

Common features

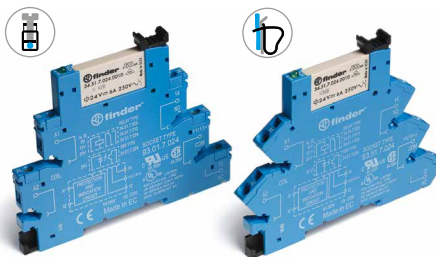
- Instant ejection of relay by plastic retaining clip
- Integral coil indication and protection circuit
- 35 mm rail (EN 60715) mounting

6.2 mm wide

- EMR - DC, AC or AC/DC coil versions
- SSR - DC or AC/DC input versions
- Screw and Screwless terminal options

EMR Electromechanical Relays

38.51/38.61

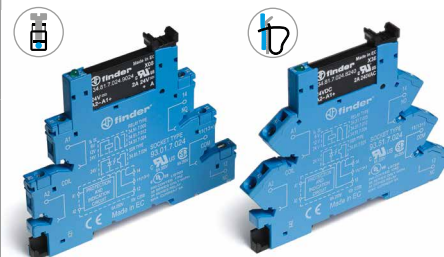


- 1 CO - 6 A/250 V AC

Page 1

SSR Solid State Relays

38.81/38.91



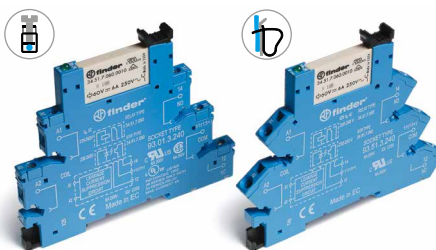
- Single solid state output:
Options 0.1 A/48 V DC, 2 A/24 V DC, 2 A/240 V AC
- Silent, high speed switching
- Long electrical life

Page 2

6.2 mm wide

- Special coil/input leakage current suppression types
- EMR - AC or AC/DC coil versions
- SSR - AC or AC/DC input versions
- Screw and Screwless terminal options

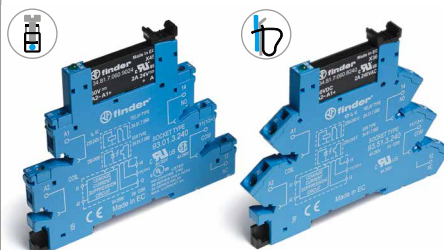
38.51.3... - 38.61.3...



- 1 CO - 6 A/250 V AC

Page 1

38.81.3... - 38.91.3...



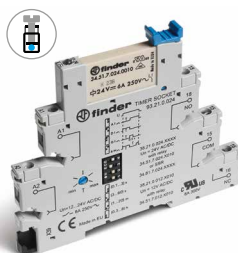
- Single solid state output:
Options 0.1 A/48 V DC, 2 A/24 V DC, 2 A/240 V AC
- Silent, high speed switching
- Long electrical life

Page 2

6.2 mm wide

- Timed Interface module
- 4 functions & 4 time scales 0.1 s...6 h
- EMR - AC/DC (12 or 24 V) supply versions
- SSR - AC/DC (24 V) supply
- Screw terminals

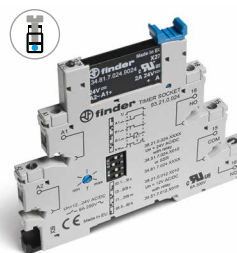
38.21



- 1 CO - 6 A/250 V AC

Page 3

38.21...9024-8240



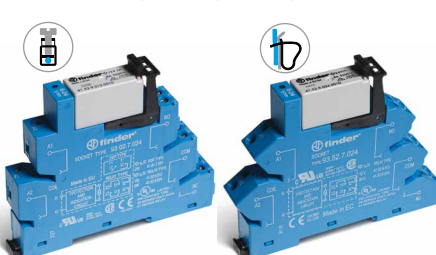
- Single solid state output:
Options 2 A/24 V DC, 2 A/240 V AC
- Silent, high speed switching
- Long electrical life

Page 3

14 mm wide

- 2 pole 8 A or 1 pole 16 A
- EMR - DC or AC/DC coil versions
- SSR - DC input versions
- Screw and Screwless terminal options

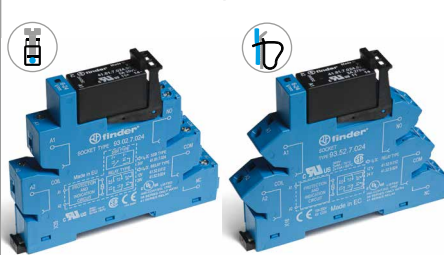
38.01/38.52/38.11/38.62



- 1 CO - 16 A/250 V AC
- 2 CO - 8 A/250 V AC

Page 4

38.31/38.41



- Single solid state output:
Options 5 A/24 V DC, 3 A/240 V AC
- Silent, high speed switching
- Long electrical life

Page 5

1 Pole - 6 A electromechanical relay interface modules, 6.2 mm wide.
Ideal interface for PLC and electronic systems

- Sensitive DC coil or AC/DC coil versions
- Integral coil indication and protection circuit
- Instant ejection of relay using plastic retaining clip
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

 38.51/38.51.3
Screw terminal

 38.61/38.61.3
Screwless terminal


* Special version for max ambient temperature +70 °C.

** Maximum ambient temperature limitations apply in the case of adjacent mounting of modules, where the coil is energised with a duty cycle of $\geq 50\%$ or where the ON time exceeds 1 hour:

+55 °C: applies to groups limited to 2 adjacent modules and where each group is separated by an air gap ≥ 6.2 mm.

+30 °C: applies to a group of more than 2 adjacent modules.

For outline drawing see page 12

Contact specification

Contact configuration

 Rated current/
Maximum peak current

A

 Rated voltage/
Maximum switching voltage

V AC

Rated load AC1

VA

Rated load AC15 (230 V AC)

VA

Single phase motor rating (230 V AC)

kW

Breaking capacity DC1: 30/110/220 V

A

Minimum switching load

mW (V/mA)

Standard contact material

Coil specification

 Nominal voltage (U_N)

V AC/DC

V AC

V DC

Rated power AC/DC

VA (50 Hz)/W

Operating range

AC/DC

AC

DC

Holding voltage

AC/DC

Must drop-out voltage

AC/DC

Technical data

Mechanical life AC/DC

cycles

Electrical life at rated load AC1

cycles

Operate/release time

ms

 Insulation between coil
and contacts (1.2/50 μ s)

kV

 Dielectric strength
between open contacts

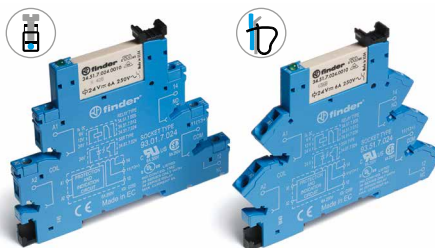
V AC

 Ambient temperature range ($U_N \leq 60$ V/ > 60 V)

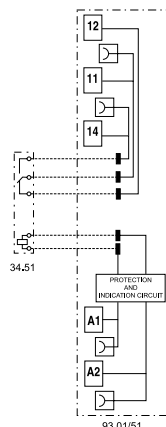
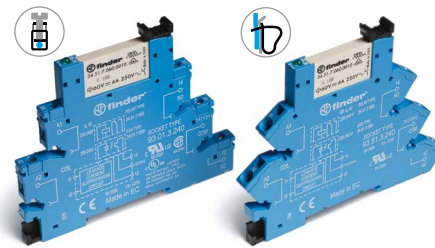
°C

