# VPRA2M

# Protection Relay


## Features:

- **1Ø - 2 Wire, 3Ø - 4 Wire Input**
- **Monitors Under voltage, Over voltage, Phase asymmetry, Phase failure & Phase sequence**
- **LED Indication: Power ON / Phase failure, Under voltage, Over voltage, Phase sequence / asymmetry**
- **DIN Rail Mount**

**Size: 35mm (Width)**

**Certifications:** CE RoHS

## Technical Specifications

### Display

| | |
|---|---|
| Type | Analog |
| No. of LEDs | 4 |
| LED Indication | Power ON / Phase failure, Under voltage, Over voltage, Phase sequence / asymmetry |

### Input Specifications

| | |
|---|---|
| **Functions** | |
| Measurements | Under voltage, Over voltage, Phase asymmetry, Phase failure & Phase sequence |
| Time Setting | Power ON delay, Trip time delay |
| Alarm Indications | Trip |
| Reset | Auto |
| **Electrical Connection** | 1Ø - 2Wire, 3Ø - 4Wire |
| **Auxiliary Supply** | |
| Nominal Input Voltage, Un | 230V AC (L-N) |
| Operating Voltage | 127 to 288V AC (L-N) |
| VA Rating | 5VA max |
| Frequency | 48 - 63Hz |
| **Trip Settings** | |
| Under Voltage | 55 to 95% of Un [127 to 219V AC (L-N)] |
| Over Voltage | 105 to 125% of Un [242 to 288V AC (L-N)] |
| Phase Sequence | Yes |
| Phase Failure | Yes |
| Phase Asymmetry | > 10% |
| **Trip Time Settings** | |
| Power On Delay | 0-15 sec (for 0 setting : <400msec) |
| Trip Time Delay | 0-15 Sec (for 0 setting : <100msec) |
| Recovery Time Delay | 5 sec (Fixed) ±200ms |
| L1 / Neutral Loss Trip Delay | <200msec |
| Phase Sequence Trip Delay | <250msec |

| | |
|---|---|
| **Hysteresis** | |
| Voltage | 7V (±2V) of trip voltage |
| **Accuracy** | |
| Trip Setting Accuracy | ±5% of F. S. |
| Time Setting Accuracy | ±10% of F. S. |

### Output Specifications

| | |
|---|---|
| Output Contact | DPDT (2 C/O) |
| Contact Rating | 5A @ 250V AC / 28V DC |
| Electrical Life | 1 x $10^5$ (100000) |
| Mechanical Life | 1 x $10^7$ (10000000) |

### Environmental Specifications

| | |
|---|---|
| Temperature | Operating : -10 to 55°C<br>Storage: -25 to 70°C |
| Humidity (non-condensing) | Upto 95% RH |

### Mechanical Specifications

| | |
|---|---|
| Enclosure | UL 94V0 |
| Dimension | 35mm (width) |
| Mounting | DIN Rail |
| Weight | 150 g |
| Protection Level | IP20 for Terminals<br>IP40 for Enclosure<br>IP50 for Faceplate |

### Standards

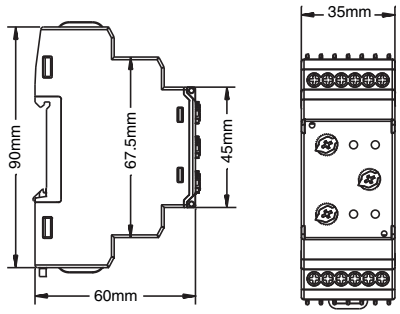
| | |
|---|---|
| **EMI/EMC** | IEC61326-1 (2005-12) |
| Harmonic Current Emission | IEC61000-3-2 ed.3.0 (2005-11) class A |
| Radiated Susceptibility | IEC 61000-4-3 ed.3.0 (2006-02) level 3 |
| ESD | IEC61000-4-2, level 3 (8kV air, 6kV contact) |
| Electrical Fast Transients | IEC61000-4-4, level 3 (2kV) |
| Surge | IEC61000-4-5, level 3 (2kV) |
| Conducted Susceptibility | IEC61000-4-6, ed.2.2 (2006-05) Level 2 |
| Voltage Dips, Interruptions | IEC61000-4-11, level 3 |
| Conducted Emission | CISPR11, ed.5.1 class B |
| Radiated Emission | CISPR22, ed.5.2 class A |
| Safety | IEC61010-1 (2010) |
| Breakdown Voltage | IEC61010-1 (2.5kV) |
| **Environmental** | |
| Cold Heat | IEC60068-2-1, ed.6.0 (2007-03) |
| Dry Heat | IEC60068-2-2, ed.5.0 (2007-07) |
| Vibration | IEC60068-2-6, ed.7.0 (2007-12), 5g |
| Repetitive Shock | IEC60068-2-27, ed.4.0 (2008-02), 40g, 6ms |
| Non-Repetitive Shock | IEC60068-2-27, ed.4.0 (2008-02), 30g, 15ms |

### LED Indication Chart

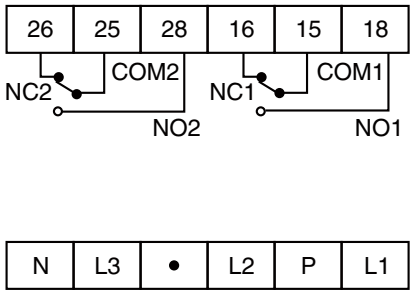
| Supply | Power LED | Under Voltage LED | Over Voltage LED | Phase Reverse/ Unbalance LED |
|---|---|---|---|---|
| Nominal Condition | ON | OFF | OFF | OFF |
| Under Voltage | ON | ON | OFF | OFF |
| Over Voltage | ON | OFF | ON | OFF |
| Phase Reverse | ON | OFF | OFF | ON |
| Phase Unbalance | ON | OFF | OFF | Blink |
| Phase Loss (L2/L3) | Blink | OFF | OFF | OFF |

**Note:** Phase reverse, Phase unbalance and Phase loss (L2/L3) conditions are not applicable for 1Ø - 2 Wire connection.

### Dimensions

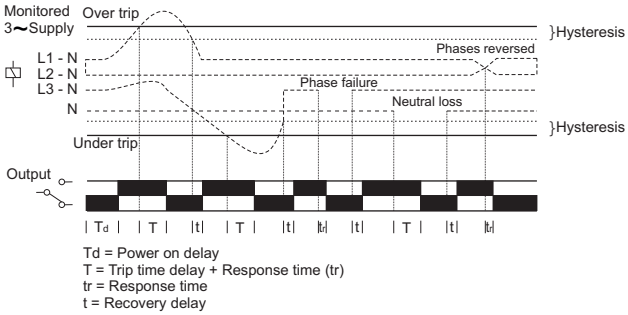



### Terminal Connections




**Note:** Short L1 and P for 1Ø - 2 Wire connection

### Timing Diagram




## Ordering Information

| Part No. | Supply Voltage | Certification |
|---|---|---|
| VPRA2M-CE | 127 to 288V AC (L-N) | CE RoHS |
| VPRA2M | 127 to 288V AC (L-N) | CE |