ETD-BL-2T-I-230(-PT)

Timer relay with adjustable pulse and pause times

Data sheet
106851_en_02

1 Description

Requirements pertaining to safety and system availability increase constantly – regardless of the industry. Processes are becoming more and more complex, not only in the mechanical engineering and chemical industry but also in plant and automation technology. Demands on power engineering are also constantly on the rise.
Timer relays of the ETD series are available for controlling the time sequences in production and process engineering.

Features

- Adjustable pulse and pause times
- Time range from 50 ms to 100 h (seven setting ranges)
- Timer function
- Wide-range power supply unit
- 1 floating PDT

WARNING: Risk of electric shock
Never carry out work when voltage is present.

Make sure you always use the latest documentation.
It can be downloaded from the product at phoenixcontact.net/products.
This document is valid for the products listed in the “Ordering data”.

2 Table of contents

3 Ordering data

Description	Type	Order No.	Pcs./Pkt.
Compact impulse encoder with adjustable pulse and pause times (50 ms - 100 h), wide range power supply unit, with screw connection, 1 PDT	ETD-BL-2T-I-230	2907713	1
Compact impulse encoder with adjustable pulse and pause times (50 ms - 100 h), wide range power supply unit, with push-in connection, 1 PDT	ETD-BL-2T-I-230-PT	2907714	1

4 Technical data

Input data	
Input voltage range	24 V DC ... 240 V DC -10 % ... +15 %
Nominal frequency	48 Hz ... 63 Hz
Temperature coefficient, typical	≤ 0.01 %/K
Recovery time	500 ms
Time setting range	50 ms ... 100 h (7 time end ranges)
Function	Ip: Switched-mode beginning with the pause Ii: Switched-mode beginning with the pulse
Basic accuracy	± 1 % (of scale end value)
Setting accuracy	≤ 5 % (of scale end value)
Repeat accuracy	≤ 0.5 % ±5 ms
Nominal power consumption	2.5 VA (1 W)

Output data	
Contact type	1 floating PDT
Maximum switching voltage	250 V AC (in acc. with IEC 60664-1)
Interrupting rating (ohmic load) max.	750 VA (3 A/250 V AC, module aligned, ≤ 5 mm spacing) 1250 VA (5 A/250 V AC, module not aligned, ≥ 5 mm spacing)
Output fuse	5 A (fast-blow)

Control contact	
Control contact	Non-floating, terminals A1-B1
Control pulse length	≥ 50 ms (DC)

General data	
Mechanical service life	Approx. 2 x 10^7 cycles
Service life, electrical	Approx. 2 x 10^5 cycles at ohmic load, 1000 VA
Switching frequency	max. 60 (per minute at 100 VA ohmic load) max. 6 (per minute at 1000 VA ohmic load)
Operating mode	100% operating factor
Degree of protection	IP40 (housing) / IP20 (connection terminal blocks)
Degree of pollution	2 (according to EN 50178)
Overvoltage category	III, basic insulation (as per EN 50178)
Rated insulation voltage	300 V (According to EN 50178)
Flammability rating according to UL 94	V0
Mounting	on standard DIN rail NS 35 in accordance with EN 60715
Mounting position	any
Width	17.5 mm
Height	88 mm
Depth	65.5 mm
Color	gray

Connection data	Screw connection	Push-in connection
Conductor cross section, solid	0.14 mm² ... 2.5 mm²	0.5 mm² ... 2.5 mm²
Conductor cross section, flexible	0.14 mm² ... 2.5 mm²	0.5 mm² ... 2.5 mm²
AWG	20 ... 14	26 ... 14
Stripping length	8 mm	8 mm

Ambient conditions	
Ambient temperature (operation)	-25 °C ... 55 °C -25 °C ... 40 °C (corresponds to UL 508)
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Permissible humidity (operation)	15 % ... 85 %

Conformance/Approvals	
Conformance	CE-compliant

Conformance with EMC Directive 2014/30/EU	
Noise immunity according to	EN 61000-6-2
Noise emission according to	EN 61000-6-4

Conformance with Low Voltage Directive 2014/35/EC	
Industrial timer relays according to	EN 61812-1/A11

5 Safety notes

WARNING: Risk of electric shock

Never carry out work when voltage is present.

