

# 3 PHASE PROGRAMMABLE RISH DPM PGD3A / PGD3V

## Application:

The digital panel meters **RISH DPM** have been designed for industrial applications, which frequently require precise and on-site adjustment of the display range. It can be used in industrial automation and for laboratory uses.

**RISH DPM** measures important electrical parameters in 3 phase 4 Wire, 3 phase 3 Wire and single phase Network & replaces the multiple analog panel meters.

## Salient Features:

- Fast & Easy Installation on panel without any need of external swivel screws (clip-in mounting for 96x96 size only)
- True RMS measurement.
- 4 Digits ultra bright LED Display (up to 9999).
- On site Programmable CT/PT Ratios.
- User selectable CT Secondary 1A/5A.
- User selectable PT Secondary from 100 VLL to 500 VLL.
- User selectable 3ph3wire / 3ph4wire / single phase Network.
- Wide auxiliary Power Supply which can accept any input between 40V – 300V AC/DC.
- Storage of MIN / MAX values.

## Products Features:

### True RMS measurement

The instrument measures distorted waveform up to 15th Harmonic.

### On site programmable PT/CT ratios:

It is possible to program primary of external potential Transformer (PT) for Voltage DPM & primary of external Current Transformer (CT) for Current DPM 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 for Current DPM using front panel keys.

### User selectable PT Secondary

The secondary of external Potential Transformer (PT) can be programmed on site from 100 VLL to 500 VLL for Voltage DPM using front panel keys.

### Higher Security

Provides Security with user programmable password protection.

### User selectable CT Primary

The Primary of current transformer can be programmed on site from 1A to 999kA for Current DPM using front panel keys.



### User selectable PT Primary

The Primary of Potential transformer can be programmed on site from 100V to 999kV for Voltage DPM using front panel keys.

### User selectable 3 phase 3Wire or 4Wire or Single phase Network

User can program on site the network connection as either 3 Phase 3 Wire or 4 Wire or single phase network using front panel keys.

### Onsite selection of Auto scroll / Fixed Screen

User can set the display in auto scrolling mode or fixed screen mode using front panel keys.



Preliminary Data sheet subject to change without notice

### RISHABH INSTRUMENTS PVT.LTD.

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# 3 PHASE PROGRAMMABLE RISH DPM PGD3A / PGD3V

## 4 digits LED display (up to 9999):

14mm or 20mm ultra bright 4 digits LED display.

## Function keys:

Using two function keys it is possible to Display various parameters in Current and Voltage DPM. These function keys are also used for programming Password, Network selection, CT/PT Primary & Secondary values, Reset min/max values, Auto ON/OFF mode selection.

## Screen No. storage

In case of power failure, the instrument memorizes the last screen stored. For every 1 min. the instrument stores the screen no. in the non-volatile memory.

## Min Max storage of parameters possible

The instrument stores minimum and maximum values for System Voltage (in case of PGD3V) and System Current (in case of PGD3A). Every 60 sec stored values are updated.

## Low back depth

The instrument has very low back depth (behind the panel) of less than 54mm for 96x96 and 68mm for 48x96 type DPM.

## Available in two different Sizes:

DPM is available in two different sizes 96x96 and 48x96.

## Enclosure Protection for dust and water:

Conforms to IP 50 (for front face)  
& IP 20 (for back) & as per IEC60529.

## EMC Compatibility

Compliance to International standard IEC 61326.

- Interference Emission : IEC 61326-1 : 2005, Class A
- Interference Immunity : IEC 61326-1 : 2005
- Electrostatic discharge : IEC 61000-4-2 -- 4kV/8kV contact/air. (ESD)
- EM Field : IEC 61000-4-3 -- 10 V/m (80 MHz to 1 GHz)  
-- 3 V/m (1.4 GHz to 2 GHz)  
-- 1 V/m (2 GHz to 2.7 GHz)
- Burst : IEC 61000-4-4 -- 2 kV (5/50 ns, 5 kHz)
- Surge : IEC 61000-4-5 -- 1 kVLL / 2 kVLN.
- Conducted RF : IEC 61000-4-5 -- 3 V (150 kHz to 80 MHz)
- Rated Power Frequency magnetic Field : IEC 61000-4-8 -- 30 A/m
- Voltage dip : IEC 61000-4-11 -- 0% during 1 cycle.  
-- 40% during 10/12 cycles.  
-- 70% during 25/30 cycles.
- Short interruptions : IEC 61000-4-11 -- 0% during 25/30 cycles.  
25 cycles for 50 Hz test.  
30 cycles for 60 Hz test.

