# Technical Data Sheet

# *OMICRON-AR*


*OMICRON-AR* monitors AC current of a system/equipment and protects it from overcurrent, undercurrent and current unbalance. As well as it indicates the occurrence of faults with help of LED indications. It is a potentiometer based relay thus it is easy to programme trip points and time delays

## Special Features

- Over Current, Under Current & Current Unbalance Protection
- Nominal current can be set from 1A - 5A on-site
- Adjustable trip point and time delay for Under current and Over current
- Compliance to International Safety standard IEC 61010-1- 2010
- TRMS measurement
- LED indication for Power on, & faults like Under current, Over current, Current unbalance

## Application

- General application - for any electrical load monitoring
- Motors - monitoring conditions such as overload, locked rotor, etc.
- Genset - to ensure load current is within generator capacity
- Transformer protection
- Ground fault protection
- Over current protection
- Under current protection
- Current unbalance protection

## Product Features

| | |
|---|---|
| **Protection feature** | Over Current Protection<br>Under Current Protection<br>Current Unbalance Protection |
| **Nominal current setting** | Nominal current can be set from 1A - 5A |
| **Adjustable trip point** | Trip point adjustment for Under current and Over current |
| **Unbalance current tripping** | Unbalance current tripping feature can be enabled / disabled on site by using front key. This fault is disabled on factory setting |
| **Adjustable hysteresis** | Hysteresis adjustment for Under current and Over current |
| **Adjustable Time delay for** | Under Current<br>Over Current |
| **System types** | Available in Single phase and Three phase option |

| | |
|---|---|
| **Relay option** | Relay option 1CO, 1CO+1CO is available |
| **Auto/Manual reset** | In auto mode relay automatically clears itself if it comes out of the fault condition. If relay set in manual mode, the device must be manually cleared by "PRG/RST" key when fault condition is recovered.<br>Auto / manual resetting feature can be enabled /disabled on site by using front key |
| **Compliance to International Safety standards** | Compliance to International Safety standard IEC 61010-1- 2010 |
| **True RMS measurement** | The instrument measures distorted waveform up to 15th harmonics |
| **LED Indication** | LED indication for Power on, Under current,Over current, Current unbalance |
| **Relay operation** | Relay energize and de-energize on fault option available |

## Parameter Settings

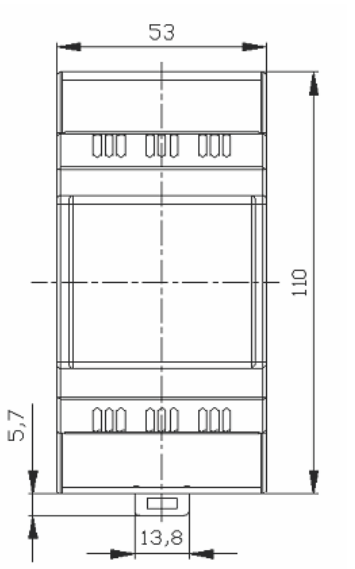
| | |
|---|---|
| 1. Over Current Trip point | 30-140% (Variable) |
| 2. Under Current Trip point | 10-95% (Variable) |
| 3. Current unbalance setting * | Trip point : 20% (Fixed)<br>Trip delay : 5 second (Fixed)<br>Hysteresis : 5% (Fixed) |
| 4. Hysteresis | 5 - 50% (Variable) of Trip point |
| 5. Trip delay | 0 - 10 second variable for Undercurrent, Overcurrent |
| 6. Reset Delay | 1 second (Fixed) |
| 7. Power On Delay | Approx. 3 seconds (Fixed) |

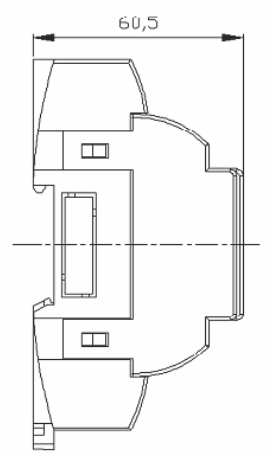
* Note : Unbalance setting is not applicable in single phase model.

## Technical Specifications

| | |
|---|---|
| **Input Current** | |
| Nominal Input Current (AC RMS) | 1 A to 5 A settable |
| Max Continuous Input Current | 145% of Maximum Nominal input current |
| **Overload Withstand** | |
| Current | 20 x for 1 second, repeated 5 times at 5 min |
| **Auxiliary Supply** | |
| Auxiliary Supply Voltage<br>Aux Nominal value<br>Aux Supply Frequency | 60 V – 300V AC/DC<br>230 VAC 50/60 Hz<br>45 to 66 Hz range |
| **Operating Measuring Ranges** | |
| Current Range<br>Frequency | 5...140% of Nominal value<br>40...70Hz |
| **VA Burden** | |
| Input Current Burden<br>Auxiliary Supply Burden | < 0.25 VA approx. per phase at nominal<br>< 3 VA approx. |
| **Operating Reference condition** | |
| Reference Temperature<br>Input waveform<br>Input Frequency<br>Auxiliary supply voltage<br>Auxiliary supply frequency | 23°C +/- 2°C<br>Sinusoidal (distortion factor 0.005)<br>50 or 60 Hz ±2%<br>Nominal Value ±1%<br>Nominal Value ±1% |
| **Accuracy** | |
| Measurement Accuracy<br>Setting Accuracy | ± 2% of Nominal value<br>± 6% of Nominal value<br>± 0.8 sec for trip delay |
| **Response Time** | |
| Less than 140 msec | |

