815)	
Dimensions (mm) W x H x L	182 x 98 x 106		94 x 57 x 106	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (256 Series)		CAGE CLAMP® (256 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)		0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Approvals	Transformer acc. to VDE 0551		Transformer acc. to VDE 0551	
Accessories				
WMB Multi marking system for mounting carrier	see page 323		see page 323	
Marker strips for mounting carrier	white 709-198 / translucent 709-196		white 709-198 / translucent 709-196	

	230 V AC / ± 15 V DC; **2 x 1 A short-circuit proof** **Output voltage indication by LED** **Mounting carrier for DIN 35 rail**	



Description	Item No.	Pack. Unit	
Power supply, with universal mounting carrier	**288-816**	1	

Technical Data

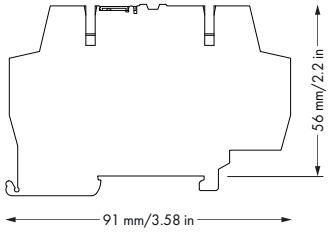
Nominal input voltage Vi nom	230 V AC	
Input voltage range	± 10 %	
Frequency	50 Hz ... 60 Hz	
Power consumption at nominal load	53 VA	
Nominal output voltage Vo nom	± 15 V DC	
Output voltage range	± 4 %	
Output current Io	2 x 1 A	
Residual ripple	≤ 10 mVss	
Short-circuit current	approx. 1.5 A	
Ambient operating temperature	0 °C ... +40 °C	
Weight	1011 g	
Dimensions (mm) W x H x L	138 x 87 x 106	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (256 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.22 in	
Approvals	Transformer acc. to VDE 0551	

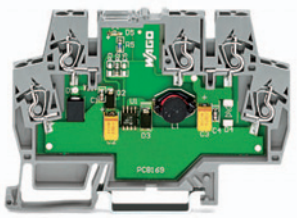
Accessories

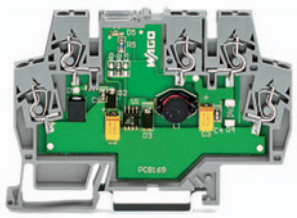
WMB Multi marking system for mounting carrier	see page 323
Marker strips for mounting carrier	white 709-198 / translucent 709-196

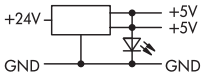
Rail-Mounted Terminal Blocks with DC/DC Converter

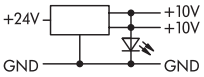
	DC/DC converter 24 V / 5 V, 0.5 A DC	DC/DC converter 24 V / 10 V, 0.5 A DC









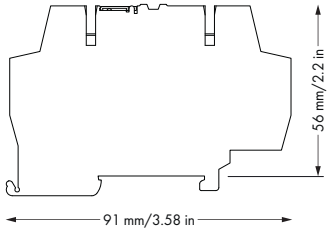


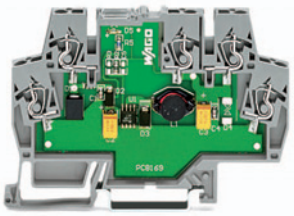
Description	V_N / V_O	Item No.	Pack. Unit	V_N / V_O	Item No.	Pack. Unit
DC/DC converter, for DIN 35 rail	24 V DC / 5 V DC ± 2 %	**859-801**	1	24 V DC / 10 V DC ± 2 %	**859-802**	1

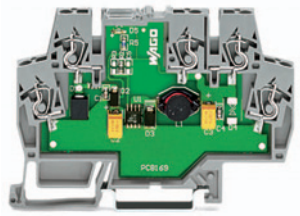
Technical Data

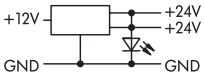
Nominal input voltage (V_N)	24 V DC	24 V DC
Input voltage range	10 V ... 30 V DC	15 V ... 30 V DC
Output voltage	5 V DC ± 2 %	10 V DC ± 2 %
Output current (max.)	500 mA	500 mA
Line regulation, max. (full load, over input voltage range)	2 %	0.5 %
Max. load regulation (no load to full load, nominal input	0.5 %	0.7 %
Efficiency at full load (24 V DC in)	70 %	85 %
Output noise peak-to-peak max. (20 MHz bandwidth)	150 mV	20 mV
Switching frequency	200 kHz (nominal)	200 kHz (nominal)
Isolation	non-isolated	non-isolated
Reverse voltage protection, input	yes	yes
Minimum load requirement	no	no
Max. transient recovery time (recovery time for load	40 µs	500 µs
change from 25 % to 75% of full load)		
Max. startup time (24 V DC in, full load)	3 ms	3 ms
Max. hold time (nominal input voltage, full load)	1 ms	500 µs
Input fuse	TVS diode	TVS diode
Output short circuit protection	temporary (short-circuit of the output for 1 minute without damage to the device)	temporary (short-circuit of the output for 1 minute without damage to the device)
Temperature coefficient	70 ppm/°C	100 ppm/°C
Ambient operating temperature	0 °C ... +40 °C	-25 °C ... +55 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

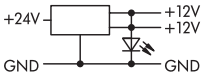
	DC/DC converter 12 V / 24 V, 250 mA DC	DC/DC converter 24 V / 12 V, 0.5 A DC











Description	V_N / V_O	Item No.	Pack. Unit	V_N / V_O	Item No.	Pack. Unit
DC/DC converter, for DIN 35 rail	12 V DC / 24 V DC ± 1 %	**859-804**	1	24 V DC / 12 V DC ± 2 %	**859-805**	1

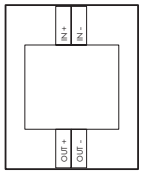
Technical Data

Nominal input voltage (V_N)	12 V DC	24 V DC
Input voltage range	8 V ... 16 V DC	15 V ... 30 V DC
Output voltage	24 V DC ± 1 %	12 V DC ± 2 %
Output current (max.)	250 mA	500 mA
Line regulation, max. (full load, over input voltage range)	0.5 %	0.5 %
Max. load regulation (no load to full load, nominal input	0.5 %	0.7 %
Efficiency at full load (24 V DC in)	83 %	85 %
Output noise peak-to-peak max. (20 MHz bandwidth)	40 mV	20 mV
Switching frequency	1.2 MHz (nominal)	200 kHz (nominal)
Isolation	non-isolated	non-isolated
Reverse voltage protection, input	yes	yes
Minimum load requirement	no	no
Max. transient recovery time (recovery time for load	50 µs	500 µs
change from 25 % to 75% of full load)		
Max. startup time (24 V DC in, full load)	8 ms	3 ms
Max. hold time (nominal input voltage, full load)	500 µs	500 µs
Input fuse	TVS diode	TVS diode
Output short circuit protection	fuse	temporary (short-circuit of the output for 1 minute without
		damage to the device)
Temperature coefficient	100 ppm/°C	100 ppm/°C
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

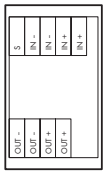
Rail-Mounted Modules - DC/DC Converter

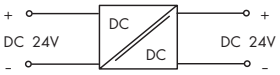
	24 V / 24 V; 0.21 A DC Mounting feet for DIN 35 rail	24 V / 18 V; 0.4 A DC Mounting carrier for DIN 35 rail

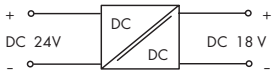
289-913



288-895



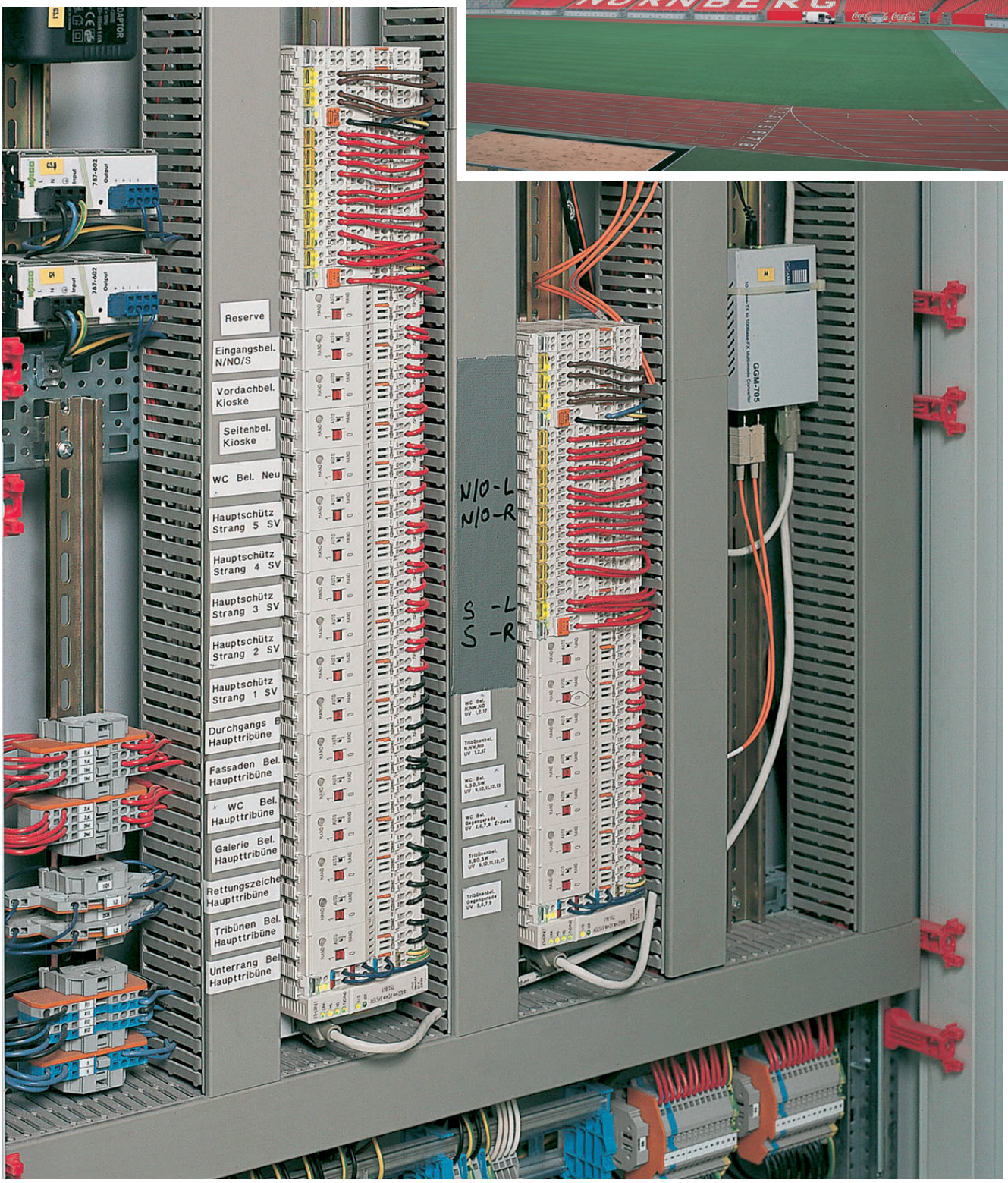




Description	Item No.	Pack. Unit	Item No.	Pack. Unit
DC/DC converter	**289-913**	1	**288-895**	1
Technical Data				
Input voltage	24 V DC		24 V DC	
Input voltage range	± 10 %		18 V ... 36 V DC	
Output voltage	24 V DC (± 3 %)		18 V DC (± 1 %)	
Nominal output current	210 mA		400 mA	
Peak output current	315 mA			
Efficiency	65 % ... 75 %		82 %	
Test voltage input/output	DC 500 V		DC 1500 V	
Short circuit protection	Thermal cut-out		permanent	
Ambient operating temperature	-25 °C ... +40 °C		-25 °C ... +70 °C	
Weight	77 g		75.9 g	
Dimensions (mm) W x H x L	83 x 25 x 77		50 x 25 x 85	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (236 Series)		CAGE CLAMP® (256 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)		0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Stripped lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
EMC CE-Immunity to interference			acc. to EN 50082-2 (1996) * * Only in conjunction with DALI/DSI Master Module 750-641	
EMC CE-Emission of interference			acc. to EN 50081-1 (1993) * * Only in conjunction with DALI/DSI Master Module 750-641	
Accessories				
WMB Multi marking system for mounting carrier			see page 323	
Marker strips for mounting carrier			white 709-198 / translucent 709-196	

WAGO Application: Lighting Control System, easyCredit Stadium in Nuremberg, Germany

WAGO Products:
WAGO-I/O-SYSTEM with ETHERNET Controllers,
Power Supplies Units and
Rail-Mounted Terminal Blocks



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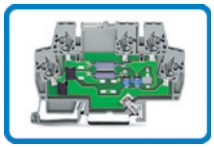

792 Series
Rail-Mounted Terminal Blocks with Overvoltage Protection 270 – 272
Accessories, 792 Series 273

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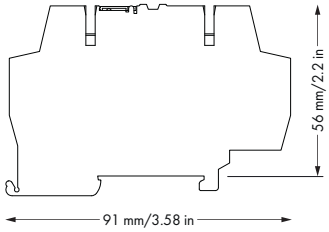
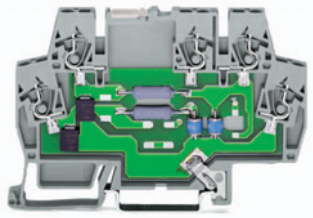
Rail-Mounted Terminal Blocks with Overvoltage Protection 274 – 277

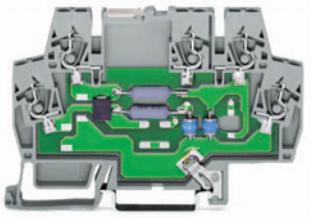
286 Series
Pluggable Modules - Surge Suppression Devices 278 – 279
Pluggable Modules - Surge Suppression Devices 280 – 283

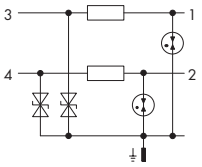
Rail-Mounted Terminal Blocks with Overvoltage Protection

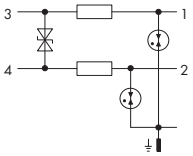
	Overvoltage protection for information technology systems ME24 24 V DC; for protection of 2 single lines (line/protected ground), unbalanced interfaces as well as RS-485 and RS-422 interfaces	Overvoltage protection for information technology systems MD24 24 V DC; for protection of balanced interfaces (line/line) with electrical isolation (telecommunications)









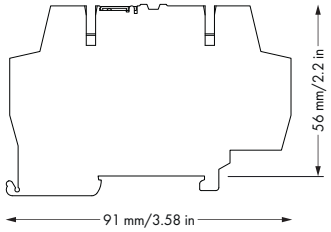


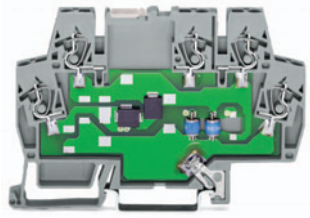
The coordination characteristics give information about the let-through energy of the overvoltage protector and the protection capacity.

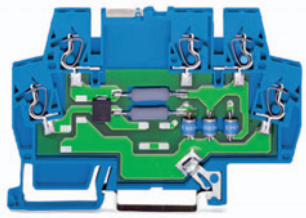
Description	Nominal Voltage	Item No.	Pack. Unit	Nominal Voltage	Item No.	Pack. Unit
Overvoltage protection in terminal block, for DIN 35 Rail	24 V DC	**792-800**	1	24 V DC	**792-801**	1

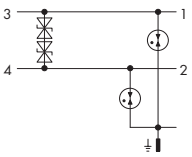
Technical Data	Accessories see page 273	Accessories see page 273
Nominal voltage	DC 24 V	DC 24 V
Max. cont. operating voltage	33 V DC / 23 V AC	33 V DC / 23 V AC
Nominal current	0.5 A	0.5 A
Nominal discharge current I_{SN} (8/20) µs	5 kA per line ; 10 kA total	5 kA per line ; 10 kA total
Voltage protection level at I_N category C2	≤ 65 V (line/protected ground); ≤ 110 V (line/line)	≤ 50 V (line/line); ≤ 750 V (line/protected ground)
Voltage protection level at 1 kV/µs category C3	≤ 45 V (line/protected ground); ≤ 90 V (line/line)	≤ 45 V (line/line); ≤ 650 V (line/protected ground)
Coordination characteristics	X / 1	X / 1
Series impedance R / line	1.8 Ω	1.8 Ω
Response time t_a	≤ 1 ns	≤ 100 ns (line/protected ground); ≤ 1 ns (line/line)
Limiting frequency	6 MHz line/protected ground	6 MHz line/protected ground
Capacitance C	≤ 1.0 nF (line/protected ground); ≤ 0.5 nF (line/line)	≤ 5 pF (line/protected ground); ≤ 1 nF (line/line)
Degree of protection	IP00	IP00
Degree of protection with end and intermediate plate	IP20	IP20
Operating temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	IEC 61643-21	IEC 61643-21

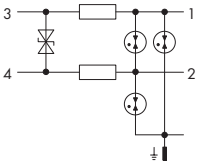
	Overvoltage protection for information technology systems SD24 24 V DC; for protection of supply lines (power supply units)	Overvoltage protection for information technology systems MDEX24 24 V DC; for protection in intrinsically safe circuits











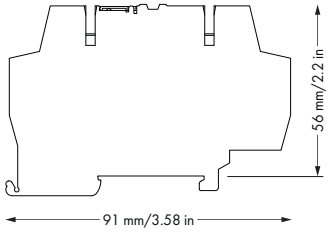
The coordination characteristics give information about the let-through energy of the overvoltage protector and the protection capacity.

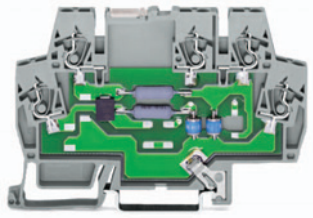
Description	Nominal Voltage	Item No.	Pack. Unit	Nominal Voltage	Item No.	Pack. Unit
Overvoltage protection in terminal block, for DIN 35 Rail	24 V DC	**792-802**	1	24 V DC	**792-803**	1

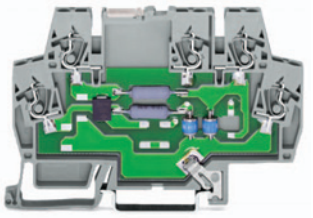
Technical Data	Accessories see page 273	Accessories see page 273
Nominal voltage	DC 24 V	DC 24 V
Max. cont. operating voltage	33 V DC / 23 V AC	33 V DC / 23 V AC
Max. Input voltage acc. to EN 50020 U_i		30 V
Max. input current acc. to EN 50020 I_i		0.5 A
Nominal current	10 A	0.5 A
Nominal discharge current I_{SN} (8/20) µs	5 kA (line/protected ground); 300 A (line/line)	5 kA per line ; 10 kA total
Voltage protection level at I_N category C2	≤ 50 V (line/line); ≤ 750 V (line/protected ground)	≤ 1500 V (line/protected ground); ≤ 50 V (line/line)
Voltage protection level at 1 kV/µs category C3	≤ 45 V (line/line); ≤ 650 V (line/protected ground)	≤ 1400 V (line/protected ground); ≤ 45 V (line/line)
Coordination characteristics	X / 1	X / 1
Series impedance R / line		1.8 Ω
Response time t_a	≤ 100 ns (line/protected ground); ≤ 1 ns (line/line)	≤ 100 ns (line/protected ground); ≤ 1 ns (line/line)
Limiting frequency	7 MHz	6 MHz
Capacitance C	≤ 12 pF (line/protected ground); ≤ 1 nF (line/line)	≤ 6 pF (line/protected ground); ≤ 1 nF (line/line)
Degree of protection	IP00	IP00
Degree of protection with end and intermediate plate	IP20	IP20
Operating temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	IEC 61643-21	IEC 61643-21

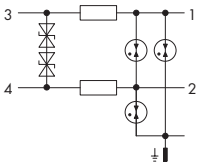
Rail-Mounted Terminal Blocks with Overvoltage Protection

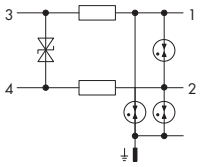
	Overvoltage protection for information technology systems MD48LON 48 24 V DC; for protection of LON networks (FTT 10 or LPT 10)	Overvoltage protection for information technology systems MDHF5 5 V DC; for protection of PROFIBUS networks











The coordination characteristics give information about the let-through energy of the overvoltage protector and the protection capacity.

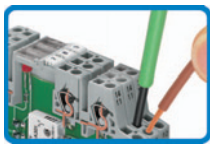
Description	Nominal Voltage	Item No.	Pack. Unit	Nominal Voltage	Item No.	Pack. Unit
Overvoltage protection in terminal block, for DIN 35 Rail	48 V DC	**792-804**	1	5 V DC	**792-805**	1

Technical Data	Accessories see page 273	Accessories see page 273
Nominal voltage	DC 48 V	DC 5 V
Max. cont. operating voltage	55 V DC / 38.5 V AC	6 V DC / 4.2 V AC
Nominal current	1.7 A	0.1 A
Nominal discharge current I_{SN} (8/20) µs	5 kA per line ; 10 kA total	5 kA per line ; 10 kA total
Voltage protection level at I_N category C2	≤ 100 V (line/line); ≤ 750 V (line/protected ground)	≤ 27 V (line/line); ≤ 50 V (line/protected ground)
Voltage protection level at 1 kV/µs category C3	≤ 70 V (line/line); ≤ 650 V (line/protected ground)	≤ 14 V (line/line); ≤ 14 V (line/protected ground)
Coordination characteristics	X / 1	X / 1
Series impedance R / line	0.4 Ω	1 Ω
Response time t_a	≤ 100 ns (line/lineound); ≤ 1 ns (line/protected ground)	≤ 1 ns
Limiting frequency	10 MHz	250 MHz / 180 MHz line/protected ground
Capacitance C	≤ 0.6 pF (line/protected ground); ≤ 10 pF (line/line)	≤ 16 pF (line/protected ground); ≤ 19 pF (line/line)
Degree of protection	IP00	IP00
Degree of protection with end and intermediate plate	IP20	IP20
Operating temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	IEC 61643-21	IEC 61131-3

Accessories, 792 Series

Operating tool

Wire connection



Marking pen with fibre tip

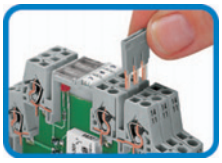
Test pin

End and intermediate plate

Description		Item No.	Pack. Unit
End and intermediate plate; 1 mm / 0.039 in thick, gray		859-525	100 (4x25)
Test pin; Ø 1 mm / 0.039 in; test wire for sold. onto test plug		859-500	1 (1x1)
Marking pen	for permanent marking	210-110	1
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	210-720	1

Push-in type jumper bar

Commoning



Description		Item No.	Pack. Unit
Push-in type jumper bars, light gray, insulated, 18 A	2-way	859-402	200 (8x25)
	3-way	859-403	200 (8x25)
	4-way	859-404	200 (8x25)
	5-way	859-405	200 (8x25)
	6-way	859-406	100 (4x25)
	7-way	859-407	100 (4x25)
	8-way	859-408	100 (4x25)
	9-way	859-409	100 (4x25)
	10-way	859-410	100 (4x25)
Item no. suffix for colored push-in type jumper bars	yellow	... /000-029	
	red	... /000-005	
	blue	... /000-006	

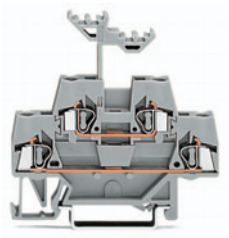
Miniature quick marking card

Marking

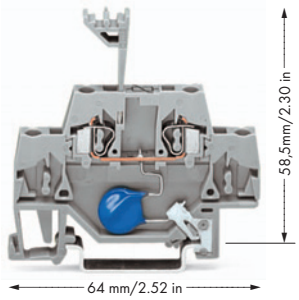
Description		Item No.	Pack. Unit
Miniature WSB Quick marking system	plain	248-501	5 cards
Marking software and printer/plotter see Section 8			
Marking	1 ...10 (10 x)	248-502	5 cards
	11 ... 20 (10x)	248-503	5 cards
	21 ... 30 (10x)	248-504	5 cards
	31 ... 40 (10x)	248-505	5 cards
	41 ... 50 (10 x)	248-506	5 cards
	1 ... 50 (2 x)	248-566	5 cards
	K 1 ... K 10 (10 x)	248-450	5 cards
	K 11 ... K 20 (10 x)	248-451	5 cards
	K 100 (10 x)	248-452	5 cards
	U 1 ... U 10 (10 x)	248-453	5 cards
	U 11 ... U 20 (10 x)	248-454	5 cards
	U 100 (10 x)	248-455	5 cards
10 strips with 10 markers, white with black printing			

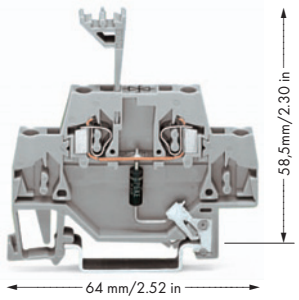
Rail-Mounted Terminal Blocks with Overvoltage Protection

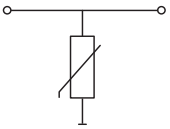
	With varistor V_{BN} AC/DC 24 V ... 110/120 V; I_{SN} 60 A ... 130 A Rated current 20 A Terminal block width 5 mm/0.197 in	With suppressor diode V_{BN} AC/DC 24 V ... AC 230 V; I_{SN} 11 A ... 122 A Rated current 20 A Terminal block width 5 mm/0.197 in

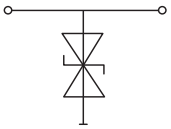


Through terminal blocks with the same shape
see Full Line Catalog Volume 1









Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Terminal block with surge suppression device and direct connection to DIN 35 rail	24 V DC	**280-502/281-609**	50	24 V DC	**280-502/281-602**	50
	48 V DC	**280-502/281-610**	50	48 V DC	**280-502/281-603**	50
	60 V DC	**280-502/281-611**	50	60 V DC	**280-502/281-604**	50
	115 V DC	**280-502/281-612**	50	115 V DC	**280-502/281-605**	50
	24 VAC	**280-502/281-613**	50	24 VAC	**280-502/281-606**	50
	110/120 VAC	**280-502/281-614**	50	110/120 VAC	**280-502/281-607**	50
				230 VAC	**280-502/281-608**	50

Technical Data	V_N	Max. Operating Voltage $V_{B\ max.}$	Nominal Discharge Current I_{SN}	Max. Surge Current $I_{S\ max.}$	Capacity	Protection Level
Terminal blocks with varistor	24 V DC	31 V DC	60 A	250 A	≤ 1.25 nF	77 V DC
	48 V DC	65 V DC	60 A	250 A	≤ 0.72 nF	135 V DC
	60 V DC	85 V DC	130 A	1.2 kA	≤ 0.48 nF	165 V DC
	115 V DC	150 V DC	130 A	1.2 kA	≤ 0.22 nF	300 V DC
	24 VAC	30 V AC	60 A	250 A	≤ 1.05 nF	93 V AC
	110/120 VAC	140 V AC	130 A	1.2 kA	≤ 0.18 nF	360 V AC
Terminal blocks with suppressor diode	24 V DC	30.8 V DC	122 A		≤ 1 nF	64 V DC
	48 V DC	58 V DC	59 A		≤ 0.63 nF	111 V DC
	60 V DC	77 V DC	44 A		≤ 0.55 nF	162 V DC
	115 V DC	136 V DC	25 A		≤ 0.4 nF	282 V DC
	24 VAC	28 V AC	86 A		≤ 0.8 nF	84 V AC
	110/120 VAC	133 V AC	18 A		≤ 0.35 nF	388 V AC
	230 VAC	253 V AC	11 A		≤ 0.36 nF	706 V AC