## Technical Specifications:

### Input Voltage (PGD3V):

Nominal input voltage (AC RMS)	Phase –Neutral 290V L-N , Line-Line 500V L-L
Max continuous input voltage	120% of rated value
Nominal input voltage burden	< 0.3 VA approx. per phase.
System PT secondary values	100VLL to 500VLL programmable on site.
System PT primary values	100VLL to 999kVLL programmable on site.

### Input Current (PGD3A):

Nominal input current	5A AC RMS
System CT secondary values	1A & 5A programmable on site.
System CT primary values	From 1A up to 999kA (for 1 or 5 Amp )
Max continuous input current	120% of rated value
Nominal input current burden	< 0.2 VA approx. per phase

### Auxiliary Supply:

External Aux	40 V – 300V AC-DC (± 5 % )
Frequency range	45 to 65 Hz
VA burden	3 VA Approx.

### Overload Withstand:

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



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# 3 PHASE PROGRAMMABLE RISH DPM PGD3A / PGD3V

## Technical Specifications:

### Operating Measuring Ranges:

Voltage Range	10... 120% of rated value
Current Range	10 ... 120% of rated value
Frequency	45...65 Hz

### 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%

### Accuracy:

Voltage	±0.5% of range + 1 Digit (10... 100% of Nominal value)
Current	±0.5% of range + 1 Digit (10... 100% of Nominal value)

### Influence of Variations:

Temperature coefficient : (for rated value range of use (0...50°C))	0.025%/°C for Voltage 0.05%/°C for Current
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### Display update rate:

Response time to step input	1 sec approx.
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### Applicable Standards:

EMC	IEC 61326-1: 2005
Safety	IEC 61010-1-2001 , Permanently connected use
IP for water & dust	IEC60529

### Safety :

Pollution degree:	2
Installation category:	III
High Voltage Test	3.3 kV AC, 50Hz for 1 minute between Aux. and measuring inputs

### Environmental:

Operating temperature	0 to +50°C
Storage temperature	-25°C to +70°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



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# 3 PHASE PROGRAMMABLE RISH DPM PGD3A / PGD3V

## Technical Specifications:

### Enclosure:

Front	IP 50.
Back	IP 20.

### Dimensions and Weights:

#### a) 96x96 DPM

Bezel size	96 mm x 96 mm DIN 43 718.
Panel cut-out	92 +0.8 mm x 92 + 0.8 mm.
Overall depth	55 mm.
Weight	310 gm. Approx.

#### b) 48x96 DPM

Bezel size	96 mm x 48 mm DIN 43 718
Panel cut-out	92 + 0.8 mm x 43.5 + 0.6 mm.
Overall depth	68 mm.
Weight	250 gm. Approx.

## Parameters measured and displayed:

### A) PGD3V

Network type	Displayed Parameter
1) 3 Phase 4 wire	a. Phase –Neutral Voltage VR b. Phase –Neutral Voltage VY c. Phase –Neutral Voltage VB d. Line-Line Voltage VRY e. Line-Line Voltage VYB f. Line-Line Voltage VBR g. System Voltage V h. Max. system voltage V i. Min. system voltage V
2) 3 Phase 3 wire	a. Line-Line Voltage VRY b. Line-Line Voltage VYB c. Line-Line Voltage VBR d. System Voltage V e. Max. system voltage V f. Min. system voltage V
3) 1 Phase 2 wire	a. Phase –Neutral Voltage V b. Max voltage V c. Min voltage V

### B) PGD3A

Network type	Displayed Parameter
1) 3 Phase 4 wire and 3 Phase 3 Wire	a. Phase Current AR b. Phase Current AY c. Phase Current AB d. System Current A e. Max. system Current A f. Min. system Current A
2) 1 Phase 2 wire	a. Phase Current A e. Max. Phase Current A f. Min. Phase Current A



