Double programmable Time Relays
MTR17-TPD-U240-205

- Double programmable Time Relays
- 16 independently configurable time blocks with timing range 100ms…100h,
- Two independent control inputs S1 and S2,
- Two implementing relays R1 and R2,
- Easy programming of the relay with a standard mini-USB cable,
- Two different time functions that perform in parallel,
- Low power consumption - high energy efficiency,
- Installation design DIN 35mm,
- Width 17.5mm,

CE

Technical data

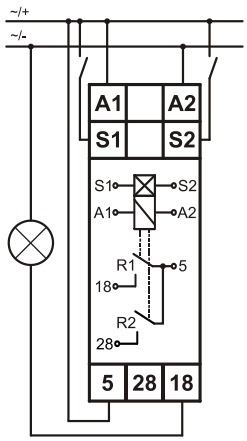
Output circuit			
Contact arrangement			2 form A (2x NO)
Rated voltage		V AC	250/400
Switching current range AC1 DC1		A/V AC A/V DC	5/250 5/24
Switching load range AC1		VA	1 250
Contact resistance		mΩ	≤ 100
Max. rated current ❸		A	10
Input circuit			
Supply voltage U_n AC/DC (AC:50-60Hz)		V	12…240
Tolerance			0,8…1,1U_n (9,6…264V)
Rated consumption	AC DC	VA W	≤ 2,5 ≤ 2,0
Rated frequency		Hz	47…63
Control input S1 and S2 ▪ Min. trigger level (sensitivity) ❶ ▪ Min. control pulse length ▪ Loadable		 ms 	 0,7U_n AC: ≥ 90 DC: ≥ 45 yes
Rated surge voltage		V	1 000
Max. line length		m	10
Insulation			
Insulation rated voltage		V AC	250
Rated surge voltage		V	4 000 1,2/50µs
Overvoltage category			III
Dielectric strength ▪ Input - output ▪ Open contact		V AC	 4 000 1 000
General data			
Electrical life AC1 at 1000 VA resistive load			≥ 5,0 x 10^4 operations
Mechanical life			≥ 10^7 operations
Dimensions (L x W x H) / Weight		mm / g	90 x 17,5 x 66 / 53g
Ambient temperature / storage temperature		°C	-40…+70 / -20…+45
IP rating			IP20
Relative humidity		%	to 85
Shock resistance		g	15
Vibration resistance		mm	0,35 10…55Hz
Time module data			
Functions			❶
Time ranges			1s, 10s, 1m, 10m, 1h, 10h, 100h
Timing adjustment			smooth 0,1…1,0 x time range
Setting external accuracy		%	5
Repeatability		%	0,5
Recovery time		ms	≤ 100

Description

Double programmable timer relays MTR17-TPD-U240-205 are universal timing circuits, which implemented time function is defined by the user and loaded into the programmable relay with TimProg applications. The flexible structure of the program allows for quick and easy implementation of both standard and non-standard time functions, allowing the construction of control systems tailored to individual needs. Use the USB interface allows easy programming of the relay with a standard mini-USB cable, making it easier and minimizing the cost of the final starting of terminal units. Options viewing the current status of the relay and work simulation software make defining and running time functions easier.

Timer relay MTR17-TPD-U240-205 has two independent control inputs S1 and S2, two implementing relays R1 and R2 and the logical structure of a software that allows you to define two different time functions that perform in parallel. This solution allows implementation of two timer relays placed in one housing, reducing construction costs of terminal equipment and reducing the amount of occupied space in the control cabinet.

Connections



Mounting

Relays are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any.

Connections: max. cross section of the cables: 1 x 2,5 mm2 / 2 x 1,5 mm2 (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,6 Nm.

❶ Using the Programmable Time Relays we can choice each program from the 21 allowable functions, Selecting them from the functions which you can find into the TimProg applications folders. The functions are organized by:

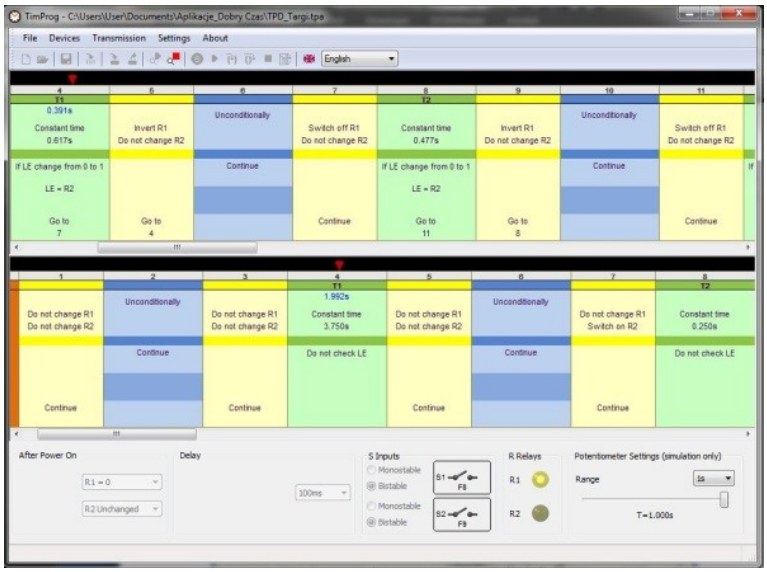
- Timing functions,
- Timing functions depending external signal,
- Counting Functions.