Protection category

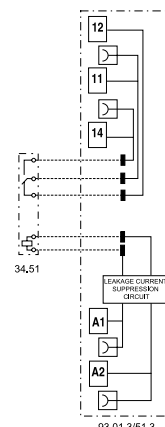
Approvals relay (according to type)

38.51/61


- 1 pole electromechanical relay
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting


38.51.3/38.61.3


- Leakage current suppression
- 1 pole electromechanical relay
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



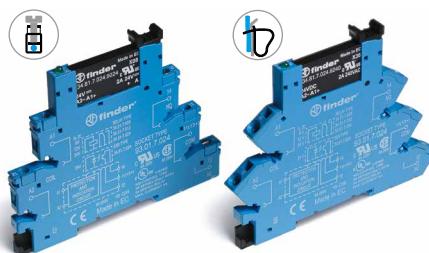
Contact specification			
Contact configuration		1 CO (SPDT)	1 CO (SPDT)
Rated current/ Maximum peak current	A	6/10	6/10
Rated voltage/ Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	1500	1500
Rated load AC15 (230 V AC)	VA	300	300
Single phase motor rating (230 V AC)	kW	0.185	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12	6/0.2/0.12
Minimum switching load	mW (V/mA)	500 (12/10)	500 (12/10)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U _N)	V AC/DC	12 - 24 - 48 - 60 - (110...125) - (220...240)**	(110...125) —
	V AC	(230...240)*	— (230...240)
	V DC	6 - 12 - 24 - 48 - 60 (non polarized)	— —
Rated power AC/DC	VA (50 Hz)/W	See page 9	1/1 0.5/—
Operating range	AC/DC	(0.8...1.1)U _N	(94...138)V —
	AC	(184...264)V	— (184...264)V
	DC	(0.8...1.2)U _N	—
Holding voltage	AC/DC	0.6 U _N / 0.6 U _N	0.6 U _N / 0.6 U _N
Must drop-out voltage	AC/DC	0.1 U _N / 0.05 U _N	44 V 72 V
Technical data			
Mechanical life AC/DC	cycles	10 · 10 ⁶	10 · 10 ⁶
Electrical life at rated load AC1	cycles	60 · 10 ³	60 · 10 ³
Operate/release time	ms	5/6	5/6
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1000	1000
Ambient temperature range (U _N ≤ 60 V/> 60 V)	°C	−40...+70/−40...+55	−/−40...+55
Protection category		IP 20	IP 20
Approvals relay (according to type)		CE S EAC PC UL RINA cUL [®] _{us}	

Single output - solid state relay interface modules, 6.2 mm wide.
Ideal interface for PLC and electronic systems

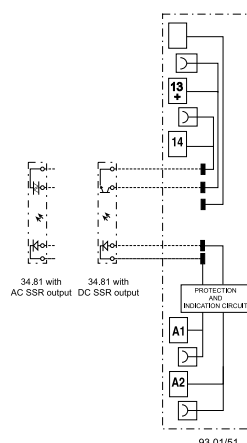
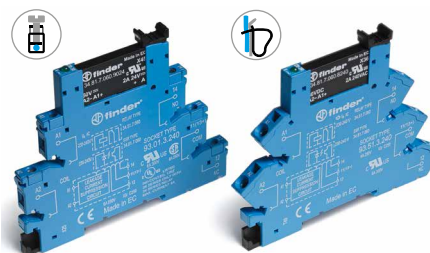
- DC, AC or AC/DC input versions
- Supplied with integral coil indication and protection circuit
- Silent, high switching speed and long electrical life
- Instant ejection of relay using plastic retaining clip
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

38.81/38.81.3
Screw terminal

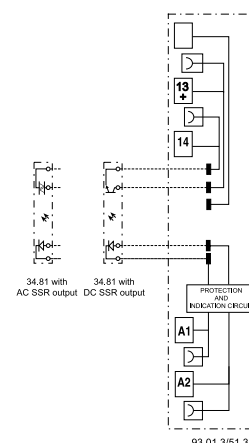
38.91/38.91.3
Screwless terminal

38.81/38.91


- AC or DC output switching
- SSR relay - DC input voltage
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting


38.81.3/38.91.3


- Leakage current suppression
- AC or DC output
- SSR relay - AC or AC/DC input voltage
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



For outline drawing see page 12

Output specification

Contact configuration		1 NO (SPST-NO)			1 NO (SPST-NO)		
Rated current/ Maximum peak current (10 ms)	A	2/20	0.1/0.5	2/40	2/20	0.1/0.5	2/40
Rated voltage/ Maximum blocking voltage	V	24/33 DC	48/60 DC	240/— AC	24/33 DC	48/60 DC	240/— AC
Switching voltage range	V	(1.5...24)DC	(1.5...48)DC	(12...275)AC	(1.5...24)DC	(1.5...48)DC	(12...275)AC
Repetitive peak off-state voltage	V _{pk}	—	—	600	—	—	600
Minimum switching current	mA	1	0.05	22	1	0.05	22
Max. "OFF-state" leakage current	mA	0.001	0.001	1.5	0.001	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1	1.6	0.12	1	1.6

Input specification

Nominal voltage (U _N)	V AC	—			230...240		
	V DC	6 - 24 - 60			—		
	V AC/DC	(110...125) - (220...240)			110...125		
Operating range	V DC	See page 10			See page 10		
Control current	mA	See page 10			See page 10		
Release voltage	V DC	See page 10			See page 10		

Technical data

Operate/release time: ON/OFF (DC input)	ms	0.2/0.6	0.04/0.11	12/12	0.2/0.6	0.04/0.11	12/12
Dielectric strength between input/output	V AC	2500			2500		
Ambient temperature range	°C	-20...+55			-20...+55		
Environmental protection		IP20			IP20		

Approvals relay (according to type)


Slim timed interface module, 6.2 mm wide.

1 pole, 6 A - electromechanical relay
1 output, 2 A DC or AC - solid state relay

- Electromechanical or solid state output
- Multi-functions timer
- AC/DC supply
- 4 time scales from 0.1 s to 6 h
- Instant ejection of relay using plastic retaining clip
- 6.2 mm wide, 35 mm rail (EN 60715) mounting

38.21

Screw terminal



For outline drawing see page 12

Contact specification

Contact configuration

Rated current/
Maximum peak current

A

Rated voltage/
Maximum switching voltage

V AC

Rated load AC1

VA

Breaking capacity DC1: 30/110/220 V

A

Minimum switching load

mW (V/mA)

Standard contact material

Output specification

Output configuration

Rated current/Maximum peak current

A

Rated voltage/
Maximum blocking voltage

V

Switching voltage range

V

Repetitive peak off-state voltage

V_{pk}

Minimum switching current

mA

Max. "OFF-state" leakage current

mA

Max. "ON-state" voltage drop

V

Supply specification

Nominal voltage (U_N)