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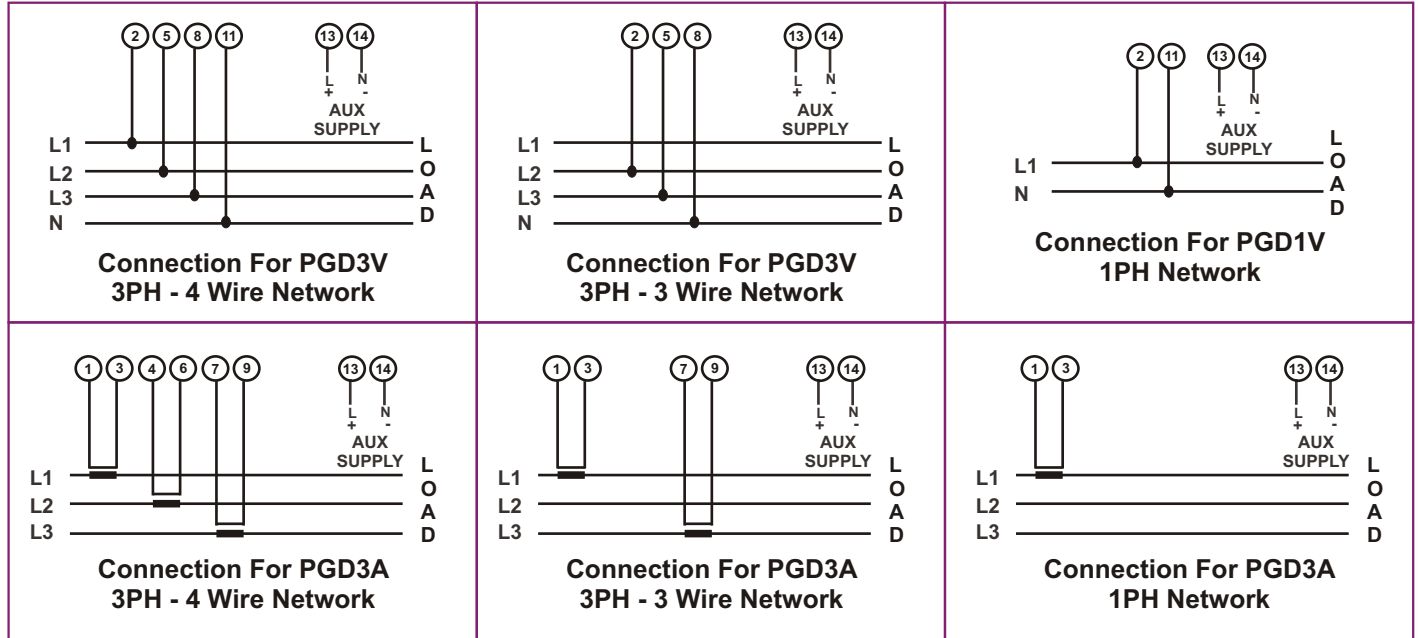
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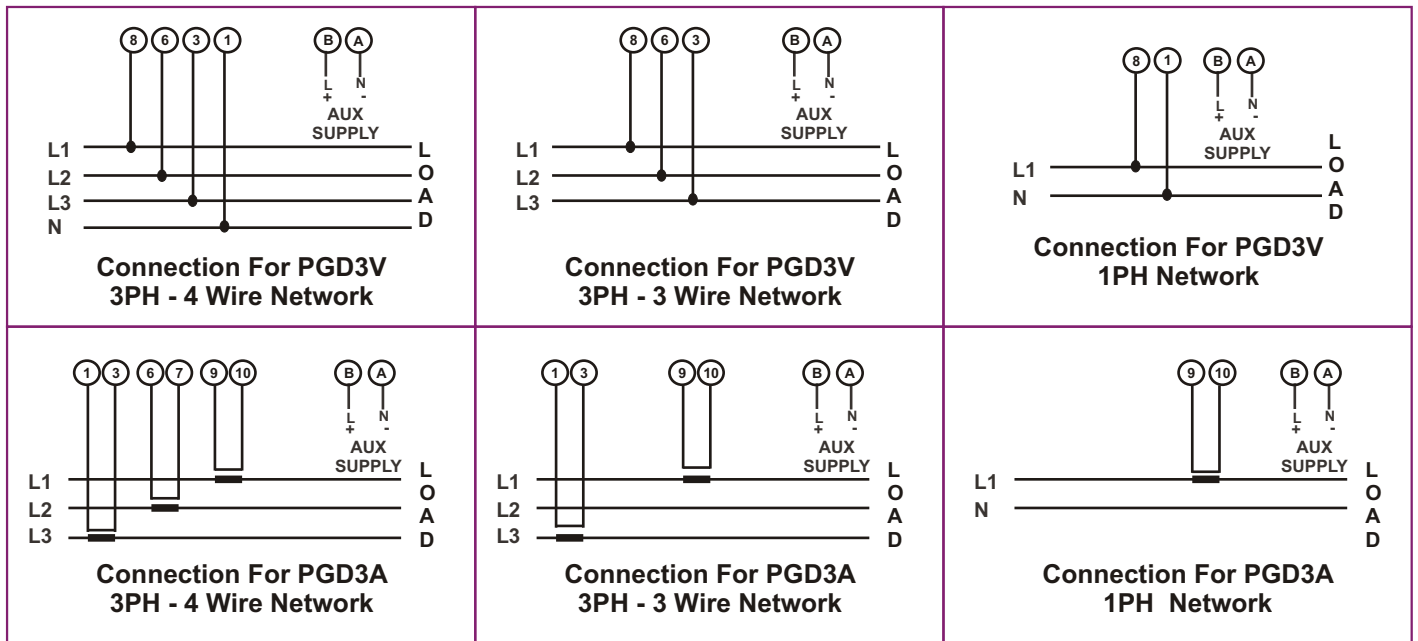
## Connection Diagram:A

