"ESA Control" Ltd

TIMERS

/TIME RELAYS/

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Specialized analogue timer TAS2-30S

Features

The TAS2-30S specialized analogue timer is designed for mounting on DIN-rail M35 and combines two functional devices:

1. Standard analogue timer (Timer)
It is used to switch electrical circuits at certain interval of time "T", which is set by the help of potentiometer. It starts by turning on the supply voltage or by negative impulse at the input of the device - terminal 7 (fig.3,4,5). By the key switch-over (fig.1) could be chosen one of the four operating modes (fig.2).
2. Speed control device (Speed controller)
The timer can be used to control the movement speed of transport lines. Electric impulses are sent from the rotating wheel of the transport line to the device by the help of switch. If the time "t" - between two consequent impulses exceeds the time set by the device "T", then the output timer turns off.

fig.1

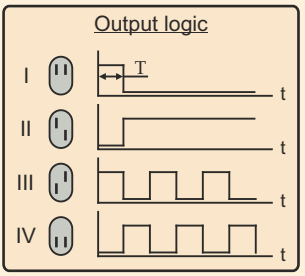


fig.2

Type parameters

Type	Supply voltage	Consumption
TAS2-30S / 12V	11÷16VDC / 10÷15VAC	35mA (0.4W)
TAS2-30S / 24V	21÷28VDC / 19÷26VAC	24mA (0.6W)
TAS2-30S / 220V	220VAC ±10%	47mA (11W)

Technical parameters

Time range, T	0,5 … 30 sec
Supply voltage, Us	220VAC / 24V / 12V
Output - Relay (NO+NC)	4A / 220VAC
Error in time measuring	±5%
Operating temperature range, Ta	-20º...+50º C
Degree of protection	IP40
Joining	Terminal
Sizes	86x35x58mm, DIN35-35

Schemes of connection of the sensor to the device

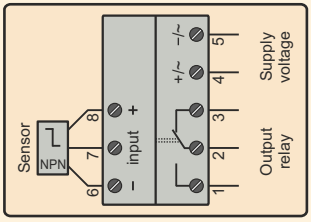


fig.3
Starting by 3-wire NPN type sensor

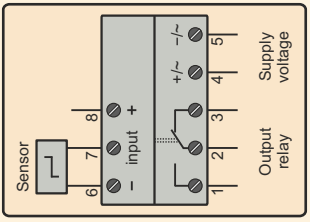


fig.4
Starting by 2-wire sensor

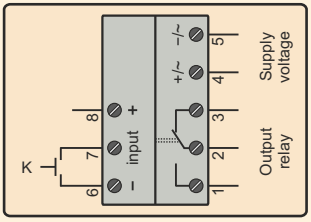
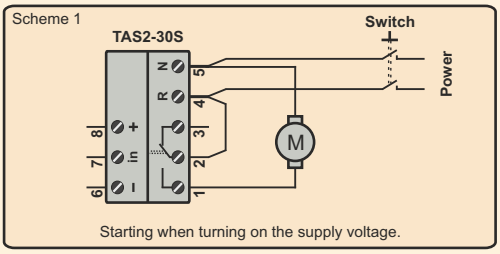
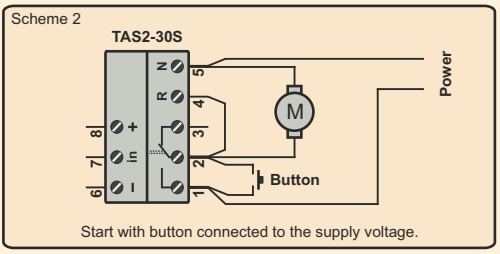


fig.5
Starting by switch K /dry contact/

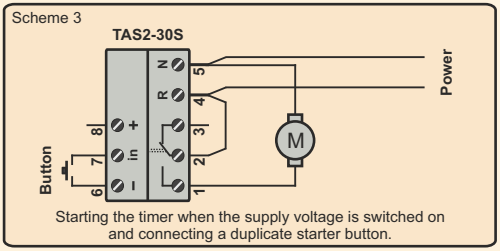
Schemes of connection of the TAS2-30S, as a timer



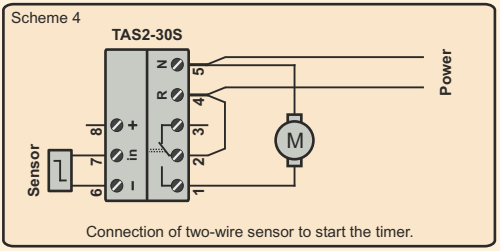
Starting when turning on the supply voltage.