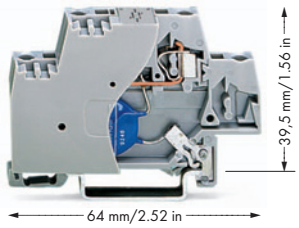
Technical Data

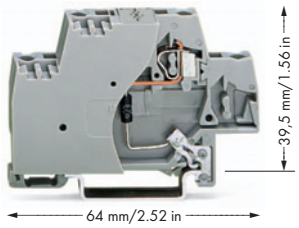
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	8 ... 9 mm / 0.33 in	8 ... 9 mm / 0.33 in

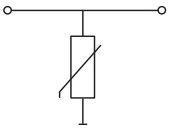
Accessories

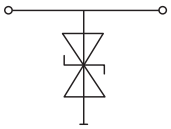
		Item No.	Pack. Unit		Item No.	Pack. Unit
End and Intermediate Plate, 2.5 mm/0.098 in thick	orange	**280-341**	100 (4*25)	orange	**280-341**	100 (4*25)
	gray	**280-340**	100 (4*25)	gray	**280-340**	100 (4*25)

	With varistor V_{BN} AC/DC 24 V ... AC 230 V; I_{SN} 300 A ... 1 kA Rated current 20 A Terminal block width 10 mm/0.394 in	With suppressor diode V_{BN} AC/DC 24 V ... AC 230 V; I_{SN} 37 A ... 305 A Rated current 20 A Terminal block width 10 mm/0.394 in









Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Terminal block with surge suppression device and direct connection to DIN 35 rail	24 V DC	**280-502/281-582**	25	24 V DC	**280-502/281-589**	25
	48 V DC	**280-502/281-583**	25	48 V DC	**280-502/281-590**	25
	60 V DC	**280-502/281-584**	25	60 V DC	**280-502/281-591**	25
	115 V DC	**280-502/281-585**	25	115 V DC	**280-502/281-592**	25
	24 V AC	**280-502/281-586**	25	24 V AC	**280-502/281-593**	25
	110/120 V AC	**280-502/281-587**	25	110/120 V AC	**280-502/281-594**	25
	230 V AC	**280-502/281-588**	25	230 V AC	**280-502/281-595**	25

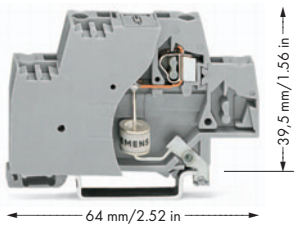
Technical Data	V_N	Max. Operating Voltage $V_{B\ max.}$	Nominal Discharge Current I_{SN}	Max. Surge Current $I_{S\ max.}$	Capacity	Protection Level
Terminal blocks with varistor andend plate	24 V DC	31 V DC	300 A	1 kA	≤ 4.6 nF	77 V DC
	48 V DC	56 V DC	300 A	1 kA	≤ 2.8 nF	135 V DC
	60 V DC	85 V DC	1 kA	4.5 kA	≤ 1.7 nF	165 V DC
	115 V DC	150 V DC	1 kA	4.5 kA	≤ 0.8 nF	300 V DC
	24 V AC	30 V AC	300 A	1 kA	≤ 3.5 nF	93 V AC
	110/120 V AC	150 V AC	1 kA	4.5 kA	≤ 0.57 nF	360 V AC
	230 V AC	275 V AC	1 kA	4.5 kA	≤ 0.32 nF	710 V AC
Terminal blocks with varistor and end plate	24 V DC	28 V DC	305 A		≤ 2.7 nF	59 V DC
	48 V DC	53 V DC	162 A		≤ 1.7 nF	111 V DC
	60 V DC	70 V DC	123 A		≤ 1.35 nF	146 V DC
	115 V DC	128 V DC	68 A		≤ 0.85 nF	265 V DC
	24 V AC	26 V AC	258 A		≤ 2.4 nF	70 V AC
	110/120 V AC	133 V AC	46 A		≤ 0.63 nF	388 V AC
	230 V AC	253 V AC	37 A		≤ 0.4 nF	706 V AC

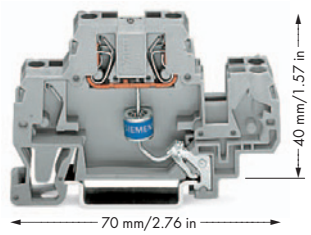
Technical Data

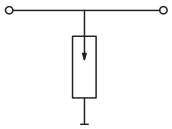
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	8 ... 9 mm / 0.33 in	8 ... 9 mm / 0.33 in

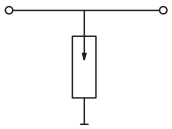
Rail-Mounted Terminal Blocks with Overvoltage Protection

	With gas filled surge arrester V_{BN} AC 24 V ... 230 V; I_{SN} 5 kA Rated current 20 A Terminal block width 10 mm/0.394 in	With gas filled surge arrester V_{BN} AC 24 V ... 230 V; I_{SN} 5 kA Rated current 20 A Terminal block width 10 mm/0.394 in









Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Terminal block with surge suppression device and direct connection to DIN 35 rail	24 V AC/DC	**280-503/281-579**	25	24 V AC/DC	**870-523/281-579**	25
	110/120 V AC/DC	**280-503/281-580**	25	110/120 V AC/DC	**870-523/281-580**	25
	230 V AC/DC	**280-503/281-581**	25	230 V AC/DC	**870-523/281-581**	25

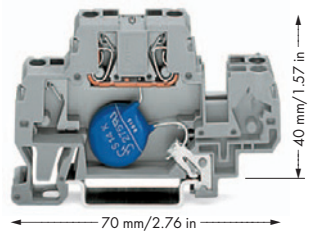
Technical Data

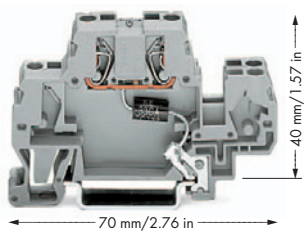
Max. operating voltage $V_{B\ max.}$	70 V AC/90 V DC	70 V AC/90 V DC
	180 V AC/230 V DC	180 V AC/230 V DC
	450 V AC/600 V DC	450 V AC/600 V DC
Nominal discharge current I_{SN}	5 kA	5 kA
Capacity	≤ 2 pF	≤ 2 pF
Protection level	600 V AC	600 V AC
	650 V AC	650 V AC
	1100 V AC	1100 V AC
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / 4 mm² "f" / AWG 28 ... 14
Stripped lengths	8 ... 9 mm / 0.33 in	6 ... 7 mm / 0.26 in

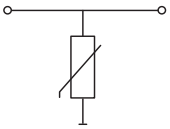
Accessories

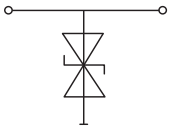
		Item No.	Pack. Unit
End and Intermediate Plate, 2 mm/0.079 in thick	gray	**870-518**	100 (4*25)
	orange	**870-519**	100 (4*25)

	With varistor V_{BN} AC/DC 24 V ... AC 230 V; I_{SN} 300 A ... 1 kA Rated current 20 A Terminal block width 10 mm/0.394 in	With suppressor diode V_{BN} AC/DC 24 V ... AC 230 V; I_{SN} 37 A ... 305 A Rated current 20 A Terminal block width 10 mm/0.394 in









Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Terminal block with surge suppression device and direct connection to DIN 35 rail	24 V DC	**870-523/281-582**	25	24 V DC	**870-523/281-589**	25
	48 V DC	**870-523/281-583**	25	48 V DC	**870-523/281-590**	25
	60 V DC	**870-523/281-584**	25	60 V DC	**870-523/281-591**	25
	115 V DC	**870-523/281-585**	25	115 V DC	**870-523/281-592**	25
	24 V AC	**870-523/281-586**	25	24 V AC	**870-523/281-593**	25
	110/120 V AC	**870-523/281-587**	25	110/120 V AC	**870-523/281-594**	25
	230 V AC	**870-523/281-588**	25	230 V AC	**870-523/281-595**	25

Technical Data	V_N	Max. Operating Voltage $V_{B\ max.}$	Nominal Discharge Current I_{SN}	Max. Surge Current $I_{S\ max.}$	Capacity	Protection Level
Terminal block with varistor	24 V DC	31 V DC	300 A	1 kA	≤ 4.6 nF	77 V DC
	48 V DC	56 V DC	300 A	1 kA	≤ 2.8 nF	135 V DC
	60 V DC	85 V DC	1 kA	4.5 kA	≤ 1.7 nF	165 V DC
	115 V DC	150 V DC	1 kA	4.5 kA	≤ 0.8 nF	300 V DC
	24 V AC	30 V AC	300 A	1 kA	≤ 3.5 nF	93 V AC
	110/120 V AC	150 V AC	1 kA	4.5 kA	≤ 0.57 nF	360 V AC
	230 V AC	275 V AC	1 kA	4.5 kA	≤ 0.32 nF	710 V AC
Terminal block with suppressor diode	24 V DC	28 V DC	169 A		≤ 2.7 nF	59 V DC
	48 V DC	53 V DC	90 A		≤ 1.7 nF	111 V DC
	60 V DC	70 V DC	69 A		≤ 1.35 nF	146 V DC
	115 V DC	128 V DC	68 A		≤ 0.85 nF	265 V DC
	24 V AC	26 V AC	258 A		≤ 2.4 nF	70 V AC
	110/120 V AC	133 V AC	46 A		≤ 0.63 nF	388 V AC
	230 V AC	253 V AC	37 A		≤ 0.4 nF	706 V AC

Technical Data

Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 4 mm² "f" / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / 4 mm² "f" / AWG 28 ... 14
Stripped lengths	6 ... 7 mm / 0.26 in	6 ... 7 mm / 0.26 in

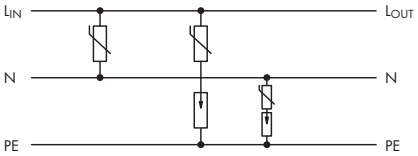
Pluggable Modules - Surge Suppression Devices

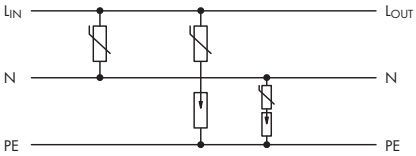
	Single stage suppression for 3-wire control, signal or power circuits No interruption of current flow when changing module 24 V AC/DC Module width 15 mm / 0.591 in	Single stage suppression for 3-wire control, signal or power circuits No interruption of current flow when changing module 110 V / 120 V AC; 230 V AC Module width 15 mm / 0.591 in

Note:
For isolation measurements the ground (earth) contact at the transient suppression module must be disconnected.

WSB marker card
- Marking F; Item No.: 209-791
- Marking 1 ... 10; Item No.: 209-702
- Marking Lin, N, PE Lout, N, PE, Lin, N, PE; Item No.: 249-655

5 cards, each containing 10 strips with 10 markers





Description	U_{BN}	Item No.	Pack. Unit	U_{BN}	Item No.	Pack. Unit
Surge suppression module	24 V AC/DC	**286-836**	1	230 V AC	**286-835**	1
				115 V AC	**286-835/115-000**	1

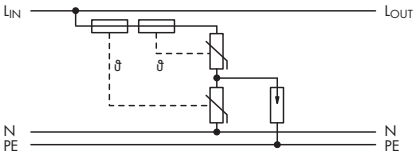
Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal operating voltage V_{BN}	24 V AC/DC	230 V AC; 115 V AC
Operating voltage	35 V AC / 45 V DC	275 V AC; 150 V AC
Nominal current	10 A	10 A
Nominal discharge current between L/N and PE	300 A	1 kA
Nominal discharge current between L and N	300 A	1 kA
Max. surge current between L/N and PE	1 kA	4.5 kA
Max. surge current between L and N	1 kA	4.5 kA
Protection level between L/N and PE	700 V	1,3 kV; 1 kV
Protection level between L and N	100 V	700 V; 400 V
Response time between L/N and PE	1 µs	1 µs
Response time between L and N	25 ns	25 ns
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Dimensions (mm) L x H x W incl. terminal block	17 x 82.5 x 73	17 x 82.5 x 73

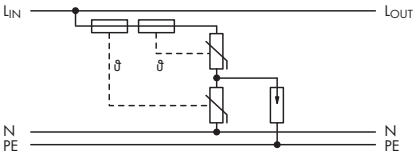
	Single stage suppression for 3-wire control, signal or power circuits No interruption of current flow when changing module with fault indication 110 V / 120 V AC Module width 15 mm / 0.591 in	Single stage suppression for 3-wire control, signal or power circuits No interruption of current flow when changing module with fault indication 230 V AC Module width 15 mm / 0.591 in

Note:
For isolation measurements the ground (earth) contact at the transient suppression module must be disconnected.

WSB marker card
- Marking F; Item No.: 209-791
- Marking 1 ... 10; Item No.: 209-702
- Marking Lin, N, PE Lout, N, PE, Lin, N, PE; Item No.: 249-655

5 cards, each containing 10 strips with 10 markers



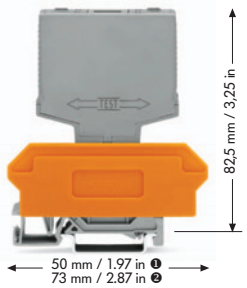


Description	U_{BN}	Item No.	Pack. Unit	U_{BN}	Item No.	Pack. Unit
Surge suppression module	230 V AC	**286-838**	1	115 V AC	**286-838/115-000**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal operating voltage V_{BN}	230 V AC	115 V AC
Operating voltage	300 V AC	150 V AC
Nominal current	10 A	10 A
Nominal discharge current between L/N and PE	1 kA	1 kA
Nominal discharge current between L and N	1 kA	1 kA
Max. surge current between L/N and PE	2.5 kA	2.5 kA
Max. surge current between L and N	2.5 kA	2.5 kA
Protection level between L/N and PE	1 kV	800 V
Protection level between L and N	800 V	400 V
Response time between L/N and PE	1 µs	1 µs
Response time between L and N	25 ns	25 ns
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Dimensions (mm) L x H x W incl. terminal block	17 x 82.5 x 73	17 x 82.5 x 73

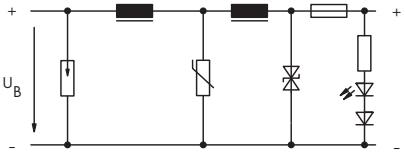
Pluggable Modules - Surge Suppression Devices

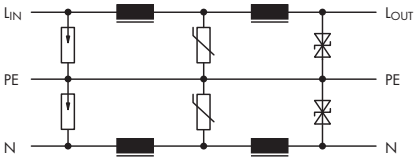
	Three-stage suppression for 2-wire data, measuring and control circuits 24 V DC Module width 20 mm / 0.787 in	Three-stage suppression for 3-wire data, measuring and control circuits 12 V DC Module width 20 mm / 0.787 in



Note:
For isolation measurements the ground (earth) contact at the transient suppression module must be disconnected.
WSB marker card
- Marking F; Item No.: 209-791
- Marking 1 ... 10; Item No.: 209-702
- Marking +/-; Item No.: 209-652
- Marking Lin, PE, PE, N, Lout, PE, PE, N; Item No.: 249-652

5 cards, each containing 10 strips with 10 markers



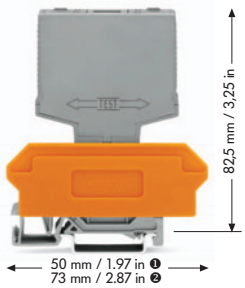


Description	U_{BN}	Item No.	Pack. Unit	U_{BN}	Item No.	Pack. Unit
Surge suppression module	24 V DC	**286-833**	1	12 V DC	**286-834**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal operating voltage V_{BN}	24 V DC	12 V DC
Operating voltage	30 V DC	14 V DC
Nominal current	0.1 A	6 A
Nominal discharge current between L/N and PE		1.5 kA
Nominal discharge current between L and N	5 kA	
Max. surge current between L/N and PE		1.5 kA
Max. surge current between L and N	5 kA	
Protection level between L/N and PE		≤ 22 V
Protection level between L and N	≤ 59 V	
Response time between L/N and PE		≤ 10 ns
Response time between L and N	≤ 10 ns	
Through resistance / inductivity	20 mΩ / 2 x 7 µH	50 mΩ / 14 µH
Ambient operating temperature	-25 °C ... +85 °C	-25 °C ... +85 °C

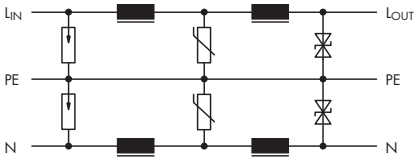
Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules, with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in						

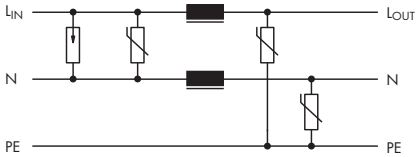
	Three-stage suppression for 3-wire data, measuring and control circuits 24 V DC Module width 20 mm / 0.787 in	Two-stage suppression for 3-wire control, signal or power circuits 24 V AC/DC Module width 20 mm / 0.787 in



Note:
For isolation measurements the ground (earth) contact at the transient suppression module must be disconnected.
WSB marker card
- Marking F; Item No.: 209-791
- Marking 1 ... 10; Item No.: 209-702
- Marking Lin, PE, PE, N, Lout, PE, PE, N; Item No.: 249-652
- Marking PE, N, Lin, PE, N, Lout; Item No.: 209-911

5 cards, each containing 10 strips with 10 markers





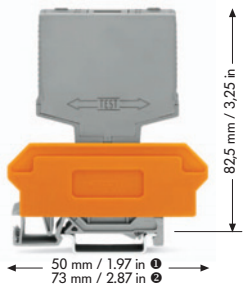
Description	U_{BN}	Item No.	Pack. Unit	U_{BN}	Item No.	Pack. Unit
Surge suppression module	24 V DC	**286-834/024-000**	1	24 V AC/DC	**286-831**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal operating voltage V_{BN}	24 V DC	24 V AC/DC
Operating voltage	30 V DC	30 V AC / 38 V DC
Nominal current	6 A	6 A
Nominal discharge current between L/N and PE	1.5 kA	200 A
Nominal discharge current between L and N		1.5 kA
Max. surge current between L/N and PE	1.5 kA	500 A
Max. surge current between L and N		1.5 kA
Protection level between L/N and PE	≤ 59 V	≤ 93 V
Protection level between L and N		≤ 93 V
Response time between L/N and PE	≤ 10 ns	≤ 25 ns
Response time between L and N		≤ 25 ns
Through resistance / inductivity	50 mΩ / 14 µH	25 mΩ / 2 x 7 µH
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1		250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +85 °C	-25 °C ... +85 °C

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules, with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator	22 mm / 0.866 in	**280-628**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	25 mm / 0.984 in	**280-764**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in						

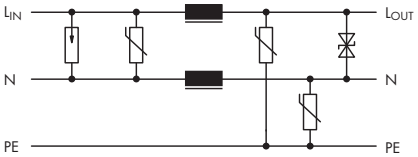
Pluggable Modules - Surge Suppression Devices

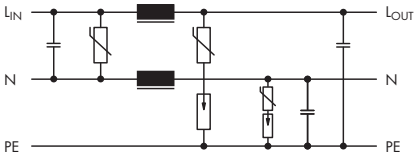
	Two-stage suppression for 3-wire control, signal or power circuits 24 V AC/DC Module width 20 mm / 0.787 in	Two-stage suppression for 3-wire control, signal or power circuits with filter 115 V DC, 230 V DC, 110 V / 120 V AC, 230 V AC/DC Module width 25 mm / 0.984 in



Note:
For isolation measurements the ground (earth) contact at the transient suppression module must be disconnected.
WSB marker card
- Marking F; Item No.: 209-791
- Marking 1 ... 10; Item No.: 209-702
- Marking PE, N, Lin, PE, N, Lout; Item No.: 209-911

5 cards, each containing 10 strips with 10 markers





Description	U_{BN}	Item No.	Pack. Unit	U_{BN}	Item No.	Pack. Unit
Surge suppression module	24 V AC/DC	**286-832**	1	115 V DC	**286-844**	1
				110 V/120 V AC	**286-843**	1
				230 V DC	**286-841**	1
				230 V AC	**286-842**	1

Technical Data	Accessories see pages 138 ... 139	Accessories see pages 138 ... 139
Nominal operating voltage V_{BN}	24 V AC/DC	115 V DC; 110 V/120 V AC
		230 V DC; 230 V AC
Operating voltage	AC 30 V / 38 V DC	180 V DC; 140 V AC
		320 V DC; 250 V AC
Nominal current	6 A	6 A
Nominal discharge current between L/N and PE	200 A	600 A
Nominal discharge current between L and N	1.5 kA	600 A
Max. surge current between L/N and PE	500 A	1.5 kA
Max. surge current between L and N	1.5 kA	1.5 kA
Protection level between L/N and PE	≤ 93 V	≤ 900 V
Protection level between L and N	≤ 59 V	≤ 650 V
Response time between L/N and PE	≤ 25 ns	≤ 1 µs
Response time between L and N	≤ 5 ns	≤ 25 ns
Through resistance / inductivity	25 mΩ / 2 x 7 µH	- / 2 x 0.8 mH
Nominal voltage acc. to VDE 0110 Part 1/4.97, IEC 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Ambient operating temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Insertion loss		20 dB ... 40 dB / 0.15 MHz ... 30 MHz

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules, with 2-conductor terminal blocks, orange separator ❶	22 mm / 0.866 in	**280-638**	1	27 mm / 1.063 in	**280-639**	1
with 4-conductor terminal blocks, orange separator	22 mm / 0.866 in	**280-628**	1	27 mm / 1.063 in	**280-629**	1
with 4-conductor terminal blocks, marker plate ❷	25 mm / 0.984 in	**280-764**	1	30 mm / 1.181 in	**280-765**	1
wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; stripped length 8 ... 9 mm / 0.33 in						

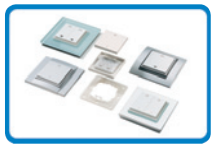
WAGO Application: Plastic Technology Center (SKZ) in Würzburg, Germany

WAGO Products:
WAGO-I/O-SYSTEM with ETHERNET Controllers, DALI and EnOcean Components

6

789 Series
EnOcean Radio Receivers in DIN-Rail-Mount Enclosure 288

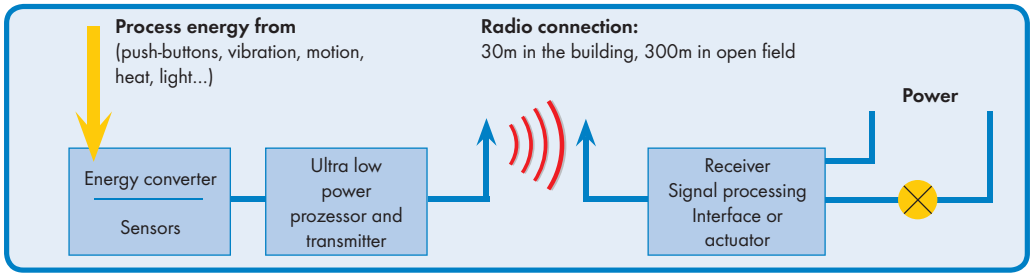
770 Series
WINSTA® - Radio Receiver 289

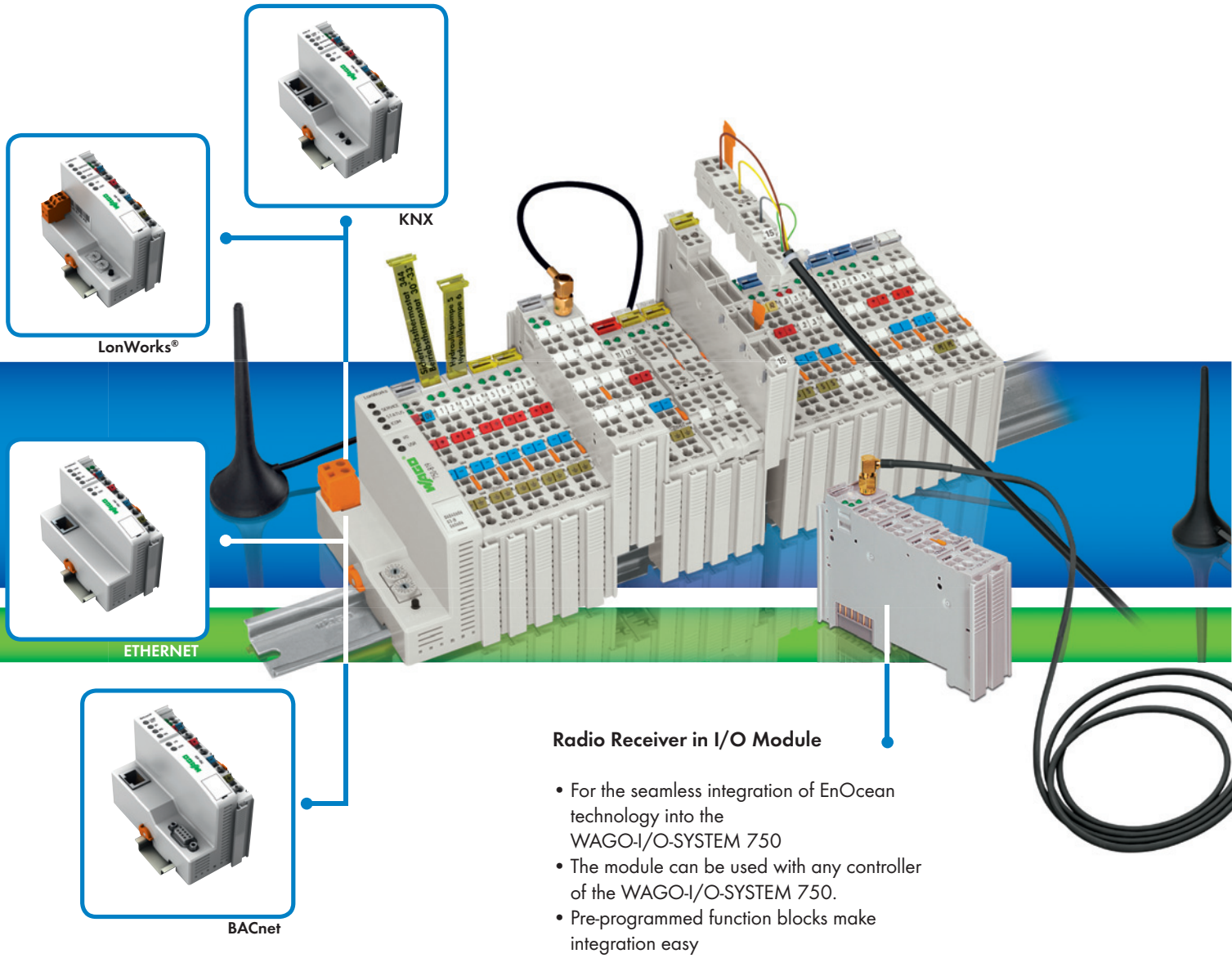


758 Series
Radio Receiver and Transmitter 290

WAGO Radio Receiver with EnOcean Technology

The Benefits for Electronic and Radio Technology





Radio Receiver in I/O Module

- For the seamless integration of EnOcean technology into the WAGO-I/O-SYSTEM 750
- The module can be used with any controller of the WAGO-I/O-SYSTEM 750.
- Pre-programmed function blocks make integration easy
- The number of sensors is almost illimited