### A) For 96x96 DPM



**\*Note:** For Measurement of parameters in PGD3V DPM Voltage must be present between terminal 2 & 11 for single phase or 3 phase 4 wire network and between terminal 2 & 5 or 2 & 8 for 3 phase 3 wire network. And for PGD3A DPM current must be present between terminal 1 & 3 for 3 phase 4 wire or 3 phase 3 wire or single phase network.

### B) For 48x96 DPM



**\*Note:** For Measurement of parameters in PGD3V LD DPM Voltage must be present between terminal 8 & 1 for single phase or 3 phase 4 wire network and between terminal 6 & 8 or 3 & 8 for 3 phase 3 wire network. And for PGD3A LD DPM current must be present between terminal 9 & 10 for 3 phase 4 wire or 3 phase 3 wire or single phase network.



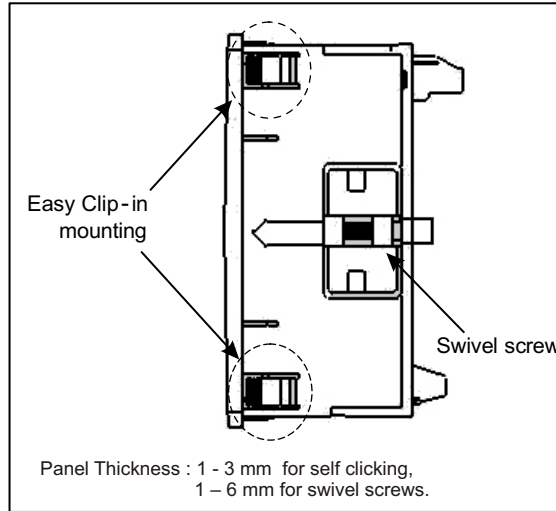
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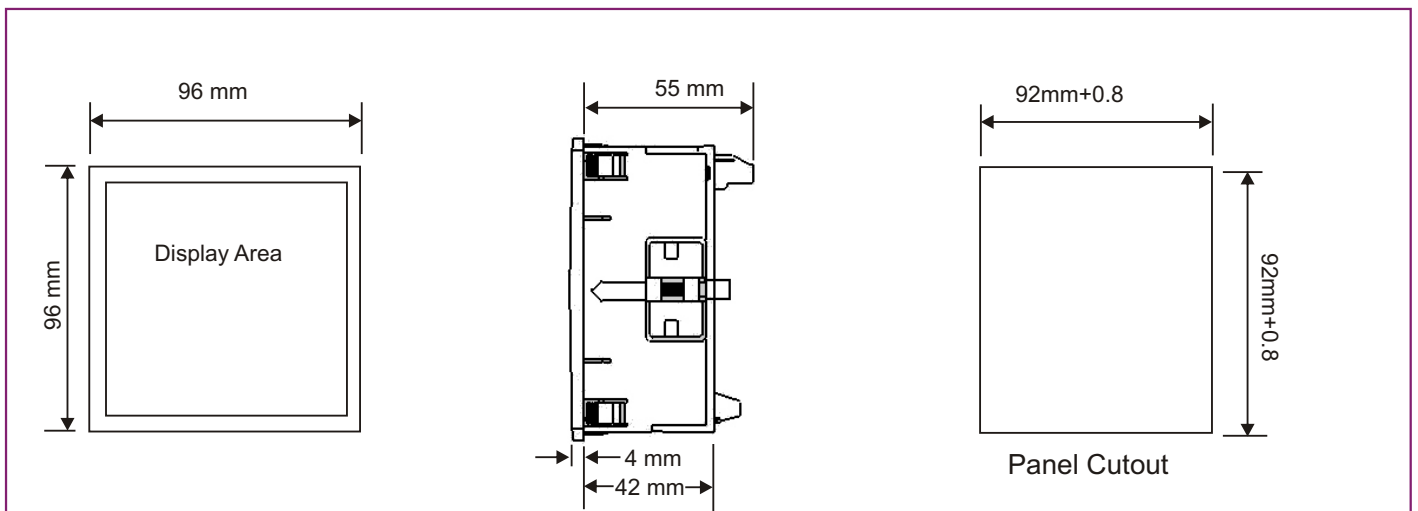
# 3 PHASE PROGRAMMABLE RISH DPM PGD3A / PGD3V

