

# SLIM LINE DIN RAIL MODULAR MULTI VOLTAGE, MULTI TIME RANGE, MULTI FUNCTION TIMER

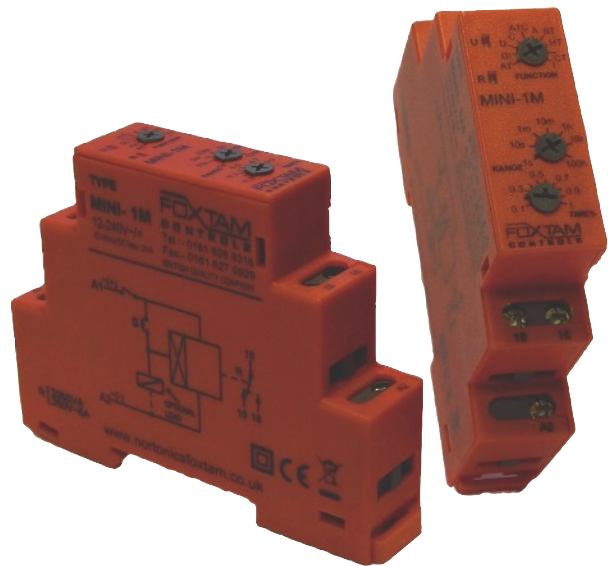
## TYPES: MINI-1M (spco)

### FEATURES

- Din rail mounted
- Modern modular design
- Width 18mm (1 module)
- SPCO output
- Multi voltage 12-240VAC/DC
- Multi time range 0.1 sec to 100 hours
- 10 selectable functions
- Dual LED indication
- Low power consumption
- CE marked

### DESCRIPTION & MODE OF OPERATION

An attractive modern designed multi "everything" timer in a din rail mounted modular style housing of 1 module width (18mm). The timer features large double deck terminals suitable for up to 4mm<sup>2</sup> cable. A selector switch is provided to select one of seven different time ranges from 0.1 sec to 100 hours, fine time selection on a selected range is then achieved via a percentage potentiometer. A further selector switch is then used to select one of ten different functions. A green supply on LED is featured along with a yellow LED to indicate relay output status. The green supply LED flashes to indicate timing. All terminal details and the function selection information along with the CE mark is clearly marked on the sides of the housing.



### SPECIFICATIONS

#### Timing:

Time ranges:	0.1sec to 100 hours
Setting accuracy:	±5% of full scale
Repeat accuracy:	±1%
Initiate time:	Max 100mSec
Reset time:	Max 200mSec

#### Relay outputs:

Output contacts:	8Amps/250V AC1
Max breaking capacity:	2000VA
Mechanical life:	10 Million ops
Electrical life:	500K ops at max rated load

#### Supply voltage:

Supply voltage:	12-240V AC/DC
Supply tolerance:	-15% to +10%
Max power consumption:	2VA
Insulation (I/P & O/P):	2KV 50Hz impulse
Insulation (terminal to case):	4KV 50Hz impulse

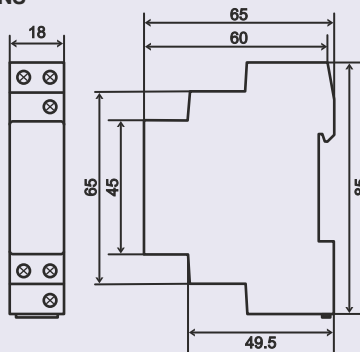
#### Trigger Input (S):

Max consumption:	1.5mA
Min input time:	>=60mSec
Max input time:	Continuous

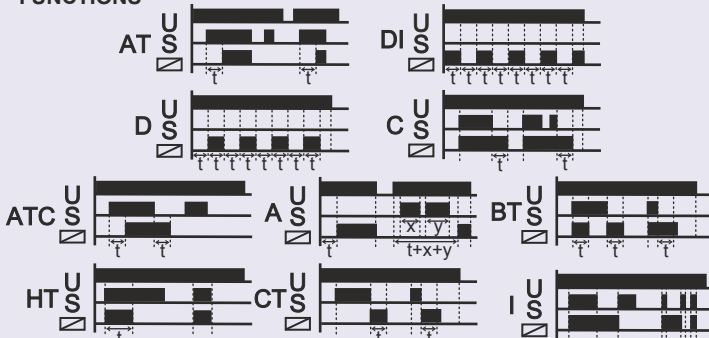
#### General:

Operating temperature:	-10°C to +60°C
Storage temperature:	-15°C to +70°C
Max cable size:	4mm <sup>2</sup>
CE marked:	Yes
In accordance with:	EN61000-3-2, EN61000-4-2, EN61000-4-3 EN61000-4-4, EN61000-4-5, EN61000-4-11 CISPR 14.1
Housing material:	Flame retardant (UL94-V0)
RoHS compliant:	Yes

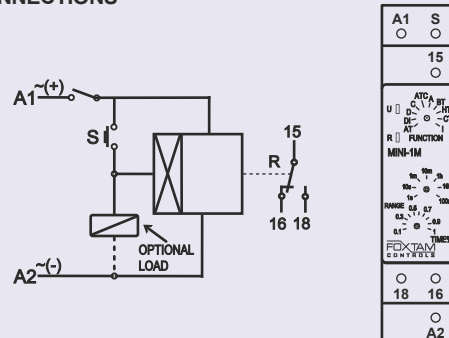
#### DIMENSIONS



#### FUNCTIONS



#### CONNECTIONS



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## TYPES: MINI-1M (spco)

### ■ TIME RANGES

Position 1: 0.1-1Sec Position 2: 1-10Secs Position 3: 0.1-1Min Position 4: 1-10Mins Position 5: 0.1-1Hr  
Position 6: 1-10Hrs Position 7: 10-100Hrs

### ■ TIMING FUNCTIONS

**Function AT: Delay on with trigger input (leading edge)** - a permanent supply is required at all times on terminals A1 & A2 indicated via an illuminated green LED, however this is not the controlling factor. The controlling factor is a trigger input from A1 on to terminal S. On a permanent input being made to terminal S the green LED will start to flash as timing commences and at the end of the set time the relay contact will energise, (indicated via an illuminated amber LED) and remain energise until the S input is removed or the permanent supply voltage is removed. If the S input is removed during the timing period the set time period will be cancelled and a new S input will be required.

**Function DI: Flasher (pulse first)** - initiated by a supply on terminals A1 & A2, on initial connection of the supply voltage the relay contact will energise (indicated via an illuminated amber LED) and then time to de-energise and then time to energise, as timing is continuous the green LED flashes continuously. This cycle continues so long as the supply is connected. The time period for both energisation and de-energisation will be the same. If the supply is removed at any point within the cycle any remaining time will be cancelled and if the relay contacts are energised they will de-energise.

**Function D: Flasher (pause first)** - exactly as function DI, but on connection of the supply to terminals A1 & A2 timing commences to energise the relay contact followed by timing to de-energise the relay contact and the cycle continues.

**Function C: Delay off with trigger input (trailing edge)** - a permanent supply is required at all times on terminals A1 & A2 indicated via an illuminated green LED, however this is not the controlling factor. The controlling factor is a trigger input from A1 on to terminal S. On an input being made to terminal S the relay contact energises (indicated via an illuminated amber LED), on removal of the trigger input (trailing edge) the relay contact times to de-energise, timing will be indicated via the green LED flashing. If the trigger input is reinstated after timing has commenced it will immediately cancel any remaining delay time and the trigger will need to be removed again for timing to commence once more. If the supply on terminals A1 & A2 is removed at any point when the relay contact is energised irrespective of what state the trigger input is at, the relay contact will de-energise. If the trigger input to terminal S is present before the connection of the supply to terminals A1 & A2, when the supply is connected the relay contact will immediately energise and as above removal of S will commence timing.