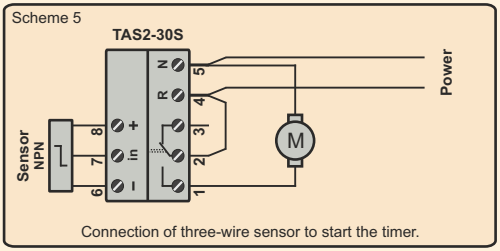
Start with button connected to the supply voltage.



Starting the timer when the supply voltage is switched on and connecting a duplicate starter button.



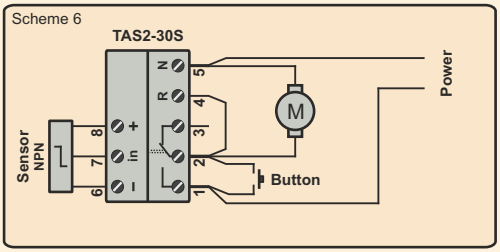
Connection of two-wire sensor to start the timer.

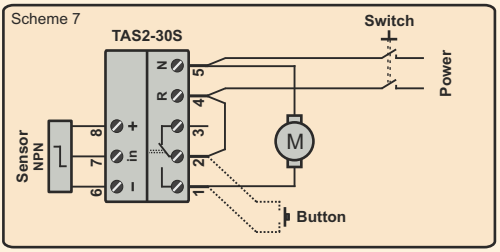


Connection of three-wire sensor to start the timer.

Schemes of connection of the TAS2-30S, as a device for speed control

When using the TAS230S as a device for controlling the speed of objects is necessary the key switch, located on the front panel to be set to " I " position -->





Basic scheme for the connection of the TAS2-30S as a speed controller. The button is pressed until the system reaches the required speed and then must be left. Scheme 6 is used for systems that after starting reach slowly the required operating speed.

Starting the controller when turning on the supply voltage. Scheme 7 is used only for systems that after starting reach quickly the necessary operating speed. A button may be set between terminals 1 and 2 to restart the system.

Digital timer - time relay

TDE4-3

Features

The TDE4-3 digital timer is a compact device on the basis of microprocessor. Used to switch direct current and alternating current electric circuits for a fixed time interval "T", which is set in digital form. The time relay has two operating modes LOG1 (_I¯I_) and LOG2 (_I¯), which allow it to be used in various automated systems. It is used widely in automation of production, technological and other processes. The digital timer is designed for installation in a dashboard (panel montage).

Type parameters		
Type	Supply voltage	Consumption
TDE4-3 / 220V	220VAC ±10%	16mA (4W)
TDE4-3 / 12-24V	11 ÷ 31 VDC 11 ÷ 27 VAC	85mA (2W)

Technical parameters

LED indication, 4 digits, red	h=14 mm (height)
Time range, T	0,1 sec … 9999 min
Supply voltage, Us	220VAC / 12÷24V ac/dc
Output - Relay (NO+NC)	4A / 220VAC
Error in time measuring	0,05%
Operating temperature range, Ta	-20º...+50º C
Degree of protection	IP40
Joining	Terminal
Sizes	95x49x113 mm

Energy-independent memory for programmable parameters.
Input for outer nullity “Reset” - switch K3 (fig.1, fig.2).
Input for outer starting “Start” - operates with sensor type NPN (fig.1) or switch K2 (fig.2).
It is provided direct voltage 11÷23 Vdc (40mA) for sensor's supply.
ATTENTION: In LOG1 mode, when the K2 key permanently closed, the timer operates in cyclic mode.

