



- ◆ *Modular version for consumer switchboards*
- ◆ *DIN mount version*
- ◆ *Plug-in or flush-mount version*
- ◆ *Vast range of functions and time scales*
- ◆ *Reliable time and repeat accuracy.*



moduLo

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- MODULAR TIME RELAYS**
- Suitable for consumer switchboards
  - Selectable time ranges on front: 0.1 second - 100 days
  - LED indication
  - Mounting on 35mm DIN rail
  - Screw terminals.



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- DIN RAIL MOUNT TIME RELAYS**
- Internal panel mounting
  - Selectable time ranges on front: 0.3 seconds - 120 minutes
  - LED indication
  - Mounting on 35mm DIN rail
  - Screw terminals.



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- PLUG-IN AND FLUSH-MOUNT TIME RELAYS, 48X48MM**
- Flush and internal panel mounting
  - Time ranges: 0.05 seconds - 10 hours
  - LED indication
  - 8 and 11-pin sockets for panel mounting.

**Modular version**

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**Plug-in and flush-mount version, 48x48mm**

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### On delay time relay. Multiscale. Multivoltage



TM P

Order code	Time of scale range	Rated auxiliary supply voltage	Qty per pkg	Wt.
		[V]	n°	[kg]
TM P	0.1-1s 1-10s 6-60s 1-10min 6min-1h 1-10h 0.1-1 day 1-10 days ON only OFF only	24-48VDC 24-240VAC	1	0.048

#### General characteristics

- Electronic time relay, multiscale, multivoltage.
- On delay, delay on make, with start at relay energising
- 1 relay output with 1 changeover contact
- Delay time adjustable on front by rotary switch: 10-100%
- Green LED indicator for power on
- Red LED indicator for relay state; flashing for delay and steady when relay energised
- Modular DIN 43880 housing, 1 module
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST. Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-13.

### Multifunction time relay. Multiscale. Multivoltage. 1 relay output



TM M1

Order code	Time of scale range	Rated auxiliary supply voltage	Qty per pkg	Wt.
		[V]	n°	[kg]
TM M1	0.1-1s 1-10s 6-60s 1-10min 6min-1h 1-10h 0.1-1 day 1-10 days ON only OFF only	12-240V AC/DC	1	0.053

#### General characteristics

- Electronic time relay, multifunction, multiscale, multivoltage
- Enabling input
- 1 relay output with 1 changeover contact
- Selectable functions: (a) On delay; delay on make with start at relay energising. (b) Pulse on relay energising with start when energised. (c) Flasher starting with OFF interval. Equal timing recycle. (d) Flasher starting with ON interval. Equal timing recycle. (e) Off delay; relay energising at external contact closing with start on break. (f) Pulse on relay energising with start on external contact closing. (g) Pulse on relay energising with start on external contact opening. (h) On-off delay. Delay on make, with start at external contact closing, and delay at break, with start at external contact opening. (i) Step relay at each closing of an external contact. (j) Pulse generator, unequal timing recycle; starting with OFF pulse time and 0.5s ON pulse.
- Delay time adjustable on front by rotary switch: 10-100%
- Green LED indicator for power on
- Red LED indicator for relay state; flashing for delay and steady when relay energised
- Modular DIN 43880 housing, 1 module suitable for fixing on 35mm DIN rail (IEC/EN 60715)
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST. Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-13.

### Multifunction time relay. Multiscale. Multivoltage. 2 relay outputs.



TM M2

Order code	Time of scale range	Rated auxiliary supply voltage	Qty per pkg	Wt.
		[V]	n°	[kg]
TM M2	0.1-1s 1-10s 6-60s 1-10min 6min-1h 1-10h 0.1-1 day 1-10 days ON only OFF only	12-240V AC/DC	1	0.078

#### General characteristics

- Electronic time relay, multifunction, multiscale, multivoltage
- Enabling input
- 2 relay outputs, one with 1 delayed changeover (C/O) contact and the other with 1 normally open (N/O) contact, programmable as instantaneous or delayed
- Selectable functions: (a) On delay; delay on make with start at relay energising. (b) Pulse on relay energising with start when energised. (c) Flasher starting with OFF interval. Equal timing recycle. (d) Flasher starting with ON interval. Equal timing recycle. (e) Off delay; relay energising at external contact closing with start on break. (f) Pulse on relay energising with start on external contact closing. (g) Pulse on relay energising with start on external contact opening. (h) On-off delay. Delay on make, with start at external contact closing, and delay at break, with start at external contact opening. (i) Step relay at each closing of an external contact. (j) Pulse generator, unequal timing recycle; starting with OFF pulse time and 0.5s ON pulse.
- Delay time adjustable on front by rotary switch: 10-100%
- Green LED indicator for power on
- Red LED indicator for relay state; flashing for delay and steady when relay energised
- Modular DIN 43880 housing, 1 module suitable for fixing on 35mm DIN rail (IEC/EN 60715)
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST. Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-14.

### Recycle time relay, independent timings. Multiscale. Multivoltage



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TM PL

Order code	Time of scale range	Rated auxiliary supply voltage	Qty per pkg	Wt.
		[V]	n°	[kg]
TM PL	0.1-1s 1-10s 6-60s 1-10min 6min-1h 1h-10h 0.1-1 day 1-10 days 3-30 days 10-100 days	12-240V AC/DC	1	0.060

#### General characteristics

- Programmable asymmetrical recycle time relay, multiscale, multivoltage. Flasher with independent timing for ON and OFF intervals
- Enabling input of ON or OFF interval
- 1 relay output with 1 changeover contact
- Delay time for OFF (pause) interval, adjustable on front by rotary switch: 10-100%
- Delay time for ON (work) interval, adjustable on front by rotary switch: 10-100%
- Green LED indicator for power on
- Red LED indicator for relay state; flashing for delay
- Modular DIN 43880 housing, 1 module; suitable for fixing on 35mm DIN rail (IEC/EN 60715)
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST.  
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-15.

### Off delay time relay. Multiscale. Multivoltage



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TM D

Order code	Time of scale range	Rated auxiliary supply voltage	Qty per pkg	Wt.
		[V]	n°	[kg]
TM D	0.06-0.6s 0.6-6s 6-60s 18-180s	24-240V AC/DC	1	0.060

#### General characteristics

- Electronic time relay, multiscale, multivoltage. True off delay; delay on break with start at relay de-energising
- 1 relay output with 1 changeover contact
- Delay time adjustable on front by rotary switch: 10-100%
- Green LED indicator for power on
- Modular DIN 43880 housing, 1 module; suitable for fixing on 35mm DIN rail (IEC/EN 60715)
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST.  
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-15.

### Time relay for starting. Multiscale. Multivoltage



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TM ST

Order code	Time of scale range	Rated auxiliary supply voltage	Qty per pkg	Wt.
		[V]	n°	[kg]
TM ST	0.1-1s 1-10s 6-60s 1-10min	24-48VDC 24-240VAC	1	0.060
TM ST A440	0.1-1s 1-10s 6-60s 1-10min	380-440VAC	1	0.065

#### General characteristics

- Electronic time relay, multiscale, multivoltage for starting (star-delta, impedance, autotransformer, etc) of induction motors (squirrel cage), 2 separate timings
- 1 relay output with 2 normally open (N/O) contacts with common pole
- Delay time adjustable on front by rotary switch: 10-100% for star connection
- Starting and transition (20-300ms time scale - from star to delta), time adjustable on front by rotary switch
- Green LED indicator for power on
- Red LED indicator for relay state; flashing during delay and steady at delay lapsing
- Modular DIN 43880 housing, 1 module; suitable for fixing on 35mm DIN rail (IEC/EN 60715)
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST.  
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-15.

## Modular time relays. DIN mount time relays

### Staircase time relay




TM LS

Order code	Time of scale range	Rated auxiliary supply voltage	Qty per pkg	Wt.
		[V]	n°	[kg]
TM LS	0.5-20min	220-240VAC	1	0.060

#### General characteristics

- Electronic time relay single scale and voltage for staircase illumination
- 1 relay output with 1 powered normally open (N/O) contact
- Delay time adjustable on front by rotary switch
- Suitable for 3 or 4-wire systems
- 1 slide switch for timed or constant lighting operation
- Function for one hour lighting and fast switch off
- Green LED indicator for power on
- Connection with up to 50 light-up switches maximum; ≤ 1mA each
- Modular DIN 43880 housing, 1 module suitable for fixing on 35mm DIN rail (IEC/EN 60715)
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST.  
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-15.