## Installation:

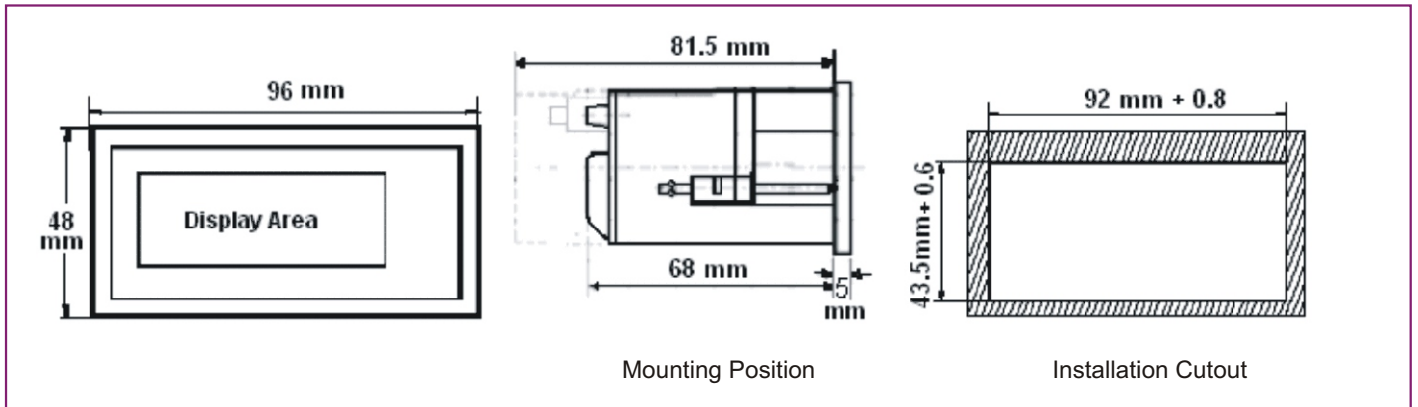
Easy Clip in Installation on Panel for 96 x 96 size:



### A) For 96x96 DPM



### B) For 48x96 DPM



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## 3 PHASE PROGRAMMABLE RISH DPM PGD3A / PGD3V

Ordering information	Ordering Code
	PROGRAMMABLE RISH DPM
<b>DPM Panel Cutout</b>	
96x96 DPM	96x96
48x96 Low Depth DPM	48x96
<b>Parameter Type</b>	
3 Phase Current	PGD3A
3 Phase Voltage	PGD3V
<b>Display Type</b>	
14mm Display digit height	14mm
20mm Display digit height	
(available in 96x96 size only)	20mm

### Order Code Example:

PROGRAMMABLE RISH DPM– 48x96 - PGD3A – 14mm

PROGRAMMABLE RISH DPM, 48x96 Low Depth, 3 Phase Current, 14mm display digit height, Aux. – 40-300V AC/DC

**\*Note:** For measurement of parameters R phase voltage (for PGD3V) or R phase current (for PGD3A)  
Must always be present.



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# 1 PHASE PROGRAMMABLE RISH DPM PGDA / PGDV

## Application:

The digital panel meters **RISH DPM** have been designed for industrial applications, which frequently require precise and on-site adjustment of the display range.

It can be used in industrial automation and for laboratory uses.