V AC (50/60 Hz)/DC

Rated power

VA/W

Operating range

AC

DC

Technical data

Specified time range

Repeatability

%

Recovery time

ms

Setting accuracy-full range

%

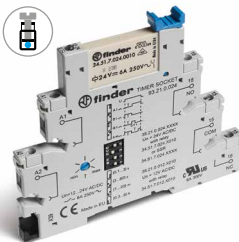
Ambient temperature

°C

Protection category

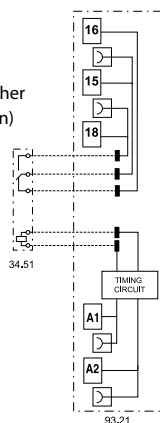
Approvals relay (according to type)

38.21

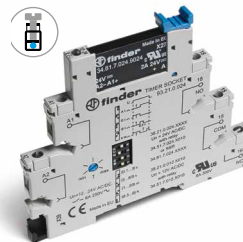


- 1 pole electromechanical output relay
- 12 or 24 V AC/DC supply
- Screw terminal
- 35 mm rail (EN 60715) mounting

AI: On-delay
DI: Interval
GI: Pulse delayed
SW: Symmetrical flasher
(starting pulse on)

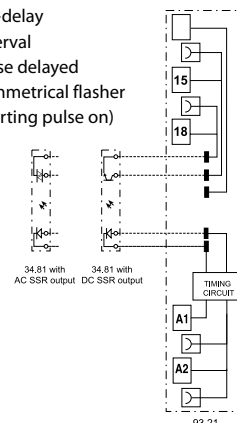


38.21...9024-8240



- DC or AC solid state output relays
- 24 V AC/DC supply voltage
- Screw terminal
- 35 mm rail (EN 60715) mounting

AI: On-delay
DI: Interval
GI: Pulse delayed
SW: Symmetrical flasher
(starting pulse on)



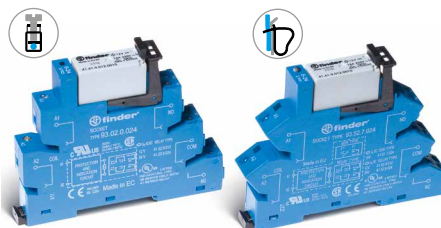
		38.21	
		1 CO (SPDT)	—
Rated current/ Maximum peak current	A	6/10	—
Rated voltage/ Maximum switching voltage	V AC	250/400	—
Rated load AC1	VA	1500	—
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12	—
Minimum switching load	mW (V/mA)	500 (12/10)	—
Standard contact material		AgNi	—
		DC output (...9024)	AC output (...8240)
Output configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	2/20	2/40
Rated voltage/ Maximum blocking voltage	V	(24/33)DC	(240/—)AC
Switching voltage range	V	(1.5...24)DC	(12...275)AC
Repetitive peak off-state voltage	V _{pk}	—	600
Minimum switching current	mA	1	22
Max. "OFF-state" leakage current	mA	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1.6
Nominal voltage (U _N)	V AC (50/60 Hz)/DC	12 - 24	24
Rated power	VA/W	0.5	0.5
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	(0.8...1.1)U _N	(0.8...1.1)U _N
Specified time range		(0.1...3)s, (3...60)s, (1...20)min, (0.3...6)h	
Repeatability	%	± 1	
Recovery time	ms	≤ 50	
Setting accuracy-full range	%	5%	
Ambient temperature	°C	-40...+70	
Protection category		IP 20	
Approvals relay (according to type)			

**Electromechanical relay interface modules,
14 mm wide.**
38.01 and 38.11 - 1 Pole 16 A
38.52 and 38.62 - 2 Pole 8 A
Ideal interface for PLC and electronic systems

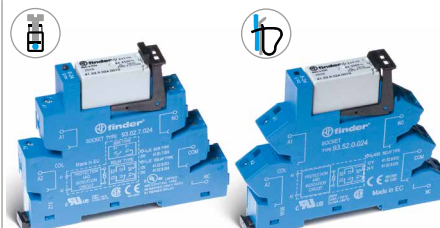
- Sensitive DC coil or AC/DC coil versions
- Integral coil indication and protection circuit
- Instant ejection of relay using plastic retaining clip
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

38.01/52
Screw terminal

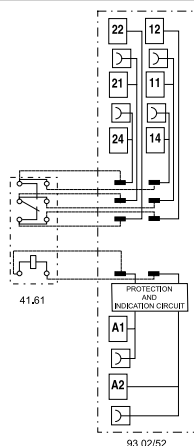
38.11/62
Screwless terminal

38.01/38.11


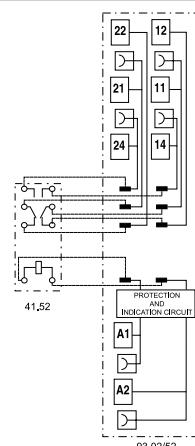
- Screw terminal and screwless terminal
- 1 pole electromechanical relay
- 35 mm rail (EN 60715) mounting

38.52/38.62


- Screw terminal and screwless terminal
- 2 pole electromechanical relay
- 35 mm rail (EN 60715) mounting



* For currents > 10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).



For outline drawing see page 12

Contact specification

Contact configuration		1 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	16*/30	8/15
Rated voltage/ Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	4000	2000
Rated load AC15 (230 V AC)	VA	750	400
Single phase motor rating (230 V AC)	kW	0.5	0.3
Breaking capacity DC1: 30/110/220 V	A	16/0.3/0.12	8/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi

Coil specification

Nominal voltage (U_N)	V AC/DC	24 - 60 - (110...125) - (220...240)	24 - 60 - (110...125) - (220...240)
	V AC	230...240	230...240
	V DC	12 - 24 - 60	12 - 24 - 60
Rated power AC/DC	VA (50 Hz)/W	See page 9	See page 9
Operating range	AC/DC	0.8...1.1	0.8...1.1
	DC	(0.8...1.2) U_N	(0.8...1.2) U_N
Holding voltage	AC/DC	0.6 U_N / 0.6 U_N	0.6 U_N / 0.6 U_N
Must drop-out voltage	AC/DC	0.1 U_N / 0.05 U_N	0.1 U_N / 0.05 U_N

Technical data

Mechanical life AC/DC	cycles	10 · 10 ⁶	10 · 10 ⁶
Electrical life at rated load AC1	cycles	50 · 10 ³	60 · 10 ³
Operate/release time	ms	8/10	8/10
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1000	1000
Ambient temperature range ($U_N \leq 60$ V / > 60 V)	°C	-40...+70 / -40...+55	-40...+70 / -40...+55
Protection category		IP 20	IP 20

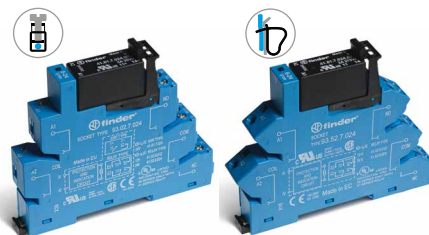
Approvals relay (according to type)


Single output - solid state relay interface modules, 14 mm wide.
Ideal interface for PLC and electronic systems

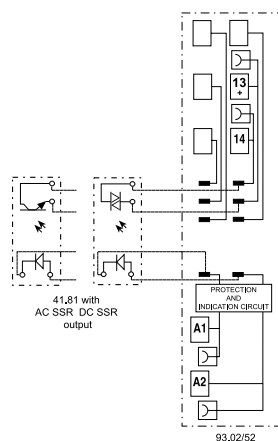
- DC input versions
- Supplied with integral coil indication and protection circuit
- Silent, high switching speed and long electrical life
- Instant ejection of relay using plastic retaining clip
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