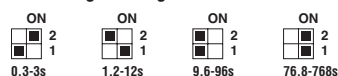
### On delay time relay. Multiscale. AC supply



31 AT1P...

Order code	Time scale range	Rated auxiliary supply voltage	Qty per pkg	Wt.
		[V]	n°	[kg]
31 AT1P 240	0.3-3s 1.2-12s	24VAC 100-240VAC	1	0.120
31 AT1P 440	9.6-96s 76.8-768s	24VAC 220-440VAC	1	0.120

#### Time-range setting



#### General characteristics

- Electronic time relay, multiscale, multivoltage.
- On delay, delay on make with start at relay energising
- 1 relay output with 1 changeover contact
- Delay time adjustable on front by potentiometer
- Time range setting using dip switch
- LED indicators for power on and relay state
- 22.5mm wide housing; suitable for fixing on 35mm DIN rail (IEC/EN 60715). For screw fixing, use CE106 adapter; see page 10-7
- Degree of protection: IP40 on front and IP20 at terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST.  
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-16.

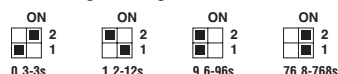
### On delay time relay. Multiscale. AC/DC supply



31 AT1CP...

Order code	Time scale range	Rated auxiliary supply voltage	Qty per pkg	Wt.
		[V]	n°	[kg]
31 AT1CP 24	0.3-3s 1.2-12s	12VAC/DC 24VAC/DC	1	0.120
31 AT1CP 125	9.6-96s 76.8-768s	48-60VAC/DC 110-125V AC/DC	1	0.120

#### Time-range setting



#### General characteristics

- Electronic time relay, multiscale, multivoltage.
- On delay, delay on make with start at relay energising
- 1 relay output with 1 changeover contact
- Delay time adjustable on front by potentiometer
- Time range setting using dip switch
- LED indicators for power on and relay state
- 22.5mm wide housing; suitable for fixing on 35mm DIN rail (IEC/EN 60715). For screw fixing, use CE106 adapter; see page 10-7
- Degree of protection: IP40 on front and IP20 at terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST.  
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-16.

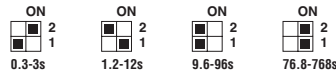
### Off delay time relay off delay. Multiscale



31 ATD...

Order code	Time scale range	Rated auxiliary supply voltage	Qty per pkg	Wt
		[V]	n°	[kg]
<b>31 ATD 24</b>	0.3-3s	24VAC/DC	1	0.140
<b>31 ATD 48</b>	1.2-12s	48VAC/DC	1	0.140
<b>31 ATD 110</b>	9.6-96s	110-127VAC	1	0.140
<b>31 ATD 220</b>	76.8-768s	220-240VAC	1	0.140

#### Time-range setting



#### General characteristics

- Electronic time relay, multiscale, multivoltage. True off delay; delay on break, starting at relay de-energising
- 1 relay output with 1 changeover contact
- Delay time adjustable on front by potentiometer
- Time range setting using dip switch
- LED indicator for power on
- 22.5mm wide housing; suitable for fixing on 35mm DIN rail (IEC/EN 60715). For screw fixing, use CE106 adapter; see page 10-7
- Degree of protection: IP40 on front and IP20 at terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST.  
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-16.

### Off delay time relay at external contact opening. Multiscale

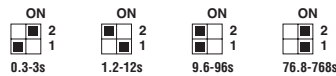


31 AT1DP...

Order code	Time scale range	Rated auxiliary supply voltage	Qty per pkg	Wt
		[V]	n°	[kg]
With auxiliary power supply.				
<b>31 AT1DP 24</b>	0.3-3s	24VAC/DC	1	0.140
<b>31 AT1DP 48</b>	1.2-12s	48VAC/DC	1	0.140
<b>31 AT1DP 110</b>	9.6-96s	110-127VAC	1	0.140
<b>31 AT1DP 220</b>	76.8-768s	220-240VAC	1	0.140

ⓘ With DC supply, connect ("–") polarity to terminal A2.

#### Time-range setting



#### General characteristics

- Electronic time relay, multiscale, single voltage. Off delay; relay energising at external contact closing and delay at break, with start at de-energising, auxiliary supply
- 1 relay output with 1 changeover contact
- Delay time adjustable on front by potentiometer
- Time range setting using dip switch
- LED indicators for power on and relay state
- 22.5mm wide housing; suitable for fixing on 35mm DIN rail (IEC/EN 60715). For screw fixing, use CE106 adapter; see page 10-7
- Degree of protection: IP40 on front and IP20 at terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST.  
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-16.

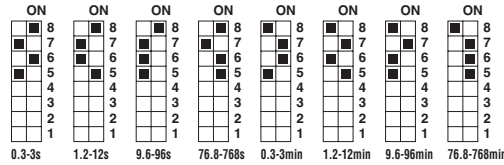
**Multifunction time relay. Multiscale. Multivoltage. 2 relay outputs**



31 BTPM 220

Order code	Time scale range	Rated auxiliary supply voltage	Qty per pkg	Wt
		[V]	n°	[kg]
31 BTPM 220	0.3-3s	24VAC/DC 110-127VAC 220-240VAC	1	0.180
	1.2-12s			
9.6-96s				
76.8-768s				
0.3-3min				
1.2-12min				
9.6-96min				
76.8-768min				

**Time-range setting**



**General characteristics**

- Electronic time relay, multifunction, multiscale, multivoltage
- 2 relay outputs, each with 1 changeover contact, programmable by dip switches
- Selectable functions: On delay; delay on make with start at relay energising. Pulse on relay energising with start when energised. On delay, delay on make, with start at external contact opening. Off delay; relay energising at external contact opening. Flasher, starting with OFF interval; independent timing recycle. Flasher starting with ON interval; independent timing recycle.
- Possible programming of an output relay with instantaneous function (21-22-24 output)
- Delay time adjustable on front by potentiometer
- Possible time relay clearing by using an external contact connected on R1-R2 terminals; 5ms resetting time
- LED indicators for power on and relay state
- 22.5mm wide housing; suitable for fixing on 35mm DIN rail (IEC/EN 60715). For screw fixing, use CE107 adapter; see page 10-7
- Degree of protection: IP40 on front and IP20 at terminals.

**Certifications and compliance**

Certifications obtained: cULus and GOST.  
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

**Operational diagram**

See page W-17.

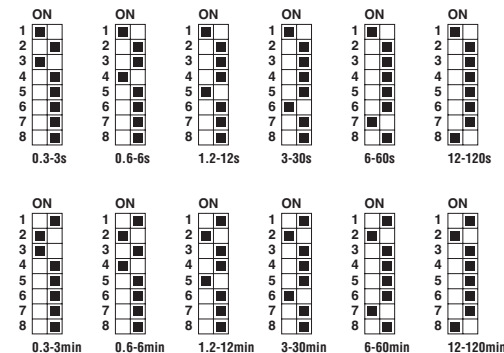
**Programmable asymmetrical recycle time relay**



31 DRPL 220

Order code	Time scale range	Rated auxiliary supply voltage	Qty per pkg	Wt
		[V]	n°	[kg]
31 DRPL 220	0.3-3s	24VAC/DC 110-127VAC 220-240VAC	1	0.200
	0.6-6s			
	1.2-12s			
	3-30s			
	6-60s			
	12-120s			
	0.3-3min			
	0.6-6min			
	1.2-12min			
	3-30min			
	6-60min			
	12-120min			

**Time-range setting**



**General characteristics**

- Programmable recycle time relay, multiscale, multivoltage. Flasher with asymmetrical independent timing for ON and OFF intervals
- 2 relay outputs, each with 1 changeover contact
- Delay time for OFF (pause) and ON (work) intervals, adjustable on front by potentiometer
- Time scale selected by independent dip switches
- Cycle can start with ON (work) interval by jumpering S1-S2 terminals
- LED indicator for power on and relay state
- 45mm wide housing; suitable for fixing on 35mm DIN rail (IEC/EN 60715). For screw fixing, use CE106 adapter; see page 10-7
- Degree of protection: IP40 on front and IP20 at terminals.