Item No. 750-642

enocean®

Radio Receiver in DIN-Rail Mount Enclosure

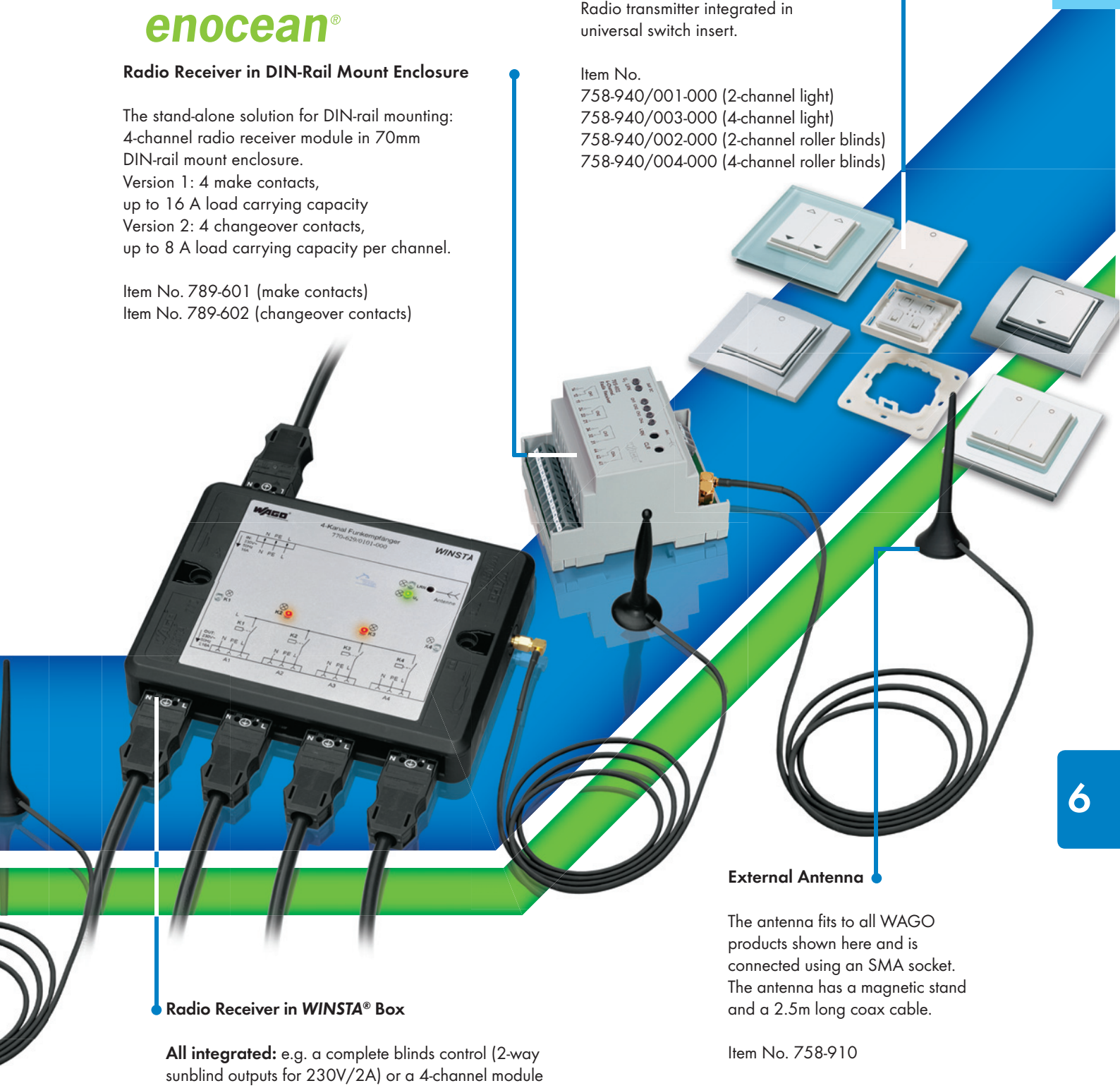
The stand-alone solution for DIN-rail mounting:
4-channel radio receiver module in 70mm DIN-rail mount enclosure.
Version 1: 4 make contacts,
up to 16 A load carrying capacity
Version 2: 4 changeover contacts,
up to 8 A load carrying capacity per channel.

Item No. 789-601 (make contacts)
Item No. 789-602 (changeover contacts)

Radio Transmitter

Radio transmitter integrated in universal switch insert.

Item No.
758-940/001-000 (2-channel light)
758-940/003-000 (4-channel light)
758-940/002-000 (2-channel roller blinds)
758-940/004-000 (4-channel roller blinds)



Radio Receiver in *WINSTA*® Box

All integrated: e.g. a complete blinds control (2-way sunblind outputs for 230V/2A) or a 4-channel module for lighting control (4-way switch output 230V/16A) with receiver and all required switching relay.
The *WINSTA*® boxes are suitable for wall-, floor- and ceiling-mounting.

Item No. 770-629/102-000 (sunblinds control)
Item No. 770-629/101-000 (lighting control)

External Antenna

The antenna fits to all WAGO products shown here and is connected using an SMA socket. The antenna has a magnetic stand and a 2.5m long coax cable.

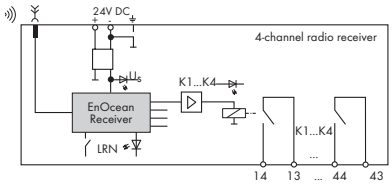
Item No. 758-910

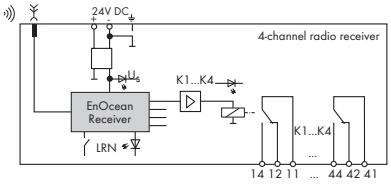
4-Channel EnOcean Radio Receivers in DIN-Rail Mount Enclosure

	4-channel EnOcean radio receiver with 4 make contacts, 16 A	4-channel EnOcean radio receiver with 4 changeover contacts, 8 A

The 4-channel radio receiver in DIN-rail mount enclosure is used to switch 4 independent electrical devices or loads. The radio receiver processes telegrams transmitted by sensors (binary information) using EnOcean radio technology (PTM + STM modules).
The outputs are switched via relay contacts.

- Radio receiver for battery-less and wireless sensors
- LED indication of switch status
- External antenna for optimum transmission range (required)
- Frequency band 868 MHz
- Transmitter-to-receiver assignment via learn mode





Description	Item No.	Pack. unit	Item No.	Pack. unit
4-channel EnOcean radio receiver	**789-601**	1	**789-602**	1

Technical Data		
Voltage supply	24 V DC	24 V DC
Voltage range	-15 % ... + 20 %	-15 % ... + 20 %
Current consumption (internal)	max. 90 mA	max. 90 mA
Number of receive channels	40 (10 per output)	40 (10 per output)
Number of channels	4 (relay outputs)	4 (relay outputs)
Output current (per channel)	max. 16 A, AC1	max. 8 A, AC1
Type of load	resistive / lamp load	resistive / motor load
Switching frequency	max. < 5 Hz	max. < 5 Hz
Delay time transmitter /output command	< 100 ms; 40 ms ... 70 ms typ.	< 100 ms; 40 ms ... 70 ms typ.
Switching voltage	230 V AC	230 V AC
Fuse protection	Loads: wire breaker, max.16 A	Loads: wire breaker, max.16 A
Isolation	potential free contacts	potential free contacts
Ambient operating temperature	0 °C ... +55 °C	0 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Relative air humidity (no condensation)	85 %	85 %
Degree of pollution	2	2
Degree of protection	IP20	IP20
Mounting position	any	any
Dimensions (mm) W x H x L	70 x 55 x 90	70 x 55 x 90
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)
Stripped lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Approvals	Vibration and shock resistance acc. to IEC 60068-2-6 and	Vibration and shock resistance acc. to IEC 60068-2-6 and
	IEC 60068-2-27	IEC 60068-2-27
Accessories: RF magnetic antenna incl. 3m connecting	758-910	758-910
cable with SMA connector		

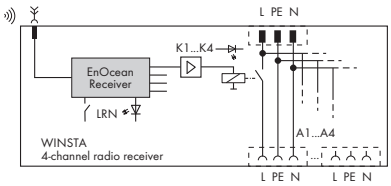
WINSTA® Radio Receiver

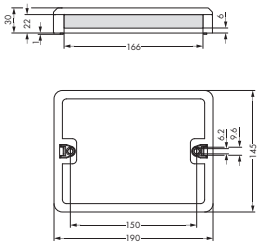
	4-channel radio receiver with 4 make contacts	2-channel radio receiver with sunblind outputs

The 4-channel radio receiver is used to switch 4 independent electrical devices. The 2-channel radio receiver has 2 sunblind outputs that can be controlled independently from each other. The radio receiver processes telegrams transmitted by switches using EnOcean radio technology (STM modules). The outputs are switched via relay contacts.

- Radio receiver for battery-less and wireless sensors
- LED indication of switch status
- External antenna for optimum transmission range (required)
- Frequency band 868 MHz
- Transmitter-to-receiver assignment via learn mode
- The state of outputs can be predefined for a power failure scenario
- Wire connection using WINSTA connectors

Illustration and block diagram for 770-629/101-000





Description	Item No.	Pack. unit	Item No.	Pack. unit
WINSTA® radio receiver	**770-629/101-000**	1	**770-629/102-000**	1

Technical Data

Voltage supply	230 V AC, 50 Hz ... 60 Hz, max. 16 A	230 V AC, 50 Hz ... 60 Hz, max. 16 A
Voltage range	± 10 %	± 10 %
Current consumption (internal)	max. 21 mA	max. 21 mA
Number of channels	4	2
Output current (per channel)	max. 16 A / 4 A	2 A motor load
Total current	max. 16 A	max. 4 A
Inrush current	max. 120 A / 50 ms	25 A
Type of load	resistive / lamp load	resistive / inductive
Switching frequency	max. 5 Hz	max. 5 Hz
Isolation	isolated internal voltage supply 2500 V	isolated internal voltage supply 2500 V
	impulse withstand voltage	impulse withstand voltage
Fuse protection	External, 16 A max.	External, 16 A max.
Ambient operating temperature	0 °C ... +55 °C	0 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C	-25 °C ... +85 °C
Relative air humidity (no condensation)	85 %	85 %
Degree of pollution	2	2
Degree of protection	IP20	IP20
Mounting position	any	any
Dimensions (mm) W x H x L	195 x 145 x 30	195 x 145 x 30
Type of mounting	Wall screw fixing	Wall screw fixing
Approvals	Vibration and shock resistance acc. to IEC 60068-2-6 and IEC 60068-2-27	Vibration and shock resistance acc. to IEC 60068-2-6 and IEC 60068-2-27
Accessories: RF magnetic antenna incl. 3m connecting cable with SMA connector	758-910	758-910
Connection accessories WINSTA connectors	Input: socket, 3 poles, e.g. 770-103; 4-channel output: plug, 3 poles, e.g. 770-113	Input: socket, 3 poles, e.g. 770-103; 2-channel output: plug, 4 poles, e.g. 770-114

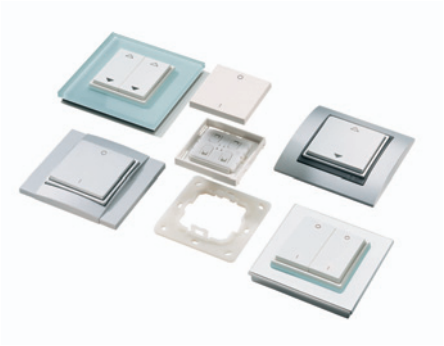
Radio Receiver and Transmitter

External antenna, GSM 900/1800

Description	Technical Data	Item No.	Pack. unit
External antenna	Frequency band: 870 MHz ... 960 MHz; 1710 MHz ... 1880 MHz	**758-910**	1
	VSWR: 870 MHz ... 960 MHz < 1.5; 1710 MHz ... 1880 MHz < 1.5		
	Gain: 870 MHz ... 960 MHz 0 dB; 1710 MHz ... 1880 MHz 0 dB		
	Max. Power: 20 W		
	Cable length: 250 cm Connector: SMA right angle plug + ferrite bead		

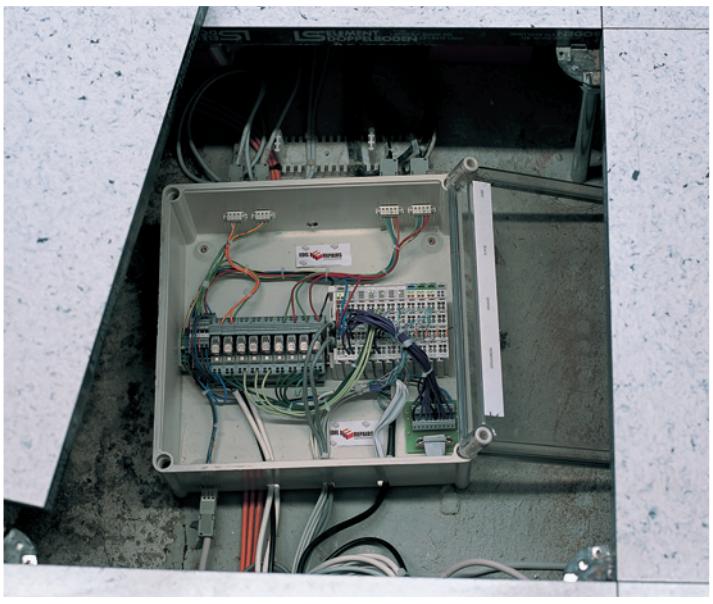
Notes on operating the antenna with WAGO EnOcean radio receivers: The antenna is to be mounted on a plate measuring at least 9.8 x 9.8 inches (25 x 25 mm) The distance of interfering sources to the antenna and antenna line must be at least 11.8 inches (30 mm) and the free space between the antenna and the next wall must be at least 13.78 inches (35 mm). The antenna cable should, under no circumstances, be bent sharply, since irreversible damage may result to the antenna (RG 174 bend radius > 0.6 inches/15mm)

Radio transmitter, EnOcean easyfit PTM 250



Description	Technical Data	Item No.	Pack. unit
2-channel light	Integrated radio transmitter: EnOcean PTM 200 Energy harvesting source: electrodynamic energy	**758-940/001-000**	1
4-channel light	generator, maintenance free Radio technology /range: EnOcean 868 MHz, RPS Type 2; 300 m free	**758-940/003-000**	1
2-channel roller blind	field, typ. 30 m within buildings Total installation height: 14 mm (frame lies directly against the wall)	**758-940/002-000**	10
4-channel roller blind	Dimensions of rocker /frame cut-out /central plate: 50 x 50 mm / 55 x 55 mm / 71 x 71 mm Color:	**758-940/004-000**	1
	white		

The universal switch insert can be integrated into numerous control programmes by different manufacturers, e.g.: BERKER, GIRA, JUNG and MERTEN. Delivery is without frame. Frames of the desired control programm have been orderen separately.



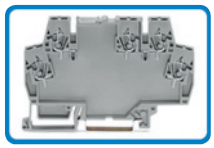
WAGO Application: Bellinzona Business Center (Tessin), Switzerland

WAGO Products:
WAGO-I/O-SYSTEM with ETHERNET Controllers, Power Supplies and Interface Modules

7

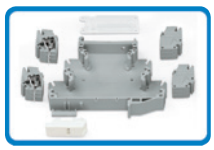
280, 286, 786 Series

Empty Component Plug Housings for Building Custom Circuits 294 – 295
Empty Component Plug Housings for Building Custom Circuits 296



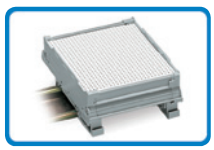
859 Series

Empty Electronic Terminal Block Housing 297



789 Series

DIN-Rail Mounted Enclosures 298
Accessories, 789 Series 299

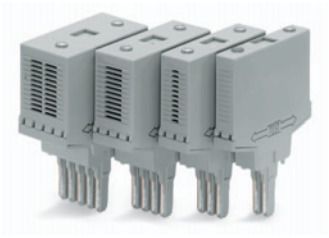


209, 210, 288 Series

Mounting Carrier for DIN-Rail Mounting PCBs 300 – 301
Mounting Carrier and Feet for DIN-Rail Mounting PCBs 302 – 303

Empty Component Plug Housings for Building Custom Circuits

286 Series, empty component plug

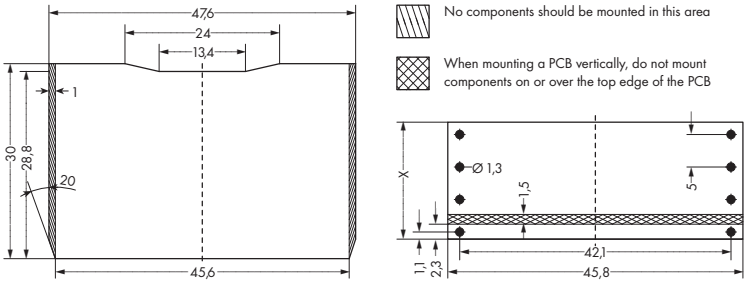


Description		Item No.	Pack. Unit
Empty component plug, type 9	4-pole, 10 mm / 0.394 in wide	**286-110**	1
Empty component plug, type 10	6-pole, 15 mm / 0.591 in wide	**286-111**	1
Empty component plug, type 11	8-pole, 20 mm / 0.787 in wide	**286-112**	1
Empty component plug, type 12	10-pole, 25 mm / 0.984 in wide	**286-113**	1

250 V/ 4 KV/ 3 (rated voltage/ rated surge voltage/ pollution degree);
6 A per contact;
Module height 82.5 mm/3.25 in (from upper-edge of DIN 35 rail);
PCB dimensions and component height see drawing and table

PCB dimensions

Module width	10	15	20	25
Component height	4.2	9.2	14.2	19.2
X = total height of PCB	8	13	18	23



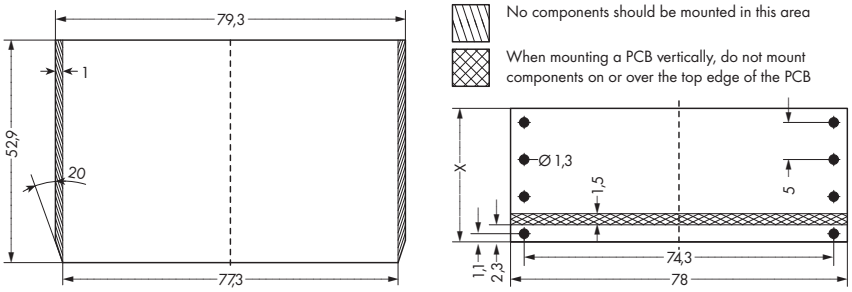
786 Series, empty component plug

Description		Item No.	Pack. Unit
Empty component plug, type 14	6-pole, 15 mm / 0.591 in wide	**786-101**	1
Empty component plug, type 15	8-pole, 20 mm / 0.787 in wide	**786-102**	1
Empty component plug, type 16	10-pole, 25 mm / 0.984 in wide	**786-103**	1

250 V/ 4 KV/ 3 (rated voltage/ rated surge voltage/ pollution degree);
6 A per contact;
Module height 82.5 mm/3.25 in (from upper-edge of DIN 35 rail);
PCB dimensions and component height see drawing and table

PCB dimensions

Module width	15	20	25
Component height	9.2	14.2	19.2
X = total height of PCB	13	18	23

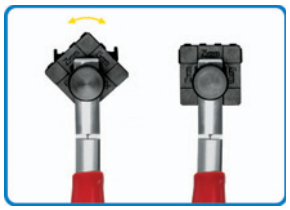


Accessories

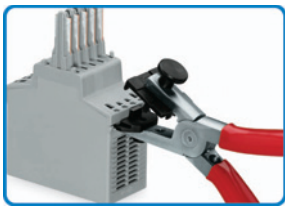
Unlocking pliers for component plug housing

WSB-marker cards

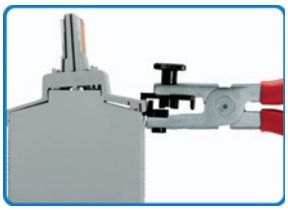
Description		Item No.	Pack. Unit
Unlocking pliers for component plug housing		**210-492**	1
WSB Quick marking system for module width 5 - 17.5 mm	**plain**	**209-501**	5 cards
Marking	**1 ... 10 (10 x)**	**209-702**	5 cards
10 strips with 10 markers, white with black printing			



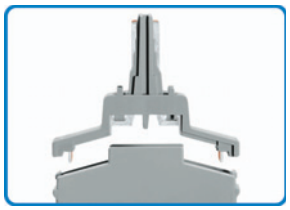
Adjust the pliers to the proper housing width



Insert the pliers into the locking slots . . .



. . . by compressing the pliers . . .



. . . the cover is removed.

2-conductor terminal block

4-conductor terminal block

Description		Item No.	Pack. Unit
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	12 mm / 0.472 in wide	**280-618**	1
with 4-conductor terminal blocks, orange separator	12 mm / 0.472 in wide	**280-608**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	17 mm / 0.669 in wide	**280-619**	1
with 4-conductor terminal blocks, orange separator	17 mm / 0.669 in wide	**280-609**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	22 mm / 0.866 in wide	**280-638**	1
with 4-conductor terminal blocks, orange separator	22 mm / 0.866 in wide	**280-628**	1
Terminal block for pluggable modules,			
with 2-conductor terminal blocks, orange separator	27 mm / 1.063 in wide	**280-639**	1
with 4-conductor terminal blocks, orange separator	27 mm / 1.063 in wide	**280-629**	1

Wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; Stripped lengths 8 ... 9 mm / 0.33 in

Other Terminal blocks see Full Line Catalog, Volume 1, Rail-Mounted Terminal Block Systems

Empty Component Plug Housings for Building Custom Circuits

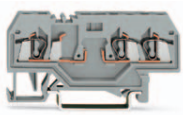
280 Series, empty component plug housings for building custom circuits

Description		Item No.	Pack. Unit
Empty component plug, type 1	2-pole, 5 mm / 0.197 in wide; Inside dimensions of plug W/H/D 3.2/15/15 mm (0.126/0.591/0.591 in)	**280-801**	100
Empty component plug, type 2	2-pole, 10 mm / 0.394 in wide; Inside dimensions of plug W/H/D 8.2/15/15 mm (0.323/0.591/0.591 in)	**280-802**	50
Empty component plug, type 3	4-pole, 10 mm / 0.394 in wide; Inside dimensions of plug W/H/D 8.2/15/15 mm (0.323/0.591/0.591 in)	**280-804**	50

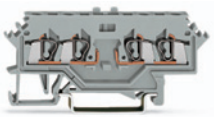
250 V/ 4 KV/ 3 (rated voltage/ rated surge voltage/ pollution degree);

2-conductor terminal

3-conductor terminal



4-conductor terminal



Description		Item No.	Pack. Unit
2-conductor terminal block	gray, terminal block width 5 mm /0.197 in, marking on both sides	**280-616**	100
2-conductor terminal block	gray, terminal block width 5 mm /0.197 in, marking in center position	**280-916**	100
3-conductor terminal block	gray, terminal block width 5 mm /0.197 in	**280-610**	100
4-conductor terminal block	gray, terminal block width 5 mm /0.197 in, marking on both sides	**280-606**	100
4-conductor terminal block	gray, terminal block width 5 mm /0.197 in, marking in center position	**280-686**	100

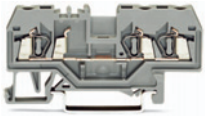
Wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 14; Stripped lengths 8 ... 9 mm / 0.33 in

For accessories like end plates, jumpers etc. see Full Line Catalog, Volume 1, Rail-Mounted Terminal Block Systems

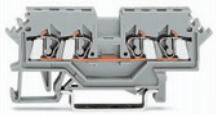
Empty Component Plug Housings for Building Custom Circuits, 280 Series

2-conductor terminal block

3-conductor terminal block



4-conductor terminal block

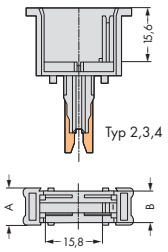


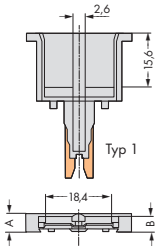
2-conductor terminal block

Description		Item No.	Pack. Unit
Empty component plug, type 4	2-pole, 10 mm / 0.394 in wide; Inside dimensions of plug W/H/D 8.2/15/15	**280-803**	50
250 V/ 4 KV/ 3 (rated voltage/ rated surge voltage/ pollution degree);			
6 A max.			
Front-entry 2-conductor terminal block	gray, terminal block width 5 mm /0.197 in, marking on both sides	**280-601**	100
Front-entry 2-conductor terminal block	gray, terminal block width 5 mm /0.197 in, marking in center position	**280-901**	100
Front-entry 3-conductor terminal block	gray, terminal block width 5 mm /0.197 in	**280-681**	100
Wire range 0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN); Stripped lengths 8 ... 9 mm / 0.33 in			
Front-entry 4-conductor terminal block	gray, terminal block width 5 mm /0.197 in, marking on both sides	**280-621**	100
Front-entry 4-conductor terminal block	gray, terminal block width 5 mm /0.197 in, marking in center position	**280-833**	100
Side-entry 2-conductor terminal block	gray, terminal block width 5 mm /0.197 in	**280-101**	100
Wire range .,08 mm² ... 2.5 mm² / AWG 28 ... 14; Stripped lengths 8 ... 9 mm / 0.33 in,			
For accessories like end plates, jumpers etc. see Full Line Catalog, Volume 1, Rail-Mounted Terminal Block Systems			

Press screwdriver into appropriate slot (1) and remove cover with levering action (2).

Introduce cover in the outer groove of the plug and press completely down until snap-fit engaged.

