



RISHABH

Digital Panel Meter (72X144)

RISH DPM Power / Power Factor



Measure



Control



Record



Analyze



Optimize

Application :

RISH DPM 72X144 series measures system active Power (Import / Export), Reactive Power (Import / Export), Apparent Power & Power Factor of Three phase and Single phase Network. It has 4 digit single line auto ranging LED display with polarity indication.

Product Range:

- Active Power (kW) DPM.
- Reactive Power (kVAr) DPM.
- Apparent Power (kVA) DPM.
- Power Factor (PF) meter.

Product Features:

*On site programmable PT/CT ratios

It is possible to program primary of external potential Transformer (PT), primary of external Current Transformer (CT) on site via front panel keys by entering into Programming mode.

*User selectable CT Secondary 5A/1A

The secondary of external Current Transformer (CT) can be programmed on site to either 5A or 1A using front panel keys.

*User selectable 3 phase 3W or 4W

User can program on site the network connection as either

3 Phase 3 Wire or 4 Wire using front panel keys.

*Note: For Power Factor DPM Customer need to specify CT ratio, PT ratio & network type 3phase (3 or 4 wire) / single phase (1P2W) requirement while ordering.

*User selectable Power Parameter

User can select any one of the power parameter (Active / Reactive / Apparent) on site as per its requirement, reducing inventory cost.

*High System Power Measurement

User can set Potential Transformer and Current Transformer ratio such that instrument is able to measure Nominal Power upto 694.4 Mega for three phase system and 231.5 Mega for Single Phase system. The Maximum Power the instrument can measure goes upto 1000 Mega for three Phase system and 333 Mega for single phase system.

*True RMS measurement

The instrument measures distorted waveform up to 15th Harmonic.

*High brightness LED display

Single line four digit. Digit heights 26mm.

*Enclosure Protection for dust and water

conforms to IP 54 (front face) as per IEC60529

*Compliance to International Safety standards

Compliance to International Safety standard IEC 61010-1-2001

*EMC Compatibility

Compliance to International standard IEC 61326



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Technical Specifications:

Input voltage (AC RMS)

| | | |
|------------------------------|----------------|---|
| Nominal Input voltage | Phase –Neutral | 63.5 / 133 / 239.6 / 254 V _{L-N} |
| | Line-Line | 110 / 230 / 415 / 440 V _{L-L} |
| Max continuous input voltage | | 120% of rated value |

Input Current:

| | |
|------------------------------|---------------------------------------|
| Nominal input current | 1A or 5A AC RMS (Programable on site) |
| System CT primary values | Std. values up to 9999A |
| Max continuous input current | 120% of rated value |

Auxiliary Supply:

| | |
|-------------------------------------|--|
| AC/DC Auxiliary Supply | 45 – 300 VAC /DC +/- 10% OR 20-40VAC/20-60VDC +/- 10% |
| AC Auxiliary supply frequency range | 45 to 66 Hz |

VA Burden:

| | |
|------------------------------|----------------------------|
| Nominal input voltage burden | < 0.2 VA approx. per phase |
| Nominal input current burden | < 0.6 VA approx. per phase |
| AC Supply burden | 4 VA |

Overload Withstand:

| | |
|---------|--|
| Voltage | 2 x rated value for 1 second, repeated 10 times at 10 second intervals |
| Current | 20x for 1 second, repeated 5 times at 5 min |

Operating Measuring Ranges

| | |
|--------------|---|
| Voltage | 5... 120% of rated value |
| Current | 5 ... 120% of rated value |
| Frequency | 40...70 Hz |
| Power Factor | 0.5 Lag ... 1... 0.5 Lead for kW, kVA _r DPM / 0.1 Lag ... 1... 0.1 lead for PF DPM |

Reference conditions for Accuracy:

| | |
|----------------------------|--|
| Reference temperature | 23°C +/- 2°C |
| Input waveform | Sinusoidal (distortion factor 0.005) |
| Input frequency | 50 or 60 Hz ±2% |
| Auxiliary supply voltage | Rated Value ±1% |
| Auxiliary supply frequency | Rated Value ±1% |
| Power(Power DPM) | Cos phi / Sin phi= 1 for Active / Reactive Power |
| Power Factor(PF DPM) | 0.5 Lag....1....0.5 Lead |
| Voltage Input: | 50 ... 100% of rated value |
| Current Input | 50 ... 100% of rated value |

Accuracy:

| | |
|----------------|----------------|
| Active Power | ±0.5% of range |
| Reactive Power | ±1% of range |
| Apparent Power | ±0.5% of range |
| Power Factor | ± 2° |

Influence of Variations:

| | |
|--|---|
| Temperature coefficient :(for rated value range of use (0...50°C)) | 0.025%/°C for Voltage (50... 120% of rated value) 0.05%/°C for Current (10... 120% of rated value) |
|--|---|

Display:

| | |
|-----------------------------|-------------------|
| Response time to step input | min 1 sec approx. |
| Resolution | 0.001 (4 digit). |

**Note:- Measurement error is normally much less than the error specified above.
Variation due to influence quantity is less than twice the error allowed for reference condition**



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Technical Specifications:

Applicable Standards:

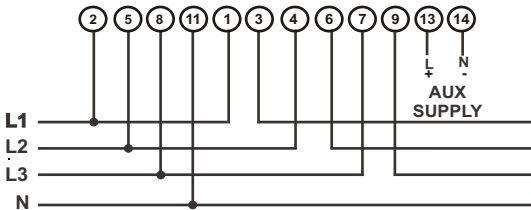
| | |
|------------------------|--|
| EMC | IEC 61326 |
| Immunity | IEC 61000-4-3. 10V/m min – Level 3 industrial low level |
| Safety | IEC 61010-1-2001 , Permanently connected use |
| IP for water & dust | IEC60529 |
| Pollution degree: | 2 |
| Installation category: | CAT III 300V ac rms |
| High Voltage Test | 2.2 kV AC, 50Hz for 1 minute between all electrical circuits |

Environmental:

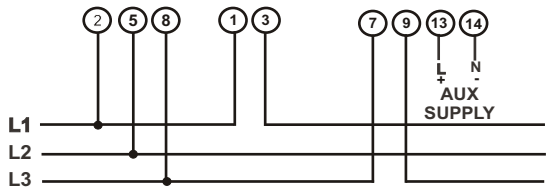
| | |
|-----------------------|-------------------------------|
| Operating temperature | -10 to +55°C |
| Storage temperature | -20 to +65°C |
| Relative humidity | 0... 90% non condensing |
| Warm up time | Minimum 3 minute |
| Shock | 15g in 3 planes |
| Vibration | 10... 55 Hz, 0.15mm amplitude |
| Enclosure | IP54 (front face only) |

Electrical Connection:

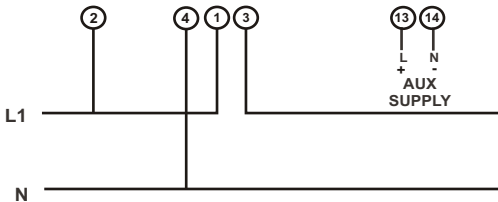
For 3 Phase 4 Wire Unbalanced Load



For 3 Phase 3 Wire Unbalanced Load

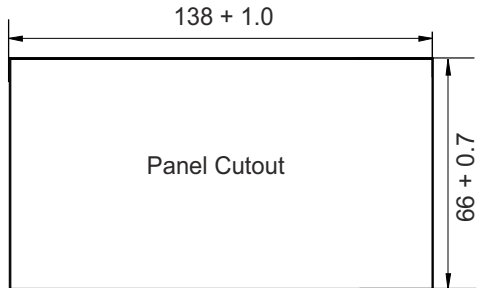
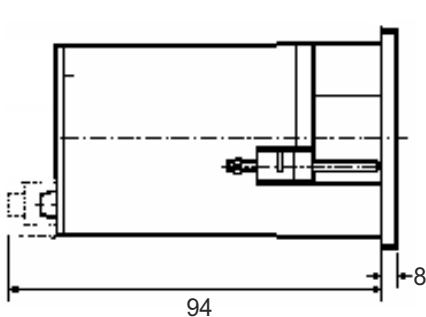
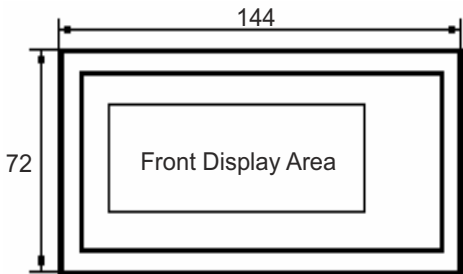


For Single Phase



It is recommended that the wires used for connections to the instrument should have lugs soldered at the end. That is, the connections should be made with Lugged wires for secure connections.

Dimensions



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Ordering information:

| | Ordering Code |
|---|----------------|
| | RISH DPM PF/PW |
| Parameter | |
| Power Factor | PF |
| Power (Active / Reactive / Apparent) | PW |
| | |
| System Type (Connection network) | |
| 3 Phase 3 Wire | 3 |
| 3 Phase 4 Wire | 4 |
| 1 Phase | 1 |
| | |
| Input Voltage | |
| 110V L-L (63.5V L-N) | 110 |
| 230V L-L (133V L-N) | 230 |
| 415V L-L (239.6V L-N) | 415 |
| 440V L-L (254V L-N) | 440 |
| | |
| Input Current | |
| 1 Amps | 1 |
| 5 Amps | 5 |
| | |
| Auxiliary Supply Voltage | |
| 45V... 300 V AC/ DC -10% / +10 % | ADH |
| 20V... 40 V AC/20-60VDC -10% / +10 % | ADL |

* Any one of the parameter can be selected to be displayed on site .

**CT ratio / PT ratio / Network type (3wire / 4wire) programmable on site only for power DPM (S / P / Q).

Order Code Example:

DPM- PF - 3 - 415 - 5 - ADH

DPM, Power factor , 3 phase 3wire, 415VAC L-L nominal voltages, 5Amp, 45-300 V AC/DC auxiliary supply

Rishabh Instruments always tries for Improvement and therefore product specifications are subject to change without notice



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