

**1 / 3 PHASE PROGRAMMABLE
RISH DPM PGDA / PGDV / PGD3A / PGD3V**

Data Sheet



Applications:

The digital panel meter **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 V_{LL} to 500 V_{LL}.
- User selectable 3ph3wire / 3ph4wire / single phase Network.
- Wide auxillary Power Supply which can accept any input between 40V– 300V AC/DC.
- Storage of MIN / MAX values.

Product 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 V_{LL} to 500 V_{LL}** 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 **60 V_{LN} to 999 kV_{LN}** for single Phase Voltage DPM & **100V_{LN} to 999 kV_{LL}** for three Phase 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.

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 PGDV / PGD3V) and System Current (in case of PGDA / 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 (ESD) : IEC 61000-4-2 -- 4kV/8kV contact/air.
- 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 kV_{LL} / 2 kV_{LN}.
- 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 / PGD3V):

Nominal input voltage (AC RMS)	Phase –Neutral	290V _{LN} -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	For Single Phase DPM- 60V _{LN} to 290V _{LN} programmable on site & for Three Phase DPM- 100V _{LL} to 500V _{LL} programmable on site.	
System PT primary values	For Single Phase DPM- 60V _{LN} to 999kV _{LN} programmable on site & for Three Phase DPM- 100V _{LL} to 900kV _{LL} programmable on site.	

Input Current (PGDA / 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

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

Display update rate:

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

EMC Safety	IEC 61326-1: 2005 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

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

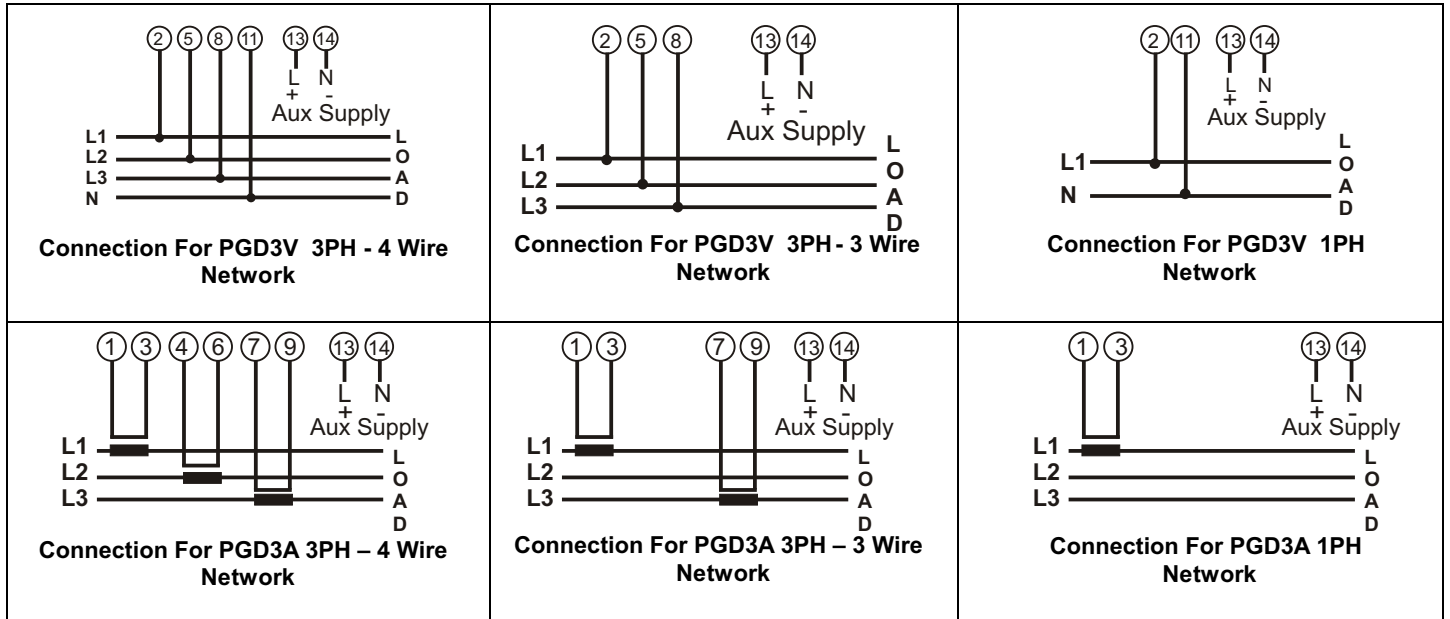
Network type	Displayed Parameter
1) 3 Phase 4 wire	a. Phase –Neutral Voltage VR b. Phase –Neutral Voltage VY c. Phase –Neutral Voltage VB d. Line-Line Voltage VRY e. Line-Line Voltage VYB f. Line-Line Voltage VBR g. System Voltage V h. Max. system voltage V i. Min. system voltage V
2) 3 Phase 3 wire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