## Salient Features:

- Fast & Easy Installation on panel without any need of external swivel screws (clip-in mounting for 96x96 size only)
- True RMS measurement.
- 4 Digits ultra bright LED Display (up to 9999).
- On site Programmable CT/PT Ratios.
- User selectable CT Secondary 1A/5A.
- User selectable PT Secondary from 60 VLN to 290 VLN.
- Wide auxillary Power Supply which can accept any input between 40V – 300V AC/DC.
- Storage of MIN / MAX values.

## Products Features:

### True RMS measurement

The instrument measures distorted waveform up to 15th Harmonic.

### On site programmable PT/CT ratios:

It is possible to program primary of external potential Transformer (PT) for Voltage DPM & primary of external Current Transformer (CT) for Current DPM 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 for Current DPM using front panel keys.

### User selectable PT Secondary

The secondary of external Potential Transformer (PT) can be programmed on site from 60 VLN to 290 VLN for Voltage DPM using front panel keys.

### User selectable CT Primary

The Primary of current transformer can be programmed on site from 1A to 999kA for Current DPM using front panel keys.

### User selectable PT Primary

The Primary of Potential transformer can be programmed on site from 60 VLN to 999 kVLN for Voltage DPM using front panel keys.



### Onsite selection of Auto scroll / Fixed Screen

User can set the display in auto scrolling mode or fixed screen mode using front panel keys.

### 4 digits LED display (up to 9999):

14mm or 20mm ultra bright 4 digits LED display.

### Higher Security

Provides Security with user programmable password protection.



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# 1 PHASE PROGRAMMABLE RISH DPM PGDA / PGDV

## Function keys:

Using two function keys it is possible to Display various parameters in Current and Voltage DPM. These function keys are also used for programming Password, CT/PT Primary & Secondary values, Reset min/max values, Auto ON/OFF mode selection.

## Screen No. storage

In case of power failure, the instrument memorizes the last screen stored. For every 1 min. the instrument stores the screen no. in the non-volatile memory.

## Min Max storage of parameters possible

The instrument stores minimum and maximum values for Voltage (in case of PGDV) and Current (in case of PGDA). Every 60 sec stored values are updated.

## Low back depth

The instrument has very low back depth (behind the panel) of less than 54mm for 96x96 and 68mm for 48x96 type DPM.

## Enclosure Protection for dust and water:

Conforms to IP 50 (for front face)  
IP 20 (for back) & as per IEC60529.

## EMC Compatibility

Compliance to International standard IEC 61326.

- Interference Emission : IEC 61326-1 : 2005, Class A
- Interference Immunity : IEC 61326-1 : 2005
- Electrostatic discharge : IEC 61000-4-2 -- 4kV/8kV contact/air. (ESD)
- EM Field : IEC 61000-4-3 -- 10 V/m (80 MHz to 1 GHz)  
-- 3 V/m (1.4 GHz to 2 GHz)  
-- 1 V/m (2 GHz to 2.7 GHz)
- Burst : IEC 61000-4-4 -- 2 kV (5/50 ns, 5 kHz)
- Surge : IEC 61000-4-5 -- 1 kVLL / 2 kVLN.
- Conducted RF : IEC 61000-4-5 -- 3 V (150 kHz to 80 Mhz)
- Rated Power Frequency magnetic Field : IEC 61000-4-8 -- 30 A/m
- Voltage dip : IEC 61000-4-11 -- 0% during 1 cycle.  
-- 40% during 10/12 cycles.  
-- 70% during 25/30 cycles.
- Short interruptions : IEC 61000-4-11 -- 0% during 25/30 cycles.  
25 cycles for 50 Hz test.  
30 cycles for 60 Hz test.

## Technical Specifications:

### Input Voltage (PGDV):

Nominal input voltage (AC RMS)	Phase –Neutral 290VL-N .
Max continuous input voltage	120% of rated value
Nominal input voltage burden	< 0.3 VA approx.
System PT secondary values	60VLN to 290VLN programmable on site.
System PT primary values	60VLN to 999kVLN programmable on site.

### Input Current (PGDA):

Nominal input current	5A AC RMS
System CT secondary values	1A & 5A programmable on site.
System CT primary values	From 1A up to 999kA (for 1 or 5 Amp )
Max continuous input current	120% of rated value
Nominal input current burden	< 0.2 VA approx. per phase

### Auxiliary Supply:

External Aux	40 V – 300V AC/DC (± 5 % )
Frequency range	45 to 65 Hz
VA burden	3 VA Approx.



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# 1 PHASE PROGRAMMABLE RISH DPM PGDA / PGDV

## Technical Specifications:

### Environmental:

Operating temperature	0 to +50°C
Storage temperature	-25°C to +70°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:

Front	IP 50.
Back	IP 20.