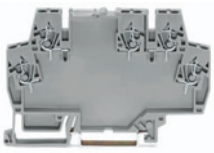




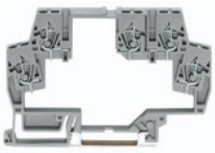
Typ	1	2	3	4
A	5	10	10	10
B	3,2	8,2	8,2	8,2

Empty Electronic Terminal Block Housing

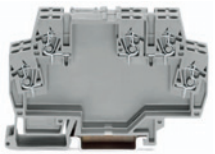
859-110



859-501

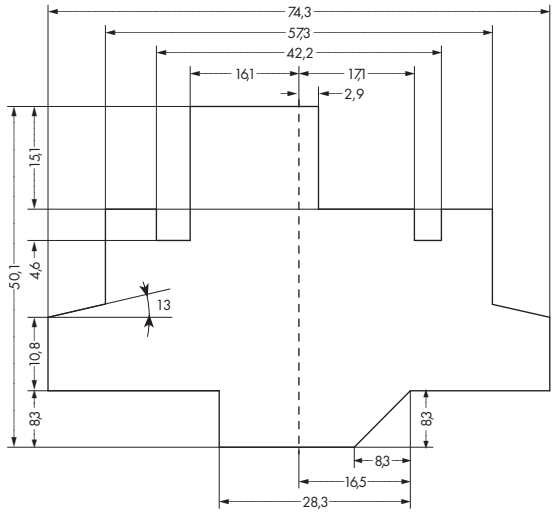


859-110 and 859-501

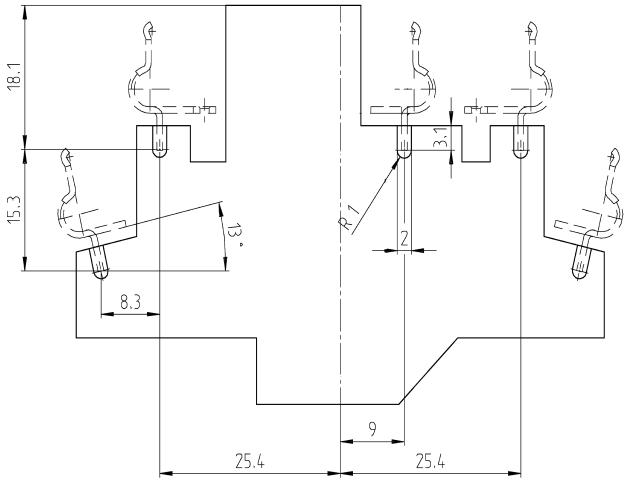


Description	Item No.	Pack. Unit	Technical Data
Modular housing for mounting electronic components in a rail-mounted terminal block	**859-110**	1	Housing material: PA 6.6
Frame to enlarge the terminal block width	**859-501**	1	Flammability rating: V0
			Color: gray (similar to RAL 7038)
			Degree of protection: IP20
			Perm. ambient temperature: -25 °C ... +70 °C
			Storage temperature: -40 °C ... +85 °C
			Width: 6 mm (859-110), 8 mm (859-501)
			Mounting position: any
			Dimensions (W x H x L): (6 x 56 x 91) mm Height from upper-edge of DIN 35 rail
			Wire connection: CAGE CLAMP®
			Cross sections: 0.08 mm² ... 2.5 mm² /AWG 28 ... 14
			Stripped lenghts: 5 ... 6 mm / 0.22 in

PCB dimensions



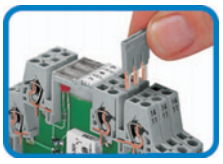
PCB dimensions



End and intermediate plate

Push-in type jumper bar

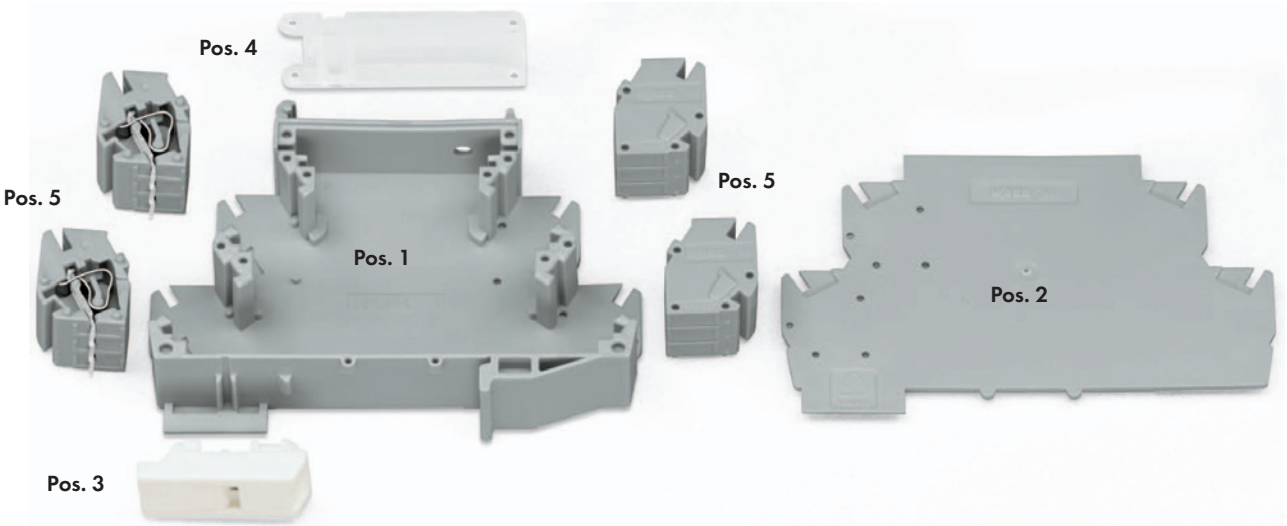
Commoning



Test pin

Description		Item No.	Pack. Unit
End and intermediate plate; 1 mm / 0.039 in thick, gray		**859-525**	100 (4x25)
Push-in type jumper bars, light gray, insulated, 18 A	**2-way**	**859-402**	200 (8x25)
	3-way	**859-403**	200 (8x25)
	4-way	**859-404**	200 (8x25)
	5-way	**859-405**	200 (8x25)
	6-way	**859-406**	100 (4x25)
	7-way	**859-407**	100 (4x25)
	8-way	**859-408**	100 (4x25)
	9-way	**859-409**	100 (4x25)
	10-way	**859-410**	100 (4x25)
Item no. suffix for colored push-in type jumper bars	**yellow**	**... /000-029**	
	blue	**... /000-006**	
	red	**... /000-005**	
Test pin; Ø 1 mm / 0.039 in; test wire for sold. onto test plug		**859-500**	1 (1x1)

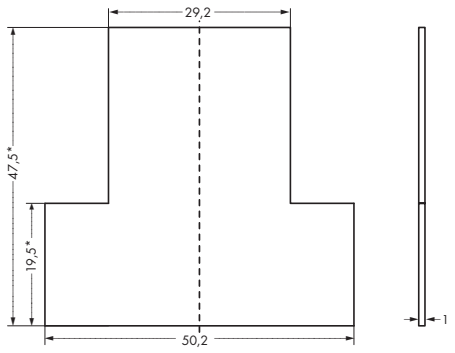
DIN-Rail Mounted Enclosures



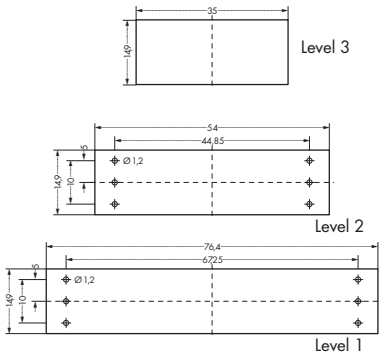
Description		Item No.	Pack. Unit	Technical Data
Housing 55 mm/2.17 in	Pos. 1	**789-120**	1	Rated voltage acc. to VDE 0110 Part 1 /4.97 IEC 60664-1: 250 V /4 kV /3
Top cover 55 mm/2.17 in	Pos. 2	**789-122**	1	Housing material: PA 6.6
Transparent cover	Pos. 4	**789-124**	1	Flammability rating: V0
Release mechanism	Pos. 3	**789-126**	1	Color: gray (similar to RAL 7038)
3-pole terminal block: CCC*	Pos. 5	**789-127**	1	Degree of protection: IP20
3-pole terminal block: COC*	Pos. 5	**789-128**	1	Perm. ambient temperature: -25 °C ... +70 °C
3-pole terminal block: CCO*	Pos. 5	**789-129**	1	Storage temperature: -40 °C ... +85 °C
3-pole terminal block: OCC*	Pos. 5	**789-130**	1	Mounting position: any
3-pole terminal block: OCO*	Pos. 5	**789-131**	1	Dimensions (W x H x L): (17.5 x 55 x 90) mm Hight from upper-edge of DIN 35 rail
3-pole terminal block: OOO*	Pos. 5	**789-132**	1	Wire connection: CAGE CLAMP®
3-pole terminal block: OOC*	Pos. 5	**789-133**	1	Cross sections: 0.08 mm² ... 2.5 mm² /AWG 28 ... 14
3-pole terminal block: COO*	Pos. 5	**789-134**	1	Stripped lenghts: 5 ... 6 mm / 0.22 in

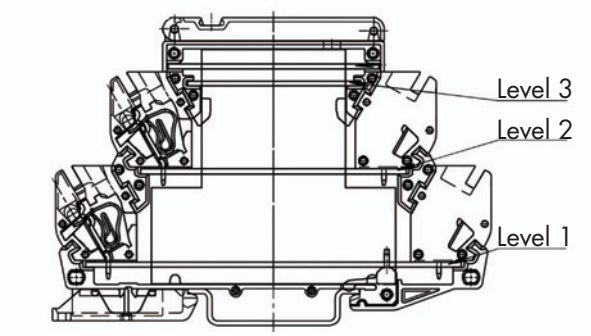
* C = with clamping spring, O = without clamping spring, enclosure open on the right side

PCB dimensions, horizontal mounting
*** less 4.5mm when mounting a vertical PCB on level 1**



PCB dimensions vertical mounting (max. PCB thickness 1.5 mm) in level 1; (max. PCB thickness 1 mm) in level 2 and 3





Accessories, 789 Series

Push-in type jumper bars

Commoning

Description		Item No.	Pack. Unit
Push-in type jumper bars	uninsulated, 12-way, to be cut to the required length	**789-112**	100 (4x25)

Operating tool

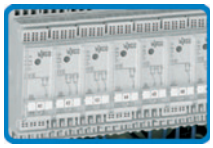
Wire connection

Marking pen with fiber tip

Description		Item No.	Pack. Unit
Operating tool, with partially insulated shaft	Type 2, blade (3.5 x 0.5) mm	**210-720**	1
Marking pen	for permanent marking	**210-110**	1

Miniature quick marking card

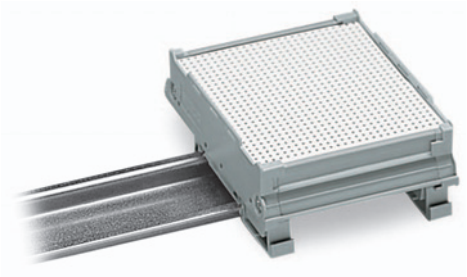
Marking

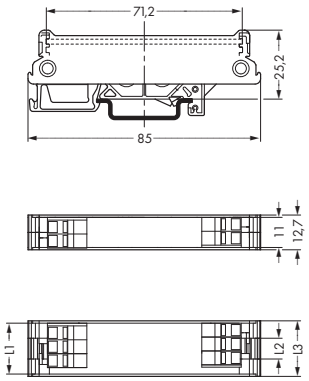


Description		Item No.	Pack. Unit
Miniature WSB Quick marking system	**plain**	**248-501**	5 cards
Marking software and printer/plotter see Section 8			
Marking	**1 ...10 (10 x)**	**248-502**	5 cards
	11 ... 20 (10x)	**248-503**	5 cards
	21 ... 30 (10x)	**248-504**	5 cards
	31 ... 40 (10x)	**248-505**	5 cards
	41 ... 50 (10 x)	**248-506**	5 cards
	1 ... 50 (2 x)	**248-566**	5 cards
	K 1 ... K 10 (10 x)	**248-450**	5 cards
	K 11 ... K 20 (10 x)	**248-451**	5 cards
	K 100 (10 x)	**248-452**	5 cards
	U 1 ... U 10 (10 x)	**248-453**	5 cards
	U 11 ... U 20 (10 x)	**248-454**	5 cards
	U 100 (10 x)	**248-455**	5 cards
10 strips with 10 markers, white with black printing			

Mounting Carrier for DIN-Rail Mounting PCBs

Mounting carrier size 1





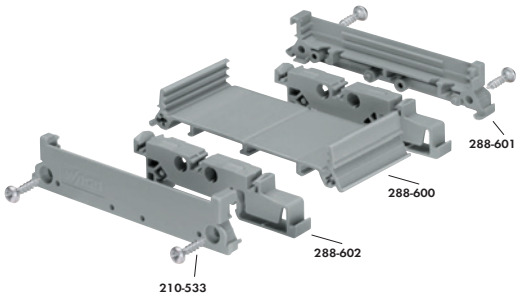
Description	Item No.	Pack. Unit
Lateral cover, size 1, small, 6.35 mm /0.25 in thick	**288-601**	1
Fixing foot for mounting on DIN 35 rails	**288-602**	1
Track section, size 1, 1 m /3'3'' long	**288-600**	1

In order to determine the length of a complete mounting carrier:
Length of PCB: L1
Length of track section: L2 = L1 – 11 mm /0.433 in
Length of mounting carrier: L3 = L1 + 1.7 mm/0.067 in
with lateral cover size 1, 6.35 mm/0.25 in thick.
Distance between PCB and upper groove of track section is 5 mm/0.197 in PCB tolerances: thickness 1.5 mm ± 0.2 mm, length/width ± 0.2 mm; -0.1/+0.3 for milling contours

Marker strips

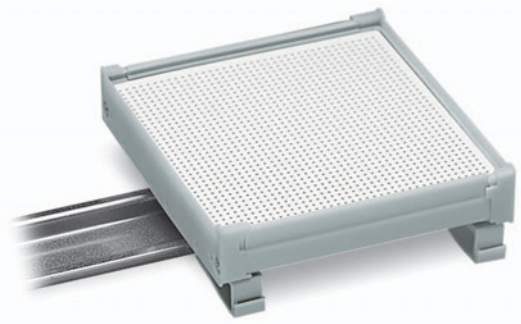
Description		Item No.	Pack. Unit
Phillips screw 2.9 x 13*	* To be used from a module length of 35 mm/1.378 in. For smaller modules the lateral covers have to be riveted. Rivet length depends on module length. Rivets not in the WAGO product range.	**210-533**	25
7.5x0.5mm on roll 5x1m, white		**709-198**	1
7.5x0.5mm on roll 5x1m, translucent		**709-196**	1

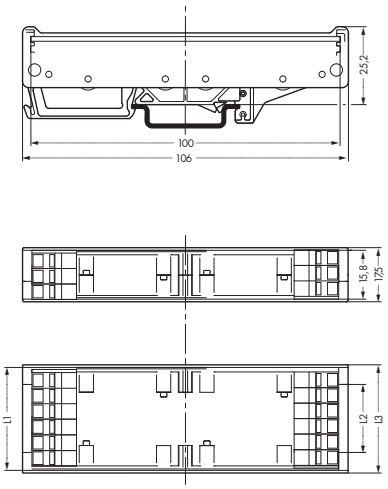
Mounting carrier size 1



Mounting Carrier for DIN-Rail Mounting PCBs

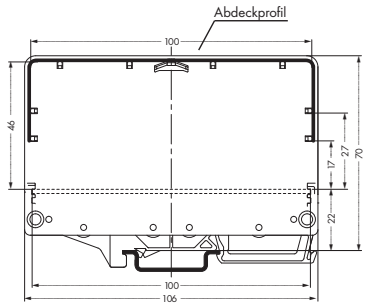
Mounting carrier size 2





Description	Item No.	Pack. Unit
Lateral cover, size 2, small*, 8.75 mm /0.344 in thick	288-621	1
Fixing foot for mounting on DIN 35 rails	288-622	1
Track section, size 2, 1 m /3'3'' long	288-620	1

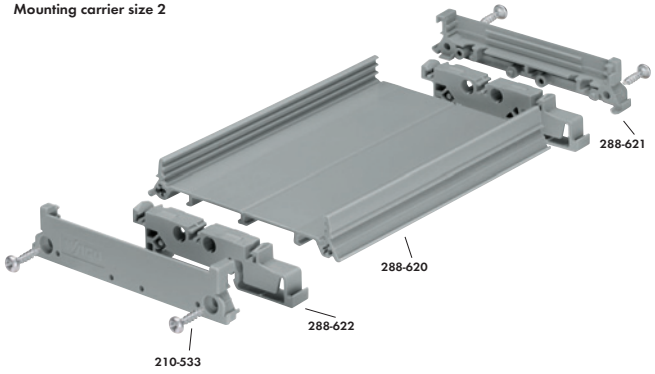
Mounting carrier size 2, with covering section



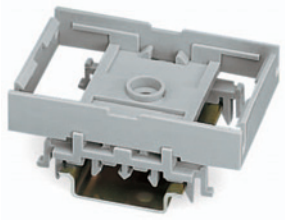
Description	Item No.	Pack. Unit
Lateral cover, size 2, big* 8.75 mm /0.344 in thick	288-626	1
Covering section, size 2, 1 m /3'3'' long	288-627	1

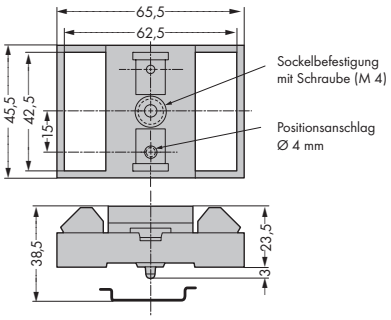
In order to determine the length of a complete mounting carrier:
Length of PCB: L1
Length of track section: L2 = L1 – 15,8 mm/0.622 in
Length of mounting carrier: L3 = L1 + 1.7 mm/0.067 in
Length of covering section: L4 = L1
with lateral cover, size 2, 8.75 mm/0.344 in thick
Distance between PCB and upper groove of track section is 5 mm/0.197 in PCB tolerances: thickness 1.5 mm ± 0.2 mm, length/width ± 0.2 mm; -0.1/+0.3 for milling contours

Mounting carrier size 2

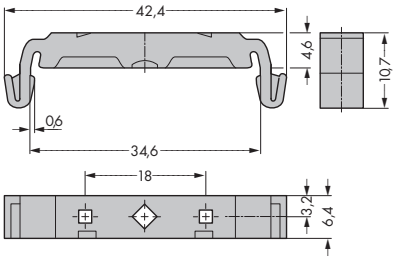


Mounting Carrier and Feet for DIN-Rail Mounting PCBs

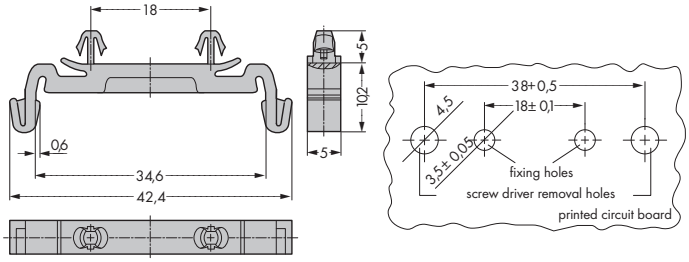




Description		Item No.	Pack. Unit
Mounting carrier	For screw-fixing or DIN-rail mounting with snap-fit type universal mounting feet		
	(then needs 2 x mounting feet)	**288-001**	1
Universal mounting foot	Snap-fit type, suitable for DIN 15, 32 and 35 rails	**288-002**	10
Universal mounting foot	Suitable for Europa card (100 x 160) mm	**288-003**	1



Description		Item No.	Pack. Unit
Mounting foot	For screw-fixing to relay modules, holes for fixing screws 2 mm/0.079 in,		
	PCB hole Ø 3.2 mm/0.126 in, distance 18 mm/0.709 in,	**209-120**	25
Fixing screw	For mounting foot 209-120	**209-119**	50



Description		Item No.	Pack. Unit
Mounting foot	For snap-fit mounting to relay modules, for fixing hole Ø 3.5 mm/0.138 in,		
	distance 18 mm/0.709 in, for mounting on DIN 35 rail	**209-188**	25

WAGO Application: Stockholm-Arlanda Airport, Sweden
Automated Passenger Boarding Bridges

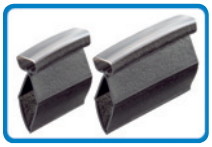
WAGO Products:
WAGO-I/O-SYSTEM with DeviceNet Couplers and Rail-Mounted Terminal Blocks

8

790, 791 Series
Shield (Screen) Connecting System 306 – 309

ProServe
Designing, Assembling and Marking 310 – 315
Thermal Transfer Printers and Accessories 316 – 319
Engraving Plotters with Engraver and Accessories 320 – 322

Marking Accessories
WMB Multi Marking System, Miniature Quick Marking Card,
WMB Inline, Marker Cards and Group Marker Carriers 323



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WAGO Wire and Cable Marking 324 – 325

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End Stop for DIN 35 Rails and Angled Support Bracket 327

206, 210 Series
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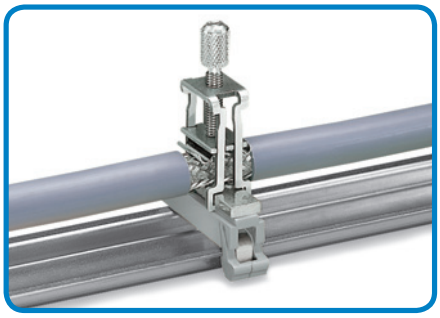
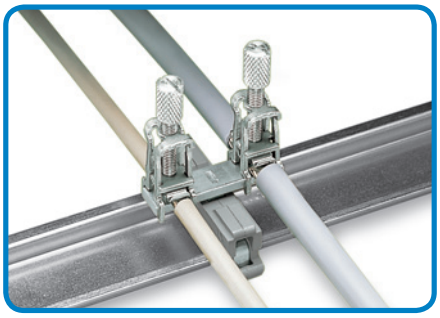
Shield (Screen) Connecting System
Description and Handling

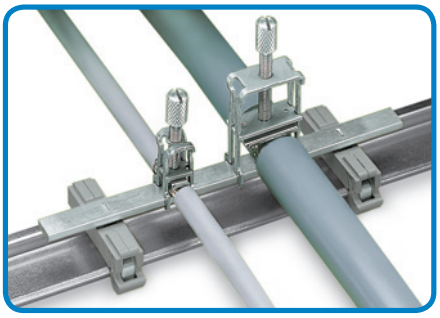


Carrier with grounding foot
45 mm/1.772 in long, busbar 90° to the rail
Item No. 790-113

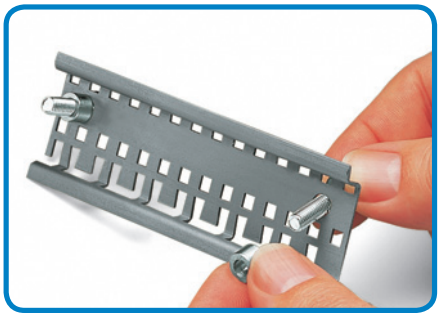
for all sizes of shield (screen) clamping saddles



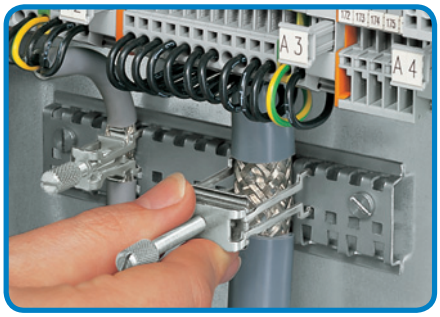
Carrier with grounding foot
45 mm/1.772 in long, busbar parallel to the rail
Item No. 790-114



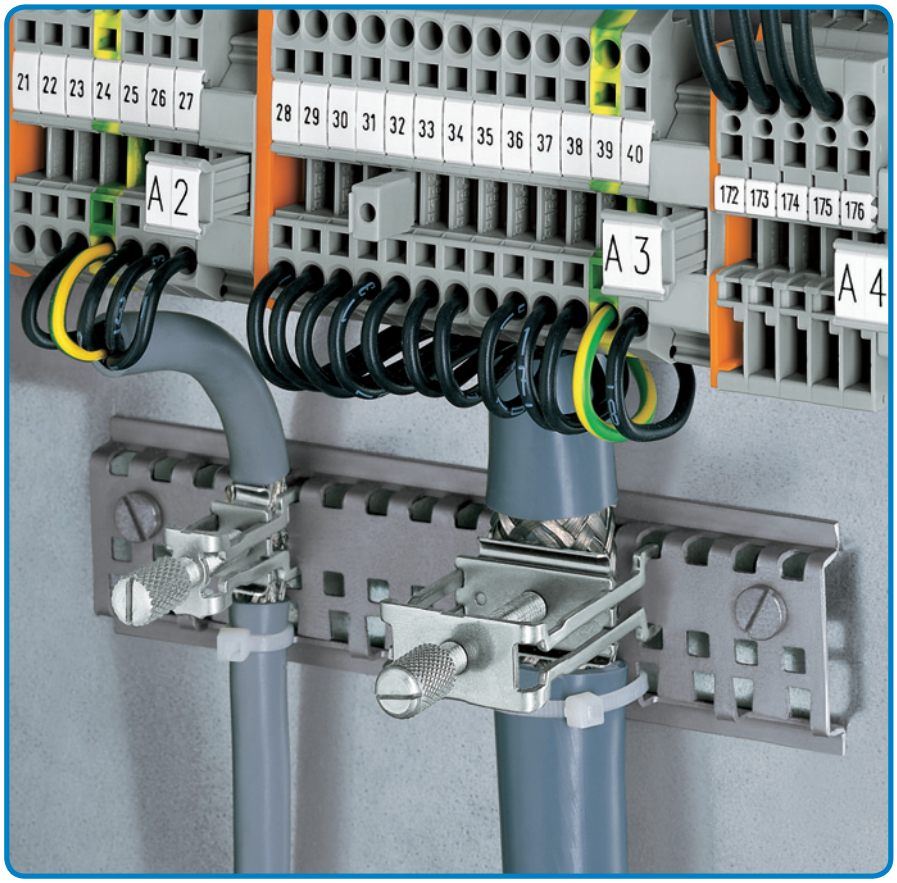
Carrier with 2 grounding feet
125 mm/4.921 in long, busbar parallel to the rail
Item No. 790-115

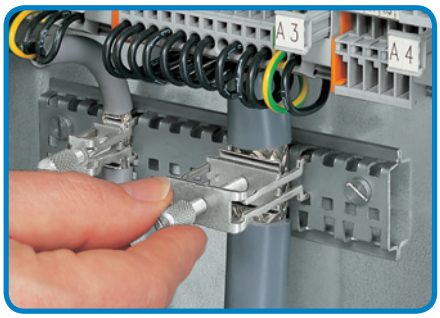


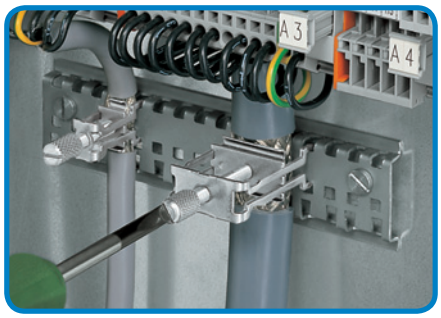
Using a stand off
with a special slotted carrier rail

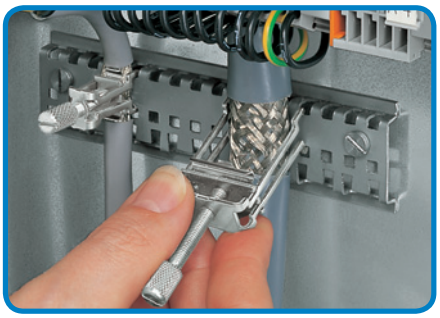


Addition of a shield (screen) clamping saddle.