**Certifications and compliance**

Certifications obtained: cULus and GOST.  
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

**Operational diagram**

See page W-18.

## DIN mount time relays.

### Accessories for DIN mount time relays

#### Time relay for starting



31 BT2N...

Order code	Time scale range	Rated auxiliary supply voltage	Qty per pkg	Wt
		[V]	n°	[kg]
31 BT2N 6S 48	0.6-6s	24VAC/DC	1	0.180
31 BT2N 12S 48	1.2-12s		1	0.180
31 BT2N 30S 48	3-30s	48VAC/DC	1	0.180
31 BT2N 60S 48	6-60s		1	0.180
31 BT2N 6S 110	0.6-6s	24VAC/DC	1	0.180
31 BT2N 12S 110	1.2-12s		1	0.180
31 BT2N 30S 110	3-30s	110-127VAC	1	0.180
31 BT2N 60S 110	6-60s		1	0.180
31 BT2N 6S 220	0.6-6s	24VAC/DC	1	0.180
31 BT2N 12S 220	1.2-12s		1	0.180
31 BT2N 30S 220	3-30s	220-240VAC	1	0.180
31 BT2N 60S 220	6-60s		1	0.180
31 BT2N 6S 380	0.6-6s	24VAC/DC	1	0.180
31 BT2N 12S 380	1.2-12s		1	0.180
31 BT2N 30S 380	3-30s	380-415VAC	1	0.180
31 BT2N 60S 380	6-60s		1	0.180
31 BT2N 6S 440	0.6-6s	24VAC/DC	1	0.180
31 BT2N 12S 440	1.2-12s		1	0.180
31 BT2N 30S 440	3-30s	415-440VAC	1	0.180
31 BT2N 60S 440	6-60s		1	0.180

#### Accessories for DIN mount time relays

Order code	Description	Qty per pkg	Wt
		n°	[kg]
31 CE106	Screw fixing adapter for time relays: AT1 - AT1C - AT1P - AT1CP - ATD - AT1DP - DRPL	10	0.002
31 CE107	Screw fixing adapter for time relays: BTM - BT2N	10	0.002

#### General characteristics

- Electronic time relay, single scale, dual voltage for starting of induction (squirrel cage) motors, such as star-delta, impedance and autotransformer, 2 separate timings
- At power on, the timing starts immediately. At lapsing, the two output relays are energised one after the other. The first removes the consent to the starting contactor (star mode); when the transition time, programmable 20-300ms, lapses, the second consents to the second (delta) contactor to close. If the supply voltage is removed before the set time lapsing, timing is cleared and the time relay is reset
- 2 relay outputs, each with 1 changeover contact
- Starting and transition time (20-300ms time scale) adjustable on front by potentiometer
- LED indicator for power on and relay state
- 22.5mm wide housing; suitable for fixing on 35mm DIN rail (IEC/EN 60715). For screw fixing, use CE107 adapter; see page 10-7
- Degree of protection: IP40 on front and IP20 at terminals.

#### Certifications and compliance

Certifications obtained: cULus and GOST.  
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

#### Operational diagram

See page W-18.

### 48x48mm time relay



31 L48T...



31 L48TP...



31 L48TPB...



31 L48M...

Order code	Time scale range	Rated auxiliary supply voltage	Qty per pkg	Wt
		[V]	n°	[kg]

Time relay on delay.  
Single scale and single voltage.

31 L48T 3S 24	0.1-3s	24VAC/DC	1	0.121
31 L48T 6S 24	0.1-6s		1	0.121
31 L48T 30S 24	0.5-30s		1	0.121
31 L48T 60S 24	0.5-60s		1	0.121
31 L48T 3M 24	1s-3min		1	0.121
31 L48T 6M 24	3s-6min		1	0.121
31 L48T 30M 24	30s-30min		1	0.121
31 L48T 60M 24	30s-60min		1	0.121
31 L48T 3H 24	3min-3h		1	0.121
31 L48T 3S 240	0.1-3s	220-240VAC	1	0.121
31 L48T 6S 240	0.1-6s		1	0.121
31 L48T 30S 240	0.5-30s		1	0.121
31 L48T 60S 240	0.5-60s		1	0.121
31 L48T 3M 240	1s-3min		1	0.121
31 L48T 6M 240	3s-6min		1	0.121
31 L48T 30M 240	30s-30min		1	0.121
31 L48T 60M 240	30s-60min		1	0.121
31 L48T 3H 240	3min-3h		1	0.121

Time relay on delay.  
Multiscale and multivoltage.

31 L48TP S 240	0.3-780s	24VAC/DC 110VAC	1	0.124
31 L48TP M 240	18s-780min	220-240VAC	1	0.124

Time relay on delay.  
Multiscale and single voltage.

31 L48TPB M24	0.05s-10min	24VAC/DC	1	0.126
31 L48TPB M240		220-240VAC	1	0.126

Time relay, multifunction, multivoltage and multiscale.

31 L48M M 240	0.05s-10min	24-240V	1	0.127
31 L48M H 240	0.05min-10h	AC/DC	1	0.127

#### General characteristics

##### TIME RELAY L48T

- Electronic time relay, single scale, single voltage.
- On delay, delay on make with start at relay energising
- 1 relay output with 1 changeover contact
- Delay time adjustable on front by rotary knob
- LED indicators for power on and relay state
- Plug-in housing with 8-pin socket, 31 S8; see page 10-9.
- Flush mounting with 31 L48 P8 socket; see page 10-9
- Degree of protection: IP40 on front and IP20 at terminals.

##### TIME RELAY L48TP

- Electronic time relay, multiscale, multivoltage.
- On delay, delay on make with start at relay energising
- 1 relay output with 1 changeover contact
- Delay time adjustable on front by rotary knob
- Time range selected by dip switches:  
L48TP S: 0.3-3s; 1.2-12s; 10-100s; 7.8-780s  
L48 TP M: 18s-3min; 72s-12min; 10-100min; 78-780min
- LED indicators for power on and relay state
- Plug-in housing with 8-pin socket, 31 S8; see page 10-9
- Flush mounting with 31 L48 P8 socket; see page 10-9
- Degree of protection: IP40 on front and IP20 at terminals.

##### Time range setting

	A B	A B	A B	A B
L48TP S	0.3-3s	1.2-12s	10-100s	7.8-780s
L48TP M	18s-3min	72s-12min	10-100min	78-780min

##### TIME RELAY T48TPB

- Electronic time relay, multiscale, single voltage, multifunction
- 2 relay outputs, each with 1 changeover contact, configurable either delay on make or instantaneous
- Delay time adjustable on front by rotary knob
- Time range selected by dip switches: 0.05-1s; 0.1-10s; 0.6s-1min; 6s-10min
- LED indicators for power on and relay state
- Plug-in housing with 8-pin socket, 31 S8; see page 10-9.
- Flush mounting with 31 L48 P8 socket; see page 10-9
- Degree of protection: IP40 on front and IP20 at terminals.

##### Time range setting

	A B	A B	A B	A B
L48TPB	0.05-1s	0.1-10s	0.6s-1min	6s-10min

##### TIME RELAY L48M

- Electronic time relay, multiscale, multivoltage, multifunction
- Selectable functions: On delay, delay on make with start at relay energising. On delay, delay on break with start at relay de-energising. Flasher, starting with OFF interval. Flasher, starting with ON interval. Time relay resetting is possible on closing of external contact (R) connected to terminals 7-6. Possible time relay stopping storing elapsed time on closing of external contact (M) connected to terminals 7-5 and then restarting time on its opening. See diagrams on page W-18
- 2 relay outputs, each with 1 changeover contact; both delayed
- Delay time adjustable on front by rotary knob
- Time range selected by dip switches:  
L48M M: 0.05-1s; 0.1-10s; 0.6s-1min; 6s-10min  
L48M H: 0.05-1min; 0.1-10min; 0.6min-1h; 1min-10h
- LED indicators for power on and relay state
- Plug-in housing with 11-pin socket, 31 S11; see page 10-9. Flush mounting with 31 L48 P11 socket; see page 10-9
- Degree of protection: IP40 on front and IP20 at terminals.

