

## Modular time relays TM series



moduLo

 **Lovato**  
**electric**

*100% electricity*

# Modular time relays



**moduLo**

LOVATO Electric extends the range of electronic time relays with new modular models of the TM series, **moduLo** line.

- Models with multiscale 0.1 seconds ... 100 days
- Wide supply voltage range 12 ... 440V
- Excellent time accuracy and stability
- Immunity to industrial ambient noise
- Operating temperature -20 ... +60°C
- Robust modular DIN43880 housing, one module
- 35mm DIN rail mounting or screw fixing by extractible clips
- Conductor section 0.2 ... 4mm<sup>2</sup>
- Reliable in most severe operating conditions.

## Time relays



moduLo



ORDER CODE	TM P	TM M1	TM M2	TM PL	TM D	TM ST	TM ST A440
DESCRIPTION	On delay	Programmable multifunction	Programmable multifunction	Asymmetrical recycle	True off delay	For star- delta starting	
CONTROL CIRCUIT							
Rated supply voltage (Us)	24-48VDC 24-240VAC	12-240VAC/DC			24-240VAC/DC	24/48VDC 24-240VAC	380-440VAC
TIMING CIRCUIT							
Timing setting range		Multiscale 0.1-1s 1-10s 6-60s 1-10min 6min-1h 1-10h 0.1-1 day 1-10 days ON only OFF only		Multiscale 0.1-1s 1-10s 6-60s 1-10min 6min-1h 1-10h 0.1-1 day 1-10 days 3-30 days 10-100 days	Multiscale 0.06-0,6s 0.6-6s 6-60s 8-180s		Multiscale 0.1-1s 1-10s 6-60s 1-10min
OUTPUT CONTACTS							
Contact arrangement	1 delayed changeover	1 instantaneous/ delayed N/O + 1 delayed c/o		1 delayed changeover		2 delayed N/O	
Maximum switching voltage	250VAC						
Conventional free air thermal current (Ith)		8A			5A		8A
OTHER INFORMATION							
Operating ambient temperature	-20...+60°C						
Quantity per package [n°]	1						
Net weight [kg]	0.048	0.053	0.078		0.060		0.065

## Staircase time relay

DESCRIPTION	Staircase illumination	OUTPUT CONTACTS	Contact arrangement	1 delayed N/O
			Maximum switching voltage	250VAC
CONTROL CIRCUIT			Conventional free air thermal current (Ith)	16A
Rated supply voltage (Us)	220-240VAC	OTHER INFORMATION	Operating ambient temperature	-20...+60°C
TIMING CIRCUIT			Quantity per package [n°]	1
Time setting range	Single scale 0.5-20min		Net weight [kg]	0.060

- Connection with up to 50 light-up switches maximum
- Suitable for 3 or 4-wire systems
- 1 slide switch for manual or automatic operation (constant lighting)
- Extra lighting time function: when the button is pressed for more than 3s, the time relay remains energised for 1 hour. By pressing it again for additional 3s, the time relay de-energises.



ORDER CODE

TM LS

# Operational and wiring diagrams

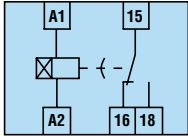


A1-A2 = Power supply

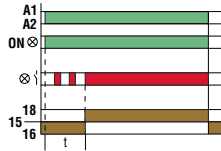
ON ⊗ = LED indicator for power on

⊗ † = LED indicator for relay state

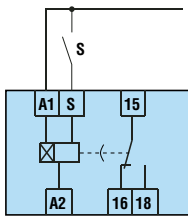
## TM P



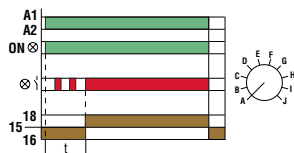
On delay. Delay on make, with start at relay energising