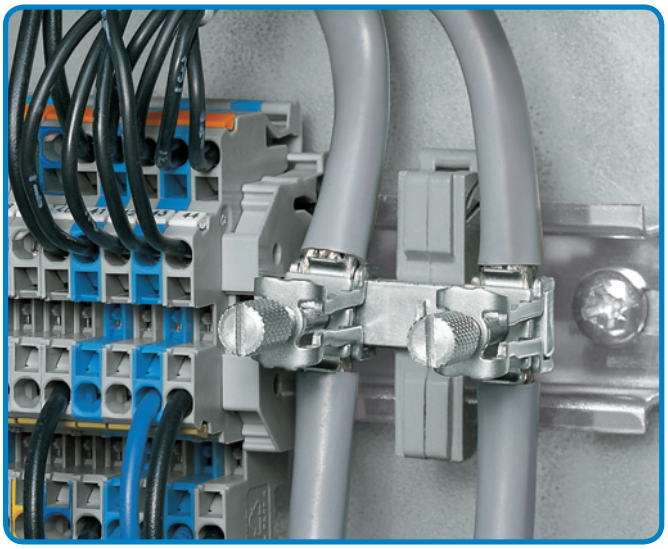




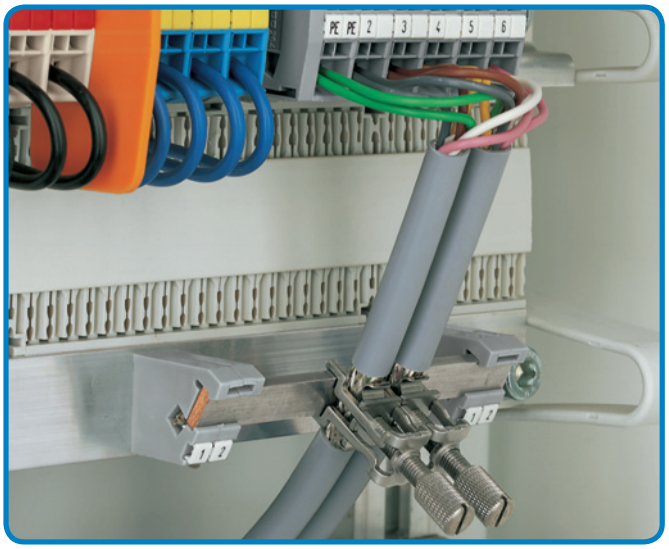


Tightenning/releasing a shield (screen) clamping saddle. To attach the clamping saddle, tighten the knurled screw. To remove, unscrew until ratcheted mechanism is released, then slightly tip saddle and remove the clamping saddle.

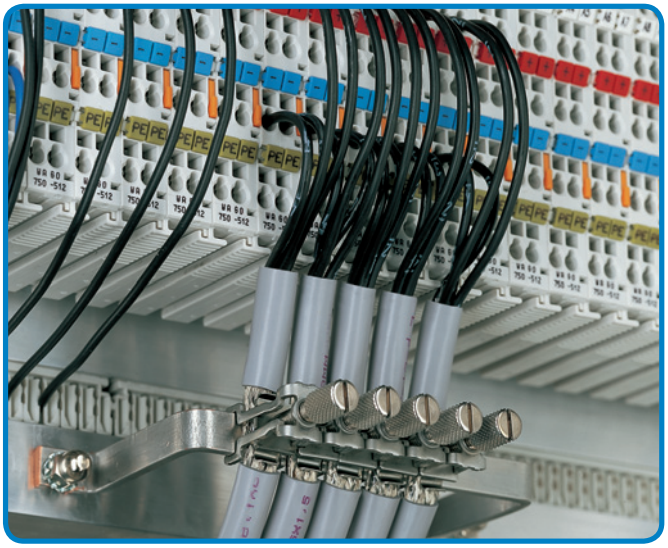
Mounting Options Based on Application



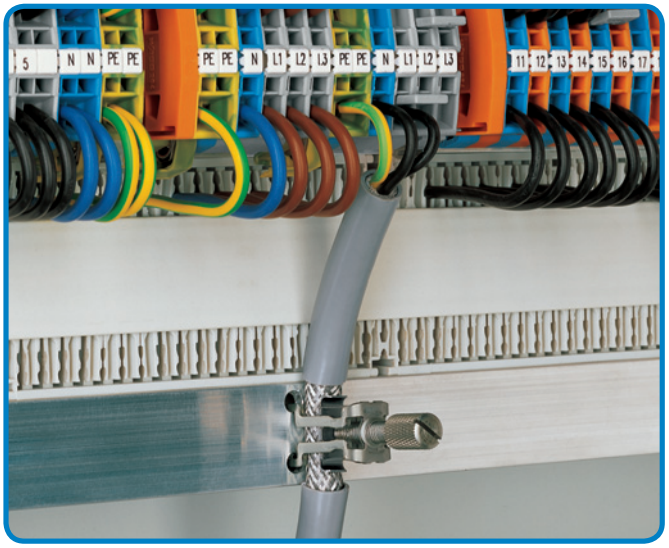
– carrier with grounding foot, busbar parallel to the rail



– isolated mounting carriers for a common shield (screen) reference potential, independent of the housing potential

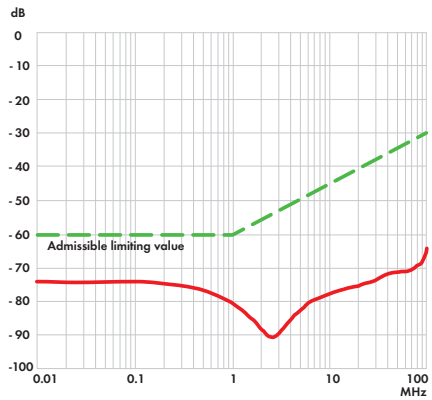


– U-shaped copper busbar 10 mm (0.394 in) x 3 mm (0.118 in)



– snap into any metal plate up to max. thickness 3 mm/0.118 in

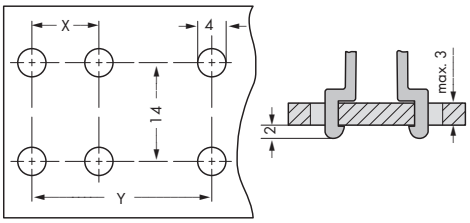
Negative shield (screen) attenuation



Shield (screen) clamping saddle size

Distance X	
11 mm	9.5 mm

Distance Y	
19 mm	17.5 mm
27 mm	25.5 mm
43 mm	41.5 mm



Hole dimensions for panel mounting

The WAGO shield (screen) connecting system is highly effective because the clamping unit can be brought very close to the unshielded part of the cable. Additionally, the spring material is part of the clamping saddle, giving good electrical connection and compensating for any deformation in the braiding. The system also acts as a partial strain relief.

Shield (Screen) Clamping Saddles and Shield (Screen) Clamps

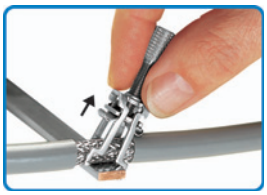
Shield (screen) clamping saddles

Description		Diameter of Connectable Conductor	Item No.	Pack. Unit
Shield (screen) clamping saddle,	11 mm/0.433 in wide	up to 8 mm/0.315 in	**790-108**	50 (5x10)
incl. knurled screw	19 mm/0.748 in wide	7 mm/0.276 in to 16 mm/0.63 in	**790-116**	50 (5x10)
	27 mm/1.063 in wide	6 mm/0.236 in to 24 m /0.944 in	**790-124**	50 (5x10)
	43 mm/1.693 in wide	22 mm/0.866 in to 40 mm/1.575 in	**790-140**	50 (5x10)

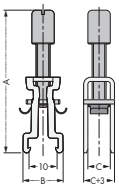
Note: Not for ground connections! **Recommended tightening torque: 0.5 Nm Assembly:** The shield (screen) clamping saddle is shipped ready for direct connection to the busbar 10 mm (0.394 in) x 3 mm (0.118 in) or to a drilled mounting plate. After connection, tighten the knurled screw to complete the installation.
Removal: To remove a shield (screen) clamping saddle, unscrew until ratcheted mechanism is released, then slightly tip saddle and remove the clamping saddle.

Assembly

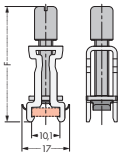
Removal



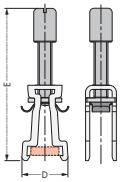
Installation position delivery



Closed position



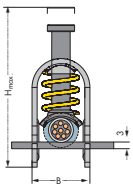
Removal position

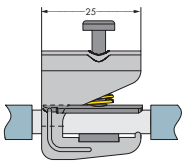


Dimensions in mm

Item No.	A	B	C	D	E	F
790-108	51	15	8	16	55	42
790-116	53	15	16	16	57	45
790-124	78	15	24	16	83	58
790-140	97	15	40	16	100	73

Shield (screen) clamps





Description		Diameter of Connectable Conductor	Item No.	Pack. Unit
Shield (screen) camps	H_{max} 40 mm, B 10 mm	1.5 mm/0.059 in to 6.5 mm/0.256 in	**791-107**	50
	H_{max} 47 mm, B 17 mm	5 mm/0.197 in to 11 mm/0.434 in	**791-111**	50
	H_{max} 63 mm, B 23 mm	10 mm/0.394 in to 17 mm/0.670 in	**791-117**	50
	H_{max} 78 mm, B 30 mm	16 mm/0.631 in to 24 mm/0.946 in	**791-124**	50

Note: Not for ground connections!

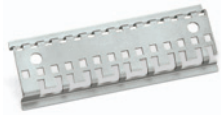
Accessories for Shield (Screen) Clamping Saddles and Shield (Screen) Clamps

Carrier with grounding foot

Description		Item No.	Pack. Unit
Carrier with grounding foot	bar 90° to the rail, 10 mm (0.394 in) x 3 mm (0.118 in), bar a. foot – Cu with tin plating, 45 mm/1.774 in long	**790-113**	25
Carrier with grounding foot	bar parallel to the rail, 10 mm (0.394 in) x 3 mm (0.118 in), bar a. foot – Cu with tin plating, 15 mm/0.591 in long	**790-110**	25
Carrier with grounding foot	bar parallel to the rail, 10 mm (0.394 in) x 3 mm (0.118 in), bar a. foot – Cu with tin plating, 25 mm/0.986 in long	**790-112**	25
Carrier with grounding foot	bar parallel to the rail, 10 mm (0.394 in) x 3 mm (0.118 in), bar a. foot – Cu with tin plating, 45 mm/1.774 in long	**790-114**	25
Carrier with 2 grounding feet	bar parallel to the rail, 10 mm (0.394 in) x 3 mm (0.118 in), bar a. foot – Cu with tin plating, 125 mm/4.929 in long	**790-115**	25

Suitable shield (screen) clamping saddle or shield (screen) clamps for carrier with grounding foot 790-110 = 790-108; Carrier with grounding foot 790-112 = 790-108, 790-116, 791-111, 791-117; Carrier with grounding foot 790-114 = 790-108, 790-116, 790-124, 790-140, 791-107, 791-111, 791-117, 791-124

Carrier rail



Stand off

Shield termination

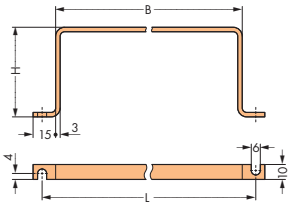
Description		Item No.	Pack. Unit
Carrier rail	special slotted, 1000 mm/3'.3" long, Cu with tin plating, special lengths on request	**790-145**	1
Stand off	for special slotted carrier rail, use M 5 size screw	**790-144**	200 (2x100)
Shield termination including cable tie for shield diameter 5 mm /0.197 in to 10 mm /0.394 in	55 mm/2.169 in long	**709-350**	100 (4x25)
	150 mm/ 5.914 in long	**709-352**	100 (4x25)

Straight busbar

Isolated mounting foot

Isolated mounting foot

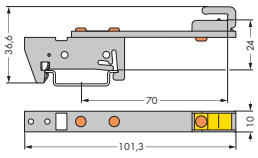
U-shaped busbar



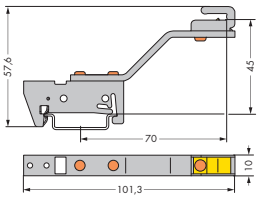
Description		Item No.	Pack. Unit
Straight busbar, 10 mm (0.394 in) x 3 mm (0.118 in), bar – Cu with tin plating	1000 mm/3'.3" long	**210-133**	20 (20x1)
	30 mm/1.181 in long	**790-133**	20 (20x1)
	50 mm/1.969 in long	**790-134**	20 (20x1)
Isolated mounting foot	for busbar, with standard screw M 4 x 8 mm	**790-100**	50 (2x25)
Isolated mounting foot	for busbar, with sheet metal screw (3.5 x 9) mm	**790-101**	50 (2x25)
U-shaped busbar,10 mm (0.394 in) x 3 mm (0.118 in),Cu with tin plating	Dimensions (W x H x L) mm; 63 x 60 x 83	**790-190**	25 (5x5)
	Dimensions (W x H x L) mm; 100 x 60 x 118	**790-191**	25 (25x1)
	Dimensions (W x H x L) mm; 63 x 35 x 83	**790-192**	25 (5x5)
	Dimensions (W x H x L) mm; 100 x 35 x 118	**790-193**	25 (25x1)

Busbar carrier

Busbar carrier, angulate

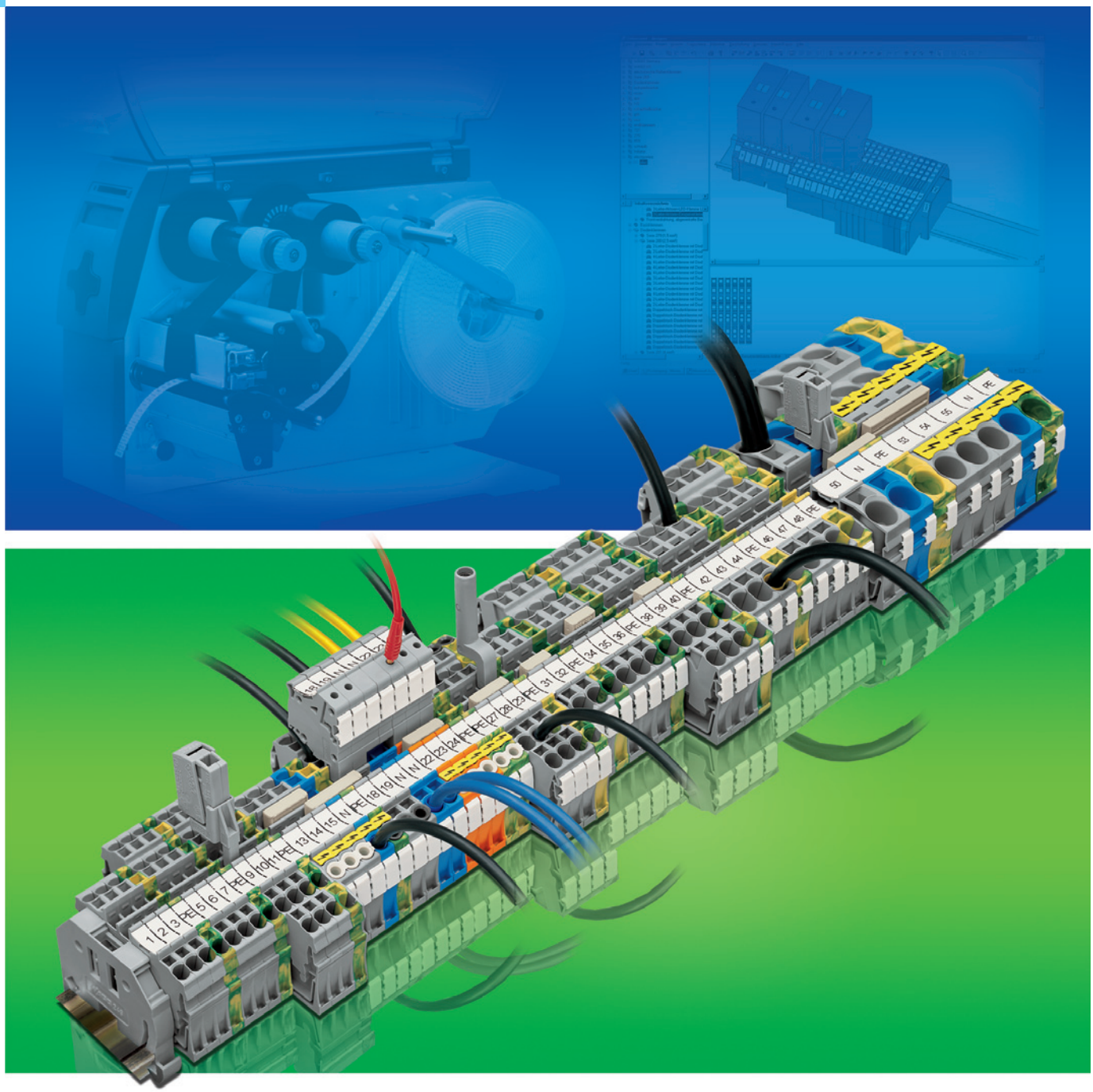


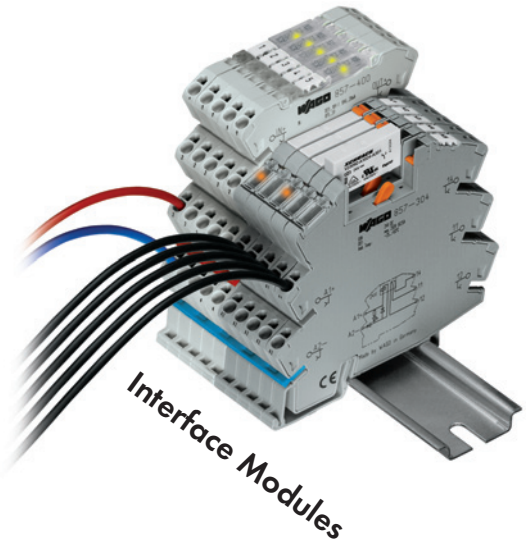
Busbar carrier, angulate



Description		Item No.	Pack. Unit
Busbar carrier	for busbars, 10 mm (0.394 in) x 3 mm (0.118 in) – Cu with tin plating	**790-300**	10
Busbar carrier, angulate	for busbars, 10 mm (0.394 in) x 3 mm (0.118 in) – Cu with tin plating	**790-301**	10

ProServe
Designing, Assembling and Marking





Interface Modules

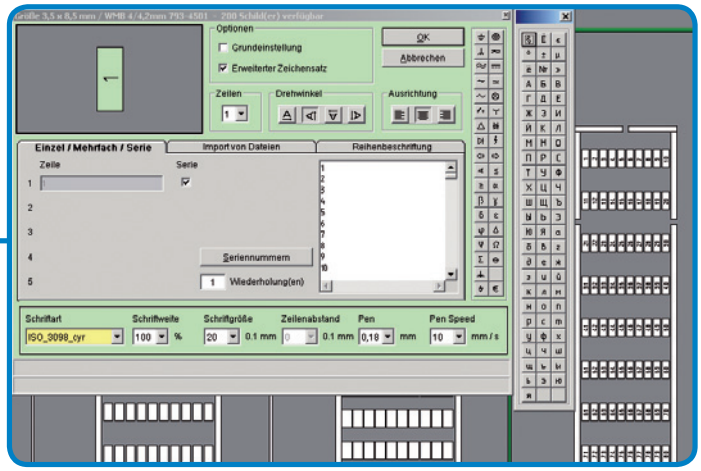
WAGO-I/O-SYSTEM 750

The benefits of ProServe are at your disposal every day. With unique features such as accuracy checking, ProServe does a lot of the work for you, therefore saving you time and money.

Immediate access to professional and sophisticated services allows for error-free applications, higher flexibility in your daily business and better customer service. With 50 years of WAGO expertise at your disposal, put ProServe to work for you in your next application.

ProServe Marking: Now Easier than Ever

Configuration and marking of rail assemblies and I/O nodes, stand-alone or in combination with CAE systems.



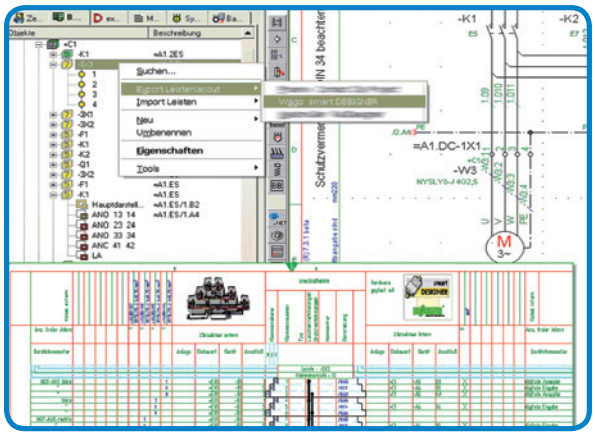
smartMARKING

- Extensive import functions from CAE systems, MS Office and WAGO smartDESIGNER
- WYSIWYG marking
- Automatic plotter calibration
- Extensive library including marker carriers
- Symbol library
- Text length checking
- Diff erent languages available
- Output of East European characters
- Fully compatible with EG 450 engraving unit
- Direct output on thermal transfer printer
- Creation of custom markers for the engraver/plotter

smartMARKING

ProServe: Open for All

One for all: WAGO ProServe has an interface suitable for most of the standard CAD/CAE systems.

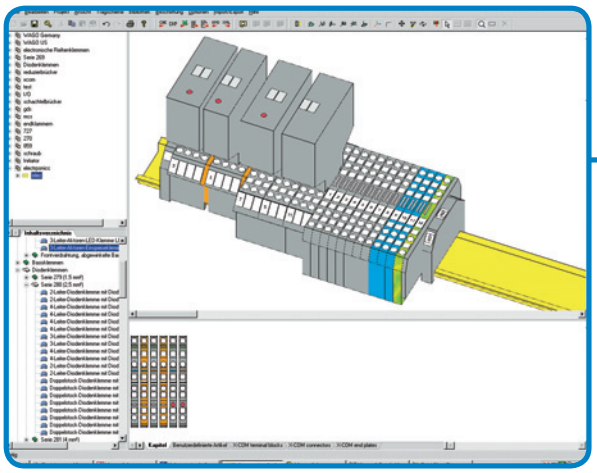


CAE

System	Manufacturer	Article master data	Macros	ASCII data to smart-DESIGNER	XML data to smart-DESIGNER	XML data from smart-DESIGNER	XML data from product-LOCATOR
ELEKTROCAD	Aucos	●	●		●	●	●
Engineering Base	Aucotec	●	●		●	●	●
ELCAD	Aucotec	●	●	●	●	●	●
RUPLAN	Aucotec			●			
E3 series	CIM Team	●	●	●	●	●	
Comos®	Innotec	●			●	●	
ecscad	ECS/MuM	●	●		●	●	
ePLAN	EPLAN	●	●	●	●	●	●
see electrical CADdy	Ige-xao	●					
promis engine sigraph CAE	TCS	●			●	●	
WSCAD electronic GmbH	WS CAD	●	●		●		

ProServe: Planning at a New Level

WAGO ProServe means finding instead of searching, drawing instead of scribbling. ProServe navigates safely through the WAGO range of products, generates parts lists and assembly drawings and even 3D views.



smart DESIGNER

smartDESIGNER and productLOCATOR

- XML interfaces to CAE and M CAD programs
- Output in PDF and HTML
- Diff erent search functions allow for quick selection of products
- Creation of part lists including product pictures and custom part numbers
- Complex rail assemblies can be easily designed in 3D
- Facility to create custom part numbers
- Creation of custom articles to design third-party products
- Default parts (favourites) can be defi ned individually for time saving design
- Intelligent, user-optimized accuracy check features
- 15 languages available
- 16,000 items

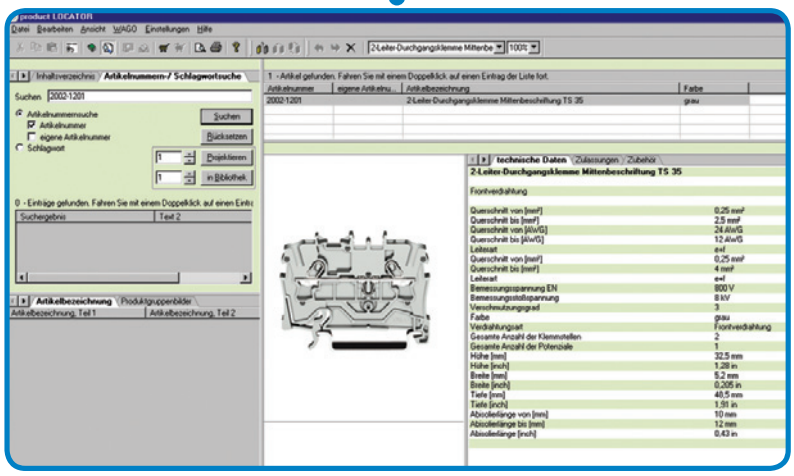
Marking:

- Direct creation and output of marking data to plotter or thermal transfer printer

smart DESIGNER

product LOCATOR

product LOCATOR

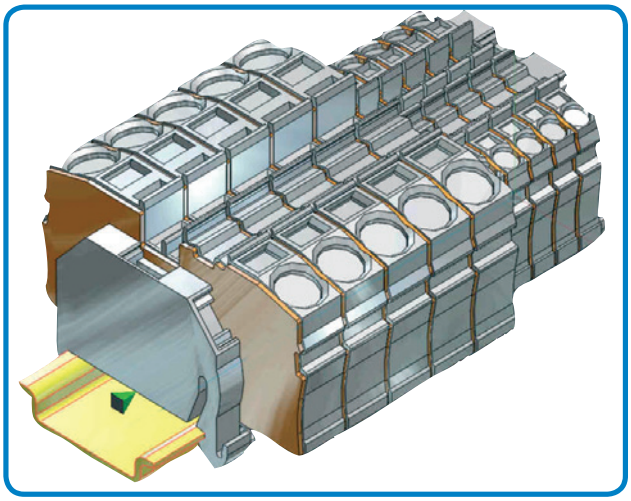


ProServe: Thinking in All Dimensions

Rail-mounted terminal blocks are becoming even more efficient and more complex: Multilevel as well as base receptacle terminal blocks with different conductor entry angles can no longer be represented by a simple view. The 3D view provides a clear representation during planning and assembly.
Use our data in your system – now also online.