 38.31
Screw terminal

 38.41
Screwless terminal

38.31/38.41


- Screw terminal and screwless terminal
- AC or DC output switching
- SSR relay - DC input voltage
- 35 mm rail (EN 60715) mounting



For outline drawing see page 12

Output specification

Contact configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/ Maximum peak current (10 ms)	A	5/40	3/40
Rated voltage/ Maximum blocking voltage	V	(24/35)DC	(240/—)AC
Switching voltage range	V	(1.5...24)DC	(12...275)AC
Repetitive peak off-state voltage	V _{pk}	—	600
Minimum switching current	mA	1	50
Max. "OFF-state" leakage current	mA	0.01	1
Max. "ON-state" voltage drop	V	0.3	1.1

Input specification

Nominal voltage (U _N)	V AC/DC	24
	V DC	12 - 24
Operating range	V DC	See page 10
Control current	mA	See page 10
Release voltage	V DC	See page 10

Technical data

Operate/release time: ON/OFF (DC input)	ms	0.05/0.25	12/12
Dielectric strength between input/output	V AC	2500	
Ambient temperature range	°C	-20...+55	
Environmental protection		IP20	

Approvals relay (according to type)


Ordering information

Electromechanical relay - 1 or 2 Pole

Example: 38 series screw terminal relay interface module, 1 CO (SPDT), sensitive 12 V DC coil.

B

3 8 . 5 1 . 7 . 0 1 2 . 0 0 5 0

A B C D

Series

Type

- 0 = Electromechanical 16 A relay, with screw terminal
- 1 = Electromechanical 16 A relay, with screwless terminal
- 2 = Timer multifunction (AI, DI, GI, SW), with screw terminal
- 5 = Electromechanical relay, with screw terminal
- 6 = Electromechanical relay, with screwless terminal

No. of poles

- 1 = 1 pole, 6 or 16 A
- 2 = 2 pole, 8 A

Coil version

- 0 = AC (50/60 Hz)/DC
- 3 = Leakage current suppression for (110...125)V AC/DC - (230...240)V AC
- 7 = Sensitive DC, (6, 12, 24, 48, 60)V only
- 8 = AC (50/60 Hz)

Coil voltage

See coil specifications

D: Special versions

0 = Standard

C: Options

- 5 = Standard DC
- 6 = Standard AC or AC/DC

B: Contact circuit

0 = CO (nPDT)

A: Contact material

- 0 = AgNi Standard
- 4 = AgSnO₂
- 5 = AgNi + Au

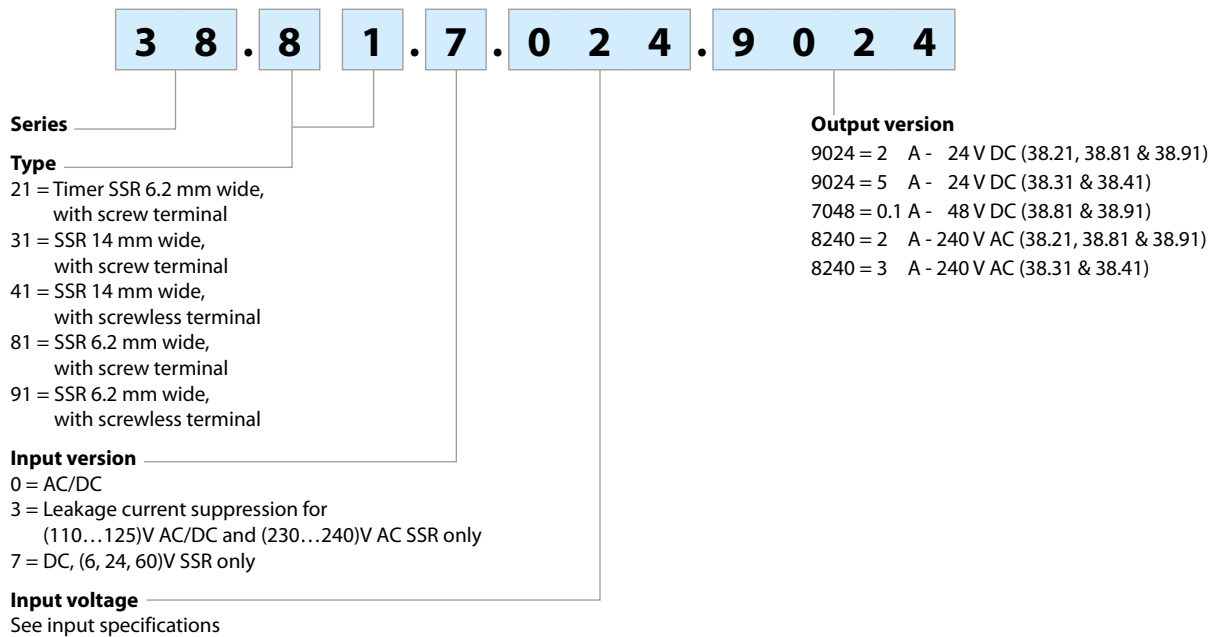
Selecting features and options: only combinations in the same row are possible.

Type	Coil version	A	B	C	D
38.01/11	7	0 - 4	0	5	0
38.01/11	0 - 8	0 - 4	0	6	0
38.51/61	7	0 - 4 - 5	0	5	0
38.51/61	0 - 3 - 8	0 - 4 - 5	0	6	0
38.52/62	7	0 - 5	0	5	0
38.52/62	0 - 8	0 - 5	0	6	0
38.21	0	0	0	6	0

Ordering information

Solid state relay - Single output - 6.2 & 14 mm wide

Example: 38 series screw terminal SSR relay interface module, 6.2 mm wide, 2 A output, 24 V DC input.



B

Selecting features and options: only combinations in the same row are possible.

Type	Input version	Output version
38.81/91	7	9024 - 7048 - 8240
38.81/91	0 - 3	9024 - 7048 - 8240
38.31/41	0 - 7	9024 - 8240
38.21	0	9024 - 8240

Technical data - 1 & 2 Pole Electromechanical Relays

Insulation

Insulation according to EN 61810-1	insulation rated voltage	V	250	400
	rated impulse withstand voltage	kV	4	4
	pollution degree		3	2
	overvoltage category		III	III

Insulation between coil and contacts (1.2/50 μ s)	kV	6 (8 mm)
Dielectric strength between open contacts	V AC	1000

Conducted disturbance immunity

Burst (5...50)ns, 5 kHz, on A1 - A2	EN 61000-4-4	level 4 (4 kV)
Surge (1.2/50 μ s) on A1 - A2 (differential mode)	EN 61000-4-5	level 3 (2 kV)

Other data

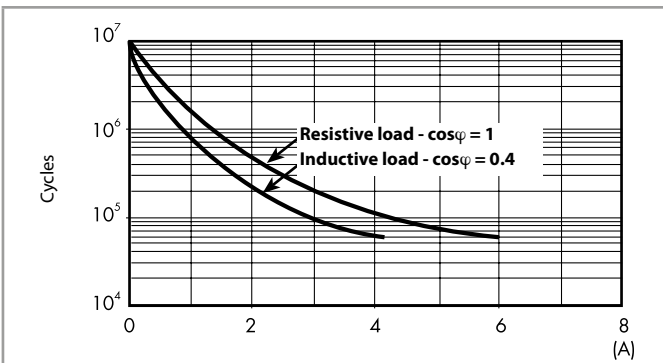
Bounce time: NO/NC		ms	1/6	2/5
Vibration resistance (10...55)Hz: NO/NC		g	10/5	15/2
Power lost to the environment	without contact current	W	0.2 (12 V) - 0.9 (240 V)	0.5 (24 V) - 0.9 (240 V)
	with rated current	W	0.5 (12 V) - 1.5 (240 V)	1.3 (24 V) - 1.7 (240 V)