Programmable parameters

Parameter T	0.1 ÷ 999.9 (1 ÷ 9999)
Time-range of parameter T :	
0,1÷999,9 sec	0.1″
1 ÷ 9999 sec	1.0″
1 ÷ 9999 min	1.0′
Operating regime (increment / decrement)	Inc / dEc
Breakup in the supply voltage Us :	
- after an interruption, the reading continues from the current data	Cont
- after an interruption, the reading automatically starts from the beginning	Full
- after an interruption, a stop mode of the current data is established	Ucc
- after an interruption, the timer is reset	Goto
Automatic starting, at first switching on of the supply	no / Auto
Mode of operation (⎍ / ⎏)	LOG1 / LOG2

Schemes of connection

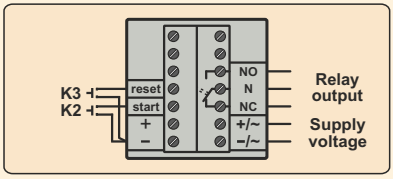


fig.1
Starting by K2 switch

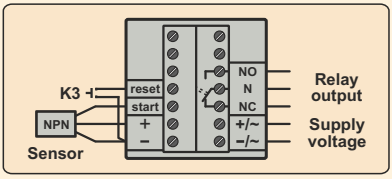


fig.2
Starting by NPN type sensor

Digital timer - time relay

TDE4-3L

Features

The TDE4-3L digital timer is designed for mounting on an M35 DIN rail. It is a compact device based on a microprocessor. Used to switch direct current and alternating current electric circuits for a fixed time interval "T", which is set in digital form. The time relay has two operating modes LOG1 (_I¯I_) and LOG2 (_I¯), which allow it to be used in various automated systems. It is used widely in automation of production, technological and other processes.

Type parameters		
Type	Supply voltage	Consumption
TDE4-3L / 220V	220VAC ±10%	16mA (4W)
TDE4-3L / 12-24V	11 ÷ 31 VDC 11 ÷ 27 VAC	85mA (2W)

Technical parameters

LED indication, 4 digits, red	h=14 mm (height)
Time range, T	0,1 sec … 9999 min
Supply voltage, Us	220VAC / 12÷24V ac/dc
Output - Relay (NO+NC)	4A / 220VAC
Error in time measuring	0,05%
Operating temperature range, Ta	-20º...+50º C
Degree of protection	IP40
Joining	Terminal
Sizes	86x35x58mm, DIN35-70

Energy-independent memory for programmable parameters.
Input for outer nullity “Reset” - switch K3 (fig.1, fig.2).
Input for outer starting “Start” - operates with sensor type NPN (fig.1) or switch K2 (fig.2).
It is provided direct voltage 11÷23 Vdc (40mA) for sensor's supply.
ATTENTION: In LOG1 mode, when the K2 key permanently closed, the timer operates in cyclic mode.

Programmable parameters

Parameter T	0.1 ÷ 999.9 (1 ÷ 9999)
Time-range of parameter T :	
0,1÷999,9 sec	0.1″
1 ÷ 9999 sec	1.0″
1 ÷ 9999 min	1.0′
Operating regime (increment / decrement)	Inc / dEc
Breakup in the supply voltage Us :	
- after an interruption, the reading continues from the current data	Cont
- after an interruption, the reading automatically starts from the beginning	Full
- after an interruption, a stop mode of the current data is established	Ucc
- after an interruption, the timer is reset	Goto
Automatic starting, at first switching on of the supply	no / Auto
Mode of operation (⎍ / ⎏)	LOG1 / LOG2