CAD

DXF - Step - IGS - DWG

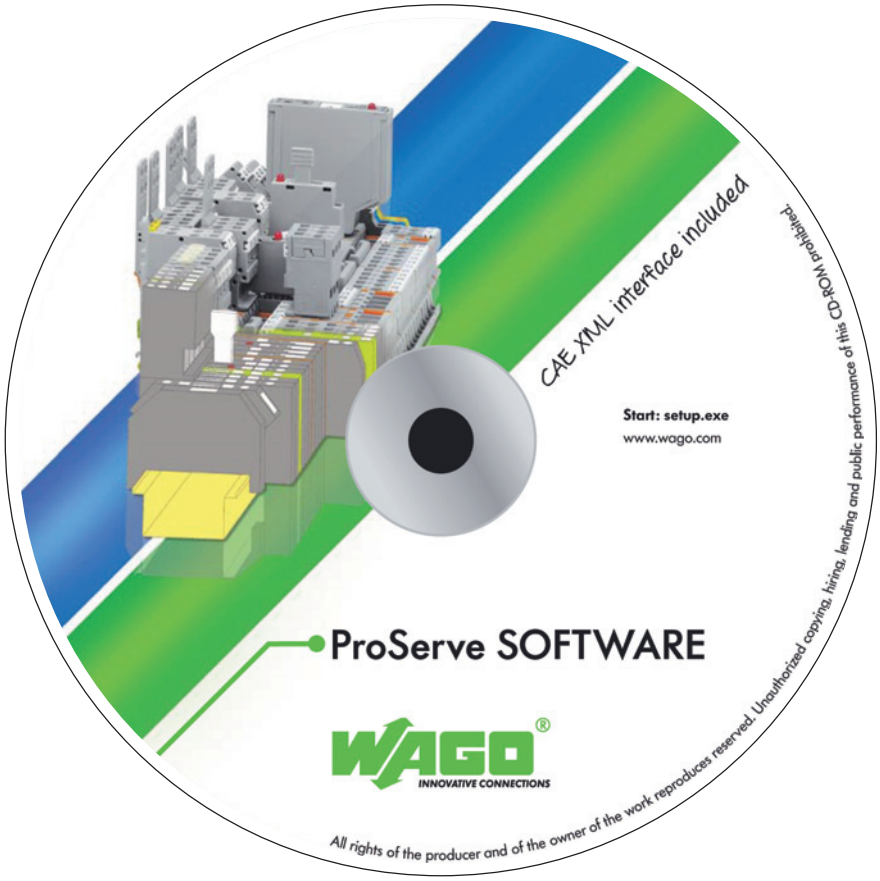


- **Create your 2D or 3D CAD files from WAGO ProServe. Now also online!**

Benefi ts in overview:

- Quick design
- Quick ordering
- User-friendly
- Extensive and user-specific documentation
- Network compatibility
- Several software products on a single CD (smartDESIGNER, productLOCATOR, smartMARKING, WAGO SCRIPT)
- A price list is included

...all for free!



Thermal Transfer Printers

WAGO TP 343 and TP 298

Description	Item No.	Pack. Unit
	258-343	1
Thermal Transfer Printer TP 343		
Resolution 300 dpi, incl. ProServe Software; for 2009 and 709 Series marking strips		
Technical Data		
Printing method	Thermal/thermal transfer	
Printhead system	Thin-film transfer head	
Print resolution	300 dpi	
Print speed	up to 76 mm/sec.	
Print width	6 - 104 mm (0.25" - 4.09")	
Print length	up to 990 mm (39")	
RAM memory	2 MB DRAM, 1 MB Flash	
Interfaces	Parallel Centronics (LPT), RS-232 (COM),	
	USB, ETHERNET 10/100 Base T	
Sensors	Label sensor (material end, foil end, bottom	
	reflective sensor)	
Other	2 cardboard cores (104 mm) for ink ribbon	
	rewinder Operating instructions in	
	German and Englisch	
Voltage supply	Universal power supply unit	
Operating voltage	100 V ... 240 V AC /	
	50 Hz ... 60 Hz	
Dimensions (mm) W x H x L	230 x 200 x 290	
	(Dimension with winder ca. 450 mm)	
Enclosure	Double-walled plastic	
Weight	1000 g	
Safety Approvals	CE, FCC Class A, UL, CUL, TUV	
Accessories	1 x USB cable; 1 x ETHERNET cable;	
	unwinder set;	
	marking strips (1 x 2009-110);	
	ink ribbon (1 x 258-145)	

Description	Item No.	Pack. Unit
	258-298	1
Thermal Transfer Printer TP 298		
Resolution 300 dpi, incl. ProServe Software and Print Roller (258-178) for WMB Inline and 2009 and 709 Series marking strips		
Technical Data		
Printing method	Thermal/thermal transfer	
Printhead system	Thick-film	
Print resolution	300 dpi	
Print speed	100 mm/sec.	
Print width	108.4 mm	
See-through/reflective sensor	standard	
Processor 32 Bit ColdFire/clock rate	64 MHz	
RAM memory	8 MB RAM	
Program memory	4 MB Flash	
Slot for memory card	CompactFlash Type 1	
Interfaces	ETHERNET 10/100 Base T, RS-232	
	(COM), USB	
Accessories (optional)	Cutter, external unwinder, external	
	rewinder, memory card Compact Flash	
	Type 16-512 MB	
Operating voltage	100 V ... 240 V AC /	
	50 Hz ... 60 Hz, PFC	
Dimensions (mm) W x H x L	242 x 274 x 446	
Weight	10000 g	
Operating temperature	10 °C ... 35 °C	
rel. humidity	30 % ... 85 %	
Safety Approvals	CE, FCC class 1	
Accessories	1 x USB cable; 1 x serial cable;	
	marking strips (1 x 2009-110);	
	ink ribbon (1 x 258-149)	

Application table for ink ribbon/marking accessories/printer

Item No.	Width	Ink Ribbon	Marking Accessories	Printer
258-143	60 mm	resin/wax	Labels (paper)	all types
258-144	100 mm	resin/wax	Labels (paper) Wire Marking 211-155 / 211-156	all types
258-145	38 mm	resin	Marking Strip Series 2009 2009-xxx Marking Strip Series 709 709-xxx WMB Inline (not printable with TP 343)	TP 298 & TP 343
258-149	50 mm	resin	Marking Strip Series 2009 2009-xxx Marking Strip Series 709 709-xxx WMB Inline (not printable with TP 343)	TP 298+
258-150	76 mm	resin	Cable Marking 211-111 and 211-121 Labels (polyester) up to 76 mm	all types
258-157	100 mm	resin	Labels (polyester) up to 100 mm	all types

Accessories

Ink ribbon for labels

Ink ribbon for marker strips

Description		Item No.
Ink ribbon for labels	resin/wax, width 60 mm x 300 m	**258-143**
	resin/wax, width 100 mm x 300 m	**258-144**
Ink ribbon for marker strips and WMB Inline	resin, 38 mm x 300 m	**258-145**
	resin, 50 mm x 300 m	**258-149**
Ink ribbon for cable marking	76 mm wide x 300 m	**258-150**
	100 mm wide x 300 m	**258-157**

All ink ribbons are suitable for TP 298 and TP 343 printers. For detailed ordering information, please refer to the **"Application table for ink ribbon/marking accessories/printer"**

External coil mounting system

Cutter TP 298

Spare roller TP 298

Description		Item No.
External coil mounting system	for WMB Inline 8,000 markers (2009-135)	**258-169**
Cutter TP 298		**258-161**
Spare roller TP 298 for labels	(up to item no. 40.000)	**258-162**
Spare roller TP 298 for labels	(up to item no. 40.000)	**258-177**
Spare roller TP 298 for WMB Inline	(up to item no. 40.000)	**258-166**
Spare roller TP 298 for WMB Inline	(up to item no. 40.000)	**258-178**
Carrying case for TP 298		**258-171**
Carrying case for TP 343		**258-342**
Retractable handle for carrying case TP 298 / TP 343		**258-173**

WMB Inline

Marking strips

Description		Item No.
WMB Inline, pitch 4 mm, stretchable, 4 mm ... 4.2 mm, on reel	white, 2000 pieces	**2009-114**
WMB Inline, pitch 5 mm, stretchable, 5 mm ... 5.2 mm, on reel	white, 1500 pieces	**2009-115**
WMB Inline, pitch 5 mm, stretchable, 5 mm ... 5.2 mm, on reel	white, 8000 pieces	**2009-135**
Marking strips for TOPJOB®S Series, white, plain, 11 mm wide	50 m coil	**2009-110**
Marking strips for 870, 869, 862, 270 Series white, plain, 7.5 mm wide	50 m coil	**709-178**
Marking strips for 870, 869, 862, 270 Series transparent, plain, 7.5 mm wide	50 m coil	**709-177**

Accessories

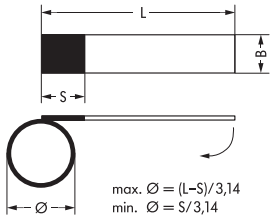
Marker card

Marker card (12 mm) for Plotter

Labels on roll

Labels on DIN A4 sheets

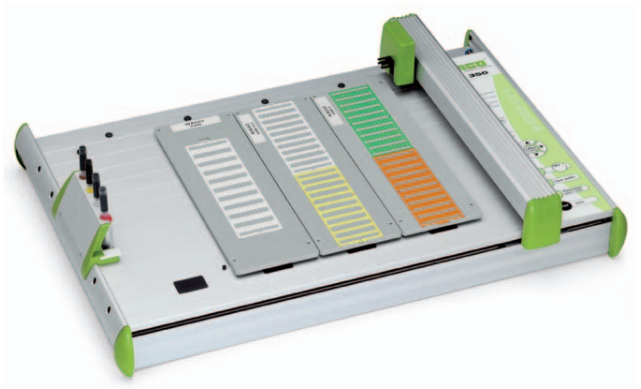
Dimensions of self-laminating label



Description		Item No.
Marker card for TT Printer	12 mm	**211-121**
	23 mm	**211-111**
	12 mm	**211-120**
	(258-370 Carrier Plates are required for plotting)	
Marker card for Plotter	23 mm	**211-110**
	(258-370 Carrier Plates are required for plotting)	
Labels on roll for thermal transfer printer	Marker surface "S"=8 mm, "B"=18 mm, "L"=35 mm for max. cable	**211-155**
	Ø 9 mm, 9.000 labels per roll	
	Marker surface "S"=13 mm, "B"=23 mm, "L"=51 mm for max. cable	**211-156**
	Ø 12 mm, 5.000 labels per roll	
Labels on DIN A4 sheets for laser printer	Marker surface "S"=9 mm, "B"=17 mm, "L"=35 mm for max. cable	**211-150**
(258-383 Carrier Plates are required for plotting)	Ø 8 mm, 70 labels per roll	
	Marker surface "S"=13 mm, "B"=21 mm, "L"=56 mm for max. cable	**211-151**
	Ø 14 mm, 32 labels per roll	
Marking sleeve 12 mm, for wire Ø	1.6 mm ... 3.2 mm or 0.25 mm² ... 1.5 mm²	**211-112**
	2.2 mm ... 4.5 mm or 0.5 mm² ... 4 mm²	**211-113**
	3.7 mm ... 5.9 mm or 2.5 mm² ... 6 mm²	**211-114**
	4.8 mm ... 7.5 mm or 6 mm² ... 16 mm²	**211-115**
Marking sleeve 23 mm, for wire Ø	1.6 mm ... 3.2 mm or 0.25 mm² ... 1.5 mm²	**211-122**
	2.2 mm ... 4.5 mm or 0.5 mm² ... 4 mm²	**211-123**
	3.7 mm ... 5.9 mm or 2.5 mm² ... 6 mm²	**211-124**
	4.8 mm ... 7.5 mm or 6 mm² ... 16 mm²	**211-125**
Marking sleeve for cable tie	23 mm, for wires from 10 mm²	**211-129**
Cable tie (2.5 x 100) mm		**807-090/101-100**
Label for I/O marking	Plotter, 12 x 7 mm	**211-211**
	(258-371 Carrier Plates are required for plotting)	
Marking strips	15 mm, white 50 m roll	**210-701**
Receptacle for marking strips	transp. 1 m long	**709-120**
Continuous label	3 mm, white 12 lengths at 25 m	**210-732**
Label roll	70 x 100 mm, white 500 pieces/reel	**210-703**
Label roll	70 x 100 mm, silver 500 pieces/reel	**210-704**
Label roll	6 x 15 mm, white 3000 pieces/reel	**210-705**
Label roll	6 x 15 mm, yellow 3000 pieces/reel	**210-705/000-002**
Label roll	9 x 15 mm, white 3000 pieces/reel	**210-706**
Label roll	9 x 15 mm, yellow 3000 pieces/reel	**210-706/000-002**
Label roll	8 x 20 mm, white 3000 pieces/reel	**210-707**
Label roll	8 x 20 mm, yellow 3000 pieces/reel	**210-707/000-002**
Label roll	9.5 x 25 mm, white 3000 pieces/reel	**210-708**

Engraving Plotters with Engraver EG 450

Plotter IP 350 A3 / Plotter IP 350 A4



Description	Item No.	Pack. Unit
Plotter IP 350 A3	**258-350**	1
incl. ProServe Software		
Plotter IP 350 A4	**258-451**	1
incl. ProServe Software		

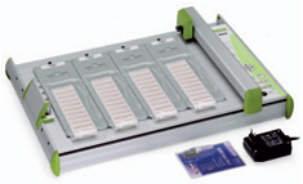
Technical Data	
Plot area	440 mm x 305 mm (258-350)
	220 mm x 305 mm (258-451)
Interfaces	paralell (centronics); USB 1.1
Language	based on HP-GL 7475A
Data buffer	16 MB
Speed	max. 400 mm/sec.
Drive system	two phase stepper motor
Pen storage unit	max. 4 pens with best possible sealing
Plotter pen	Special plotter pens with HP receptacle
Addressable resolution	0.01 mm
Repeatability (accuracy)	0.05 mm
Repeatability when changing the pen	0.05 mm using pens of best quality
Voltage supply	via separate desktop power supply unit
	equipped with exchangeable supply line
Operating voltage	120 V ... 240 V AC / 50 Hz ... 60 Hz
Voltage range	90 V ... 264 V AC
Current consumption (internal)	0.3 A max. at 220 V AC
Dimensions (mm) W x H x L	125 x 660 x 440
Weight	11069 g
Operating temperature	10 °C ... 35 °C
rel. humidity	35 % ... 75 %
Safety Approvals	acc. to UL-UL1950 CSA-950/VDE
	EN60950
Immunity to interference	acc. to FCC Class B FCC Part 15 and VDE
	Class B EN 55022

Description	Item No.	Pack. Unit
EG 450 Engraver	**258-450**	1
as an extension of IP 350 Flat Plotter. Consisting of "EC 450" Control Unit		
and "VC 450" Vacuum Cleaner, including graver 0.3 mm + 0.4 mm		

Technical Data	
1. Engraving spindle	
Speed	min. 5000 rpm, max. 50000 rpm
Torque	6 Ncm
Frequency	83 Hz ... 830 Hz
Energy consumption max.	60 W
Collets	Diameter of mandrel 3 mm
Tensioning mechanism	Head tension
Run-out with collet	0.03 mm
Motor type	three-phase, asynchronous, brushless
Enclosure	Aluminium
Clamping diameter	25 mm
Type of ball bearing	Steel, permanent lubrication
Cooling system	integrated fan
Field of application	exclusively engraving
Operating time of bearing	min. 1000 hrs if handled properly
Notice: Never clean engraving spindle using compressed air, do not use lubricants when engraving.	
2. Control unit VEB 500	
Operating voltage	100 V ... 240 V AC / 50 Hz ... 60 Hz
3. Vacuum cleaner VC 500	
Vacuum cleaner bag	Typ Y98
General Specifications	
Dimensions (mm) W x H x L	240 x 290 x 315 Control unit + Vacuum cleaner (an top of each other)
Weight	Engraving spindle + Control unit + Vacuum cleaner + Accessories 8000 g

Accessories

Full plotter package



Description		Item No.
Version 1	1 plotter incl. power supply and centronics cable; 1 ProServe Software;	**258-350/000-001**
	4 WMB carrier plates 5 mm/0.197 in; 20 WMB marker cards 5 mm/0.197 in;	
	1 plotter pen, line width 0.25 mm disposable; 1 plotter pen, line width 0.35 mm disposable	
Version 2	1 plotter incl. power supply and centronics cable; 1 ProServe Software;	**258-350/000-002**
	4 WSB carrier plates; 20 WSB marker cards;	
	1 plotter pen, line width 0.25 mm disposable; 1 plotter pen, line width 0.35 mm disposable	
Version 3	1 plotter incl. power supply and centronics cable; 1 ProServe Software;	**258-350/000-003**
	2 WMB (5 mm/0.197 in) carrier plates; 2 miniature WSB carrier plates; 10 WMB (5 mm/0.197 in) marker cards; 10 miniature WSB marker	
	cards; 1 plotter pen, line width 0.25 mm disposable; 1 plotter pen, line width 0.35 mm disposable	
Version 4	1 plotter incl. power supply and centronics cable; 1 ProServe Software;	**258-350/000-004**
	1 WMB carrier plate 5 mm/0.197 in; 1 WSB carrier plate 5 mm/0.197 in; 1 miniature WSB carrier plate; 1 WSB carrier plate 4 mm/0.157 in;	
	5 WMB marker cards 5 mm/0.197 in; 5 WSB marker cards 5 mm/0.197 in; 5 miniature WSB marker cards; 5 WMB marker cards 4 mm/	
	0.157 in; 1 plotter pen, line width 0.25 mm disposable; 1 plotter pen, line width 0.35 mm disposable	

Plotter is suitable for marking any type of WAGO marker card or competitor's markers. Includes the ProServe DVD-ROM and WAGO smartMARKING software.

WAGO plotter pen (disposable) 0.18 mm line width

WAGO plotter pen (disposable) 0.25 mm line width

WAGO plotter pen (disposable) 0.35 mm line width

Service kit

Description		Item No.
WAGO plotter pen	line width 0.18 mm/0.007 in	**258-226**
	line width 0.25 mm/0.010 in	**258-227**
	line width 0.35 mm/0.014 in	**258-228**
	line width 0.50 mm/0.020 in	**258-229**
WAGO ink cartridges	black, for permanent marking, not refillable (5 x 1 ml)	**258-141**
WAGO plotter pen (disposable)	line width 0.18 mm/0.007 in	**258-326**
	line width 0.25 mm/0.010 in	**258-327**
	line width 0.35 mm/0.014 in	**258-328**
Cover		**258-146**
Service kit	(4 alternative pen storage units)	**258-147**
WAGO cleaning set	suitable for cleaning all EKS Pens	**258-139**
WAGO pen cleaner		**258-140**
Graver set	line width 0.2/0.3/0.4/0.5/0.7/1.0 mm	**258-452**
Graver	line width of graver 0.2 mm	**258-452/000-002**
	line width of graver 0.3 mm	**258-452/000-003**
	line width of graver 0.4 mm	**258-452/000-004**
	line width of graver 0.5 mm	**258-452/000-005**
	line width of graver 0.7 mm	**258-452/000-007**
	line width of graver 1.0 mm	**258-452/000-010**
Vacuum cleaner bag for Engraver EG 450		**258-457**

WAGO plotter pens are suitable for any kind of smooth surfaces. No additional adapter is required.

Accessories

Marker card carrier plates for plotter IP 350

Description		Item No.
Carrier plates for marker cards	WSB 5 mm/0.197 in (209-501)	**258-361**
	WSB 4 mm/0.157 in (209-701)	**258-362**
	Miniature WSB (248-501)	**258-363**
	Group marking carriers (209-112)	**258-364**
	T-marking strips (209-290)	**258-365**
	WCB (249-200)	**258-366**
	WTB (799-501)	**258-367**
	WMB 5/5.2 mm (793-5501); WMB 4/4.2 mm (793-4501)	**258-368**
	Marker tags (209-199 + 209-200)	**258-369**
	Marker strips (2009-110 + 2009-130 and 790-...)	**258-410**
	WMB-Inline (2009-115 + 2009-135)	**258-412**
Carrier plates for murrplastik	MP-400; KS 4/12, 4/18, 4/23, 4/30	**258-370**
	MP-401; KES, KLG, KMR, KPX, KS 15x17/27/49/67, KSA, KSF, KSI, KSK, KSO, KSS, KTE, KWI, SKS, WGO, KAB	**258-371**
	BS 5/6	**258-397**
	KPX	**258-396**
	KSEX; 10/500	**258-470**
	KSEX; 18/500	**258-471**
Carrier plates for Conta-Clip	Universal	**258-398**
Carrier plates for Phoenix	ZBM	**258-372**
	ZB	**258-373**
	ZBN	**258-374**
	ZBFM	**258-375**
	BNZ	**258-377**
	BN-ZB	**258-378**
	SS-ZB	**258-379**
	LBHZ	**258-380**
	PAB	**258-381**
	GPE	**258-382**
Universal Carrier plates	DIN A4	**258-383**
	DIN A3	**258-472**
Carrier plates for Weidmüller	MC Universal	**258-387**
	MC SF4-6	**258-388**
Carrier plates for Wörtz/Allen Bradley	Universal	**258-389**
Carrier plates for Möller	XB M22-XST	**258-390**
Carrier plates for Partex	PA+1	**258-391**
	PA+2	**258-392**
	PK2 PVC	**258-393**
	PA+ 2	**258-399**
Carrier plates for ABB Entrelec	Universal	**258-394**
	Siemens SPS	**258-473**

Marking System

WMB Multi marking system

Miniature quick marking card

Colored marker cards

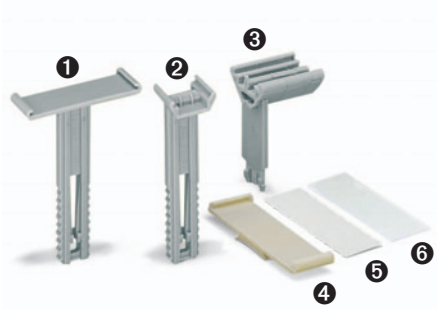
WMB Inline

Description		Item No.	Item No.	Pack. Unit
WMB Multi marking system for terminal block width 3.5 mm	plain	**793-3501**		5 cards
WMB Multi marking system for terminal block width 4 - 4.2 mm strechable 4 - 4.2 mm	plain	**793-4501**		5 cards
WMB Multi marking system for terminal block width 5 - 17.5 mm strechable 5 - 5.2 mm	plain	**793-5501**		5 cards
Miniature WSB quick marking system for terminal block width 5 - 17.5 mm	plain	**248-501**		5 cards
Additional item no. for colored marker cards	yellow		**.../000-002**	5 cards
	red		**.../000-005**	5 cards
	blue		**.../000-006**	5 cards
	gray		**.../000-007**	5 cards
	orange		**.../000-012**	5 cards
	light green		**.../000-017**	5 cards
	green		**.../000-023**	5 cards
	violet		**.../000-024**	5 cards
WMB Inline, pitch 4 mm, stretchable, 4 mm ... 4.2 mm, on reel	white, 2000 pieces	**2009-114**		
WMB Inline, pitch 5 mm, stretchable, 5 mm ... 5.2 mm, on reel	white, 1500 pieces	**2009-115**		1 Coil
WMB Inline, pitch 5 mm, stretchable, 5 mm ... 5.2 mm, on reel	white, 8000 pieces	**2009-135**		1 Coil

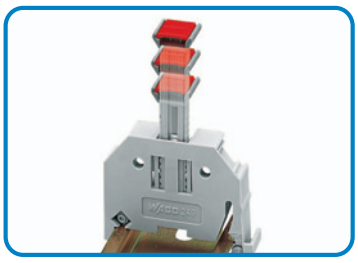
Separation of a strip from the WMB Marker card

Stretching of a strip, stretchable from 4 mm up to 4.2 mm, stretchable from 5 mm up to 5.2 mm

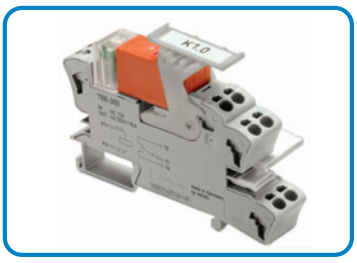
Group marker carrier



Group marker carrier adjustable in height



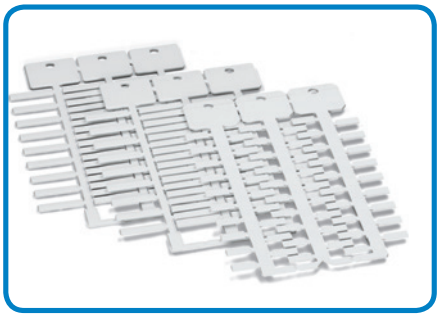
Group marker carrier 209-112 to be on 788 Series relay sockets with pluggable miniature switching



Description		Item No.	Pack. Unit
Group marker carrier adjustable in height (43.5 mm ... 60 mm), for end stops 249-116 and 249-117	for 1 marker card or self-adhesive label and transparent cover protection	249-119 ❶	50 (2x25)
	for 2 WSB Quick markers or 1 x continuous marking strip	249-118 ❷	100 (4x25)
	with marker surface 41 mm/1.61 in, 6 mm/0.23 in wide	249-120	50 (2x25)
Group marker carrier	for up to 3 WMB markers, 15 mm/0.591 in wide	209-140 ❸	50 (2x25)
Group marker carrier	for snapping into screwless end stops, 10 mm/0.394 in wide	209-112 ❹	50 (1x50)
Marker card	from white cardboard, for self-marking, 100 markers per sheet	209-113 ❺	1 (1x1)
Protection cover	transparent	209-114 ❻	50 (1x50)

WAGO Wire and Cable Marking

Wire marking



The following marker cards are available:
Marker cards for plotter marking ...

... or marker cards on roll
for thermal transfer printing

Slide the marker card into the marking sleeve receptacle.
Changing the marking is also possible after the wire has been connected

Remove the rest of the card by twisting it off

Fix the 211-129 marking sleeve using cable ties to individual wire or cable

Cable marking

Self-laminating labels are available on A4 sheets for the laser printer (plotter) ...