Terminals

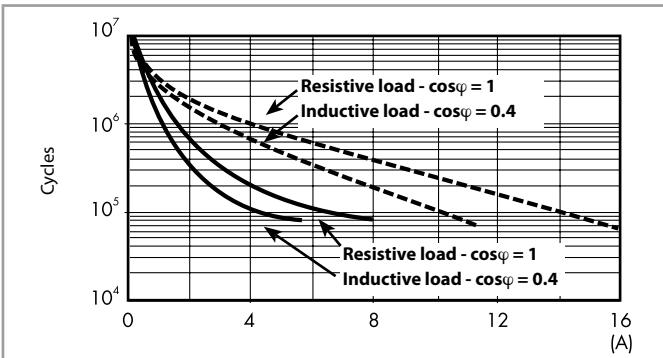
Wire strip length	mm	10		10	
⊖ Screw torque	Nm	0.5		—	
Max. wire size		solid cable	stranded cable	solid cable	stranded cable
	mm ²	1 x 2.5 / 2 x 1.5	1 x 2.5 / 2 x 1.5	1 x 2.5	1 x 2.5
	AWG	1 x 14 / 2 x 16	1 x 14 / 2 x 16	1 x 14	1 x 14
		38.01 / 38.52		38.11 / 38.62	
Wire strip length	mm	10		10	
⊖ Screw torque	Nm	0.5		—	
Max. wire size		solid cable	stranded cable	solid cable	stranded cable
	mm ²	1 x 2.5 / 2 x 1.5	1 x 2.5 / 2 x 1.5	1 x 2.5	1 x 2.5
	AWG	1 x 14 / 2 x 16	1 x 14 / 2 x 16	1 x 14	1 x 14

Contact specification - 1 & 2 Pole Electromagnetic Relays

F 38 - Electrical life (AC) v contact current, 1 Pole 6 A

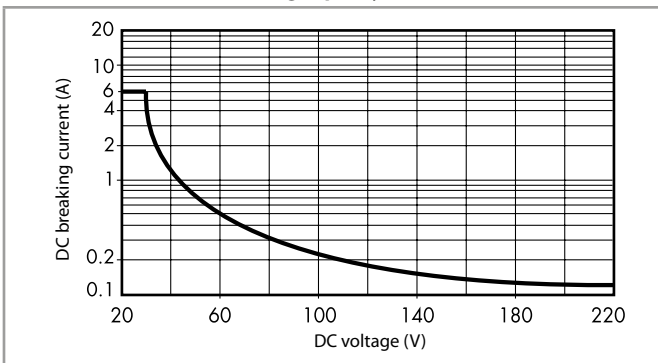


F 38 - Electrical life (AC) v contact current, 1 Pole 16 A and 2 Pole 8 A

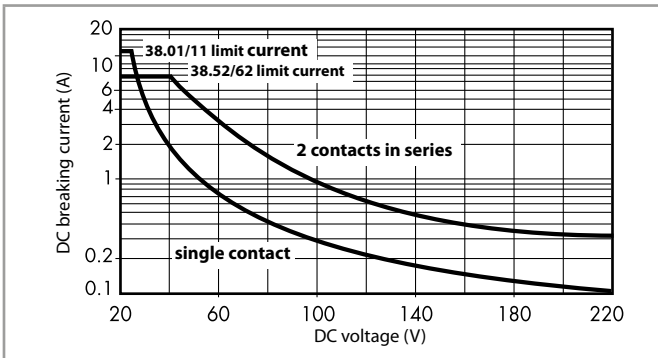


— : 2 Pole 8 A
 — : 1 Pole 16 A

H 38 - Maximum DC1 breaking capacity, 1 Pole 6 A



H 38 - Maximum DC1 breaking capacity, 1 Pole 16 A and 2 Pole 8 A



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 60 \cdot 10^3$ (1 Pole) or $\geq 80 \cdot 10^3$ (2 Pole) can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load. Note: the release time for the load will be increased.

Coil specifications - 1 Pole 6 A Electromechanical Relay

Coil data sensitive DC, 1 Pole

Nominal voltage U_N	Coil code	Operating range		Rated coil consumption I at U_N	Power consumption P at U_N
V		U_{min}	U_{max}	mA	W
6	7.006	4.8	7.2	35	0.2
12	7.012	9.6	14.4	15.2	0.2
24	7.024	19.2	28.8	10.4	0.3
48	7.048	38.4	57.6	6.3	0.3
60	7.060	48	72	7	0.4

Coil data AC/DC, 1 Pole

Nominal voltage U_N	Coil code	Operating range		Rated coil consumption I at U_N	Power consumption P at U_N
V		U_{min}	U_{max}	mA	VA/W
12	0.012	9.6	13.2	16	0.2/0.2
24	0.024	19.2	26.4	12	0.3/0.2
48	0.048	38.4	52.8	6.9	0.3/0.3
60	0.060	48	66	7	0.5/0.5
110...125	0.125	88	138	5(*)	0.6/0.6(*)
220...240	0.240	176	264	4(*)	1/0.9(*)

(*) Rated coil consumption and power consumption values relate to $U_N = 125$ and 240 V.

Coil data AC, 1 Pole (indicated for max ambient temperature +70 °C)

Nominal voltage U_N	Coil code	Operating range		Rated coil consumption I at U_N	Power consumption P at U_N
V		U_{min}	U_{max}	mA	VA/W
(230...240) AC	8.240	184	264	3	0.7/0.3

Coil data, leakage current suppression types, 1 Pole

Nominal voltage U_N	Coil code	Operating range		Rated coil consumption I at U_N	Power consumption P at U_N
V		U_{min}	U_{max}	mA	VA/W
(110...125) AC/DC	3.125	94	138	8(*)	1/1(*)
(230...240) AC	3.240	184	264	7(*)	1.7/0.5(*)

(*) Rated coil consumption and power consumption values relate to $U_N = 125$ and 240 V.

The 38 Series interface modules (supply version 3) have built-in leakage current suppression to address industry concerns of the contacts not dropping-out when there is residual current in the circuit; at (110...125)V AC and (230...240)V AC.

This problem can occur, for example, when connecting the interface modules to PLCs with triac outputs or when connecting via relatively long cables.