Schemes of connection

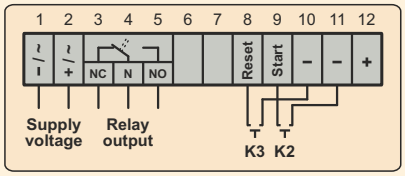


fig.1
Starting by K2 switch

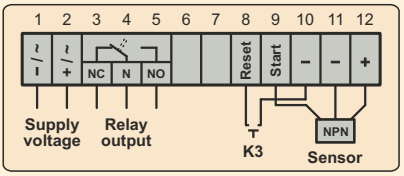
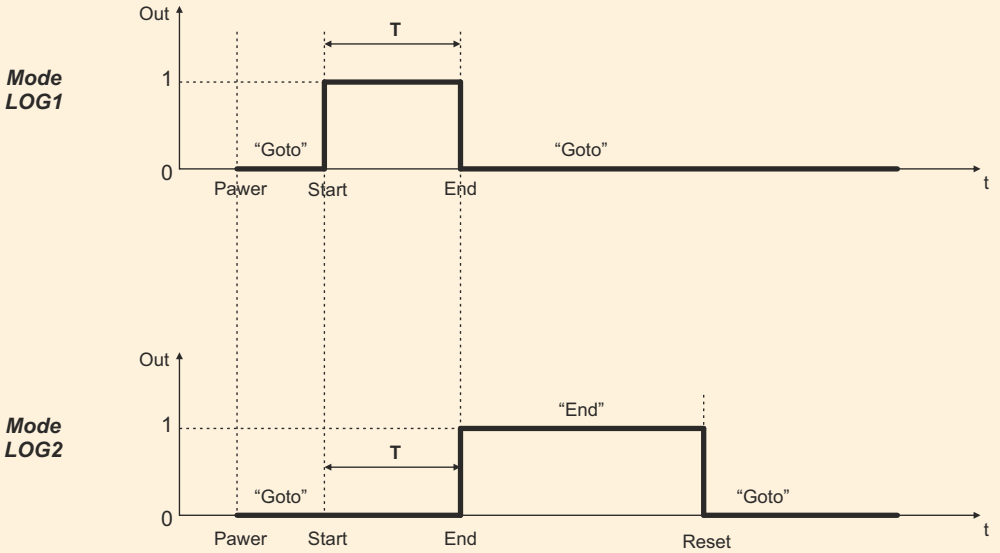


fig.2
Starting by NPN type sensor



Timing diagram of the output relay (“NO” - normally open contact)

Digital cyclic timer

TDT4-2

Features

The TDT4-2 digital cyclic timer is a compact device on the basis of microprocessor. It serves to commutate direct current and alternating current electric circuits. The time of the on state "Ton" and the time of the off state "Toff" of the output relay are programmatically set in digital form. One cycle is equal to the sum of the times "Ton" and "Toff". It is possible to set arbitrary number of cycles "C", after counting of which the timer turns off and goes to the starting position. It is used widely in automation of production, technological and other processes.

Type parameters		
Type	Supply voltage	Consumption
TDT4-2 / 220V	220VAC ±10%	16mA (4W)
TDT4-2 / 12-24V	11 ÷ 31 VDC 11 ÷ 27 VAC	85mA (2W)

Technical parameters

LED indication, 4 digits, red	h=14 mm (height)
Time range, Ton (Toff)	0,1 sec … 9999 min
Number of cycles, C	0 … 999
Supply voltage, Us	220VAC / 12÷24V ac/dc
Output - Relay (NO+NC)	4A / 220VAC
Error in time measuring	0,05%
Operating temperature range, Ta	-20º...+50º C
Degree of protection	IP40
Joining	Terminal
Sizes	95x49x113 mm

Energy-independent memory for programmable parameters.
Input for outer nullity “Reset” - switch K3 (fig.1, fig.2).
Input for outer starting “Start” - operates with sensor type NPN (fig.1) or switch K2 (fig.2).
It is provided direct voltage 11÷23 Vdc (40mA) for sensor's supply.