##### Time range setting

	A B	A B	A B	A B
L48M M	0.05-1s	0.1-10s	0.6s-1min	6s-10min
L48M H	0.05-1min	0.1-10min	0.6min-1h	1min-10h

##### Certifications and compliance

Certifications obtained:   
Compliant with standards: IEC/EN 61812-1, UL508, CSA C22.2 n° 14.

##### Operational diagram

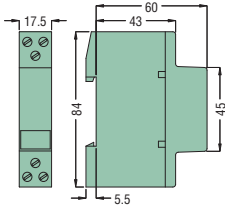
See page W-18.

## Plug-in and flush mount time relays Accessories

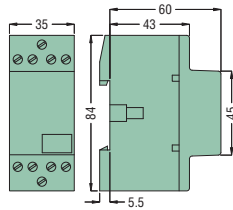
### Accessories for 48x48mm time relay

Order code	Description	Qty per pkg.	Wt
		n°	[kg]
<b>31 S8</b>	8-pin socket for screw fixing or on 35mm DIN rail (IEC/EN 60715). Screw terminals	10	0.042
<b>31 L48 P8</b>	8-pin loose socket. Screw terminals	10	0.018
<b>31 S11</b>	11-pin socket for screw fixing or on 35mm DIN rail (IEC/EN 60715). Screw terminals	10	0.047
<b>31 L48 P11</b>	11-pin loose socket. Screw terminals	10	0.019
<b>31 L48AP</b>	Flush mount bracket	10	0.007

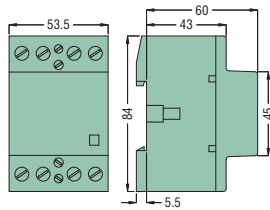
**Contactors**  
CN20...



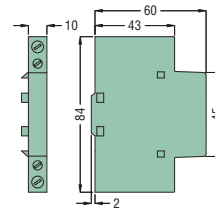
CN25...



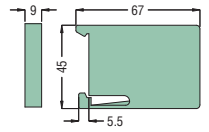
CN40...  
CN63...



**Contact blocks**  
CNH...

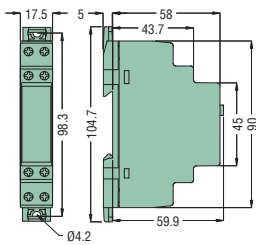


**Spacer**  
CNX80

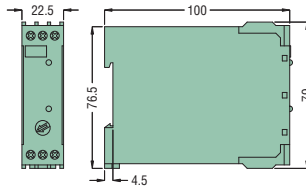


## Time relays

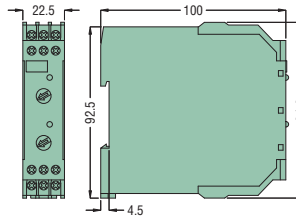
**Time relays**  
TM...



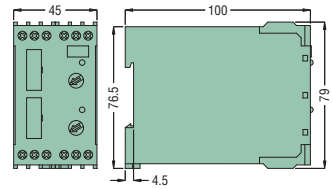
AT1P - AT1CP - ATD - AT1DP



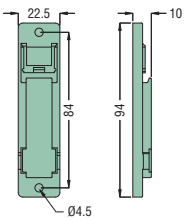
BTPM - BT2N



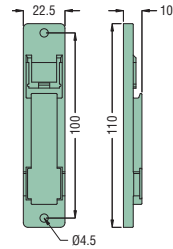
DRPL



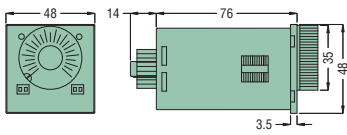
**Adapters**  
CE106



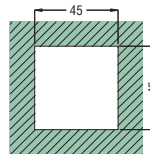
CE107



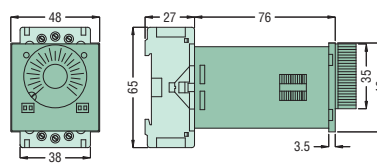
L48...



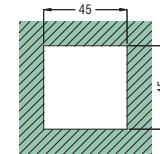
Cutout



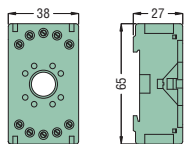
L48... with S8 - S11 sockets



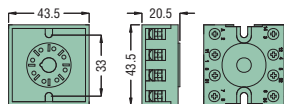
Cutout



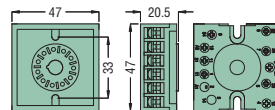
**Accessories - Plug-in sockets**  
S8 - S11



L48 P8

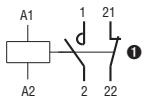


L48 P11

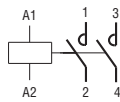


### Two-pole modular contactors

CN20 11

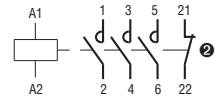


CN20 20

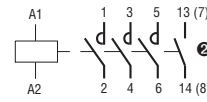


### Three and four-pole modular contactors

CN25 01  
CN40 01  
CN63 01



CN25 10  
CN40 10  
CN63 10



### Add-on auxiliary contacts

CNH11



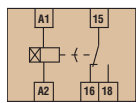
CNH20



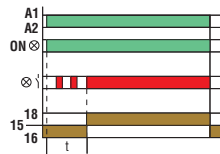
- ❶ The second NC contact has the same characteristics as the power pole contact. Therefore, it can be used indifferently as an auxiliary or as a NC power pole contact.
- ❷ The fourth pole NO or NC has the same characteristics as the power poles. Therefore, it can be used indifferently as auxiliary or as power pole contact.

## Time relays

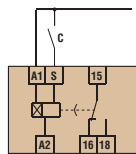
### TM P



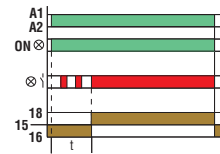
On delay. Delay on make, with start at relay energising.



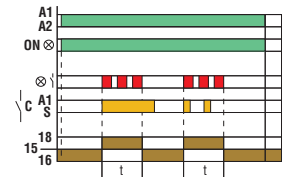
### TM M1



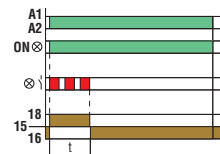
On delay. Delay on make, with start at relay energising



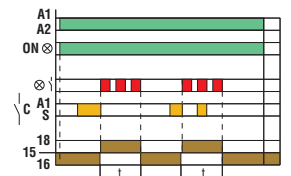
Pulse on relay energising with start at external contact closing



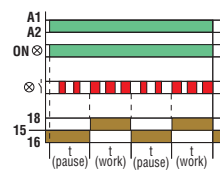
Pulse on relay energising with start on energising



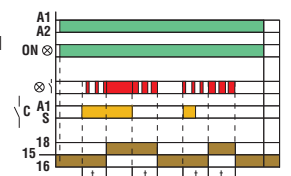
Pulse on relay energising with start at external contact opening



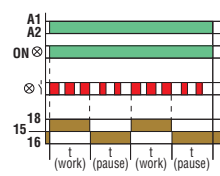
Flasher, starting with OFF (pause) interval. Equal timing recycle.



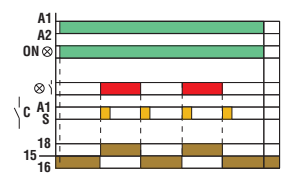
On-Off delay. Delay on make, with start at external contact closing, and delay at break, with start at external contact opening.



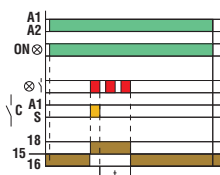
Flasher, starting with ON (work) interval. Equal timing recycle.