**Function ATC: Delay on and delay off with trigger input** - a permanent supply is required at all times on terminals A1 & A2 indicated via an illuminated green LED, however this is not the controlling factor. The controlling factor is a trigger input from A1 on to terminal S. On a permanent input being made to terminal S (leading edge) the relay contact will time to energise indicated via the green LED flashing, after timing the relay contact will energise indicated via an illuminated amber LED. Then on removal of the trigger input from S (trailing edge) the relay contact will time to de-energise again indicated via the green LED flashing. If during the "on" timing period the trigger input is removed from terminal S timing will be cancelled and will need to be connected again for timing to commence one more. During the "off" timing period if after removal of the trigger input from terminal S it is reconnected again timing will also be cancelled and the trigger will need to be removed for timing to commence again. If at any time the supply from terminals A1 & A2 is removed any timing will be cancelled and if the output relay is energised the relay will immediately de-energise.

**Function A: On delay-Straight on delay** - initiated by supply on terminals A1 & A2, which commences timing (indicated via the green LED flashing). The relay contact energises after the timing period, indicated via an illuminated amber LED. Removal of the supply after timing has been completed and the relay contact will de-energise, if removal of the supply is before timing has been completed the remaining time will be cancelled.

**Accumulative memory on delay** - It is also possible to temporary interrupt the delay timing by making a maintained link between terminals A1 & S, when the link is then opened timing will pause. When the link is then closed timing will re-commence from where it left off. A permanent supply must be maintained at all times on terminals A1 & A2.

**Function BT: Impulse on and off with time via trigger input** - a permanent supply is required at all times on terminals A1 & A2 indicated via an illuminated green LED, however this is not the controlling factor. The controlling factor is a trigger input from A1 to terminal S. On a momentary trigger being made to terminal S (leading edge) the relay contact will immediately energise (indicated via an illuminated amber LED) and timing commences, at the end of timing the relay contact will de-energise, energisation will happen again with a new trigger input to terminal S. If however, the trigger input to terminal S is not momentary and is maintained for greater than the set time the relay contact will immediately energise and then de-energise after the set time exactly as above. But then once this has occurred on removal of the trigger input from terminal S (trailing edge) the relay contact will immediately energise and start to time to de-energise. If during either of the above scenarios the trigger input to terminal S is interrupted or uninterrupted as the case maybe this has no effect on the output contact but will reset the set time on each interruption back to zero. Removal of the supply at any time will immediately de-energise the relay contact if energised and reset totally the timing.

**Function HT: Interval timer with optional trigger input Control. Without using trigger input** - initiated by a supply on terminals A1 & A2 with a fixed link in place between terminals A1 & S. The relay contact will energise immediately on connection as above, indicated via an illuminated amber LED. Timing commences immediately indicated via the green LED flashing, on completion of timing the relay contact de-energises. If the supply is removed during timing the relay contact will de-energise immediately.

**Using trigger input control** - it is possible to use the input from terminal A1 to S as a trigger input, if the link is open on connection of the supply to terminals A1 & A2 the relay contact will not energise and will only energise when the link (trigger) is closed. If during the energised (timing state) the link (trigger) is opened the relay contact will de-energise.

**Function CT: Delay off via impulse trigger input** - a permanent supply is required at all times on terminals A1 & A2 indicated via an illuminated green LED however this is not the controlling factor. The controlling factor is a trigger input from A1 to terminal S. On an input being made to terminal S the relay contact will remain de-energise, but then on removal of the trigger input (trailing edge) the relay contact will immediately energise indicated via an illuminated amber LED. Timing will also immediately commence and the green LED will start flashing, after the set time the relay contact will de-energise. If the trigger input to S is reconnected during timing this will cause the energised relay to immediately de-energise and timing to be reset to zero, removal of the trigger will need to happen for the function to commence. If the supply on terminals A1 & A2 is removed at any point if energised the relay contact will de-energise and any timing will reset to zero.

**Function I: Latching relay "pulse on, pulse off" via trigger input** - a permanent supply is required at all times on terminals A1 & A2 indicated via an illuminated green LED however this is not the controlling factor. The controlling factor is a trigger input from A1 to terminal S. On an input being made to terminal S the relay contact will immediately energise, on a new trigger input the relay contact will immediately de-energise. In brief the unit works as a "pulse on, pulse off" relay with no timing element involved.