Programmable parameters

Time-range of parameter Ton :	
0,1÷999,9 sec	0.1”
1 ÷ 9999 sec	1 ‘’
1 ÷ 9999 min	1 ‘
Parameter Ton (time of switched on state the output relay)	0.1.÷ 999.9. (1.÷ 9999.)
Time-range of parameter Toff :	
0,1÷999,9 sec	0.1”
1 ÷ 9999 sec	1 ‘’
1 ÷ 9999 min	1 ‘
Parameter Toff (time of out-of-work state the output relay)	0.1 ÷ 999.9 (1 ÷ 9999)
Number of cycles C (000 - infinity)	000 ÷ 999
Breakup in the supply voltage Us :	
- after an interruption, the reading continues from the current data	Cont
- after an interruption, the reading automatically starts from the beginning	Full
- after an interruption, a stop mode of the current data is established	Ucc
- after an interruption, the timer is reset	Goto
Automatic starting, at first switching on of the supply	no / Auto
Initial starting of the timer St (Ton / Toff)	⊓ / ⊔

Schemes of connection

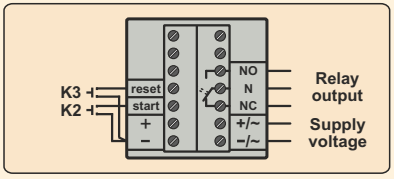


fig.1
Starting by K2 switch

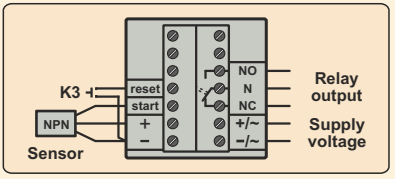


fig.2
Starting by NPN type sensor

Digital cyclic timer

TDT4-2L

Features

The TDT4-2L digital cyclic timer is designed for mounting on an M35 DIN rail. It is a compact device based on a microprocessor. It serves to commutate direct current and alternating current electric circuits. The time of the on state "Ton" and the time of the off state "Toff" of the output relay are programmatically set in digital form. One cycle is equal to the sum of the times "Ton" and "Toff". It is possible to set arbitrary number of cycles "C", after counting of which the timer turns off and goes to the starting position. It is used widely in automation of production, technological and other processes.

Type parameters		
Type	Supply voltage	Consumption
TDT4-2L / 220V	220VAC ±10%	16mA (4W)
TDT4-2L / 12-24V	11 ÷ 31 VDC 11 ÷ 27 VAC	85mA (2W)

Technical parameters

LED indication, 4 digits, red	h=14 mm (height)
Time range, Ton (Toff)	0,1 sec … 9999 min
Number of cycles, C	0 … 999
Supply voltage, Us	220VAC / 12÷24V ac/dc
Output - Relay (NO+NC)	4A / 220VAC
Error in time measuring	0,05%
Operating temperature range, Ta	-20º...+50º C
Degree of protection	IP40
Joining	Terminal
Sizes	86x35x58mm, DIN35-70

Energy-independent memory for programmable parameters.
Input for outer nullity “Reset” - switch K3 (fig.1, fig.2).
Input for outer starting “Start” - operates with sensor type NPN (fig.1) or switch K2 (fig.2).
It is provided direct voltage 11÷23 Vdc (40mA) for sensor's supply.

Programmable parameters

Time-range of parameter Ton :	
0,1÷999,9 sec	0.1”
1 ÷ 9999 sec	1 ‘’
1 ÷ 9999 min	1 ‘
Parameter Ton (time of switched on state the output relay)	0.1.÷ 999.9. (1.÷ 9999.)
Time-range of parameter Toff :	
0,1÷999,9 sec	0.1”
1 ÷ 9999 sec	1 ‘’
1 ÷ 9999 min	1 ‘
Parameter Toff (time of out-of-work state the output relay)	0.1 ÷ 999.9 (1 ÷ 9999)
Number of cycles C (000 - infinity)	000 ÷ 999
Breakup in the supply voltage Us :	
- after an interruption, the reading continues from the current data	Cont
- after an interruption, the reading automatically starts from the beginning	Full
- after an interruption, a stop mode of the current data is established	Ucc
- after an interruption, the timer is reset	Goto
Automatic starting, at first switching on of the supply	no / Auto
Initial starting of the timer St (Ton / Toff)	⊓ / ⊔