6 Basic circuit diagram

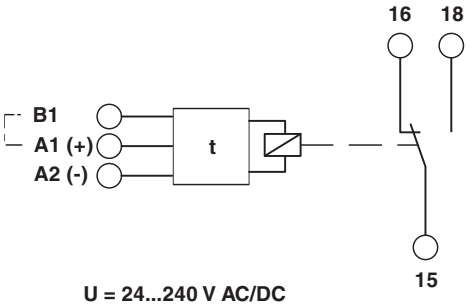
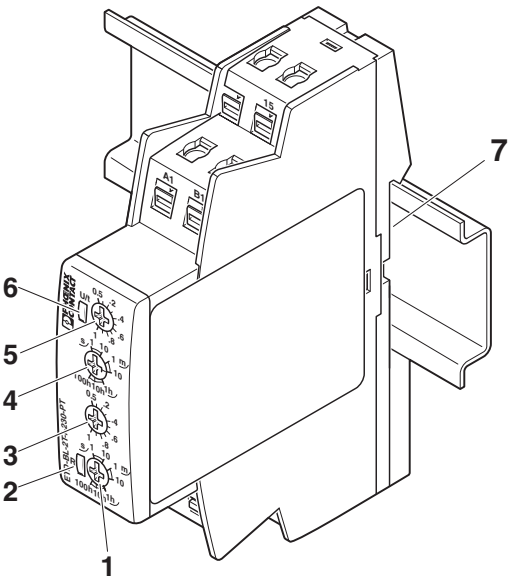


Figure 1 Block diagram

7 Structure



1 Rotary switch "TIME2": Time end range
2 LED "R": output relay
3 "TIME2" potentiometer: Preset value
4 Rotary switch "TIME1": Time end range
5 "TIME1" potentiometer: Preset value
6 "U/t" LED: Supply and adjustable time TIME
7 Snap-on foot for DIN rail mounting

8 Installation

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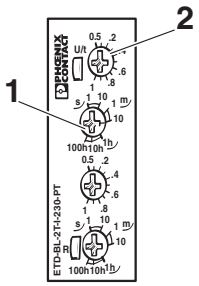
The module can be snapped onto all 35 mm DIN rails according to EN 60715.

An integrated wide-range power supply unit enables the connection of a supply voltage in the range from 24 V AC/DC to 240 V AC/DC.

9 Time setting



1 Specification of the time end range using a rotary switch, e.g. 10 m (10 minutes)
2 Fine setting of the time using a potentiometer, e.g. 0.4

Set time: 0.4 x 10 minutes = 4 minutes

10 Diagnostics

The LEDs indicate the following error states:

"U/t" LED (Green)

– LED flashes: Voltage present, set time running
– LED ON: Voltage present, set time has elapsed

“R” LED (yellow)

– LED ON: Output relay has picked up
– LED OFF: Output relay has dropped out

11 Connection examples

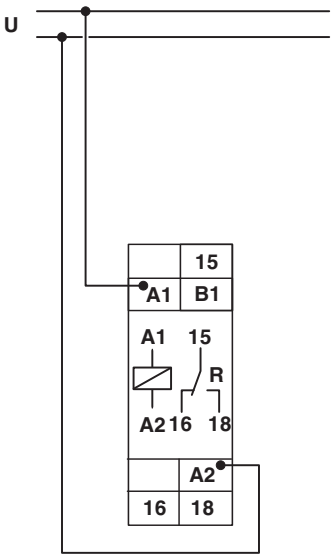


Figure 2 Switched-mode beginning with pause

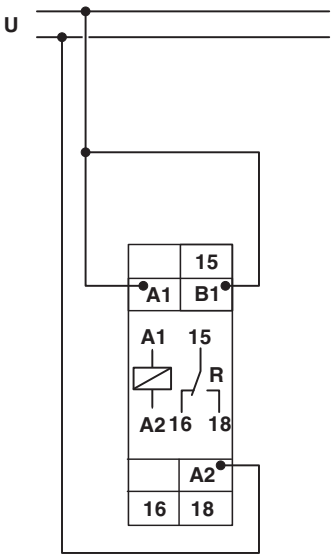


Figure 3 Switched-mode beginning with pulse

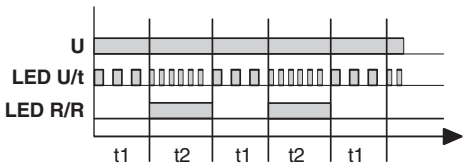
12 Function

NOTE: Module can become damaged

Only set the functions when the module is switched off.

Switched-mode beginning with pause - Ip

When supply voltage U is applied, set time t1 starts running (green "U/t" LED flashes at 0.75 Hz). Once time t1 has elapsed, the output relay picks up (yellow "R" LED is ON) and set time t2 starts running (green "U/t" LED flashes at 1.5 Hz).
Once time t2 has elapsed, the output relay drops out (yellow "R" LED is OFF). The output relay is controlled in relation to set times t1 and t2 until the supply voltage is interrupted.
Time t1 = Pause time
Time t2 = Pulse time



Switched-mode beginning with pulse - Ii

When supply voltage U is applied, the output relay picks up (yellow "R" LED is ON) and set time t1 starts running (green "U/t" LED flashes at 0.75 Hz). Once time t1 has elapsed, the output relay drops out (yellow "R" LED is OFF) and set time t2 starts running (green "U/t" LED flashes at 1.5 Hz).
Once time t2 has elapsed, the output relay picks up again (yellow "R" LED is ON). The output relay is controlled in relation to set times t1 and t2 until the supply voltage is interrupted.
Time t1 = Pulse time
Time t2 = Pause time