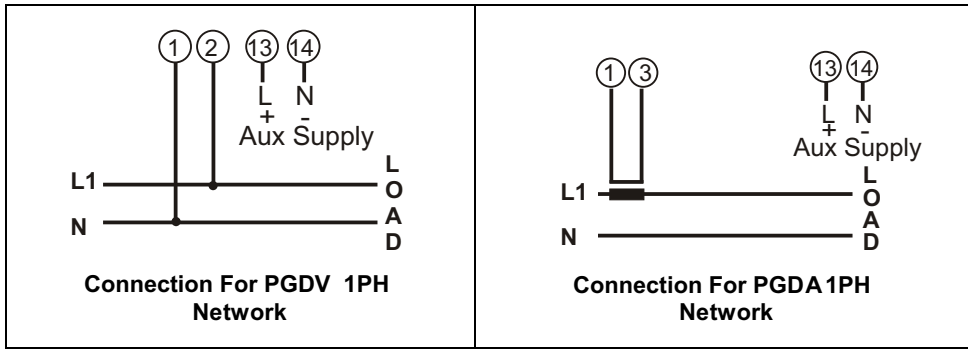
Network type	Displayed Parameter
1) 3 Phase 4 wire and 3 Phase 3 Wire	a. Phase Current AR b. Phase Current AY c. Phase Current AB d. System Current A e. Max. system Current A f. Min. system Current A
2) 1 Phase 2 wire	a. Phase Current A e. Max. Phase Current A f. Min. Phase Current A

Connection Diagram:

A) For 96x96 DPM (PGD3V / PGD3A)

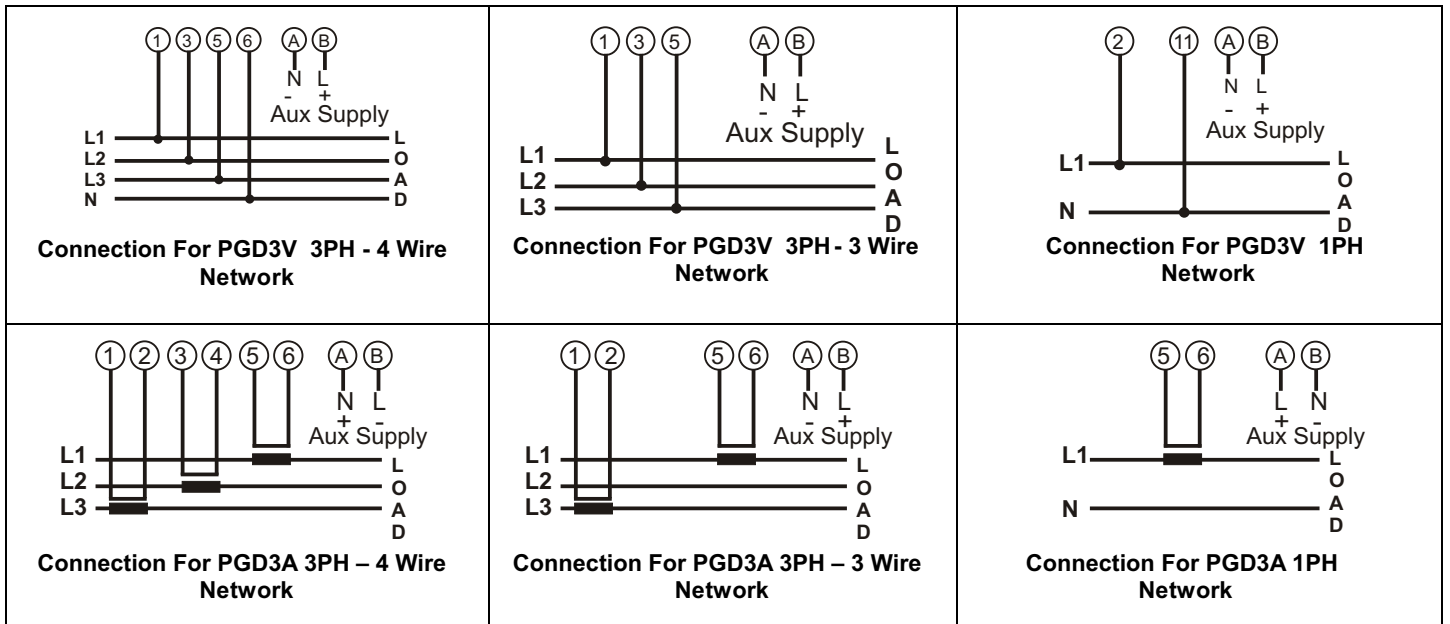


For 96x96 DPM (PGDV / PGDA)