Schemes of connection

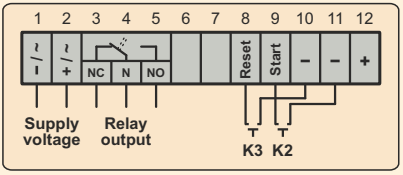


fig.1

Starting by K2 switch

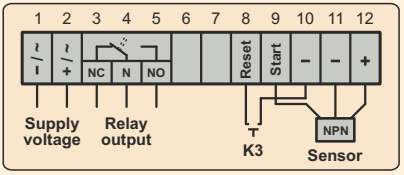


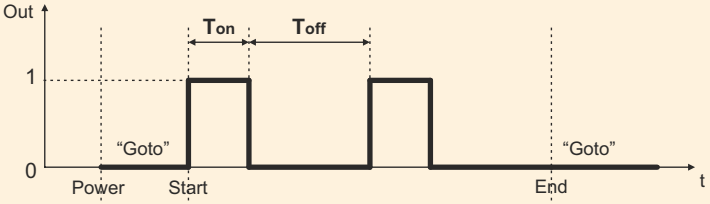
fig.2

Starting by NPN type sensor

Output data:

C = 2

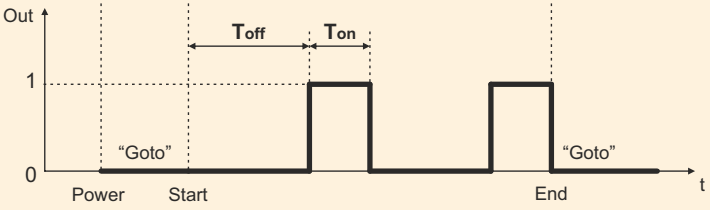
St = “⊓“



Output data:

C = 2

St = “⊔“



Timing diagram of the output relay (“NO” - normally open contact)

Digital timer-clock TWD6-2S

Features

The digital time relay-clock TWD6-2S is used for switching electrical circuits in real time. Beforehand within the framework of 24 hours can be assigned 10 independent a fixed times for switching an electric circuits. When the real time coincides with one of the set fixed times, the output relay switches-on for the period from 0 to 999 seconds (set for each fixed time). The timer-clock is controlled by six buttons located on the front panel. It can be used for alarms or for other automation processes.

TWD6-2S

Technical parameters, TWD6-2S

LED indication, 6 digits, red / green	h=10 mm (height)
Supply voltage, Us	220 Vac / 12÷24V ac/dc
Consumption power, Pc	4 W (16 mA)
Supply battery, Ub	3 V (180mA/h, CR2032)
Output - Relay (NO+NC)	4A / 220VAC
Error in time measuring	±0,02%
Operating temperature range, Ta	-20º...+50º C
Degree of protection	IP40
Joining	Terminal
Sizes	95x49x113 mm

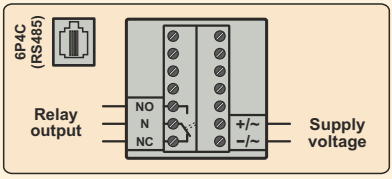
Programmable parameters /1/

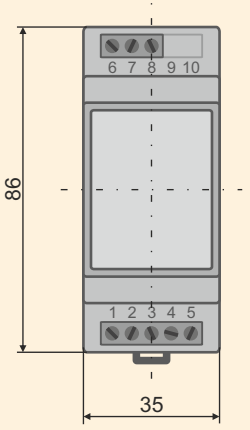
Programmable parameter	Indication to the display /example/	Value (range)
Fixed time t1	t1. 07. 00	0,00 ÷ 23,59 h.min
Period P1	P1 100	0 ÷ 999 sec
Fixed time t2	t2. 08. 00	0,00 ÷ 23,59 h.min
Period P2	P2 100	0 ÷ 999 sec
.	.	.
.	.	.
Fixed time t9	t9. 15. 00	0,00 ÷ 23,59 h.min
Period P9	P9 100	0 ÷ 999 sec
Fixed time t0	t0. 16. 00	0,00 ÷ 23,59 h.min
Period P0	P0 100	0 ÷ 999 sec

