

Type: M1CVR

Single Phase, Under and Over Voltage plus Time Delay

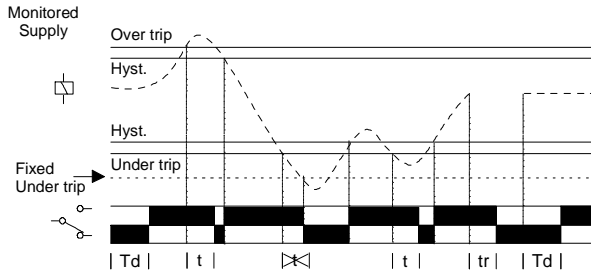
- 17.5mm DIN rail housing
- Microprocessor controlled with internal monitoring (self-checking)
- Monitors own supply
- Detects if supply exceeds the set Under or Over Voltage trip levels
- Fixed trip level - 70% of Un (time delay automatically cancelled when the supply drops below this level)
- Adjustments for under and over voltage trip level
- Adjustment for time delay (from under or over voltage condition)
- 1 x SPDT relay output 8A
- Intelligent LED indication for supply and relay status

Dims:
to DIN 43880
W. 17.5mm



Terminal Protection to IP20

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 diagram below shows a typical installation, whereby the supply to the load is being monitored by the relay. If a fault should occur (i.e. fuse blowing), the contactor or relay is de-energised removing the supply to the load. The contactor or relay only re-energises after the fault has cleared.

Applying power.

- Set the "over %" adjustment to maximum and the "under %" adjustment to minimum. Set the "time delay" to minimum.
- Apply power and the green "supply on" and red "relay" LED's will illuminate, the relay will energise and contacts 15 and 18 will close. Refer to the troubleshooting table if the unit fails to operate correctly.

Setting the unit.

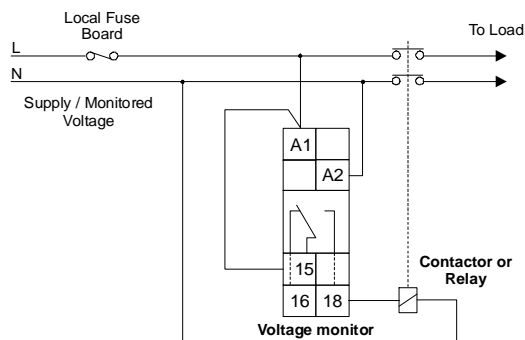
- Set the "over %" and the "under %" adjustments to give the required monitoring range.
- If large supply variations are anticipated, the adjustments should be set further from the nominal voltage.
- Set the "time delay" as required. (Note that the delay is only effective should the supply increase above or drop below the set trip levels. However, if during an under voltage condition the supply drops below the 2nd under voltage trip level, any set time delay is automatically cancelled and the relay de-energises).

Troubleshooting.

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

Supply fault	Green LED	Red LED	Relay
Supply missing	Off	Off	De-energised
Under or Over Voltage condition (during timing)	On	Flashing	Energised for set delay (t)
Under or Over Voltage condition (after timing)	On	Off	De-energised
Supply below 70% of Un (fixed under trip level [2])	On	Off	De-energised
Supply below 50% of Un	Off	Off	De-energised

CONNECTION DIAGRAM



TECHNICAL SPECIFICATION

Supply / monitoring voltage Un*: 24, 110, 115, 220, 230, 240V AC
 Frequency range: 48 - 63Hz
 Supply variation: 70 - 130% of Un
 Isolation: Over voltage cat. III
 Rated impulse withstand voltage: 4kV (1.2 / 50µs) IEC 60664
 Power consumption: (max.) ≈ 1.4VA (24V)
 ≈ 6.2VA (110/115V)
 ≈ 13VA (220/230/240V)

Trip levels:

Under [2]: 70% of Un (fixed)
 Under: 75 - 95% of Un
 Over: 105 - 125% of Un

Measuring ranges:

	Under	Over
24V:	18 - 23V	25 - 30V
110V:	82 - 104V	115 - 137V
115V:	86 - 109V	121 - 144V
220V:	165 - 209V	231 - 275V
230V:	173 - 218V	241 - 287V
240V:	180 - 228V	252 - 300V

Repeat accuracy:

± 0.5% @ constant conditions

Hysteresis:

≈ 2% of trip level (factory set)

Response time:

≈ 50 ms

Time delay (t):

0.2 - 10 sec (± 5%)

Note: actual delay (t) = adjustable delay + response time

Delay from

supply loss (tr): ≈ 100 ms (worst case = tr x 2)

Power on delay (Td): ≈ 1sec. (worst case = Td x 2)

Ambient temp:

-20 to +60°C

Relative humidity:

+ 95%

Output:

SPDT relay

Output rating:

AC1 250V 8A (2000VA)
 AC15 250V 5A (no), 3A (nc)
 DC1 25V 8A (200W)

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:

Orange flame retardant UL94 V0

Weight:

≈ 70g

Mounting option:

On to 35mm symmetric DIN rail to BS5584:1978 (EN50 002, DIN 46277-3) 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

Approvals:

Conforms to IEC, CE and Compliant.

Options:

1. For other supply/monitoring voltages*, please contact Sales.
2. The unit is also available with a double-pole relay output. Refer to separate data sheet for M3cvr/2.

MOUNTING DETAILS