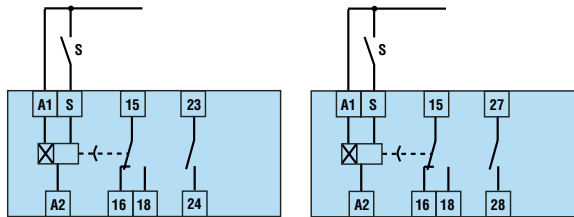
## TM M1



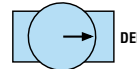
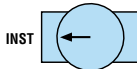
On delay. Delay on make, with start at relay energising



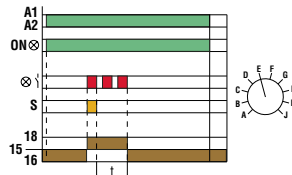
## TM M2



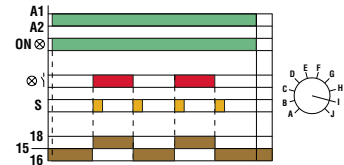
With the rotary switch on INST, the configurable contact (23 - 24) instantaneously switches at relay energising. With the rotary switch on DEL, the configurable contact (27 - 28) replicates the same operation of the first contact (15 - 18).



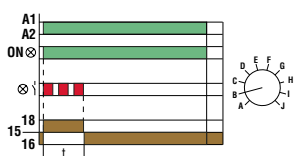
Off delay. Relay energising at external contact closing with start on break



Pulse former, single shot. Relay contact either opens or closes at each external contact closing



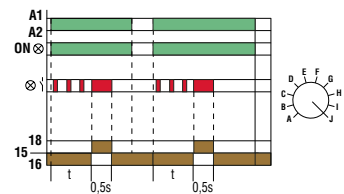
Pulse on relay energising with start on energising



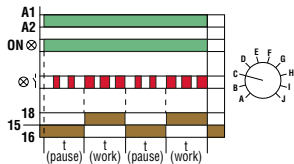
Pulse on relay energising with start at external contact closing



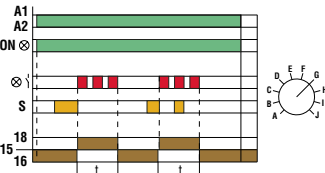
Pulse generator. Unequal timing recycle, starting with ON pulse time and 0.5sec OFF time



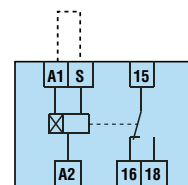
Flasher, starting with OFF (pause) interval. Equal timing recycle, OFF first



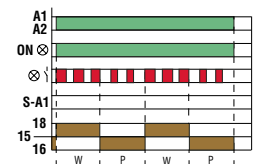
Pulse on relay energising with start at external contact opening



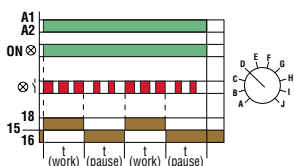
## TM PL



ON first



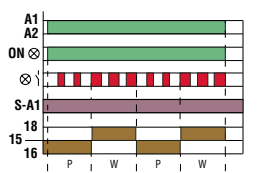
Flasher, starting with ON (pause) interval. Equal timing recycle, ON first



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



OFF first



# Operational and wiring diagrams



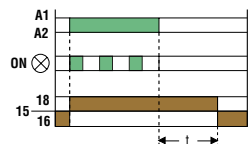
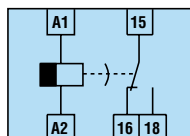
A1-A2 = Power supply

ON ⊗ = LED indicator for power on

⊗ ⊘ = LED indicator for relay state

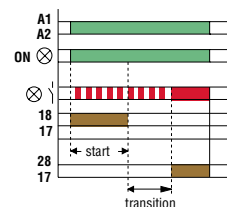
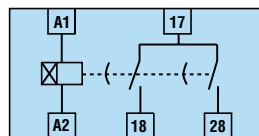
## TM D