... or are supplied on roll for the thermal transfer printer

Remove the printed label from the sheet or roll and wrap it around the wire or cable.
The transparent laminate protects the marking

WAGO Wire and Cable Marking

Marking sleeve 12 mm

Marking sleeve 23 mm

Marking sleeve 23 mm, for cable tie

Description		Item No.	Pack. Unit
Marking sleeve* 12 mm, for wire Ø	1.6 mm ... 3.2 mm or 0.25 mm² ... 1.5 mm²	**211-112**	2000
	2.2 mm ... 4.5 mm or 0.5 mm² ... 4 mm²	**211-113**	2000
	3.7 mm ... 5.9 mm or 2.5 mm² ... 6 mm²	**211-114**	1000
	4.8 mm ... 7.5 mm or 6 mm² ... 16 mm²	**211-115**	1000
Marking sleeve* 23 mm, for wire Ø	1.6 mm ... 3.2 mm or 0.25 mm² ... 1.5 mm²	**211-122**	2000
	2.2 mm ... 4.5 mm or 0.5 mm² ... 4 mm²	**211-123**	2000
	3.7 mm ... 5.9 mm or 2.5 mm² ... 6 mm²	**211-124**	1000
	4.8 mm ... 7.5 mm or 6 mm² ... 16 mm²	**211-125**	1000
Marking sleeve* for cable tie	23 mm, for wires from 10 mm²	**211-129**	1000
Cable tie (2.5 x 100) mm		**807-090/101-100**	1000

Marker card

Marker card (12 mm) for Plotter

Marker card (23 mm) for Printer

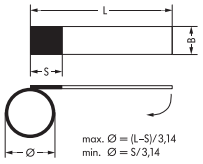
Marker card (23 mm) for Plotter

Description		Item No.	Pack. Unit
Marker card for TT Printer	23 mm	**211-111**	1
	Plotter, 23 mm	**211-110**	18
	(258-370 Carrier Plates are required for plotting)		
Marker card for TT Printer	12 mm	**211-121**	1
	Plotter, 12 mm	**211-120**	30
	(258-370 Carrier Plates are required for plotting)		

Labels on roll

Labels on DIN A4 sheets

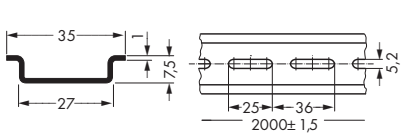
Dimensions of self-laminating label



Description		Item No.	Pack. Unit
Labels on roll for thermal transfer printer	Marker surface "S"=8 mm, "B"=18 mm, "L"=35 mm	**211-155**	1
	for max. cable Ø 9 mm, 9.000 labels per roll		
	Marker surface "S"=13 mm, "B"=23 mm, "L"=51 mm	**211-156**	1
	for max. cable Ø 12 mm, 5.000 labels per roll		
Labels on DIN A4 sheets for laser printer	Marker surface "S"=9 mm, "B"=17 mm, "L"=35 mm	**211-150**	20
(258-383 Carrier Plates are required for plotting)	for max. cable Ø 8 mm, 70 labels per roll		
	Marker surface "S"=13 mm, "B"=21 mm, "L"=56 mm	**211-151**	25
	for max. cable Ø 14 mm, 32 labels per roll		

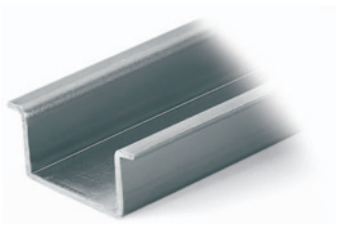
Carrier Rails and Angled Support Bracket

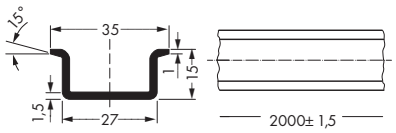
Steel carrier rail acc. to EN 60715



Item No.	Pack. Unit
Steel rail, I_N 76 A (referred to a length of 1 m)	
35 x 7.5 mm, 1 mm/0.039 in thick, 2 m long, unslotted	
210-113	10
Hole width 25 mm; hole spacing 36 mm, slotted	
210-112	10
Hole width 18 mm; hole spacing 25 mm, slotted	
210-115	1

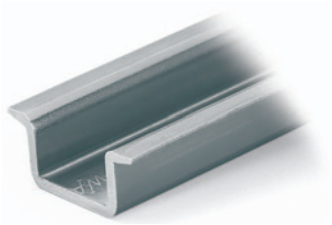
Steel carrier rail

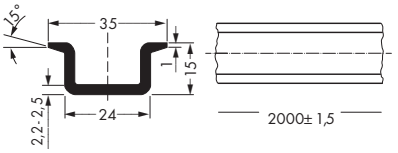




Item No.	Pack. Unit
Steel rail, I_N 125 A (referred to a length of 1 m)	
35 x 15 mm, 1.5 mm/0.059 in thick, 2 m long, unslotted	
210-114	10
Steel rail, I_N 125 A (referred to a length of 1 m)	
35 x 15 mm, 1.5 mm/0.059 in thick, 2 m long, slotted	
210-197	10

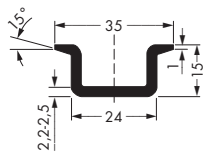
Steel carrier rail acc. to EN 60715





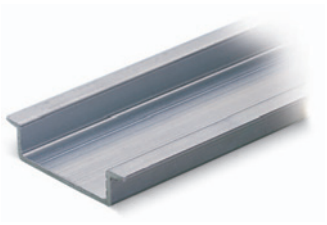
Item No.	Pack. Unit
Steel rail, I_N 125 A (referred to a length of 1 m)	
35 x 15 mm, 2.3 mm/0.091 in thick, 2 m long, unslotted	
210-118	10

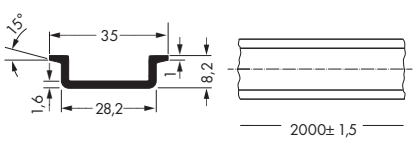
Copper carrier rail



Item No.	Pack. Unit
Copper carrier rail, I_N 309 A	
(referred to a length of 1 m)	
210-198	10

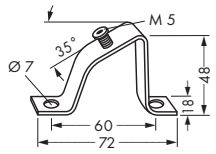
Aluminum carrier rail





Item No.	Pack. Unit
Aluminum carrier rail, I_N 76 A	
(referred to a length of 1 m)	
35 x 8.2 mm, 1.5 mm/0.059 in thick, 2 m long, unslotted	
210-196	10

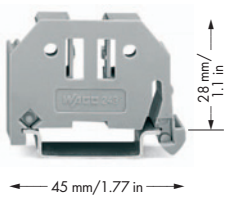
Angled support bracket

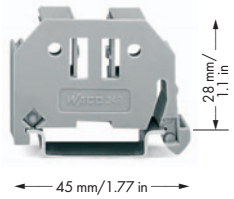


Item No.	Pack. Unit
Angled support bracket,	
without screw	
210-148	10
Screw M 5 x 8	
210-149	100

Screwless End Stops and Rail End Cap for DIN 35 Rail

End stop for DIN 35 rail End stop width 6 mm / 0.236 in	End stop for DIN 35 rail End stop width 10 mm / 0.394 in	Rail end cap, for DIN 35 rail (7.5 mm/0.29 in high)





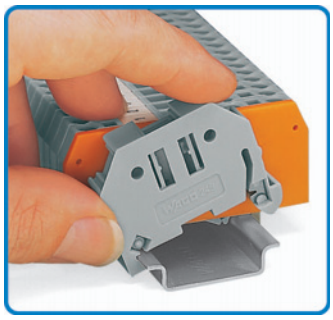
Item No.	Pack. Unit
End stop, for DIN 35 rail	
6 mm/0.236 in wide	
249-116	100 (4 x 25)

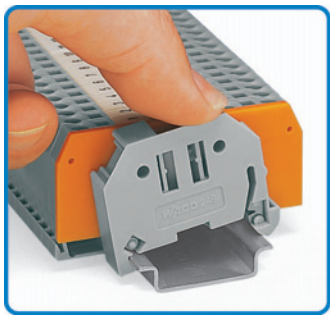
Item No.	Pack. Unit
End stop, for DIN 35 rail	
10 mm/0.394 in wide	
249-117	50 (2 x 25)

Item No.	Pack. Unit
Rail end cap,	
for DIN 35 rail (7.5 mm/0.29 in high)	
209-109	50

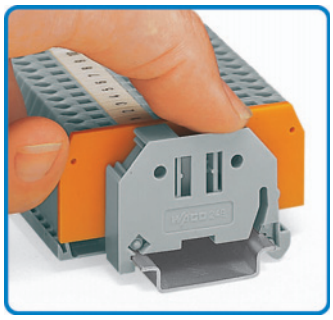
Snap on - That's it!
Assembling the WAGO screwless end stops is as simple and quick as snapping a WAGO railmounted terminal block onto the rail.
Without any tools!
This way rail-mounted terminal blocks are safely secured at low cost against any mouvement on all carrier rails DIN 35 acc. to DIN EN 50022 (35 x 7.5 mm; 35 x 15 mm).
Entirely without screws!
The „secret" of the excellent tight fit lies in the two small clamping plates which keep the end stop in position, even if the rails are mounted vertically.
Simply snap on - and forget!

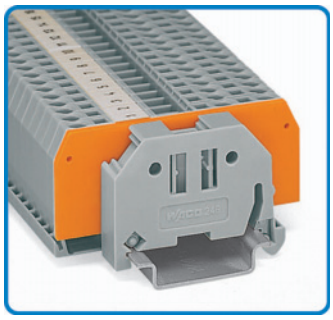
In addition, costs are considerably reduced when using large numbers of end stops.
A further advantage is that three marker receptacles for all WAGO marker systems for rail-mount terminal blocks and a snap-in hole for WAGO adjustable height group marker carriers offer individual marking possibilities.





Snap on ...





... that's it!!

Wire Strippers

Microstrip wire stripper 0.14 mm² ... 1.5 mm²/AWG 24 ... 16 "solid" and "stranded" Wire cutter up to 1.5 mm²/AWG 16 "solid" and "stranded"	Quickstrip 10 wire stripper 0.02 mm² ... 10 mm²/AWG 28 ... 8 "stranded" (6 mm²/AWG 10 "solid") Wire cutter up to 10 mm²/AWG 8 "stranded" (1.5 mm²/AWG 16 "solid")	Quickstrip 16 wire stripper 4 mm² ... 16 mm² Wire cutter up to 10 mm²/AWG 12 ... 6 "stranded" (1.5 mm²/AWG 16 "solid")

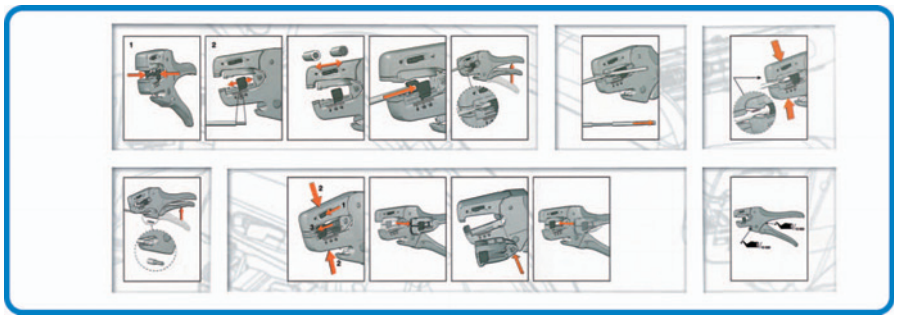
Item No.	Pack. Unit	Item No.	Pack. Unit	
Microstrip wire stripper		**Quickstrip 10 wire stripper**		
206-501	1	**206-124**	1	**206-125** 1
Item No.	**Pack. Unit**	**Item No.**	**Pack. Unit**	
Spare stripping unit		**Standard blade cassette**		**Blade cassette 16 mm²**
complete		0.02 mm² ... 10 mm²/AWG 34 ... 8		4.0 mm² ... 16 mm²/AWG 12 ... 6
206-502	1	**206-126**	1	**206-128** 1
Spare blade		**"V" blade cassette**		
for wire cutter		0.02 mm² ... 4 mm²/AWG 34 ... 12 for PTFE		
206-503	10	**206-127**	1	

- Automatic adjustment to wire size.
- No damage to wire strands.
- Gripping pressure of jaws adjusts automatically to wire insulation diameter.
- Full cycle strip - jaws open after stripping, ensures no nicked strands.
- Exact strip length may be set by sliding of red setting stop.
- Replaceable stripping jaw assembly.
- Self-sharpening, fully protected wire cutter, also replaceable.*
- Glass fiber reinforced polyamide tool body.

* for Microstrip

Cutting of wire.

Stripping of wire.



Operating instructions are enclosed in the packaging.

Voltage Tester, Testboy and Cable Cutter

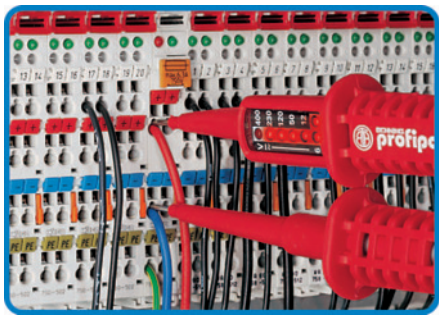
Cable cutter acc. to VDE for copper and aluminum wires up to 35 mm²/AWG 2 Weight 200 g	Voltage tester "Profipol" 12 V to 400 V AC 12 V to 500 V DC Weight 138 g	Testboy

	Item No.	Pack. Unit
Cable cutter		
	206-118	1

	Item No.	Pack. Unit
Voltage tester "Profipol"		
Voltage range		
12 V to 400 V AC		
12 V to 500 V DC		
LED indication		
12 V, 50 V, 100 V, 230 V, 400 V AC		
12 V, 60 V, 120 V, 280 V, 500 V DC		
Degree of protection IP65		
Operating time 30 s max.		
Temperature range –10° to + 50°C		
	206-802	1

	Item No.	Pack. Unit
Testboy,		
with integrated flashlight		
Voltage range 120 V to 1000 V AC		
	206-804	1

Cutting og cable



Voltage testing at the WAGO-I/O-SYSTEM 750

A device that will reliably detect AC voltages in cables, sockets, fuses, switches, connector boxes, etc.

- LED band provides clear voltage range readings (white scale = AC voltage red scale = DC voltage)
- LED indication of polarity
- double-pole voltage testing
- IP65 type of protection
- switching is not necessary
- 85 cm long highly flexible and nonskid test cable

The following can be detected by the WAGO Testboy:

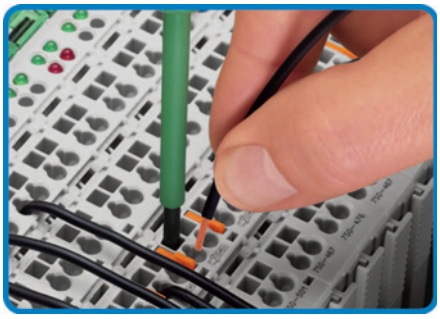
- Live conductors
- Line breaks
- Blown fuses (in cartridges or holders)
- Defective switches
- Defective lamps in strings of lights

Operating tool

Operating tool with partially insulated shaft for optimum handling of terminal blocks	Operating tool with partially insulated shaft – Set –	

Item No.	Pack. Unit
Operating tool, with partially insulated shaft,	
type 1, blade (2.5 x 0.4) mm	
for 279, 726, 727, 2000, 2001 Series	
210-719	1
Operating tool, with partially insulated shaft,	
type 2, blade (3.5 x 0.5) mm	
for 260, 261, 262, 264, 270, 280, 281, 290, 775, 776,	
777, 769, 780, 781, 869, 870, 880, 2002, 2003,	
2004, 2005, 2022 Series	
210-720	1
Operating tool, with partially insulated shaft,	
type 3, blade (5.5 x 0.8) mm	
for 282, 283, 284, 285, 782, 783, 784, 785, 2006,	
2010, 2016 Series	
210-721	1

Item No.	Pack. Unit
Operating tool, with partially insulated shaft,	
– Set –	
210-722	1



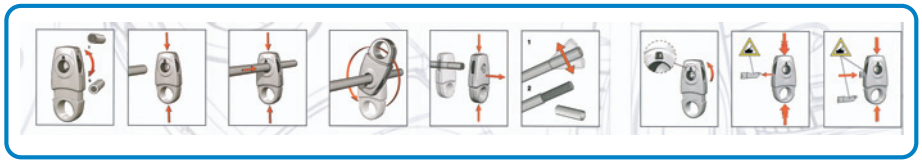
Wiring example showing WAGO-I/O-SYSTEM 750

The operating tool are particularly appropriate for the operation of front-entry terminal blocks and connectors. (The picture shows the WAGO-I/O-SYSTEM 750)

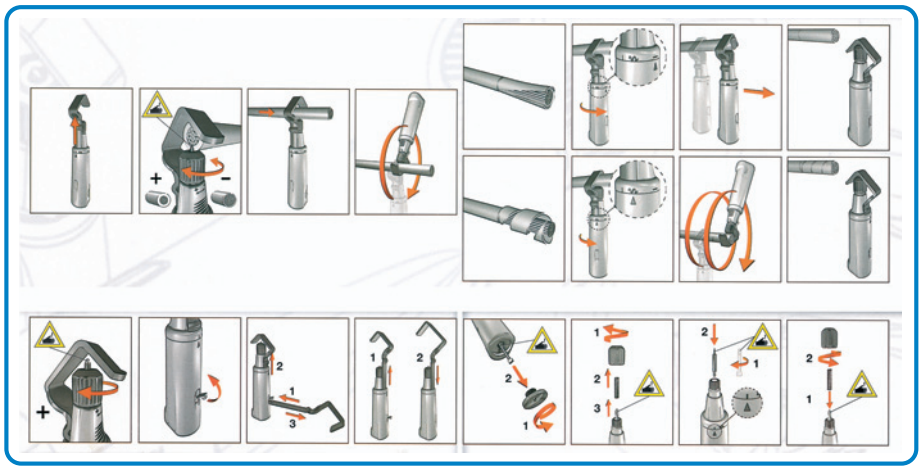
Cable Strippers

Cable stripper for round cables with an outer diameter from 2.5 mm to 11 mm Ø	Cable stripper for round cables with an outer diameter from 4.5 mm to 40 mm Ø	

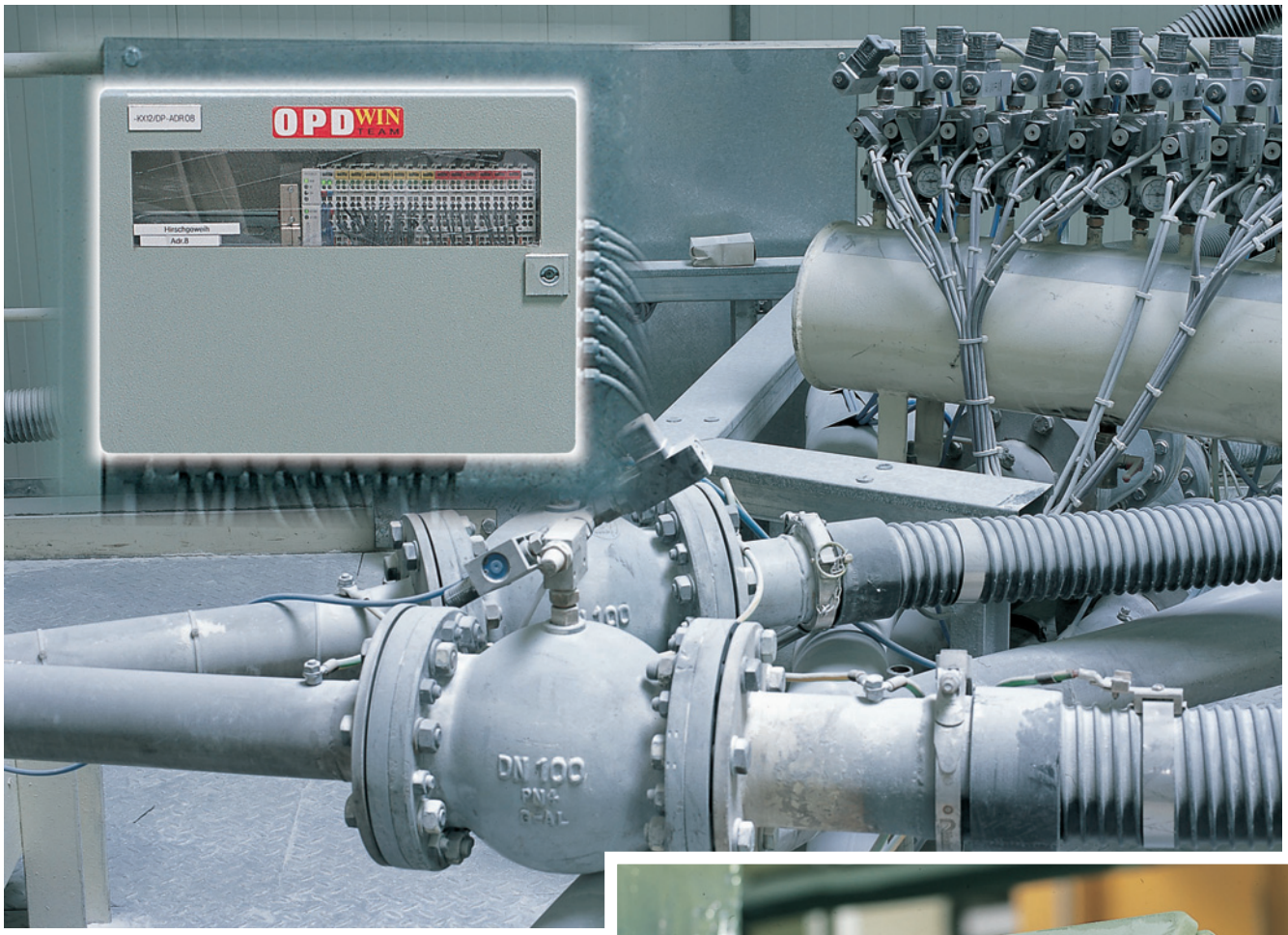
Item No.	Pack. Unit	Item No.	Pack. Unit	
Cable stripper for round cables with an outer diameter from 2.5 mm to 11 mm Ø		Cable stripper for round cables with an outer diameter from 4.5 mm to 40 mm Ø		
206-171	1	**206-174**	1	
Spare blade for 2.5 mm to 11 mm Ø		Spare blade for 4.5 mm to 40 mm Ø		
206-170	1	**206-173**	1	



Handling instructions for 206-171 cable stripper



Handling instructions for 206-174 cable stripper



WAGO Application: Opdenhoff Technologie GmbH in Hennef, Germany
Control Systems for Weighing, Mixing and Conveyance of Bulk Material and Liquids

WAGO Products:
WAGO-I/O-SYSTEM with PROFIBUS Couplers, Rail-Mounted Terminal Blocks

9

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Product Support From

Consulting Services

- Selection of the fieldbus
- Use of components
- Combination of components
- Cooperation with other suppliers

- Contact:

  Your national WAGO company or distributor.

The Very Beginning...

Experienced

- Trained staff
- PLC & PC control
- Multiple fieldbuses
- Programming languages
- Projects:

  Automotive industry
  Machine building
  Chemical industry
  Food processing
  Building automation
  Process engineering
  Process control
  and many more

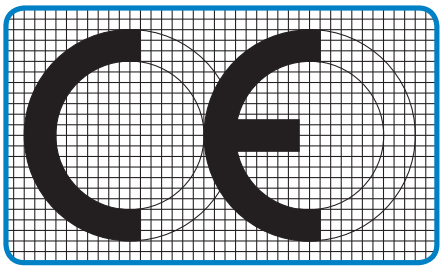
We will help you

- Product documentation
- Manuals
- Application notes
- By telephone
- On-site

CE Marking and EC Directives

CE conformity marking:

The CE conformity marking consists of the characters "CE", with the following script:



Communauté Européenne (European Community)

The CE marking shall be affixed to the electrical equipment, or if that is not possible, to the smallest packing unit. With the CE marking, manufacturers attest conformity of their products to the relevant directives.

In addition to the CE marking, the manufacturer provides an EC "Declaration of Conformity" for the product. This EC "Declaration of Conformity" must be retained and submitted to a national surveillance authority upon request. EC directives are binding legal regulations of the European Community. Their goal is the harmonization of legal and administrative regulations in the various EC member states, in order to prevent trade obstructions due to different national regulations.
In order to "market" a product, it must comply with the relevant directives. The product may be subject to several directives, e.g. the EMC and the low voltage directives.

The **EC directives** are legally binding specifications of the European Union. Their aim is the alignment of legal and administrative specifications in the various EC member states, in order to prevent trading hindrances arising from different national specifications.
In order to launch a product on the market it has to comply with the relevant directives. Several directives may apply to a product, for example the EMC and the low voltage directives.

2006/95/EC
– Low Voltage Directive
The safety of electrical equipment is guaranteed by the Low Voltage Directive. This directive covers 'complete' electrical equipment designed for use with a voltage rating of between 50 and 1000V for alternating current and between 75 and 1500V for direct current. Products falling within the scope of the Low Voltage Directive that are designed in such a way that they can be used in other electrical devices and whose safety, for the most part, is dependant on how these components were built into the end product and what features the end product has are defined as basic components in accordance with the Low Voltage Directive.* The Low Voltage Directive doesn't apply to basic components.

2004/108/EC
– EMC Directive
The EMC Directive implies that a product must meet the limits of the radiated electromagnetic disturbance and also requires that a product must be immune to electromagnetic interference. Electromagnetic passive components or components with no direct function, like resistors, diodes, capacitors, switching relays or cables (in the form of passive printed circuit boards) are not considered as apparatus within the meaning of the EMC Directive.

Machinery Directive
The Machinery Directive does not apply to WAGO products.

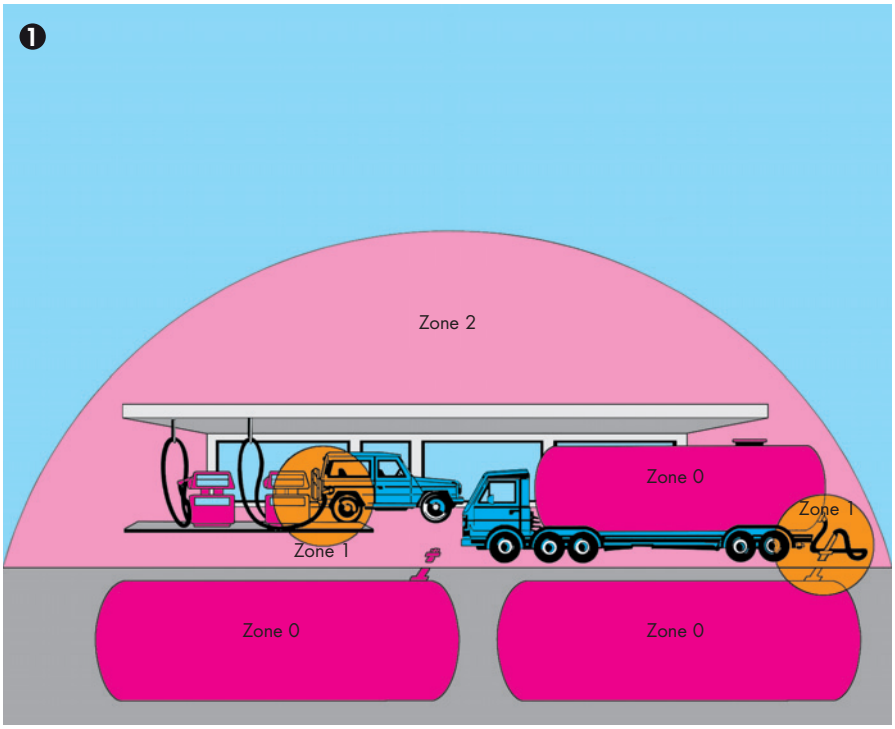
94/9/EC Ex Protection Directive, ATEX 100a

General technical information for electrical equipment in hazardous environments.

General Technical Information for Electrical Equipment in Hazardous Environments

Harzardous Environments
Hazardous environments are areas in which the atmosphere may become explosive. Explosive atmosphere is defined as a mixture of ignitable substances in the form of gases, vapors or mixtures with air under atmospheric conditions in critically mixed ratios such that excessive high temperature, arcs or sparks may cause an explosion.