Coil specifications - 1 Pole 16 A and 2 Pole 8 A Electromechanical Relay

Coil data sensitive DC, 1 Pole 16 A and 2 Pole 8 A

Nominal voltage U_N	Coil code	Operating range		Rated coil consumption I at U_N	Power consumption P at U_N
V		U_{min}	U_{max}	mA	W
12	7.012	9.6	14.4	41	0.5
24	7.024	19.2	28.8	19.5	0.5
60	7.060	48	72	8	0.5

Coil data AC/DC, 1 Pole 16 A and 2 Pole 8 A

Nominal voltage U_N	Coil code	Operating range		Rated coil consumption I at U_N	Power consumption P at U_N
V		U_{min}	U_{max}	mA	W
24	0.024	19.2	26.4	20	0.5/0.5
60	0.060	48	66	7.1	0.5/0.5
110...125	0.125	88	138	4.6	0.6/0.6
220...240	0.240	184	264	3.8	0.9/0.9

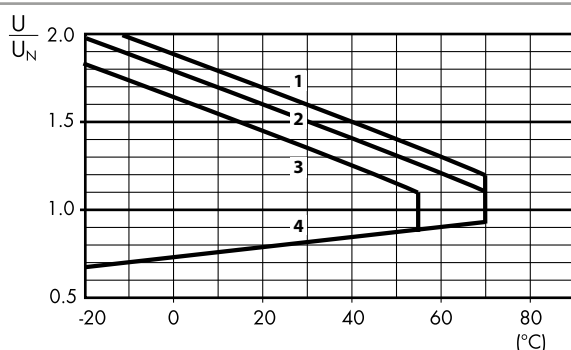
Coil data AC, 1 Pole 16 A and 2 Pole 8 A

Nominal voltage U_N	Coil code	Operating range		Rated coil consumption I at U_N	Power consumption P at U_N
V		U_{min}	U_{max}	mA	VA/W
230...240	8.230	184	264	5.3	1.2/0.6

Coil specification - 1 & 2 Pole Electromagnetic Relays

R 38 - DC coil operating range v ambient temperature

1 Pole and 2 Pole



- 1 - Max. permitted coil voltage at nominal load (DC coil).
- 2 - Max. permitted coil voltage at nominal load (AC/DC coils $U \leq 60$ V).
- 3 - Max. permitted coil voltage at nominal load (AC/DC coils $U > 60$ V).
- 4 - Min pick-up voltage with coil at ambient temperature.

Technical data - Solid State Relays

Other data			38.81/38.91	38.31/38.41
Power lost to the environment	without output current	W	0.25 (24 V DC)	0.5
	with rated current	W	0.4	2.2 (DC output)/3 (AC output)
Terminals			38.81	38.91
Wire strip length	mm		10	10
 Screw torque	Nm		0.5	—
Max. wire size			solid cable	stranded cable
	mm ²		1 x 2.5 / 2 x 1.5	1 x 2.5 / 2 x 1.5
	AWG		1 x 14 / 2 x 16	1 x 14 / 2 x 16
			38.31	38.41
Wire strip length	mm		10	10
 Screw torque	Nm		0.5	—
Max. wire size			solid cable	stranded cable
	mm ²		1 x 2.5 / 2 x 1.5	1 x 2.5 / 2 x 1.5
	AWG		1 x 14 / 2 x 16	1 x 14 / 2 x 16
			1 x 14	1 x 14

Input specifications - Solid State Relays type 38.81 and 38.91 - 6.2 mm wide

Input data DC

Nominal voltage	Supply code	Operating range		Release voltage	Rated coil consumption	Power consumption
U _N		U _{min}	U _{max}	U	I at U _N	P
V		V	V	V	mA	W
6	7.006	5	7.2	2.4	7	0.2
24	7.024	16.8	30	10	10.5	0.3
60	7.060	35.6	72	20	6.5	0.4

Input data - Leakage current suppression types

Nominal voltage	Supply code	Operating range		Release voltage	Rated coil consumption	Power consumption
U _N		U _{min}	U _{max}	U	I at U _N	P at U _N
V		V	V	V	mA	W
110...125 AC/DC	3.125	94	138	44	8(*)	1/1(*)
230...240 AC	3.240	184	264	72	6.5(*)	1.6/0.6(*)

(*) Rated coil consumption and power consumption values relate to U_N = 125 and 240 V.

Input data AC/DC

Nominal voltage	Supply code	Operating range		Release voltage	Rated coil consumption	Power consumption
U _N		U _{min}	U _{max}	U	I at U _N	P
V		V	V	V	mA	VA/W
110...125	0.125	88	138	22	5.5*	0.7/0.7
220...240	0.240	184	264	44	3.5*	1/0.9

(*) Rated coil consumption and power consumption values relate to U_N = 125 and 240 V.

The 38 Series interface modules (supply version 3) have built-in leakage current suppression to address industry concerns of the contacts not dropping-out when there is residual current in the circuit; at (110...125) V AC and (230...240) V AC.

This problem can occur, for example, when connecting the interface modules to PLCs with triac outputs or when connecting via relatively long cables.

Input specification - Solid State Relay types 38.31 and 38.41 - 14 mm wide

Input data DC

Nominal voltage	Supply code	Operating range		Release voltage	Rated coil consumption	Power consumption
U _N		U _{min}	U _{max}	U	I at U _N	P
V		V	V	V	mA	W
12	7.012	9.6	18	5	9	0.2
24	7.024	16.8	30	5	12	0.3

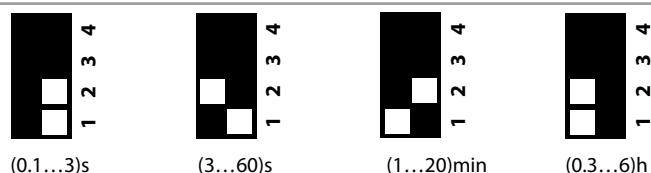
Input data AC/DC

Nominal voltage	Supply code	Operating range		Release voltage	Rated coil consumption	Power consumption
U _N		U _{min}	U _{max}	U	I at U _N	P
V		V	V	V	mA	W
24	0.024	16.8	30	9	16.5	0.3

Additional technical data - Timed Interface Module

EMC specifications				
Type of test			Reference standard	
Electrostatic discharge	contact discharge		EN 61000-4-2	4 kV
	air discharge		EN 61000-4-2	8 kV
Radio-frequency electromagnetic field (80 ÷ 1000 MHz)			EN 61000-4-3	10 V/m
Fast transients (burst) (5-50 ns, 5 kHz) on Supply terminals			EN 61000-4-4	4 kV
Surges (1.2/50 µs) on Supply terminals	common mode		EN 61000-4-5	4 kV
	differential mode		EN 61000-4-5	4 kV
Radio-frequency common mode (0.15 ÷ 80 MHz) on Supply terminals			EN 61000-4-6	10 V
Radiated and conducted emission			EN 55022	class B
Other data			EMR	SSR
Power lost to the environment	without contact current	W	0.1	0.1
	with rated current	W	0.6	0.5
Terminals			38.21	
Wire strip length	mm		10	
⊕ Screw torque	Nm		0.5	
Max. wire size			solid cable	stranded cable
	mm²		1 x 2.5 / 2 x 1.5	1 x 2.5 / 2 x 1.5
	AWG		1 x 14 / 2 x 16	1 x 14 / 2 x 16

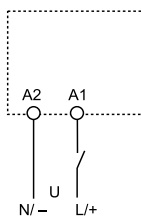
Times scales



Functions

LED	Supply voltage	NO contact/output
	OFF	Open
	ON	Open (time in progress)
	ON	Closed

Wiring diagram



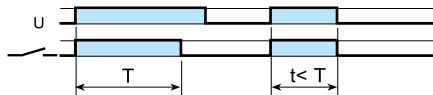
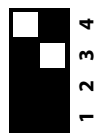
U = Supply voltage

= Output contact



(AI) On-delay.

Apply power to timer.
Output contacts transfer after preset time has elapsed.
Reset occurs when power is removed.