Software resources TPD (resources are identical for each of the two available programs)

Resource	Lot	Description
START	1	1. Defines the initial state relays R1 and R2 implementation after attached the supply voltage. • On Rx (disable) • Off Rx (enable) • Do not change the Rx * Rx – any relay R1 or R2 2. Specifies an additional delay after power, enabling the detection of input signals Sx before the start of the programmed function (see "Minimum pulse duration" in the specification). • 0ms (no delay) • 50ms • 100ms • 150ms
Status Control R	18	1. Defines the operation for implementing relay. • Do not change the status of Rx • Off Rx • On Rx • Invert Rx (change to oppose) 2. After the operation, the relay determines the next stage of the program implemented. • Continue (next step) • Jump to …… (performs a jump to the specified stage)
Conditional Block	9	1. Checks the set condition and performs a jump to the specified level. • Unconditionally (performs a jump without checking the condition) • Wait for LE=0 • Wait for LE=1 • Wait for change LE from z 0 to 1 • Wait for change ę LE from 1 to 0 • Wait for any change LE • If LE=0 • If LE=1 LE (*Logical Expression*) is a logical expression up to three variables defined by the user. There are operators AND, OR, and XOR and a set of arguments, S1, ~S1, S2, ~S2, R1, ~R1, R2 and ~R2.. The Symbol ~ means the negation operator. A more detailed description of logical expressions described in chapter 3.3. 2. Defines the stage or stages, which will jump. For the last two terms should be given two seats jumping - the first is essential if the condition is met, the second to the contrary.
Time Block	8	1. It allows you to set the time. • Ranges: 1s, 10s, 1m, 10m, 1h, 10h, 100h • Adjustable 0,1 ...1.0 range values • Ability to download settings from potentiometer mounted on relay panel 2. During the interval, it is possible to control the condition set LE, the fulfilment of which immediately stops the timer and jump to the stage set for Time Block. • Do not check for LE • If LE=0 • If LE=1 • If the change LE from 0 to 1 • If the change LE from 1 to 0 • If any change LE 3. After a complete end of the measuring time-oriented program goes to the next stage in the current block.

PC programming software – TimProg applications

Look for relay applications TPD programs is shown below.



Manual Software TimProg for programmable timer relays.
TimProg software has a user interface, using which it is possible to define the schema of the time function or sequential. Depending on the type of relay TPA or TPD, the application window will show up one or two fields configured by the user. Each program consists of logical elements described earlier: the *START*, *Control Block*, *Conditional Blocks* and *Time Blocks*. At the end of each program is a *STOP* block that does not have any configuration values and serves only to stop the operation of the program.

Application options TimProg :

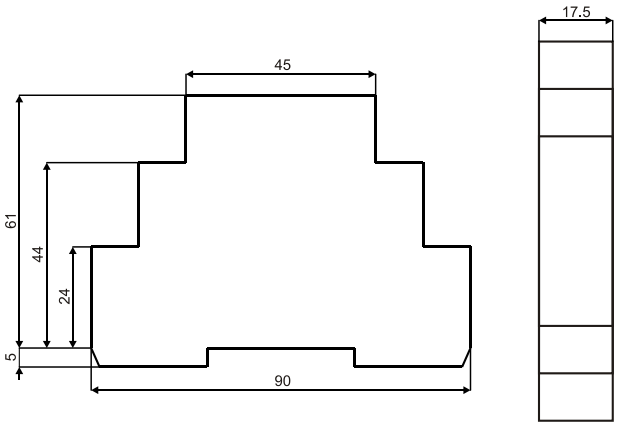
- Edition of starting values configuration, operations on R relay, conditional jumps and time blocks.
- Relay's software loading and reading current work status preview- current stage, contact S state, The R relay state and currently measured times value.
- Prepared program simulation with possible stepping, available without connecting the relay.
- Recording and reading from the time function disc defined by user.
- Export settings to text file in order to prepare documentation.

Service/Manual in English and Polish download the TimProg software for free from our webpage:
http://www.dobry-czas.pl/content/download/1499/15249/file/Setup_TimProg_v2.0.msi so you will always have it updated.

Programming

Programmable Time Relays including standard time functions, it also includes a programming mini-USB cable connection.
With the PC programming software, the user will be able to set up his own complex functions by nesting and mixing different timing and functions, making it possible to develop complex programmed solutions. At the place of installation of the software Timprog there is a subdirectory called Functions in which is placed the file in PDF format with descriptions of all the common functions of time offered in the company's products Dobry Czas Sp. z o.o. This directory also contains the ready files in the format *. tpa for TPA series relays.

Dimensions



Advantages use Programmable Time Relays in industrial automations instead PLC´s.

- Supply voltage - multivoltage 12 V AC/DC – 230V AC/DC,
- Output - 2 independent relays output
- Input – 2 independent input signal multivoltage,
- There are very suitable to general industrial automations with 2 input and 2 output direct to relay,
- Programming language is easy. Allow to program by a PC with a easy and intuitive software,
- Wide – 17,5 mm,
- Low cost,
- Is a low-cost alternative for simple applications where the complexity of the control logic required the use of programmable relays.
- The amount of resources and the diversity of settings give a very large configuration options, allowing you to implement control schemes not found in typical time relays.

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