DIN EN 1127-1 and all other related standards that are commonly known divide up hazardous areas according to the likelihood of the occurrence of an explosive atmosphere into the following zones:

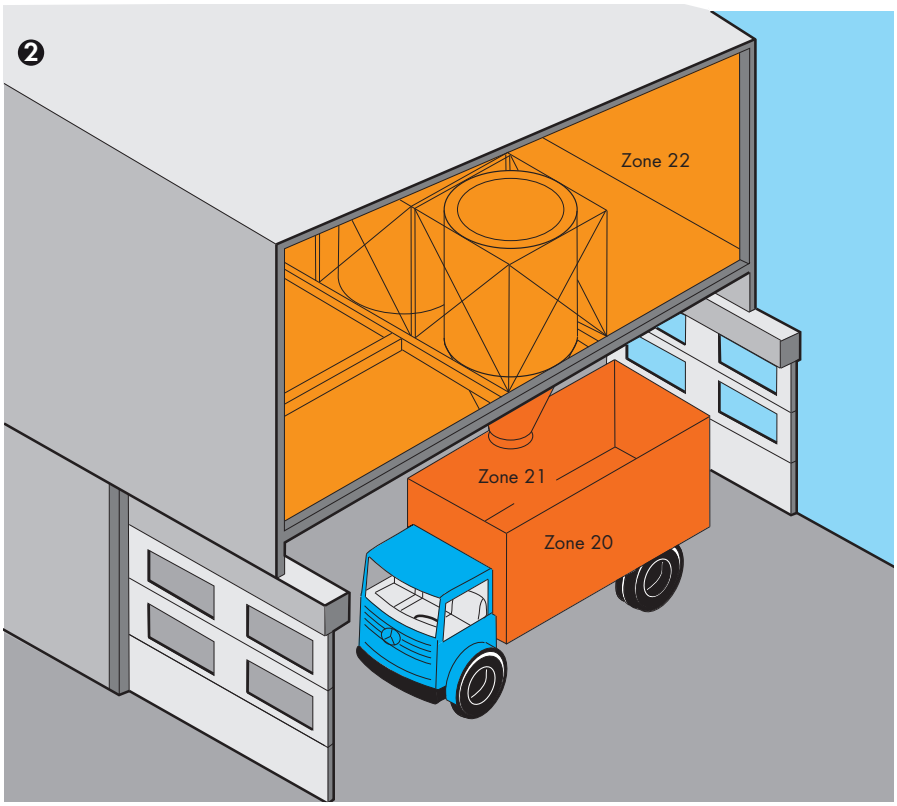


❶ Hazardous environments as a result of combustible gases, vapors or mist.

Zone 0:
Area in which an explosive gas/air mixture is continuously present or present for long periods.

Zone 1:
Area in which an explosive atmosphere can occur during normal operation.

Zone 2:
Area in which an explosive atmosphere is unlikely to occur under normal operation and if it does it will be for a short period.



❷ Hazardous areas caused by combustible dust

Zone 20:
Area in which an explosive dusty atmosphere is present "permanently", for "long periods" or "frequently" and in which deposits of combustible dust of unknown or excessive thickness may be formed. Dust deposits alone are not grounds for classification as Zone 20.

Zone 21:
Area in which an explosive dusty atmosphere is present "occasionally" under normal operating conditions and in which deposits or layers of combustible dust can generally be present.

Zone 22:
Area in which an explosive dusty atmosphere is not likely to occur during normal operation and, if it occurs, will only exist for a "short period", or in which accumulations or layers of combustible dust are present.

Please refer to the manuals for more information on explosion protection.

Electromagnetic Compatibility and Mechanical Strength (Industrial and Residential Areas)

Immunity to interference for industrial areas acc. to EN 61000-6-2 (2005)

Test Specification		Test Values	Evaluation Criteria *)
EN 61000-4-2	ESD	4 kV/8 kV (contact/air)	B
EN 61000-4-3	electromagnetic fields	10 V/m: 80 MHz ... 1 GHz	A
		3V/m: 1.4 GHz ... 2.0 GHz	A
		1V/m: 2.0 GHz ... 2.7 GHz	A
EN 61000-4-4	burst	1 kV/2 kV (data/supply)	B
EN 61000-4-5	surge	Data: - / 1 kV (line : line / line : earth)	B
		DC supply: 0.5 kV / 0.5 kV (line : line / line : earth)	B
		AC supply: 1 kV / 2 kV (line : line / line : earth)	B
EN 61000-4-6	RF distrurbances	10 V/m 80 % AM (0.15 MHz ... 80 MHz)	A
EN 61000-4-8	Magnetic field	30 A/m 50/60Hz	A
*)	Criteria A: The device must work in accordance with the regulations during and after the test.		
	Criteria B: The device must work in accordance with the regulations after the test.		

Emission of interference for residential areas acc. to EN 61000-6-3 (2007)

Test Specification		Limit Values/ Quasi Peak	Frequency Range	Distance
EN 55016-2-1	AC supply, conducted	66 ... 56 dB(µV)	150 kHz ... 500 kHz	
EN 55016-1-2		56 dB(µV)	500 kHz ... 5 MHz	
		60 dB(µV)	5 MHz ... 30 MHz	
EN 55016-2-1	DC supply/	79 dB(µV)	150 kHz ... 500 kHz	
EN 55016-1-2	data, conducted	73 dB(µV)	500 kHz ... 30 MHz	
EN 55016-2-3	radiated	30 dB(µV/m)	30 MHz ... 230 MHz	10 m
		37 dB(µV/m)	230 MHz ... 1 GHz	10 m
EN 55022	Telecommunications/	84 ... 74 dB(µV)	150 kHz ... 500 kHz	
	Mains connection	74 dB(µV)	500 kHz ... 30 MHz	

Emission of interference for industrial areas acc. to EN 61000-6-4 (2007)

Test Specification		Limit Values/ Quasi Peak	Frequency Range	Distance
EN 55016-2-1	AC supply, conducted	79 dB(µV)	150 kHz ... 500 kHz	
EN 55016-1-2		73 dB(µV)	500 kHz ... 30 MHz	
EN 55016-2-3	radiated	40 dB(µV/m)	30 MHz ... 230 MHz	10 m
		47 dB(µV/m)	230 MHz ... 1 GHz	10 m
EN 55022	Telecommunications/	97 ... 87 dB(µV)	150 kHz ... 500 kHz	
	Mains connection	87 dB(µV)	500 kHz ... 30 MHz	

Mechanical strength acc. to IEC 61131-2 (2007)

Test Specification		Frequency Range	Limit Values
IEC 60068-2-6	vibration	5 Hz ≤ f < 9 Hz	1.75 mm amplitude (permanent)
			3.5 mm amplitude (short term)
		9 Hz ≤ f < 150 Hz	0.5 g (permanent)
			1 g (short term)
		Note on vibration test:	
		a) Frequency change: max. 1 octave/minute	
		b) Vibration direction: 3 axes	
IEC 60068-2-27	shock		15 g
		Note on shock test:	
		a) Type of shock: half sine	
		b) Shock duration: 11 ms	
		c) Shock direction: 3x in positve and 3x in negative direction for each of the three mutually perpendicular axes of the test specimen	

Electromagnetic Compatibility and Mechanical Strength (Ship Building Area)

Immunity to interference acc. to Germanischer Lloyd (2003)

Test Specification		Test Values	Evaluation Criteria *)
IEC 61000-4-2	ESD	6 kV/8 kV (contact/air)	B
IEC 61000-4-3	electromagnetic fields	10 V/m 80 MHz ... 2 GHz	A
IEC 61000-4-4	burst	1 kV /2 kV (data/supply)	A
IEC 61000-4-5	surge, DC supply	0,5 kV /1 kV (line : line / line : earth)	A
	surge, AC supply	0,5 kV /1 kV (line : line / line : earth)	A
IEC 61000-4-6	RF distrurbances	10 V 80 % AM (0.15 ... 80 MHz)	A
Type Test	AF distrurbances (harmonic waves)	3 V, 2 W	A
Type Test	high voltage	755 V DC	-
		1500 V AC	-
*)	Criteria A: The device must work in accordance with the regulations during and after the test.		
	Criteria B: The device must work in accordance with the regulations after the test.		

Emission of interference acc. to Germanischer Lloyd (2003)

Test Specification		Limit Values/ Quasi Peak	Frequency Range	Distance
Type Test	EMC 1, conducted	96 ... 50 dB(µV)	10 kHz ... 150 kHz	
	(allows for ship bridge	60 ... 50 dB(µV)	150 kHz ... 350 kHz	
	control applications)	50 dB(µV)	350 kHz ... 30 MHz	
Type Test	EMC 1, radiated	80 ... 52 dB(µV/m)	150 kHz ... 300 kHz	3 m
	(allows for ship bridge	52 ... 34 dB(µV/m)	300 kHz ... 30 MHz	3 m
	control applications)	54 dB(µV/m)	30 MHz ... 2 GHz	3 m
	except for:	24 dB(µV/m)	156 MHz ... 165 MHz	3 m
Type Test	EMC 2, conducted	120 ... 69 dB(µV)	10 kHz ... 150 kHz	
	(allows for machine room	79 dB(µV)	150 kHz ... 350 kHz	
	applications)	73 dB(µV)	350 kHz ... 30 MHz	
Type Test	EMC 2, radiated	80 ... 50 dB(µV/m)	150 kHz ... 30 MHz	3 m
	(allows for machine room	60 ... 54 dB(µV/m)	30 MHz ... 100 MHz	3 m
	applications)	54 dB(µV/m)	100 MHz ... 2 GHz	3 m
	except for:	24 dB(µV/m)	156 MHz ... 165 MHz	3 m

Mechanical strength acc. to Germanischer Lloyd (2003)

Test Specification		Frequency Range	Limit Values
IEC 60068-2-6	vibration (category A, C)	2 Hz ≤ f < 13,2 Hz	±1.0 mm Amplitude (permanent)
		13.2 Hz ≤ f < 100 Hz	0.7 g (permanent)
		Note on vibration test: a) Frequency change: max. 1 octave/minute b) Vibration direction: 3 axes	
IEC 60068-2-6	vibration (category A-D)	2 Hz ≤ f < 25 Hz	±1.6 mm Amplitude (permanent)
		25 Hz ≤ f < 100 Hz	4 g (permanent)
		Note on vibration test: a) Frequency change: max. 1 octave/minute b) Vibration direction: 3 axes	

Specifications and Test Results

In particular the following standards apply to the design and the application of the terminal blocks and connectors contained in this catalog:

DIN VDE 0100:1982-11
Construction of high current installations with nominal voltages up to 1000V

EN 50110-1:2004
VDE 0105-1:2005-06
Operation of electrical installations

IEC 61140:2001/A1:2004 (modified)
EN 61140:2002/A1:2006
VDE 0140-1:2007-03
Protection against electric shock - Common aspects for installation and equipment

IEC 60664-1:2007
EN 60664-1:2007
VDE 0110-1:2008-01
Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests

IEC 60204-1:2005 (modified)
EN 60204-1:2006
VDE 0113-1:2007-06
Safety of machinery - Electrical equipment of machines - Part 1: General requirements

EN 50178:1997
VDE 0160:1998-04
Electronic equipment for use in power installations

IEC 62305-1:2006
EN 62305-1:2006
VDE 0185-305-1:2006-10
Protection against lightning - Part 1: General principles

IEC 60060-1:1989 +
corrigendum March 1990
HD 588.1 S1:1991
VDE 0432-1:1994-06
High voltage test techniques; part 1: general specifications and test requirements

IEC 60085:2007
EN 60085:2008
VDE 0301-1:2008-08
Electrical insulation - Thermal evaluation and designation

IEC 60529:1989 + A1:1999
EN 60529:1991 + A1:2000
VDE 0470-1:2000-09
Degrees of protection provided by enclosures (IP code)

IEC 60603-1:1991 + A1:1992
EN 60603-1:1998
Connectors for frequencies below 3 MHz for use with printed boards - Part 1: Generic specification: General requirements and guide for the preparation of detail specifications, with assessed quality

IEC 61984:2001
EN 61984:2001
VDE 0627:2002-09
Connectors - Safety requirements and tests

IEC 60999-1:1999
EN 60999-1:2000
VDE 0609-1:2000-12
Connecting devices - Electrical copper conductors; Safety requirements for screw-type and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors 0.2 mm^2 up to 35 mm^2

IEC 60617-2:1996
EN 60617-2:1996
Graphical symbols for diagrams - Part 2: Symbol elements, qualifying symbols and other symbols having general application

IEC 61558-1:2005
EN 61558-1:2005
VDE 0570-1:2006-07
Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests

IEC 60669-2-1:2002
EN 60669-2-1:2004
VDE 0632-2-1:2005-08
Switches for household and similar fixed electrical installations - Part 2-1: Particular requirements - Electronic switches

IEC 60947-7-1:2002 +
Corrigendum 1:2003
EN 60947-7-1:2002
VDE 0611-1:2003-07
Low-voltage switchgear and controlgear - Part 7-1: Ancillary equipment - Terminal blocks for copper conductors

IEC 60998-2-2:2002, modified
EN 60998-2-2:2004
VDE 0613-2-2:2005-03
Connecting devices for low-voltage circuits for household and similar purposes - Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units

IEC 60947-1:2007
EN 60947-1:2007
VDE 0660-100:2008-04
Low-voltage switchgear and controlgear - Part 1: General rules

IEC 60947-5-6:1999
EN 60947-5-6:2000
VDE 0660-212:2000-12
Low-voltage switchgear and controlgear - Part 5-6: Control circuit devices and switching elements, DC interface for proximity sensors and switching amplifiers (NAMUR)

IEC 60439-1:1999 + A1:2004
EN 60439-1:1999 + A1:2004
VDE 0660-500:2005-01
Low-voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type-tested assemblies

IEC 60555-1:1982 - 1st edition
EN 60555 part 1, edition 1987
VDE 0838-1:1987-06
Disturbances in supply systems caused by household appliances and similar electrical equipment; part 1: definitions

IEC 60715:1981 + A1:1995
EN 60715:2001
Dimensions of low-voltage switchgear and controlgear - Standardized mounting on rails for mechanical support of electrical devices in switchgear and controlgear installations

IEC 60950-1:2005, modified
EN 60950-1:2006
VDE 0805-1:2006-11
Information technology equipment - Safety - Part 1: General requirements

IEC 60127-6:1994 + A1:1996 +
A2:2002
EN 60127-6:1994 + A1:1996 + A2:2003
VDE 0820-6:2003-10
Miniature fuses - Part 6: Fuse-holders for miniature fuse-links

EN 50155:2007
VDE 0115-200:2008-03
Railway applications - Electronic equipment used on rolling stock

EN 50090-2-2:1996 + Corrigendum:1997 + A1:2002 + A2:2007
VDE 0829-2-2:2007-11
Home and Building Electronic Systems (HBES) - Part 2-2: System overview - General technical requirements; German version

IEC 60099-1:1991 + A1:1999
EN 60099-1:1994 + A1:1999
VDE 0675-1:2000-08
Surge arresters - Part 1: Non-linear resistor type gapped surge arresters for a.c. systems

IEC 61643-1:1998 + Corrigendum 1998, modified
EN 61643-11:2002 + A11:2007
VDE 0675-6-11:2007-08
Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and tests

IEC 61643-21:2000 + Corrigendum: 2001
EN 61643-21:2001
VDE 0845-3-1:2002-03
Low voltage surge protective devices - Part 21: Surge protective devices connected to telecommunications and signalling networks; Performance requirements and testing methods

IEC 61508-1:1998 + Corrigendum 1999
EN 61508-1:2001
VDE 0803-1:2002-11
Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 1: General requirements

IEC 62061:2005
EN 62061:2005
VDE 0113-50:2005-10
Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems

Interfaces - Fieldbuses

DIN 66259-1:1981-05
Electrical characteristics for unbalanced double-current interchange circuits

EN 50325-1:2002
Industrial communications subsystem based on ISO 11898 (CAN) for controller-device interfaces - Part 1: General requirements

IEC 61784-1:2007
EN 61784-1:2008
Industrial communication networks - Profiles - Part 1: Fieldbus profiles

IEC 61158-2:2007
EN 61158-2:2008
Industrial communication networks - Fieldbus specifications - Part 2: Physical layer specification and service definition

IEC 61158-6-x
EN 61158-6-x
DIN EN 61158-6-x
Industrial communication networks - Fieldbus specifications - Part 6-x

Explosion Protection

IEC 60079-0:2004, modified
EN 60079-0:2006
VDE 0170-1:2007-05
Electrical apparatus for explosive gas atmospheres - Part 0: General requirements

IEC 60079-7:2006
EN 60079-7:2007
VDE 0170-6:2007-08
Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

IEC 60079-11:2006
EN 60079-11:2007
VDE 0170-7:2007-08
Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

IEC 60079-14:2007
EN 60079-14:2008
VDE 0165-1:2009-05
Explosive atmospheres - Part 14: Electrical installations design, selection and erection

IEC 60079-15:2005
EN 60079-15:2005
VDE 0170-16:2006-05
Electrical apparatus for explosive gas atmospheres - Part 15: Construction, test and marking of type of protection "n" electrical apparatus

IEC 61241-0:2004, modified + Corrigendum Nov. 2005
EN 61241-0:2006
VDE 0170-15-0:2007-07
Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements

IEC 61241-1:2004
EN 61241-1:2004
VDE 0170-15-1:2005-06
Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures "tD"

IEC 61241-11:2005 + Corrigendum February 2006
EN 61241-11:2006
VDE 0170-15-11:2007-07
Electrical apparatus for use in the presence of combustible dust - Part 11: Protection by intrinsic safety "iD"

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Environmental Testing

IEC 60068-2-6:2007
EN 60068-2-6:2008
VDE 0468-2-6:2008-10
Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)

IEC 60068-2-27:1987
EN 60068-2-27:1993
Basic environmental testing procedures - Part 2: Tests; test Ea and guidance: Shock

IEC 60068-2-42:2003
EN 60068-2-42:2003
Environmental testing - Part 2-42: Tests - Test Kc: Sulphur dioxide test for contacts and connections

IEC 60068-2-43:2003
EN 60068-2-43:2003
Environmental testing - Part 2-43: Tests - Test Kd: Hydrogen sulphide test for contacts and connections

EMC Requirements

IEC 61000-6-1:2005
EN 61000-6-1:2007
VDE 0839-6-1:2007-10
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments

IEC 61000-6-2:2005
EN 61000-6-2:2005
VDE 0839-6-2:2006-03
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

IEC 61000-6-3:2006
EN 61000-6-3:2007
VDE 0839-6-3:2007-09
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

IEC 61000-6-4:2006
EN 61000-6-4:2007
VDE 0839-6-4:2007-09
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

IEC 61000-3-2:2005
EN 61000-3-2:2006
VDE 0838-2:2006-10
Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)

IEC/CISPR 11:2003 + A1:2004, modified + A2:2006
EN 55011:2007 + A2:2007
VDE 0875-11:2007-11
Industrial scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement

IEC/CISPR 22:2005, modified + A1:2005
EN 55022:2006 + A1:2007
VDE 0878-22:2008-05
Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement

IEC/CISPR 24:1997, modified + A1:2001 + A2:2002
EN 55024:1998 + A1:2001 + A2:2003
VDE 0878-24:2003-10
Information technology equipment - Immunity characteristics - Limits and methods of measurement

IEC 61326-3-1:2008
EN 61326-3-1:2008
VDE 0843-20-3-1:2008-11
Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 3-1: Immunity requirements for safety-related systems and for equipment intended to perform safety-related functions (functional safety) - General industrial applications

PLC

IEC 61131-1:2003
EN 61131-1:2003
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IEC 61131-2:2007
EN 61131-2:2007
VDE 0411-500:2008-04
Programmable controllers -
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IEC 61131-3:2003
EN 61131-3:2003
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Relays

IEC 61810-1:2008
EN 61810-1:2008
VDE 0435-201:2009-02
Electromechanical elementary relays -
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IEC 61810-2:2005
EN 61810-2:2005
VDE 0435-120:2006-01
Electromechanical elementary relays -
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IEC 61810-5:1998
EN 50205:2002
VDE 0435-2022:2003-01
Electromechanical non-specified time all-or-nothing relays - Part 5: Insulation coordination

IEC 60255-5:2000
EN 60255-5:2001
VDE 0435-130:2001-12
Electrical relays - Part 5: Insulation coordination for measuring relays and protection equipment - Requirements and tests

UL Directives

UL 1059; ANSI 1059:2001-12
Terminal blocks

UL 486E:2009-05
Equipment wiring terminals for use with aluminum and/or copper conductors

UL 508:1999-01
Industrial control equipment

ANSI/ISA12.12.01:2007
Nonincendive electrical equipment for use in Class I and Class II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations

Ship Classifications

ABS (American Bureau of Shipping)
Steel Vessels 2008
Part 4: Vessel Systems and Machinery

BV (Bureau Veritas)
Rules for the classification of steel ships and offshore units

DNV (Det Norsk Veritas)
Det Norsk Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norsk Veritas' Offshore Standards: 2007

GL (Germanischer Lloyd) 2003
Rules for Classification and Construction
VI Additional Rules and Guidelines
7 Guidelines for the Performance of Type Test
2 Test Requirements for Electrical/Electronic Devices and Systems

LR (Lloyds Register) 2002
Type Approval System
Test Specification Number1-1996

RINA (Registro Italiano Navale)
Rules for the classification of ships
Part C – Machinery, systems and fire protection Ch.3, Sect.6, Table1
Edition 2008

BSH (Federal Maritime and Hydrographic Agency) 2005
Certificate on measurement of safe distance to the standard magnetic and steering magnetic compass in accordance with ISO R 695 and DIN EN 60945 Section 11.2

KR (Korean Register of Shipping)
List of Approved Manufacturers and Type Approved Equipment; Pt. 6, Ch. 1, Sec. 3 of the Rules for Classification of Steel Ships

NKK (Nippon Kaiji Kyokai) Edition 2009
Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use

PRS (Polski Rejestr Statkow) 2002
Publication No. 11/P
Enviromental Tests on Marine Equipment

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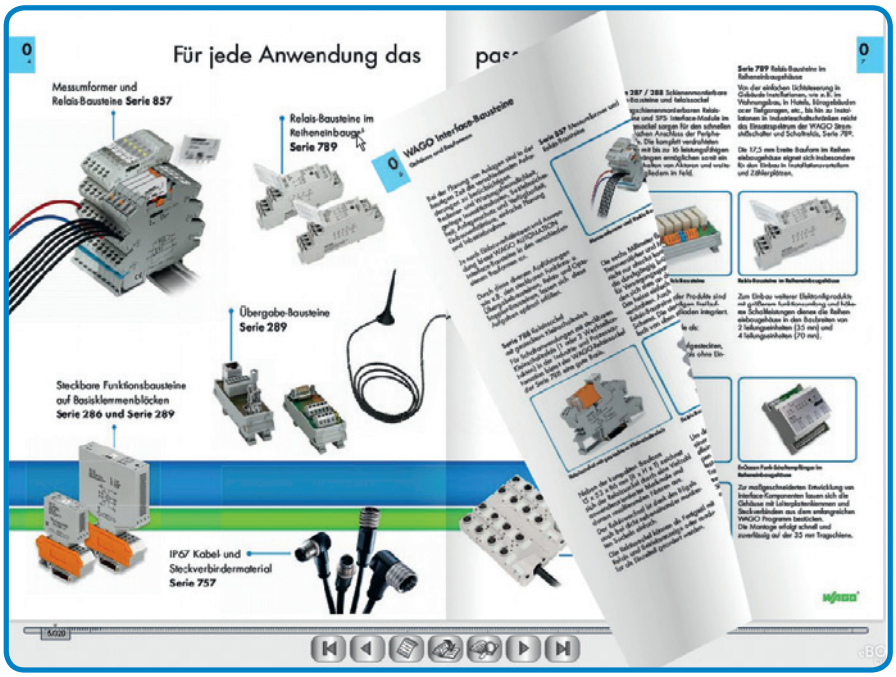

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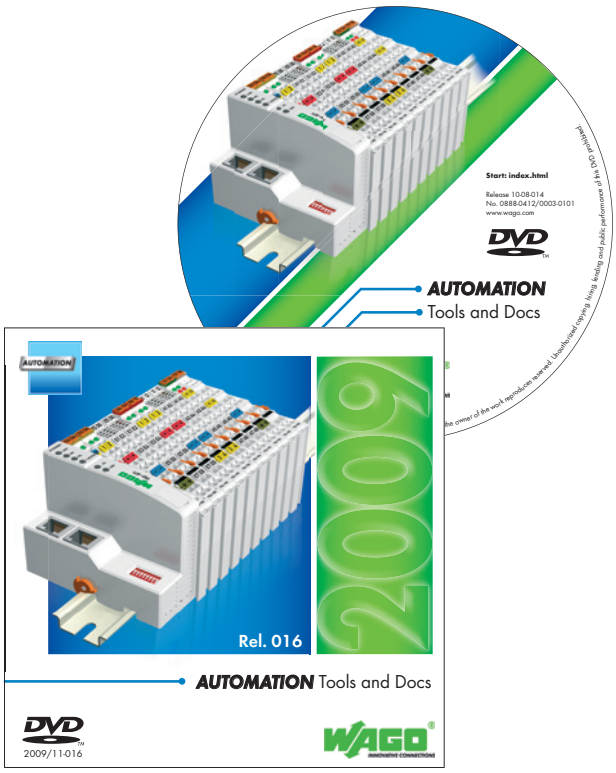

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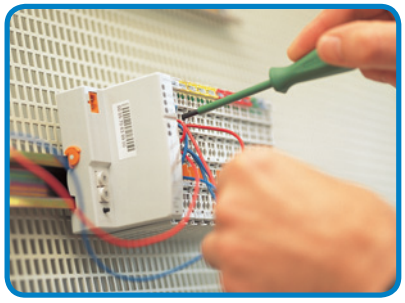

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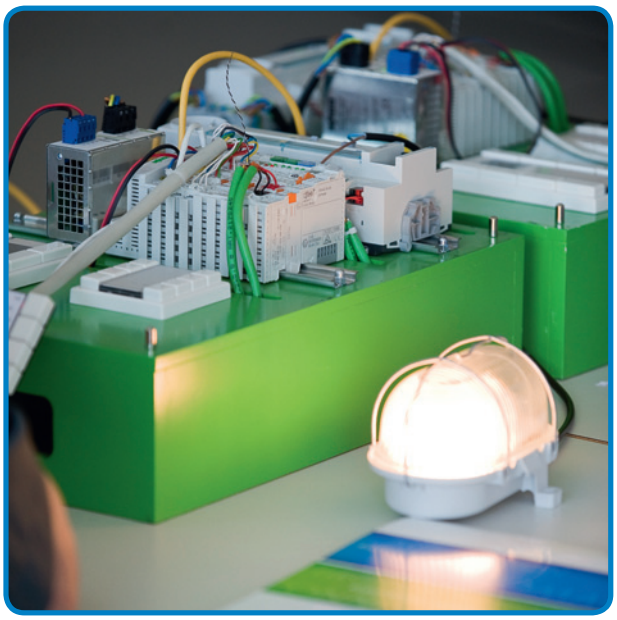

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