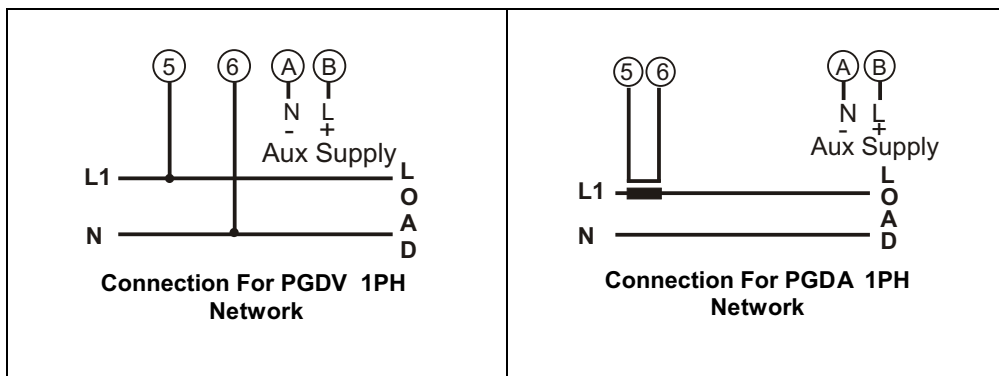


*Note: For Measurement of parameters in PGD3V DPM Voltage must be present between terminal 2 & 11 for single phase or 3 phase 4 wire network and between terminal 2 & 5 or 2 & 8 for 3 phase 3 wire network. And for PGD3A DPM current must be present between terminal 1 & 3 for 3 phase 4 wire or 3 phase 3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

B) For 48x96 DPM (PGD3V / PGD3A)



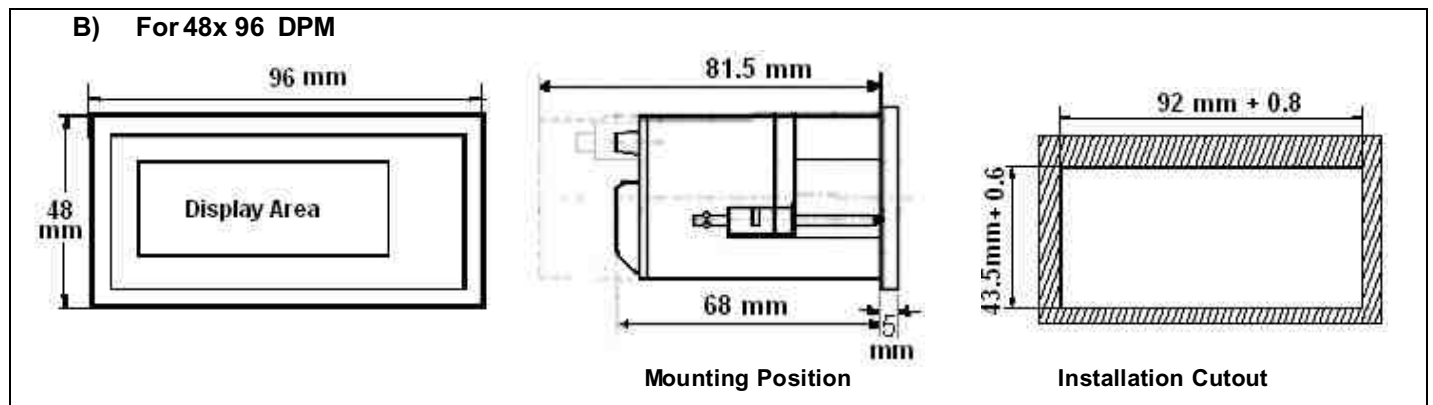
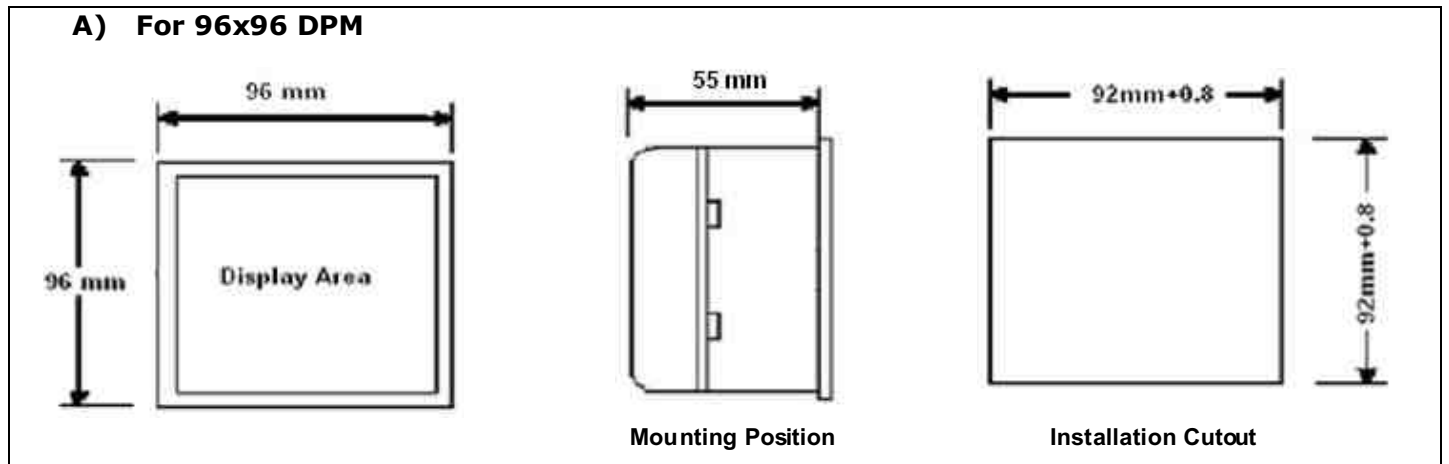
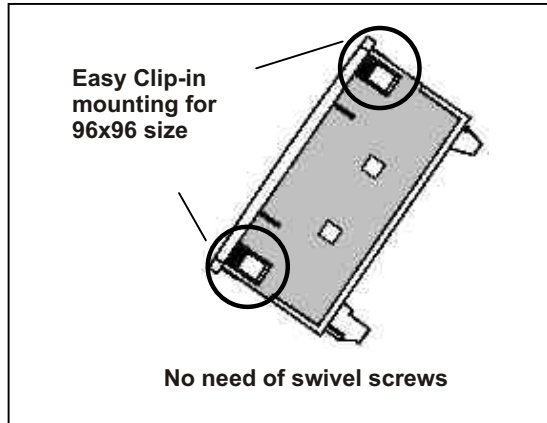
For 48x96 DPM (PGDV / PGDA)