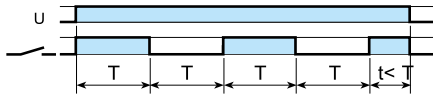
(DI) Interval.

Apply power to timer.
Output contacts transfer immediately.
After the preset time has elapsed, contacts reset.



(GI) Pulse delayed.

Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs after a fixed time of 0.5 s.



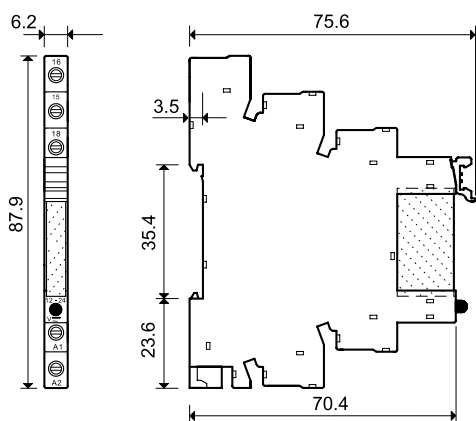
(SW) Symmetrical flasher (starting pulse on).

Apply power to timer.
Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied.
The ratio is 1:1 (time on = time off).

Outline drawings

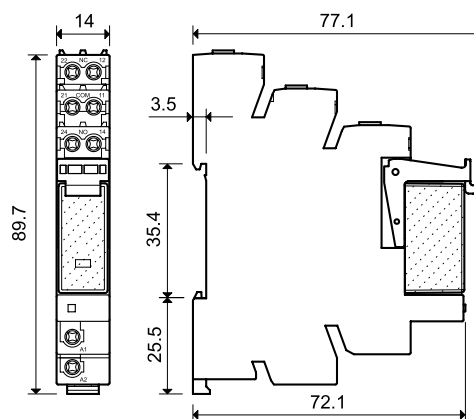
38.21
38.51 / 38.51.3
38.81 / 38.81.3

Screw terminal



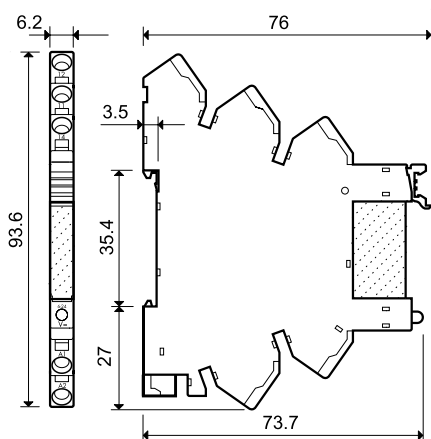
38.01
38.31
38.52

Screw terminal



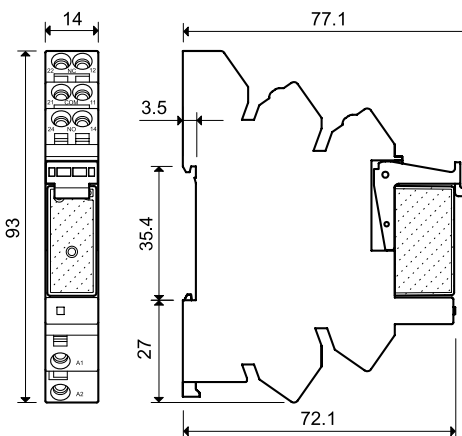
38.61 / 38.61.3
38.91 / 38.91.3

Screwless terminal



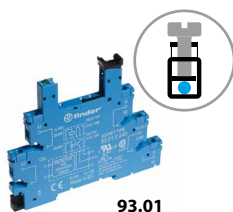
38.11
38.41
38.62

Screwless terminal

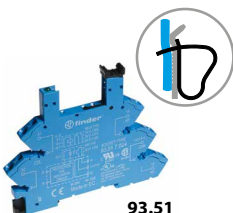


Electromechanical Relay & Socket Combinations

B



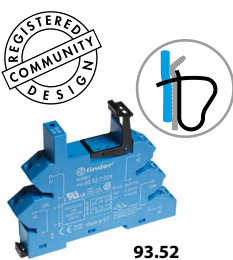
93.01



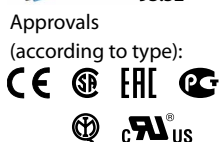
93.51



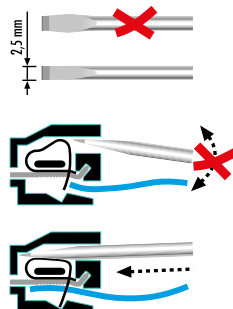
93.02



93.52



cUL US Certain relay/socket combinations



Screw terminal - 1 Pole relay 6 A

Interface Module Code	Coil voltage	Relay	Socket
38.51.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.01.0.024
38.51.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.01.0.024
38.51.0.048.0060	48 V AC/DC	34.51.7.048.0010	93.01.0.060
38.51.0.060.0060	60 V AC/DC	34.51.7.060.0010	93.01.0.060
38.51.0.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.01.0.125
38.51.0.240.0060	(220...240)V AC/DC	34.51.7.060.0010	93.01.0.240
38.51.3.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.01.3.125
38.51.3.240.0060	(230...240)V AC	34.51.7.060.0010	93.01.3.240
38.51.7.006.0050	6 V DC	34.51.7.005.0010	93.01.7.024
38.51.7.012.0050	12 V DC	34.51.7.012.0010	93.01.7.024
38.51.7.024.0050	24 V DC	34.51.7.024.0010	93.01.7.024
38.51.7.048.0050	48 V DC	34.51.7.048.0010	93.01.7.060
38.51.7.060.0050	60 V DC	34.51.7.060.0010	93.01.7.060
38.51.8.240.0060	(230...240)V AC	34.51.7.060.0010	93.01.8.240

Screwless terminal - 1 Pole relay 6 A

Interface Module Code	Coil voltage	Relay	Socket
38.61.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.51.0.024
38.61.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.51.0.024
38.61.0.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.51.0.125
38.61.0.240.0060	(220...240)V AC/DC	34.51.7.060.0010	93.51.0.240
38.61.3.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.51.3.125
38.61.3.240.0060	(230...240)V AC	34.51.7.060.0010	93.51.3.240
38.61.7.012.0050	12 V DC	34.51.7.012.0010	93.51.7.024
38.61.7.024.0050	24 V DC	34.51.7.024.0010	93.51.7.024
38.61.8.240.0060	(230...240)V AC	34.51.7.060.0010	93.51.8.240

Screw terminal - 1 Pole relay 16 A

Interface Module Code	Coil voltage	Relay	Socket
38.01.7.012.0050	12 V DC	41.61.9.012.0010	93.02.7.024
38.01.7.024.0050	24 V DC	41.61.9.024.0010	93.02.7.024
38.01.7.060.0050	60 V DC	41.61.9.060.0010	93.02.7.060
38.01.0.024.0060	24 V AC/DC	41.61.9.024.0010	93.02.0.024
38.01.0.060.0060	60 V AC/DC	41.61.9.060.0010	93.02.0.060
38.01.0.125.0060	125 V AC/DC	41.61.9.110.0010	93.02.0.125
38.01.0.240.0060	240 V AC/DC	41.61.9.110.0010	93.02.0.240
38.01.8.230.0060	230 V AC	41.61.9.110.0010	93.02.8.230

