Type: M1TVR

Timed Under Voltage Relay (Delayed Restart)

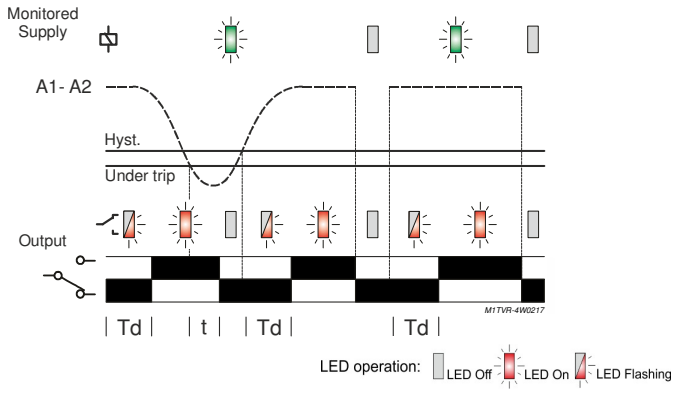
Terminal Protection to IP20

Dims: to DIN 43880
W. 17.5mm

- Red LED flashes during restart delay period (Td) confirming supply is above the fixed trip level
- Meets DEWA regulations (Section 8.2)*
- Temperature rating up to +60°C
- Monitors own supply and detects an Under voltage condition
- Fixed Under voltage trip level (75% of Un)
- Adjustable Time delay (5 – 10m)
- SPDT relay output 6A
- Green LED indication for supply status
- Red LED also used for relay status
- Compact 17.5mm DIN rail housing

QMS ISO 9001 REGISTERED
ISO 9001:2015
Cert. No. 14125771

FUNCTION DIAGRAM



INSTALLATION AND SETTING

Installation work must be carried out by qualified personnel.

- BEFORE INSTALLATION, ISOLATE THE SUPPLY.
- Connect the unit as required. The Connection Diagram below shows a typical installation, whereby the supply to a load is being monitored by the unit. If a fault should occur (i.e. fuse blowing), the relay will de-energise and assuming control of the external Contactor, de-energise the Contactor as well.

Applying power.

- Apply power and the green LED ❶ will illuminate. The relay will remain de-energised.
- Assuming the supply voltage is above the fixed trip level (plus hysteresis) the delay period (Td) will commence and the red LED ❷ will flash during this period.
- After the set delay has elapsed, the relay will energise and red LED ❷ remain on.

Setting the unit

- Set the "Delay (Td)" ❸ adjustment as required.

Troubleshooting.

The table below shows the status of the unit during a particular condition.

Supply status	Green LED ❶	Red LED ❷	Relay
No supply	Off	Off	De-energised
Under voltage condition	On	Off	De-energised
Following supply loss or voltage returning > 75% of Un	On	Flashing	De-energised for delay period (Td)

TECHNICAL SPECIFICATION

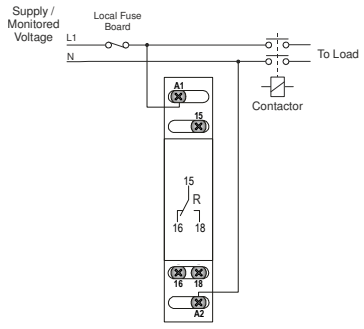
Supply/monitoring voltage		
Un **(A1, A2):**	230V AC	
Frequency range:	48 – 63Hz	
Supply variation:	70 – 110% Un	
Overvoltage category:	III (IEC 60664)	
Rated impulse withstand voltage:	4kV (1.2/50µS) IEC 60664	
Power consumption (max.):	10VA @ 1.1 x Un	
Monitoring mode:	Under voltage	
Trip levels:		
Under:	75% of Un (Fixed)	
Trip accuracy:	± 5%	
Hysteresis:	≈ 2% of fixed trip level (factory set)	
Response time (t):	< 150ms	
Restart time delay (Td):	5 – 10m (± 5%)	
Setting accuracy:	± 5%	
Repeat accuracy:	± 0.5% at constant conditions	
Reset time:	≈ 150ms	
LED indication:	Green LED (Power supply) Red LED (Relay/timing status)	
Ambient temperature:	-20 to +60°C	
Relative humidity:	+95% max.	
Output **(15, 16, 18)**:	SPDT relay	
Output rating:	AC1	250V 6A (1500VA)
	AC15	250V 5A (no), 3A (nc)
	DC1	25V 6A (150W)
Electrical life:	≥ 150,000 ops at rated load	
Dielectric voltage:	2kV AC (rms) IEC 60947-1	
Rated impulse withstand voltage:	4kV (1.2/50µS) IEC 60664	
Housing:	Grey flame retardant UL94	
Weight:	61g	
Mounting option:	On to 35mm symmetric DIN rail to BS EN 60715 or direct surface mounting via 2 x M3.5 or 4BA screws using the black clips provided on the rear of the unit.	
Terminal conductor size	≤ 2 x 2.5mm² solid or stranded	
Terminal screw:	M3 (Designed for use with **PZ1** "pozi-driver")	
Tightening torque:	0.6Nm Max.	
Approvals:	Conforms to IEC. CE, UKCA, ✔ and RoHS Compliant. EMC: Immunity: EN 61000-6-2 Emissions: EN 61000-6-4	

** The following extract is taken from **DEWA Regulations for Electrical Installations***

8.2 **UNDER VOLTAGE (U.V.) RELAYS WITH AUTO-RESET TIMER**

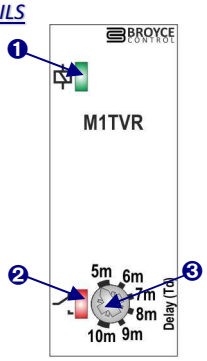
8.2.1 All air-conditioners or air-conditioning units/plants/equipment installed within the consumer's installation shall be provided with Under Voltage (U.V.) relays with fixed voltage cut off setting at 75% of the nominal supply voltage and auto-reset timer with adjustable time setting between 5 and 10 minutes.

CONNECTION DIAGRAM

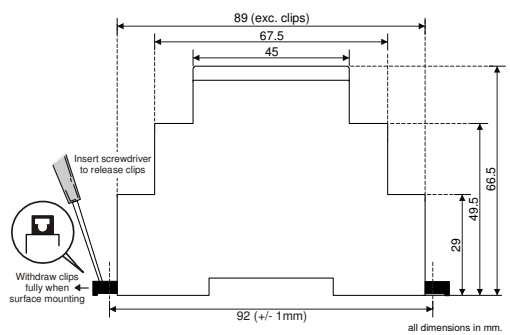


SETTING DETAILS

1. Supply status (Green) LED
2. Relay output/timing status (Red) LED
3. "Delay (Td)" adjustment



DIMENSIONS



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The Information provided in this literature is believed to be accurate (subject to change without prior notice); however, use of such information shall be entirely at the user's own risk.