



Data Sheet

RISH POWER/ POWER FACTOR DPM

(96X96)



Measure



Control



Record



Analyze



Optimize

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 Features

- 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 20mm.

- **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 instruments has very low back depth (behind the panel) of less than 80mm.



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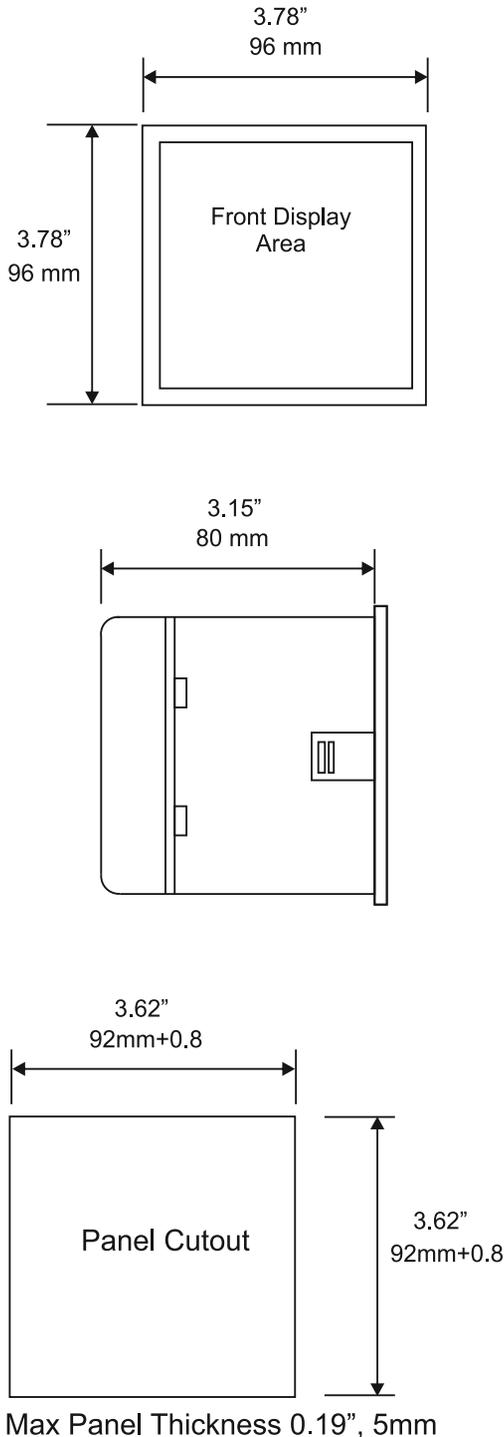


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Dimensions Details



Note: All dimensions are in mm

Technical Specifications

Input voltage (AC RMS)

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

Input Current

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

Auxiliary Supply

AC Auxiliary Supply	110V 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)



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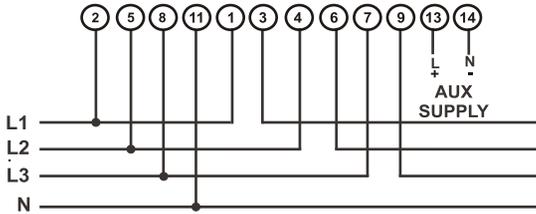
Analyze



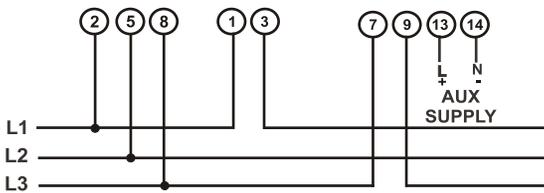
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Electrical Connection

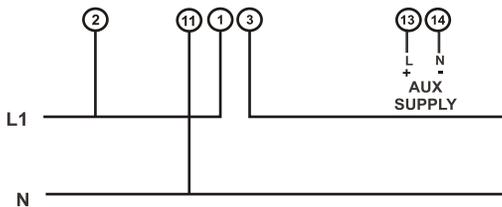
For 3 Phase 4 Wire Unbalanced Load



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 7.0mm & maximum thickness 3.5mm. 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

Technical Specifications

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

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)



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Ordering Information :

Power DPM - Size 96 X 96

Ordering Information	PP44-	G	X	XX	8A	X	X	00000
Product Type	Rish DPM - Power* (Active, Reactive, Apparent)							
Size	96 X 96mm							
System Type	1 Phase		1					
	3 Phase**		3					
Input voltage - 1 Phase	63.5V L-N				2S			
	110V L-N				2D			
	220V L-N				3T			
	230V L-N				2G			
	240V L-N				2H			
	254V L-N				2R			
	277V L-N				2U			
Input voltage - 3 Phase	100V L-L				3A			
	110V L-L				3B			
	230V L-L				3R			
	415V L-L				3M			
	440V L-L				3S			
	480V L-L				2T			
	500V L-L				3N			
Input Current (Programmable)	1/5A 50/60Hz							
Auxiliary Supply	100 -250V AC/DC					N		
	12-48V DC					P		
Display Height	20 mm							2
	11 mm							3

*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 : PP44-G33A8AN300000

RISH DPM -Size 96 X 96, 3Phase, Input 100VLL 50/60Hz, 1A/5A, Aux supply 100-250V AC/DC, with 11mm Display Height



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Ordering Information :

Power Factor DPM - Size 96 X 96

Ordering Information	PF44-	G	X	XX	XX	X	X	00000
Product Type	Rish DPM - Power Factor							
Size	96 X 96mm							
System Type	1 Phase-2 Wire		1					
	3 Phase-3 Wire- Single Element		2					
	3 Phase-3 Wire- Two Element		3					
	3 Phase-4 Wire		4					
Input voltage - 1 Phase	63.5V L-N			2S				
	100V L-N			3A				
	110V L-N			2D				
	133V L-N			2V				
	150V L-N			2F				
	220V L-N			3T				
	230V L-N			2G				
	240V L-N			2H				
	254V L-N			2R				
	277V L-N			2W				
Input voltage - 3 Phase	100V L-L			2X				
	110V L-L			3B				
	120V L-L			2T				
	230V L-L			3R				
	400V L-L			3W				
	415V L-L			3M				
	440V L-L			3S				
	480V L-L			2U				
	500V L-L			3N				
	Input Current (Fixed CT)	1A 50/60Hz				51		
5A 50/60Hz					54			
Auxiliary Supply	100 -250V AC/DC					N		
	12-48V DC					P		
Display Height	20 mm						2	
	11 mm						3	

Order Code Example : PF44-G23M54P300000

RISH Power Factor DPM -Size 96 X 96, 3 Phase-3 Wire-Single Element, Input 415VLL 50/60Hz, 5A, Aux supply 12-48V DC, with 11mm Display Height



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