## Dimensions Details



# Technical Specifications

## Applicable Standards

| | |
|---|---|
| Safety | IEC 61010-1-2010, Permanently connected use |
| IP for water & dust | IEC60529 |
| Pollution degree | 2 |
| Installation category | CAT III |
| High Voltage Test | 2.2 KV AC, 50Hz for 1 minute between all Electrical circuits |

## Environmental

| | |
|---|---|
| Operating temperature | -10 to +55°C |
| Storage temperature | -25 to +70°C |
| Relative humidity | 0... 90% non condensing |
| Shock | 15g in 3 planes |
| Vibration | 10... 55 Hz, 0.15mm amplitude |
| Enclosure | IP20 (front face only) |

## Relay Contacts

| | |
|---|---|
| Types of output | 1CO, 1CO+1CO |
| Contact Ratings (Res. Load)) | 5A/250VAC/30VDC (resistive load) |
| Mechanical Endurance | 1x10^7 OPS |
| Electrical Endurance | 1x10^5 OPS |

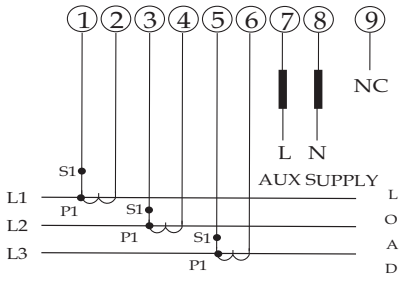
## Mechanical Attributes

| | |
|---|---|
| Weight | 175 gm Approx |

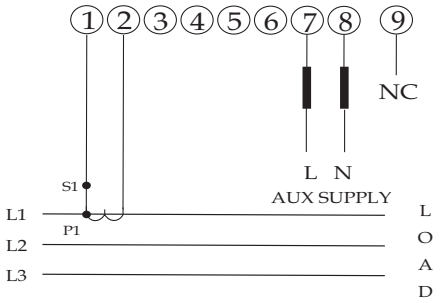
**LED indication table**

| LED indication | Continuous ON |
|---|---|
| P-ON | Power ON |
| UC | Under Current |
| OC | Over Current |
| UB | UnBalance |

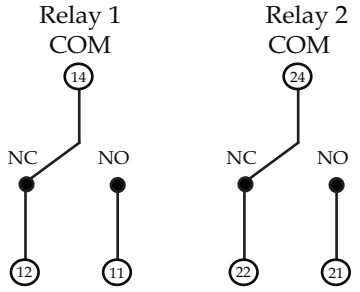
## Electrical Connection




3 Phase




1 Phase




Note- Relay Contacts are shown in power off condition

# Ordering information

| Product Code | PR10- | X | X | X | X | X | X | 0 | 0 | 0 | 0 | 0ST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model type for PR10 | Voltage protection relay | V | | | | | | | | | | |
| | Current protection relay | A | | | | | | | | | | |
| | Phase monitor relay | P | | | | | | | | | | |
| System Type for PR10 | 1P | | 1 | | | | | | | | | |
| | 3P | | 3 | | | | | | | | | |
| | 3P3W | | 4 | | | | | | | | | |
| | 3P4W | | 5 | | | | | | | | | |
| System Voltage for PR10 | 110VLL | | | 1 | | | | | | | | |
| | 240VLL | | | 2 | | | | | | | | |
| | 415VLL | | | 3 | | | | | | | | |
| | 440VLL | | | 4 | | | | | | | | |
| | 58-138VLN | | | 5 | | | | | | | | |
| | 415-480VLL | | | 6 | | | | | | | | |
| | 220-254VLN | | | 8 | | | | | | | | |
| System Freq for PR10 | Not applicable | | | | 0 | | | | | | | |
| | 50Hz | | | | 1 | | | | | | | |
| | 60Hz | | | | 2 | | | | | | | |
| Relay Configuration for PR10 | Normally Energized | | | | | 1 | | | | | | |
| | Normally De-energized | | | | | 2 | | | | | | |
| No. of Relay for PR10 | 1 relay | | | | | | 1 | | | | | |
| | 2 relay | | | | | | 2 | | | | | |
| Reserved | | | | | | | | 0 | 0 | 0 | 0 | 0ST |

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