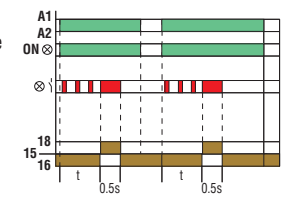
Internal trigger ON/OFF. Relay contact either closes or opens at each external contact closing.



Off delay. Relay energising at external contact closing with start on break

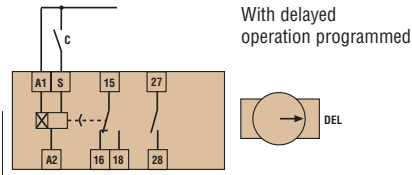
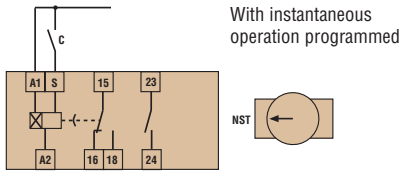


Pulse generator. Unequal timing recycle, starting with OFF pulse time and 0.5sec ON time.

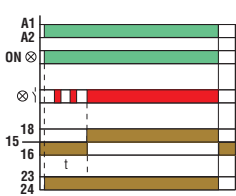


TM M2

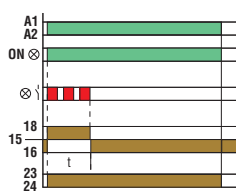
W



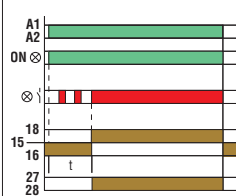
On delay. Delay on make, with start at relay energising



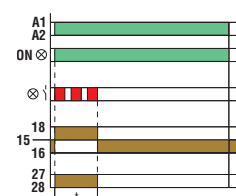
Pulse on relay energising with start on energising



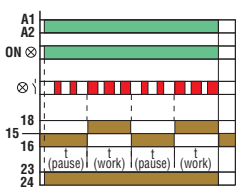
On delay. Delay on make, with start at relay energising



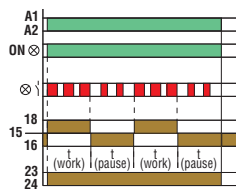
Pulse on relay energising with start on energising



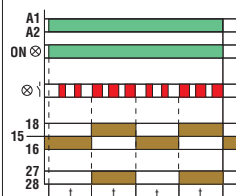
Flasher, starting with OFF (pause) interval. Equal timing recycle



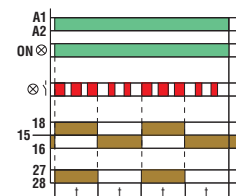
Flasher, starting with ON (work) interval. Equal timing recycle



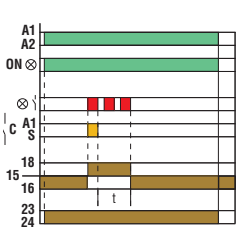
Flasher, starting with OFF (pause) interval. Equal timing recycle



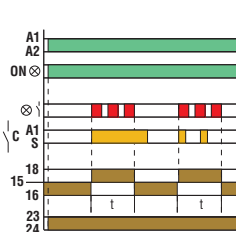
Flasher, starting with ON (work) interval. Equal timing recycle



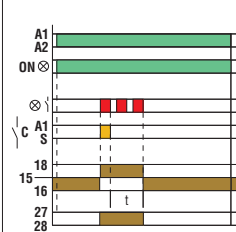
Off delay. Relay energising at external contact closing with start on break



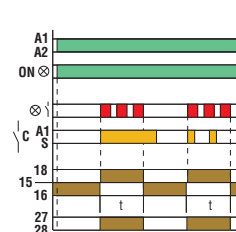
Pulse on relay energising with start on external contact closing



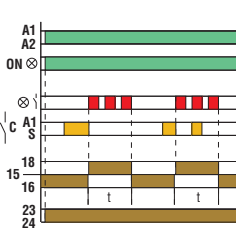
Off delay. Relay energising at external contact closing with start on break



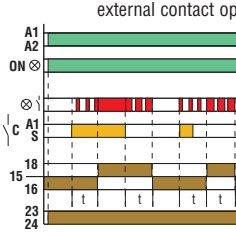
Pulse on relay energising with start on external contact closing



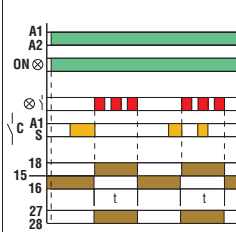
Pulse on relay energising with start on external contact opening



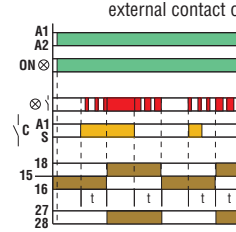
On-off delay. Delay make, with start at external contact closing and delay at break, with start at external contact opening



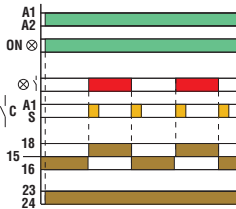
Pulse on relay energising with start on external contact opening



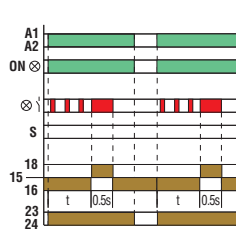
On-off delay. Delay make, with start at external contact closing and delay at break, with start at external contact opening



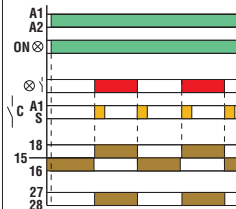
Internal trigger ON/OFF. Relay contact either closes or opens at each external contact closing



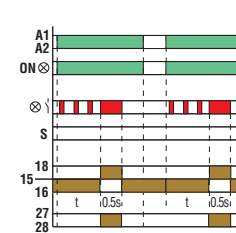
Pulse generator. Unequal timing recycle, starting with ON pulse time



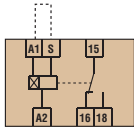
Internal trigger ON/OFF. Relay contact either closes or opens at each external contact closing



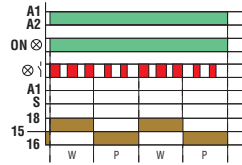
Pulse generator. Unequal timing recycle, starting with ON pulse time



### TM PL

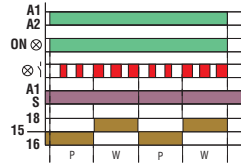


Flasher, starting with ON interval.  
Equal timing recycle, ON first



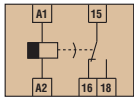
W = Work (ON)  
P = Pause (OFF)

Flasher, starting with OFF interval.  
Equal timing recycle, OFF first

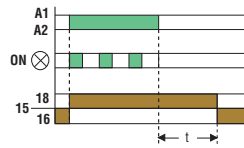


W = Work (ON)  
P = Pause (OFF)

### TM D

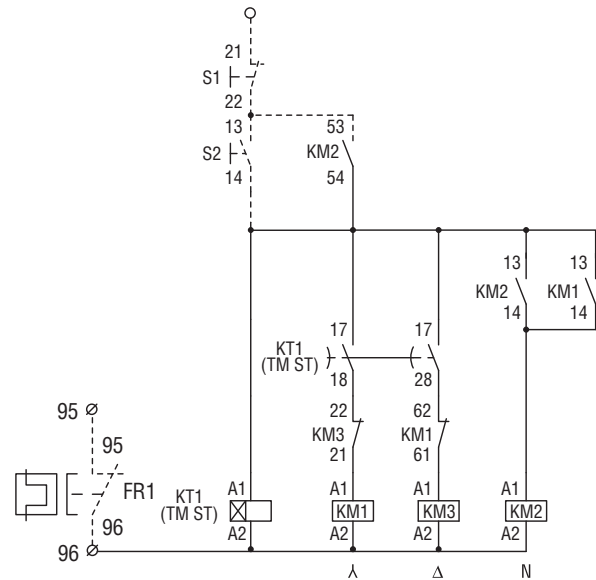
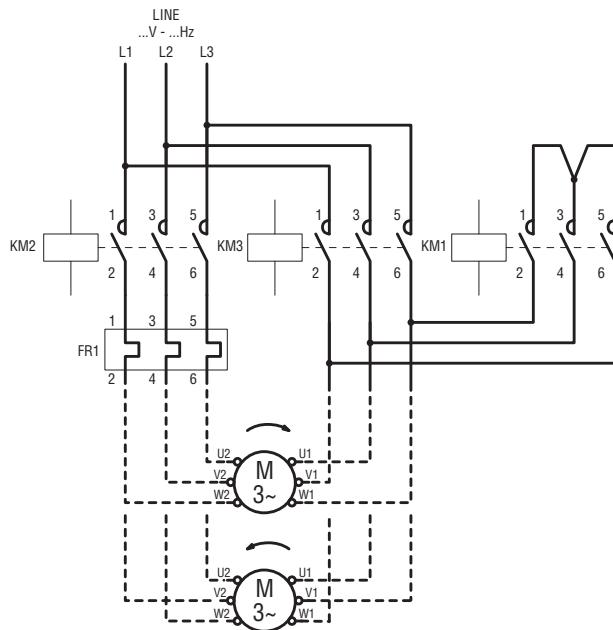
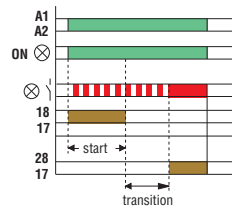
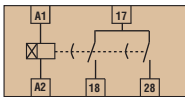