### Dimensions and Weights :

#### a) 96x96 DPM

Bezel size	96 mm x 96 mm DIN 43 718.
Panel cut-out	92 +0.8 mm x 92 + 0.8 mm.
Overall depth	55 mm.
Weight	300 gm. Approx.

#### b) 48x96 DPM

Bezel size	96 mm x 48 mm DIN 43 718
Panel cut-out	92 + 0.8 mm x 43.5 + 0.6 mm.
Overall depth	68 mm.
Weight	250 gm. Approx.
	45...65 Hz

### Overload Withstand:

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

### Operating Measuring Ranges:

Voltage Range	10... 120% of rated value
Current Range	10 ... 120% of rated value
Frequency	45...65 Hz

### 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%

### Accuracy:

Voltage	±0.5% of range + 1 Digit (10... 100% of Nominal value)
Current	±0.5% of range + 1 Digit (10... 100% of Nominal value)



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# 1 PHASE PROGRAMMABLE RISH DPM PGDA / PGDV

## Technical Specifications:

### Influence of Variations:

#### Temperature coefficient :

(for rated value range of use (0...50°C))      0.025%/°C for Voltage  
0.05%/°C for Current

#### Display update rate:

Response time to step input      1 sec approx.

### Applicable Standards:

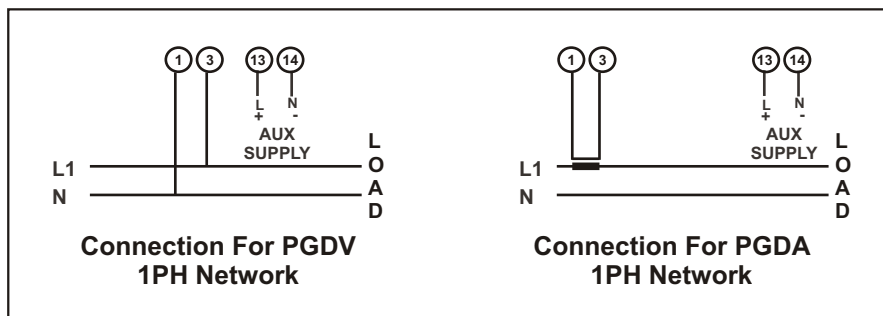
EMC      IEC 61326-1: 2005  
Safety      IEC 61010-1-2001 , Permanently connected use  
IP for water & dust      IEC60529

### Safety :

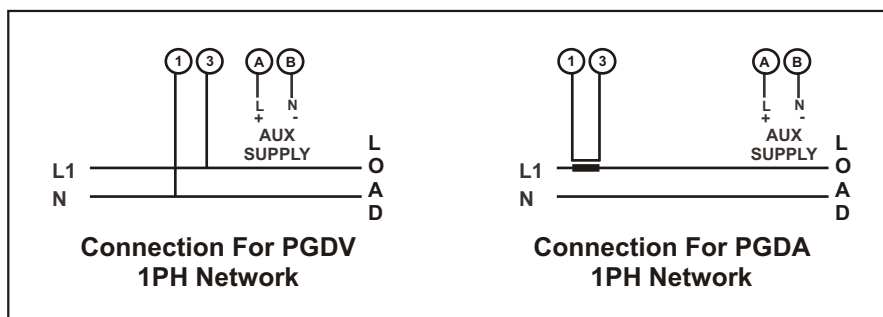
Pollution degree:      2  
Installation category:      III  
High Voltage Test      3.3 kV AC, 50Hz for 1 minute between Aux. and measuring inputs