*Note: For Measurement of parameters in PGD3V LD DPM Voltage must be present between terminal 1 & 6 for single phase or 3 phase 4 wire network and between terminal 1 & 3 or 1 & 5 for 3 phase 3 wire network. And for PGD3I LD DPM current must be present between terminal 5 & 6 for 3 phase 4 wire or 3 phase 3 wire or single phase network.

Installation

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



Ordering information	Ordering Code
	PROGRAMMABLE RISH DPM
DPM Panel Cutout	
96x96 DPM	96x96
48x96 Low Depth DPM	48x96
Parameter Type	
3 Phase Current	PGD3A
3 Phase Voltage	PGD3V
Single Phase Current	PGDA
Single Phase Voltage	PGDV
Display Type	
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

Standard Product :

Ordering Information	Product Code
DPM 96x96 (14mm) : 3PH 3/4W, I/P – 100 to 500 V _{LL} , Aux. 40V – 300V AC/DC	P6530010RIS
DPM 96x96 (20mm) : 3PH 3/4W, I/P – 100 to 500 V _{LL} , Aux. 40V – 300V AC/DC	P6531010RIS
DPM 96x96 (14mm) : 3PH 3/4W, I/P – 5A/1A, Aux. 40V – 300V AC/DC	P6532010RIS
DPM 96x96 (20mm) : 3PH 3/4W, I/P – 5A/1A, Aux. 40V – 300V AC/DC	P6533010RIS
DPM 48x96 (14mm) : 3PH 3/4W, I/P – 100 to 500 V _{LL} , Aux. 40V – 300V AC/DC	P6535010RIS
DPM 48x96 (14mm) : 3PH 3/4W, I/P – 5A/1A, Aux. 40V – 300V AC/DC	P6536010RIS

Ordering Information	Product Code
DPM 96 x96 (14mm) : 1PH, I/P – 60 to 290 V _{LN} , Aux. 40V – 300V AC/DC	P6530510RIS
DPM 96 x96 (20mm) : 1PH, I/P – 60 to 290 V _{LN} , Aux. 40V – 300V AC/DC	P6531510RIS
DPM 96 x96 (14mm) : 1PH, I/P – 5A/1A, Aux. 40V – 300V AC/DC	P6532510RIS
DPM 96 x96 (20mm) : 1PH, I/P – 5A/1A, Aux. 40V – 300V AC/DC	P6533510RIS
DPM 48 x96 (14mm) : 1PH, I/P – 60 to 290 V _{LN} , Aux. 40V – 300V AC/DC	P6535510RIS
DPM 48 x96 (14mm) : 1PH, I/P – 5A/1A, Aux. 40V – 300V AC/D C	P6536510RIS



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