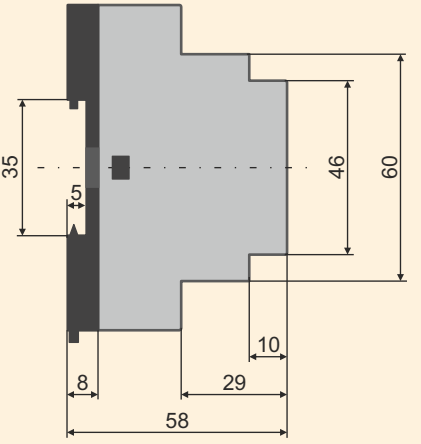
Programmable parameters /2/

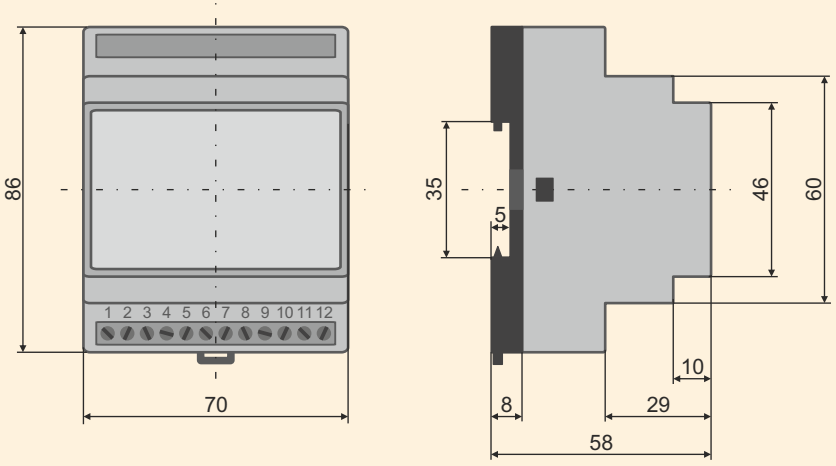
The current sentry time	t 12. 00	0,00 ÷ 23,59 h.min
Date / Month	d 31. 03	01.01 ÷ 31.12 d.m
Year	Y 20 09	2000 ÷ 2099 year

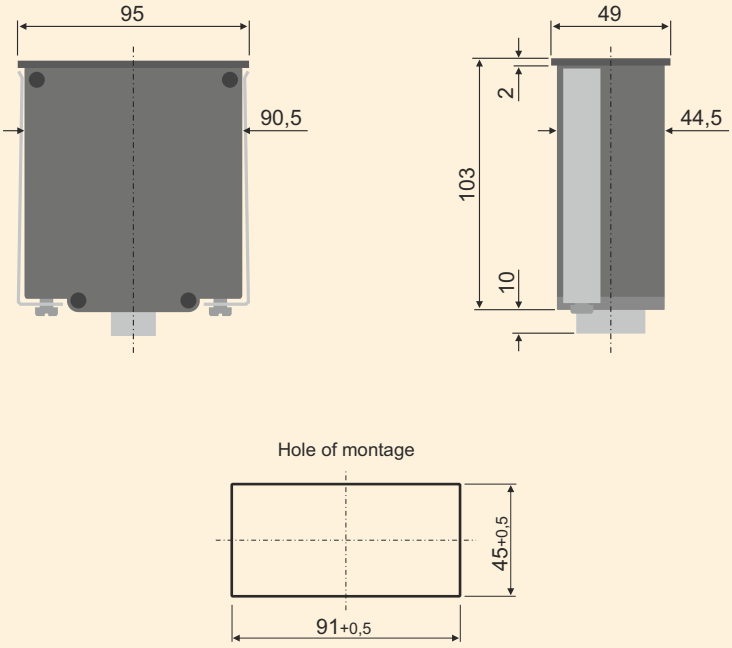
Scheme of connection




6 7 8 9 10
1 2 3 4 5
86
35


35
5
46
60
10
8
29
58


86
1 2 3 4 5 6 7 8 9 10 11 12
70
35
5
46
60
10
8
29
58


95
90,5
49
2
44,5
103
10
Hole of montage
45+0,5
91+0,5