## Electrical Connections:

### A) For 96x96 DPM



### B) For 48x96 DPM



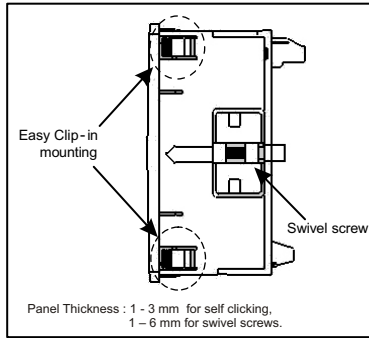
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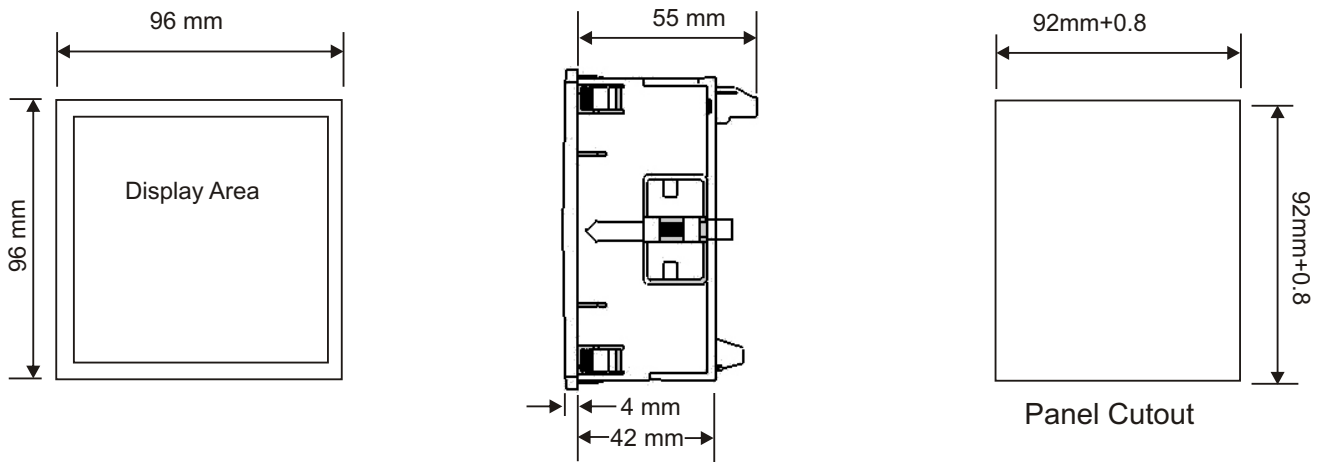
# 1 PHASE PROGRAMMABLE RISH DPM PGDA / PGDV

## Installation:

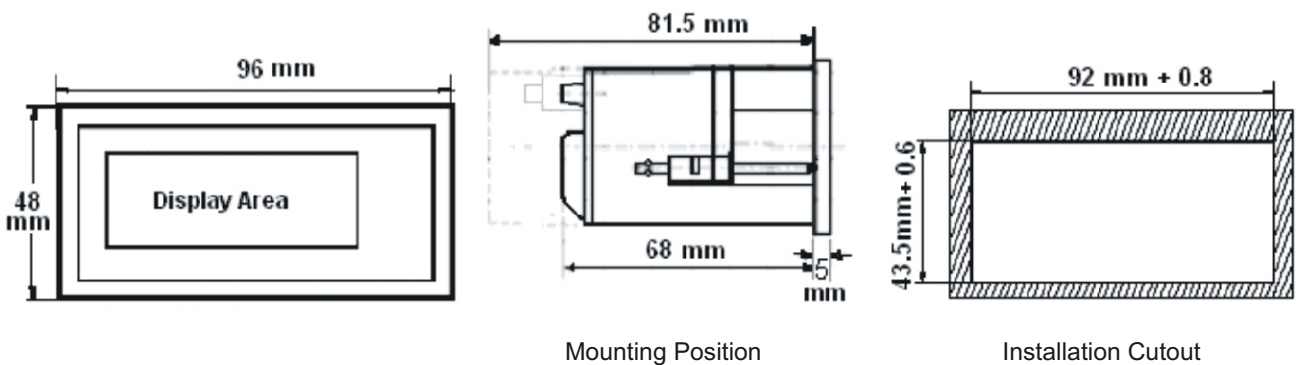
Easy Clip in Installation on Panel for 96 x 96 size:



### A) For 96x96 DPM



### B) For 48x96 DPM



Mounting Position

Installation Cutout



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Ordering information	Ordering Code
	PROGRAMMABLE RISH DPM
<b>DPM Panel Cutout</b>	
96x96 DPM	96x96
48x96 Low Depth DPM	48x96
<b>Parameter Type</b>	
Phase Current	PGDA
Phase Voltage	PGDV
<b>Display Type</b>	
14mm Display digit height	14mm
20mm Display digit height	
(available in 96x96 size only)	20mm

## Order Code Example:

PROGRAMMABLE RISH DPM– 96x96 - PGDV – 20mm

PROGRAMMABLE RISH DPM, 96x96, 1 Phase Voltage, 20mm display digit height, Aux. – 40-300V AC/DC



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