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



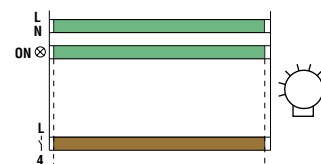
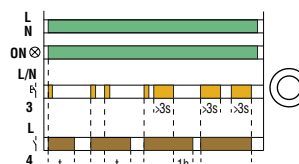
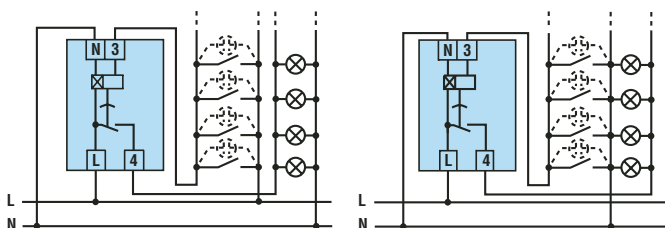
## TM ST

For star-delta starting



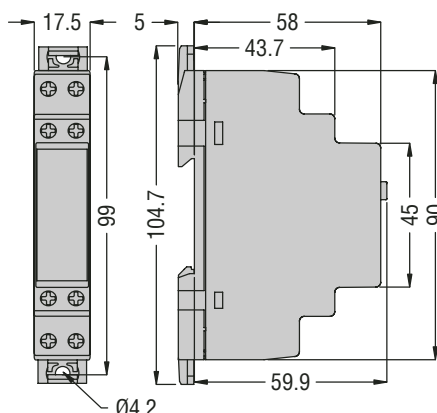
## TM LS

Staircase lighting



## Dimensions [mm]

moduLo



## Certifications and compliance

Certifications obtained:  
cULus.

Compliant with standards:  
IEC/EN 61812-1.

LOVATO Electric can also offer a complete range of time relays in the following versions.

## DIN mount time relays

- 31 AT1P... On delay. Multiscale. Multivoltage in AC. 1 changeover contact.
- 31 AT1CP... On delay. Multiscale. Multivoltage in AC and DC. 1 changeover contact.
- 31 ATD... Off delay. Multiscale. Single voltage in AC and DC. 1 changeover contact.
- 31 AT1DP... Off delay at external contact opening. Multiscale. Single voltage in AC and DC. 1 changeover contact.
- 31 BTM1 ... Multifunction. Multiscale. Multivoltage in AC and DC. 1 changeover contact.
- 31 BTM ... Multifunction. Multiscale. Multivoltage in AC and DC. 2 independent changeover contacts.
- 31 DRPL 220 Asymmetrical recycle. Multiscale. Multivoltage in AC and DC. 2 independent changeover contacts.
- 31 BT2N... For starting. Dual voltage in AC and DC.



## Plug-in and flush-mount time relays, 48x48mm

- 31 L48T... On delay. Single scale. Single voltage. 1 changeover contact.
- 31 L48TP... On delay. Multiscale. Multivoltage. 1 changeover contact.
- 31 L48TPB... On delay. Multiscale. Single voltage. 2 independent changeover contacts.
- 31 L48M... Multifunction. Multiscale. Multivoltage. 2 changeover contacts.



The above-indicated order codes must be completed with the end-scale time value, if any, and the supply voltage. Contact our Customer Service (Tel. +39 035 4282422; Email service@LovatoElectric.com).



Contactors



Electromechanical starters



Signal towers



Micro switches



Voltage relay type PMV10 A440



Digital ammeter and voltmeter type DMKO... and DMK1...



Programmable logic relays

### Planet-SWITCH

- Motor protection circuit breakers
- Switch disconnectors
- Contactors
- Motor protection relays
- Electromechanical starters
- Control and signalling units
- Limit, micro and foot switches
- Rotary cam switches

### Planet-DIN

- Modular contactors
- Time relays
- Protection relays
- Level control relays
- Earth leakage relays

### Planet-LOGIC

- Digital metering instruments and current transformers
- Soft starters
- AC motor drives
- Automatic power factor controllers
- Automatic battery chargers
- Automatic transfer switch controllers
- Programmable logic relays

The products described in this documentation are subject to be revised or improved at any moment. Catalogue descriptions and details, such as technical and operational data, drawings, diagrams and instructions, etc., do not have any contractual value. In addition, products should be installed and used by qualified personnel and in compliance with the regulations in force for electrical systems in order to avoid damages and safety hazards.

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FOR INDUSTRY

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