True off delay. Delay on break, starting at  
relay de-energising



### TM ST

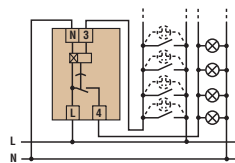
For starting



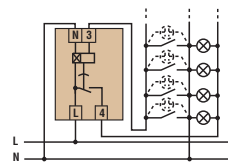
### TM LS

Staircase lighting

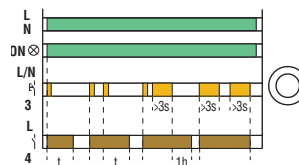
4-wire connection



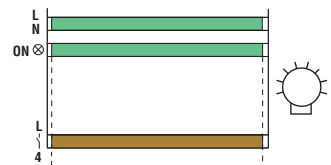
3-wire connection



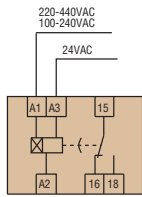
Timed lighting



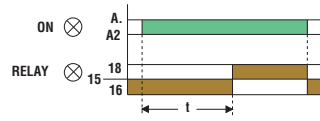
Constant lighting



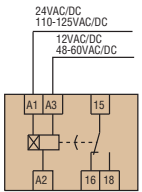
### AT1P



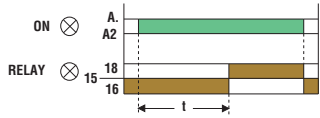
On delay. Delay on make, with start at relay energising



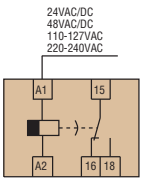
### AT1CP



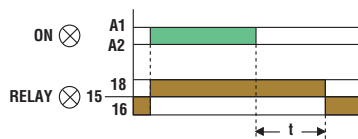
On delay. Delay on make, with start at relay energising



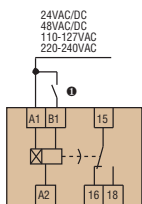
### ATD



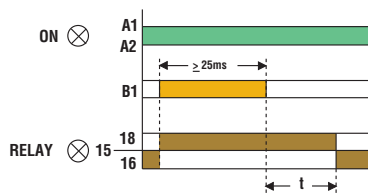
True off delay. Delay on break, starting at relay de-energising



### AT1DP



Off delay. Relay energising at external contact closing. Delay at break, with start at de-energising, auxiliary supply



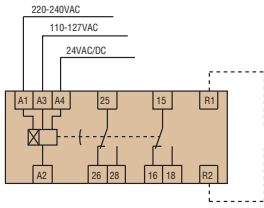
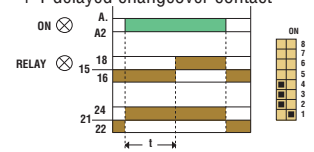
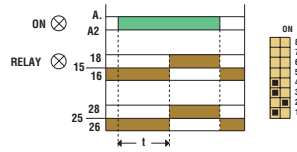
● B1 terminal must be simultaneously supplied with terminal A1 or there after.  
CAUTION: With DC supply, the “-” polarity must be connected to A2 terminal.

**BTPM**

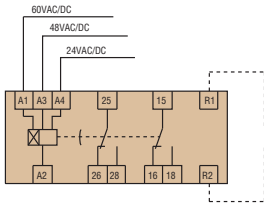
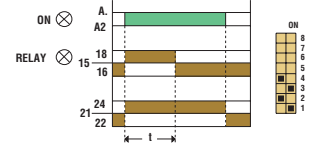
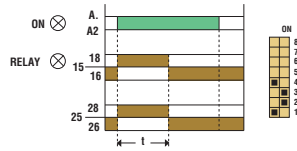
2 changeover contacts, both delayed

1 instantaneous changeover contact + 1 delayed changeover contact

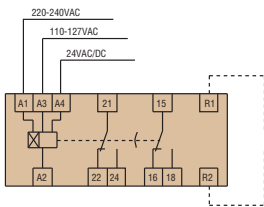
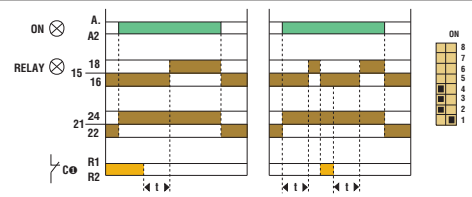
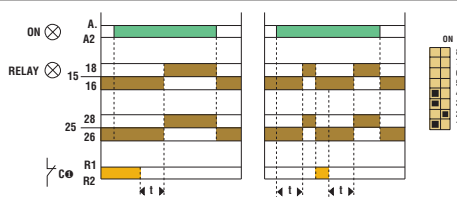
On delay.  
Delay on make,  
with start at  
relay energising



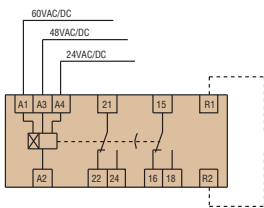
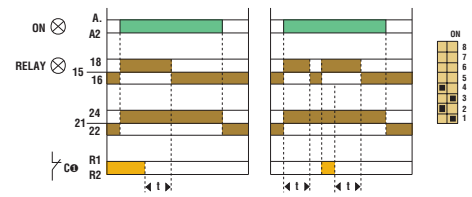
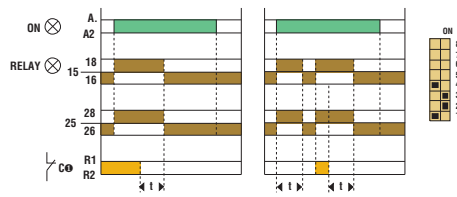
Pulse on relay  
energising with  
start when  
energised



On delay.  
Delay on make  
with start at  
external  
contact opening

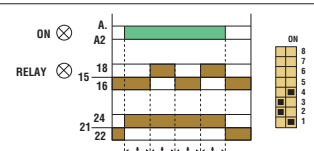
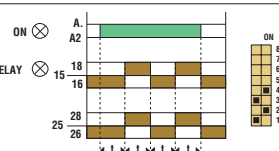


Off delay.  
Delay at  
break,  
with start  
at external  
contact opening



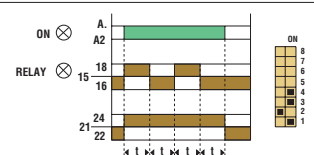
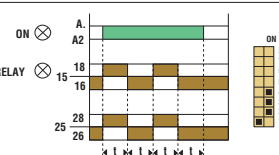
Flasher

Starting with  
OFF interval.  
Equal timing



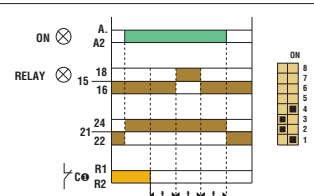
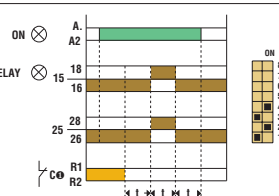
① "C" contact must be volt free (dry).

