



RISHABH

Digital Panel Meter (96X96)

RISH DPM Power / Power Factor



Measure



Control



Record



Analyze

Application :

RISH DPM Power 96x96 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 11mm or 20 mm.

*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

*Low back depth

The instrument has very low back depth (behind the panel) of less than 80 mm .



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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 Auxiliary Supply	110 V AC -15% / +20% / 230 V AC -15% / +20% / 380 V AC -15% / +20
AC/DC Auxiliary Supply	100 to 250V AC/DC ± 10%
AC Auxiliary supply frequency range	45 to 66 Hz
DC Auxiliary Supply	12 to 48V DC ± 10%

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:

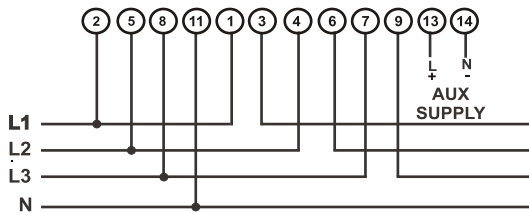
EMC	IEC 61326
Immunity	IEC 61000-4-3. 10V/m min – Level 3 industrial low level
Safety	IEC 61010-1-2001 , Permanently connected use
IP for water & dust	IEC60529
Pollution degree:	2
Installation category:	CAT III 300V ac rms
High Voltage Test	2.2 kV AC, 50Hz for 1 minute between all electrical circuits

Environmental:

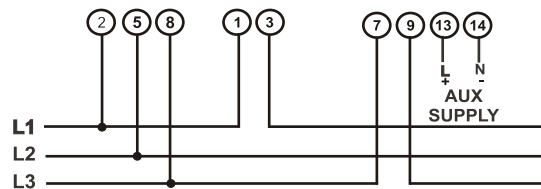
Operating temperature	-10 to +55°C
Storage temperature	-20 to +65°C
Relative humidity	0... 90% non condensing
Warm up time	Minimum 3 minute
Shock	15g in 3 planes
Vibration	10... 55 Hz, 0.15mm amplitude
Enclosure	IP54 (front face only)

Electrical Connection:

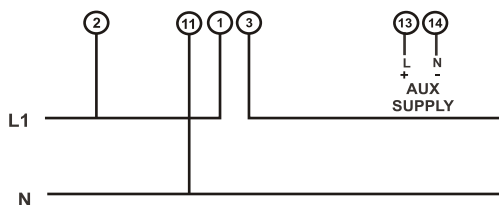
For 3 Phase 4 Wire Unbalanced Load



For 3 Phase 3 Wire Unbalanced Load



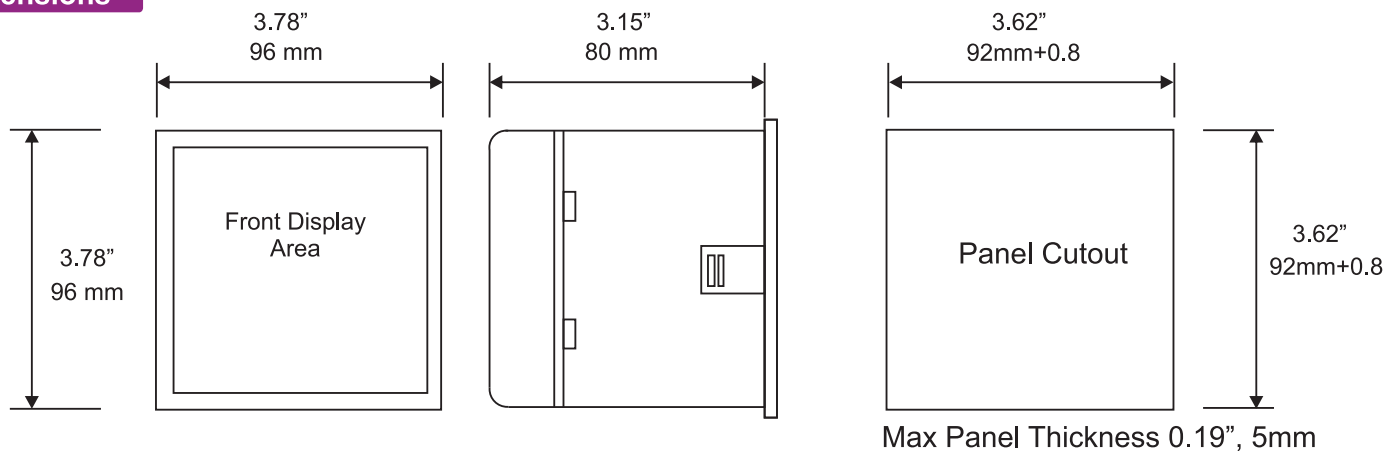
For Single Phase



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. The Maximum diameter of the lug should be 7.0 mm and maximum thickness 3.5 mm.

Permissible cross section of the connection wires: $\leq 4.0 \text{ mm}^2$ single wire or $2 \times 2.5 \text{ mm}^2$ fine wire

Dimensions



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Ordering information	Ordering Code DPM
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	
5 Amps	5
1 Amps	1
AC Auxiliary Voltage	
110 V AC -15% / +20%	L
230 V AC -15% / +20%	M
380 VAC-15% / +20 %	H
AC/DC Auxiliary Supply Voltage	
100 – 250V AC/DC +/- 10%	AD
12V... 48V V DC +/- 10 %	D
Digit Height	
11 mm	11
20 mm	20

* 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– M – 11

DPM, Power factor , 3 phase 3wire, 415VAC L-L nominal voltages, 5Amp, 230 V AC auxiliary supply , 11mm digit height.

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



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