Screwless terminal - 1 Pole relay 16 A

Interface Module Code	Coil voltage	Relay	Socket
38.11.7.012.0050	12 V DC	41.61.9.012.0010	93.52.7.024
38.11.7.024.0050	24 V DC	41.61.9.024.0010	93.52.7.024
38.11.7.060.0050	60 V DC	41.61.9.060.0010	93.52.7.060
38.11.0.024.0060	24 V AC/DC	41.61.9.024.0010	93.52.0.024
38.11.0.060.0060	60 V AC/DC	41.61.9.060.0010	93.52.0.060
38.11.0.125.0060	125 V AC/DC	41.61.9.110.0010	93.52.0.125
38.11.0.240.0060	240 V AC/DC	41.61.9.110.0010	93.52.0.240
38.11.8.230.0060	230 V AC	41.61.9.110.0010	93.52.8.230

Screw terminal - 2 Pole relay 8 A

Interface Module Code	Coil voltage	Relay	Socket
38.52.0.024.0060	24 V AC/DC	41.52.9.024.0010	93.02.0.024
38.52.0.060.0060	60 V AC/DC	41.52.9.060.0010	93.02.0.060
38.52.0.125.0060	(110...125)V AC/DC	41.52.9.110.0010	93.02.0.125
38.52.0.240.0060	(220...240)V AC/DC	41.52.9.110.0010	93.02.0.240
38.52.7.012.0050	12 V DC	41.52.9.012.0010	93.02.7.024
38.52.7.024.0050	24 V DC	41.52.9.024.0010	93.02.7.024
38.52.7.060.0050	60 V DC	41.52.9.060.0010	93.02.7.060
38.52.8.230.0060	(230...240)V AC	41.52.9.110.0010	93.02.8.230

Screwless terminal - 2 Pole relay 8 A

Interface Module Code	Coil voltage	Relay	Socket
38.62.0.024.0060	24 V AC/DC	41.52.9.024.0010	93.52.0.024
38.62.0.060.0060	60 V AC/DC	41.52.9.060.0010	93.52.0.060
38.62.0.125.0060	(110...125)V AC/DC	41.52.9.110.0010	93.52.0.125
38.62.0.240.0060	(220...240)V AC/DC	41.52.9.110.0010	93.52.0.240
38.62.7.012.0050	12 V DC	41.52.9.012.0010	93.52.7.024
38.62.7.024.0050	24 V DC	41.52.9.024.0010	93.52.7.024
38.62.7.060.0050	60 V DC	41.52.9.060.0010	93.52.7.060
38.62.8.230.0060	(230...240)V AC	41.52.9.110.0010	93.52.8.230

Solid State Relay & Socket Combinations - 6.2 mm wide

Screw terminal

Interface Module Code	Input voltage	Relay	Socket
38.81.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.01.7.024
38.81.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.01.7.024
38.81.7.060.xxxx	60 V DC	34.81.7.060.xxxx	93.01.7.060
38.81.0.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.01.0.125
38.81.0.240.xxxx	(220...240)V AC/DC	34.81.7.060.xxxx	93.01.0.240
38.81.3.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.01.3.125
38.81.3.240.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.01.3.240

Screwless terminal

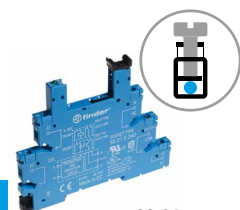
Interface Module Code	Input voltage	Relay	Socket
38.91.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.51.7.024
38.91.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.51.7.024
38.91.7.060.xxxx	60 V DC	34.81.7.060.xxxx	93.51.7.060
38.91.0.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.51.0.125
38.91.0.240.xxxx	(220...240)V AC/DC	34.81.7.060.xxxx	93.51.0.240
38.91.3.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.51.3.125
38.91.3.240.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.51.3.240

Example: .xxxx

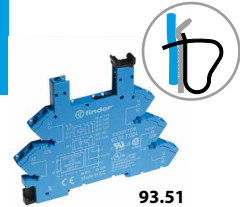
.9024

.7048

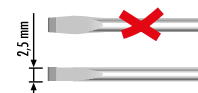
.8240



93.01



93.51

Approvals
(according to type):Certain relay/socket
combinations

93.52

Approvals
(according to type):

93.21

Approvals
(according to type):

Solid State Relay & Socket Combinations - 14 mm wide

Screw terminal

Interface Module Code	Input voltage	Relay	Socket
38.31.0.024.xxxx	24 V AC/DC	41.81.7.024.xxxx	93.02.0.024
38.31.7.012.xxxx	12 V DC	41.81.7.012.xxxx	93.02.7.024
38.31.7.024.xxxx	24 V DC	41.81.7.024.xxxx	93.02.7.024

Screwless terminal

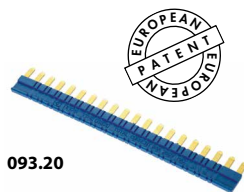
Interface Module Code	Input voltage	Relay	Socket
38.41.0.024.xxxx	24 V AC/DC	41.81.7.024.xxxx	93.52.0.024
38.41.7.012.xxxx	12 V DC	41.81.7.012.xxxx	93.52.7.024
38.41.7.024.xxxx	24 V DC	41.81.7.024.xxxx	93.52.7.024

SSR / EMR & Timer Socket Combinations

Screw terminal

Interface Module Code	Input / Coil voltage	Relay	Socket
38.21.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.21.0.024
38.21.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.21.0.024
38.21.0.024.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.21.0.024

Accessories

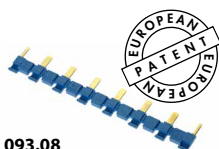
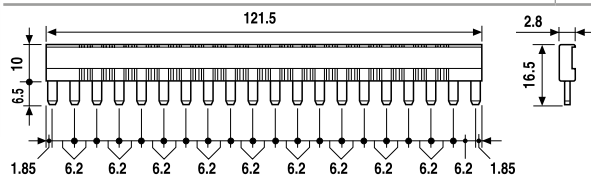


093.20

Approvals
(according to type):



20-way jumper link for 3a8.21/51/61/81/91	093.20 (blue)	093.20.0 (black)	093.20.1 (red)
Rated values	36 A - 250 V		

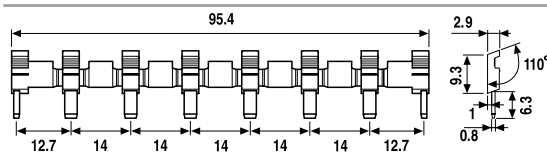


093.08

Approvals
(according to type):



8-way jumper link for 38.01/11/31/41/52/62	093.08 (blue)	093.08.0 (black)	093.08.1 (red)
Rated values	10 A - 250 V		



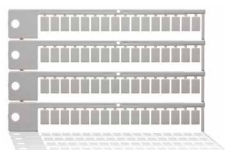
093.01

Plastic separator	093.01
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Thickness 2 mm, required at the start and the end of a group of interfaces.

Can be used for visual separation group, must be used for:

- protective separation of different voltages of neighbouring PLC interfaces according to VDE 0106-101
- protection of cut jumper links



093.64

Sheet of marker tags for 38.21/51/61/81/91, plastic, 64 tags, 6 x 10 mm	093.64
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060.72

Sheet of marker tags for 38.01/11/31/41/52/62, plastic, 72 tags, 6 x 12 mm	060.72
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