Starting with  
ON interval.  
Equal timing

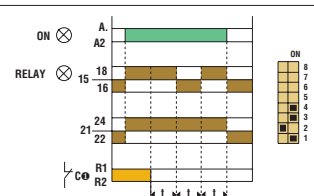
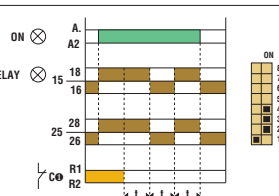


Flasher at external  
contact "C"  
opening

Starting with  
OFF interval.  
Equal timing

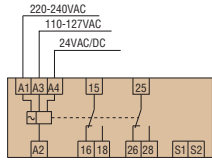


Starting with  
ON interval.  
Equal timing

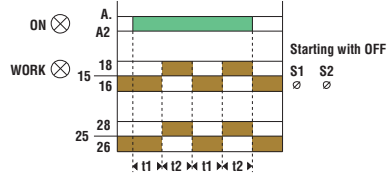


### DRPL

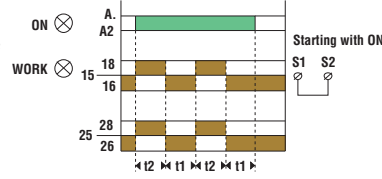
W



Flasher, starting with OFF (pause) interval.  
Independent timing

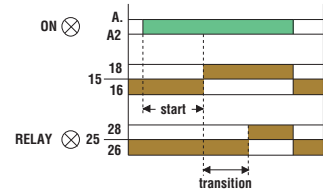
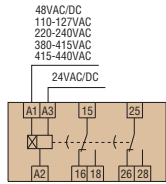


Flasher, starting with ON (work) interval.  
Independent timing

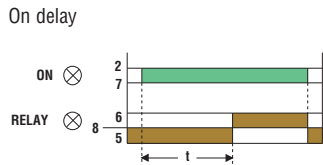
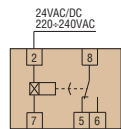


### BT2N

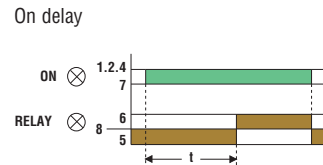
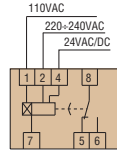
For starting



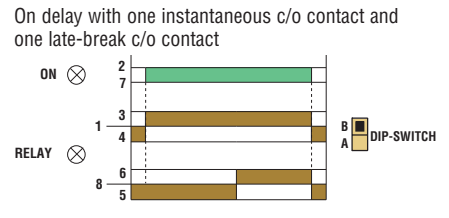
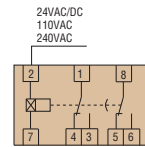
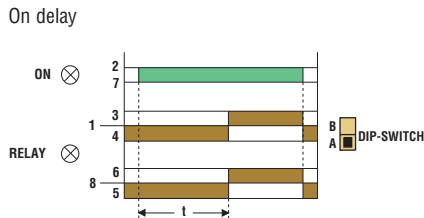
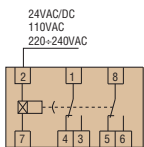
### L48T...



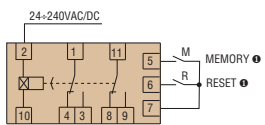
### L48TP...



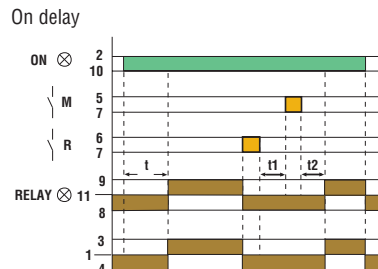
### L48TPB...



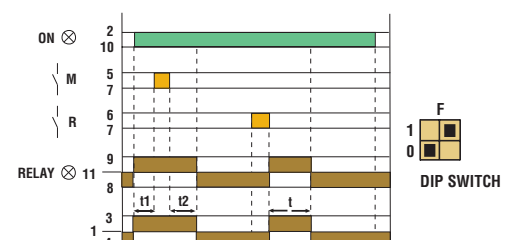
### L48M...



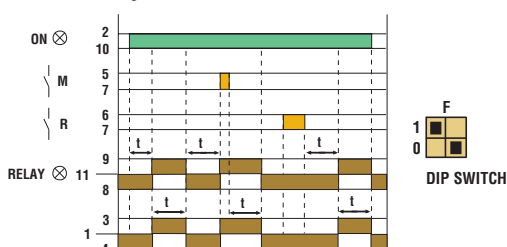
T (preset time) = T1+T2  
● Contacts "M" and "R" are to be volt free (dry).



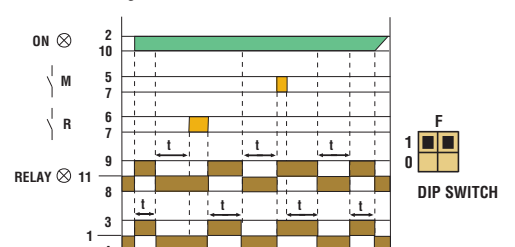
Pulse on relay energising with start on energising



Flasher starting with OFF



Flasher starting with ON



TYPE	TM P	TM M1	TM M2	TM PL	TM D	TM ST	TM LS
<b>DESCRIPTION</b>							
	On delay	Programmable multifunction	Programmable multifunction timing	Asymmetrical recycle	True off delay	For starting	Staircase illumination
	Multiscale	Multiscale	Multiscale	Multiscale	Multiscale	Multiscale	Single scale
	Multivoltage	Multivoltage	Multivoltage	Multivoltage	Multivoltage	Multivoltage	Single voltage
<b>CONTROL CIRCUIT</b>							
Rated auxiliary supply voltage Us	24-48VDC 24-240VAC	12-240VAC/DC			24-240VAC/DC	24-48VDC 24-240VAC 380-440VAC	220-240VAC
Rated frequency	50/60Hz						
Operating voltage range	0.85-1.1 Us						
Power consumption (maximum)	1.2VA/0.8W max (24...48VAC/DC) 16VA/0.9W max (110...240VAC/DC)	0.6VA/0.3W max (12...48VAC/DC) 1.6VA/1.2W max (110...240VAC/DC)	1.1VA/0.8W max (12...48VAC/DC) 1.8VA/1.2W max (110...240VAC/DC)	0.6VA/0.3W max (12...48VAC/DC) 1.6VA/1.2W max (110...240VAC/DC)	0.1VA/0.1W (24...48VAC/DC) 1.1VA/0.8W (110...240VAC/DC)	1.2VA/0.8W max (24...48VAC/DC) 1.6VA/0.9W max (110...240VAC)	De-energised 5VA/0.5W max Energised 12VA/0.8W max
<b>TIMING CIRCUIT</b>							
Time setting range	Multiscale 0.1-1s 1-10s 6s-60s 1-10min 6min-1h 1-10h 0.1-1day 1-10days ON only OFF only		Multiscale 0.1-1s 1-10s 6s-60s 1-10min 6min-1h 1h-10h 0.1-1day 1-10days 3-30days 10-100days		Multiscale 0.06-0.6s 0.6-6s 6s-60s 18s-180s	Multiscale 0.1-1s 1-10s 6s-60s 1-10min	Multiscale 0.5-20min
Setting accuracy	< ±9%						
Repeat accuracy	< ±0.1%	< ±0.5%	< ±0.2%		< ±0.5%		
Influence of voltage variation	< ±0.01%						< ±0.5%
Average variation of set delays related at -20°C to +20°C condition	< ±0.2%						< ±0.25%
Minimum power time	—	—	—	—	≥ 200ms	—	—
Minimum ON time	—	25ms (no maximum limit)			—	—	≥60ms (no max lim.)
Resetting during timing time	≥ 100ms		—		—	≥ 100ms	≥ 100ms
elapsing time	≥ 50ms		—		—	≥ 50ms	—
Immunity time for microbreakings	≤ 50ms	≤ 25ms	≤ 15ms	≤ 25ms	—	≤ 40ms <sup>①</sup>	≤ 20ms
<b>OUTPUT RELAYS</b>							
Contact arrangement	1 delayed changeover		1 inst./delayed N/O + 1 delayed c/o	1 delayed changeover		2 delayed N/O	1 delayed N/O
Maximum switching voltage	250VAC						
Conventional free air thermal current (Ith)	8A			5A		8A	16A
IEC/EN 60947-5-1 designation	B300						—
Electrical life (with rated load)	10 <sup>5</sup> cycles						
Mechanical life	30x10 <sup>6</sup> cycles						
Tightening torque maximum	0.8Nm (7lbin)						
Conductor section min-max	0.2-4mm <sup>2</sup> (24-12 AWG)						
<b>INSULATION (input-output)</b>							
Rated insulation voltage	250V						
Rated impulse withstand voltage	4kV						
Power frequency withstand voltage	2kV (50Hz - 60sec)						
<b>AMBIENT CONDITIONS</b>							
Operating temperature	-20...+60°C						
Storage temperature	-30...+80°C						
Housing material	Self-extinguishing polyamide						

Note: N/O = normally open  
c/o = changeover; inst. = instantaneous.

① Used at 24-48VDC or 24-240VDC; ≤30ms at 380-440VAC.

### Operational characteristics

TYPE	AT1P...	AT1CP...	ATD...	AT1DP...
<b>DESCRIPTION</b>				
	On delay	ON delay	Off delay	Off delay, auxiliary supply
	Multiscale	Multiscale	Multiscale	Multiscale
	Multivoltage	Multivoltage	Single voltage	Single voltage
<b>CONTROL CIRCUIT</b>				
Rated supply voltage (Us)	24VAC / 100-240VAC <sup>①</sup>	12-24VAC/DC <sup>①</sup>	24VAC/DC <sup>①</sup>	24VAC/DC <sup>①</sup>
	24VAC / 220-440VAC <sup>①</sup>	48-60 / 110-125VAC/DC <sup>①</sup>	48VAC/DC <sup>①</sup>	48VAC/DC <sup>①</sup>
			110-127VAC <sup>①</sup>	110-127VAC <sup>①</sup>
			220-240VAC <sup>①</sup>	220-240VAC <sup>①</sup>
Rated frequency	50-60Hz			
Operating voltage range	0.85-1.1 Us	0.85-1.1 Us in AC 0.6-1.3 Us in DC	0.8-1.1 Us	
Power consumption (maximum)	24V=1VA; 100-240V=10VA 110V=1.4VA 220-440V=15.6VA (220V=3.2VA)	1.5W (12/24V) 2.5W (48-60/110-125V)	2.7VA AC 0.3W DC	8.7VA AC 1.6W DC
Power dissipation (maximum)	②	②	②	②
<b>TIMING CIRCUIT</b>				
Time setting range	Multiscale	Multiscale	Multiscale	Multiscale
	0.3-3s	0.3-3s	0.3-3s	0.3-3s
	1.2-12s	1.2-12s	1.2-12s	1.2-12s
	9.6-96s	9.6-96s	9.6-96s	9.6-96s
	76.8-768s	76.8-768s	76.8-768s	76.8-768s
Setting accuracy	±9%			
Repeat accuracy	≤ ±0.5%			
Influence of voltage variation	±0.3%	-0.3% 0.74%	±0.3%	
Average variation of set delays in related to 20°C condition	at -20°C	+2%		
	at +60°C	-3%		
Minimum ON time	—			25ms
Resetting during operation time elapsed time	≥ 80ms	≥ 60ms	200ms	≥ 55ms
	≥ 55ms	≥ 50ms	—	≥ 80ms
Immunity time for microbreakings	≤ 30ms	≤ 30ms	≤ 7ms	≤ 7ms
<b>OUTPUT RELAYS</b>				
Number of relays	1	1	1	1
Contact arrangement	1 delayed changeover			
Maximum switching voltage	440VAC (rated 250V)		250VAC	250VAC
Conventional free air thermal current (Ith)	8A			
IEC/EN 60947-5-1 designation	B300			
Electrical life (with rated load)	10 <sup>5</sup> cycles			
Mechanical life	30x10 <sup>6</sup> cycles			
<b>CONNECTIONS</b>				
Tightening torque maximum	1Nm			
Conductor section min-max	—			
<b>INSULATION (input-output)</b>				
Rated insulation voltage	250V			
Rated impulse withstand voltage	4kV			
Power frequency withstand voltage	2.5kV (50Hz - 60s)			
<b>AMBIENT CONDITIONS</b>				
Operating temperature	-10...+60°C			
Storage temperature	-30...+80°C			
Housing material	Self-extinguishing polyamide			

NOTE:  
 del. = delayed  
 inst. = instantaneous  
 c/o = changeover  
 ① Other voltage on request.  
 ② Contact our Customer Service  
 (Tel. +39 035 4282422;  
 e-mail: service@LovatoElectric.com)

BTPM...		DRPL...	BT2N...	L48T...	L48TP...	L48TPB...	L48M...		
Programmable multifunction		Asymmetrical recycle	For starting	On delay	On delay	On delay	Programmable multifunction		
Multiscale			Single scale	Single scale	Multiscale	Multiscale	Multiscale		
Multivoltage			Dual voltage	Single voltage	Multivoltage	Single voltage	Multivoltage		
24VAC/DC 110-127VAC 220-240VAC		24/48VAC/DC❶ 24VAC/DC-110-127VAC❶ 24VAC/DC-380-415VAC❶ 24VAC/DC-110-127VAC❶ 24VAC/DC-415-440VAC❶		24VAC/DC❶ 220-240VAC❶	24VAC/DC❶ 110VAC❶ 220-240VAC❶	24VAC/DC❶ 220-240VAC❶	24-240VAC/DC❶		
0.8-1.1 Us				50-60Hz					
				0.85-1.1 Us					
9.2VA AC 2.9W DC		12.8VA AC 1W DC		8.7VA AC 1.5W DC		6VA			
Ⓜ									
Multiscale 0.3-3s 1.2-12s 9.6-96s 76.8-768s 0.3-3min 1.2-12min 9.6-96min 76.8-768min		Multiscale 0.3-3s/min 0.6-6s/min 1.2-12s/min 3-30s/min 6-60s/min 12-120s/min		Single scale start time: 0.1-3s 0.1-6s 0.5-30s 0.5-60s 1s-3min 3s-6min 30s-30min 30s-60min 3min-3h		Single scale 0.1-3s 0.1-6s 0.5-30s 0.5-60s 18s-3min 72s-12min 10-100min 78-780min		Multiscale 0.3-3s 0.12-12s 10-100s 78-780s 6s-10min 0.05-1s 0.1-10s 0.6s-1min 6s-10min 0.05-1min 0.1-10min 0.6min-1h 1min-10h	
		±9%		±9%		±5%			
		≤±0.5%		≤±0.5%		±0.5%			
		±0.3%		±0.3%		±0.5%			
		+2%		+2%		+2%			
		-3%		-3%		-3%			
—									
≥ 75ms		≥ 85ms		≥ 75ms		≥ 0.1s			
≥ 45ms		≥ 75ms		≥ 70ms		≥ 0.1s			
≤ 7ms		≤ 7ms		≤ 7ms		≥ 65ms			
						≥ 65ms			
						≤ 40ms			
						≤ 40ms			
						≤ 40ms			
						≤ 40ms			
2		2		2		1			
2 del. or 1 inst. + 1 del. c/o		2 delayed c/o		2 delayed c/o		1 delayed c/o			
250VAC		380VAC		250V		250V			
8A		5A		B300		B300			
10 <sup>5</sup> cycles		10 <sup>5</sup> cycles		30x10 <sup>6</sup> cycles		30x10 <sup>6</sup> cycles			
1Nm		—		—		—			
1.5-5.0mm <sup>2</sup> (18-14AWG)		—		—		—			
250V		500V		250V		250V			
4kV		—		—		—			
2.5kV		2kV		2kV		2kV			
-10...+60°C		-10...+60°C		-10...+60°C		-10...+60°C			
-30...+80°C		-30...+80°C		-30...+80°C		-30...+80°C			
Self-extinguishing polyamide		Self-extinguishing polyamide		Self-extinguishing polyamide		Self-extinguishing polyamide			