



## Technical Data Sheet

# *Beta 10P/20P/30P/40P*



The digital panel meter Beta P Series have been designed for industrial applications, which frequently require precise and on site adjustment of the display range.

### Special Features

- Fast & Easy Installation on panel without any need of external swivel screws
- 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 auxillary Power Supply which can accept any input between
- 40V- 300V AC/DC

## Application

The digital panel meter Beta P Series 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.

## Product Features:

<b>True RMS measurement</b>	The instrument measures distorted waveform up to 15 <sup>th</sup> Harmonic.	<b>Screen No. storage</b>	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.
<b>On site programmable PT/CT ratios</b>	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.	<b>Min Max storage of parameters possible</b>	The instrument stores minimum and maximum values for System Voltage (in case of Beta 20P / Beta 40P) and System Current (in case of Beta 10P / Beta 30P). Every 60 sec stored values are updated.
<b>User selectable CT Secondary 5A/1A</b>	The secondary of external Current Transformer (CT) can be programmed on site to either <b>5A or 1A</b> for Current DPM using front panel keys.	<b>Low back depth</b>	The instrument has very low back depth (behind the panel) of less than 54mm for 96x96 and 68mm for 48x96 type DPM.
<b>User selectable PT Secondary</b>	The secondary of external Potential Transformer (PT) can be programmed on site from <b>100 VLL to 500 VLL</b> for Voltage DPM using front panel keys.	<b>Available in two different Sizes</b>	DPM is available in two different sizes 96x96 and 48x96.
<b>Higher Security</b>	Provides Security with user programmable password protection.	<b>Enclosure Protection for dust and water</b>	Conforms to IP 50 (for front face) & IP 20 (for back) as per IEC60529.
<b>User selectable CT Primary</b>	The Primary of current transformer can be programmed on site from <b>1A to 999kA</b> for Current DPM using front panel keys.	<b>EMC Compatibility</b>	Compliance to International standard IEC 61326.
<b>User selectable PT Primary</b>	The Primary of Potential transformer can be programmed on site from <b>60 VLN to 999 kVLN</b> for single Phase Voltage DPM & <b>100VLL to 999 kVLL</b> for three Phase Voltage DPM using front panel keys.	Interference Emission	IEC 61326-1 2005, Class A
<b>User selectable 3 phase 3Wire or 4Wire or Single phase Network</b>	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.	Interference Immunity	IEC 61326-1 2005
<b>Onsite selection of Auto scroll/ Fixed Screen</b>	User can set the display in auto scrolling mode or fixed screen mode using front panel keys.	Electrostatic disc (ESD) arge	IEC 61000-4-2 -- 4kV/8kV contact/air.
<b>4 digits LED display (up to 9999)</b>	14mm ultra bright 4 digits LED display.	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)
<b>Function keys</b>	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.	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

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)

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%

Input Voltage (Beta20P / Beta40P)	
Nominal input voltage (AC RMS)	Phase -Neutral 290VL-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- 60VLN to 290VLN programmable on site & for Three Phase DPM- 100VLL to 500VLL programmable on site.
System PT primary values	For Single Phase DPM- 60VLN to 999kVLN programmable on site & for Three Phase DPM- 100VLL to 900kVLL programmable on site.

Input Current (Beta10P / Beta30P)	
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

Influence of Variations	
Temperature coefficient	0.025% /°C for Voltage
	0.05% /°C for Current

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

Display update rate	
Response time to step input	1 sec approx.

Enclosure	
Front	IP 50
Back	IP 20

Safety	
Pollution degree	2
Installation category	III
High voltage taste	3.3 kV AC, 50Hz for 1 minute between Aux. and measuring inputs

Environmental	
Operating temperature	0°C to + 50°C
Storage temperature	-25°C to +70°C
Relative humidity	0... 95% non condensing
Warm up time	Minimum 3 minute
Shock	15g in 3 planes
Vibration	10... 55 Hz, 0.15mm amplitude

Dimensions and Weights	
<b>a) 96x96 DPM</b>	
Bezel size	96 mm x 96 mm DI N 43 718.
Panel cut-out	92 <sup>+0.8</sup> mm x 92 <sup>+0.8</sup> mm.
Overall depth	55 mm.
Weight	310 gm. Approx.
<b>b) 48x96 DPM</b>	
Bezel size	96 mm x 48 mm DI N 43 718
Panel cut-out	92 + 0.8 mm x 43.5 + 0.6 mm.
Overall depth	68 mm.
Weight	250 gm. Approx.

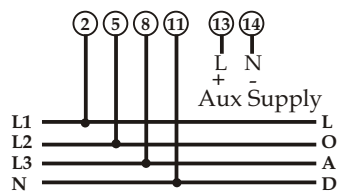
Applicable Standards	
EMC	IEC 61326-1: 2005
Safety	IEC 61010-1-2001, Permanently connected use
IP for water & dust	IEC60529

## Parameters measured and displayed

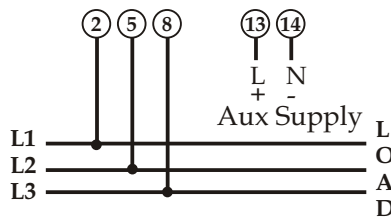
A) Beta 40P		B) Beta 30P	
Network type	Displayed Parameter	Network type	Displayed Parameter
1) 3 Phase 4 wire	a. Phase –Neutral Voltage VR b. Phase –Neutral Voltage VY c. Phase –Neutral Voltage VB d. Line-Line Voltage VRY e. Line-Line Voltage VYB f. Line-Line Voltage VBR g. System Voltage V h. Max. system voltage V i. Min. system voltage V	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) 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	2) 1 Phase 2 wire	a. Phase Current A e. Max. Phase Current A f. Min. Phase Current A
3) 1 Phase 2 wire	a. Phase –Neutral Voltage V b. Max voltage V c. Min voltage V		

## Connection

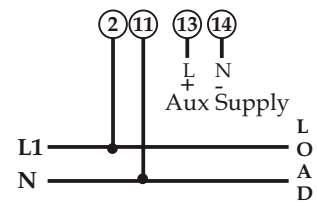
### A) For 96x96 DPM BETA 40P



3PH - 4 Wire Network

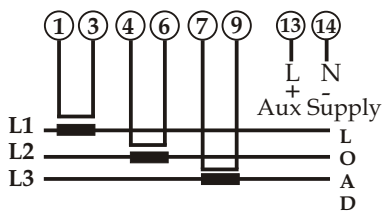


3PH - 3 Wire Network

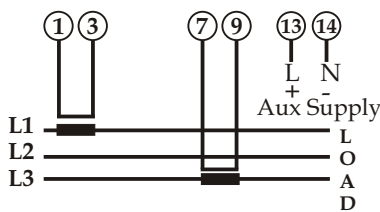


1PH Network

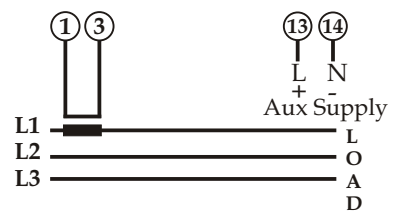
### For 96x96 DPM BETA 30P



3PH - 4 Wire Network



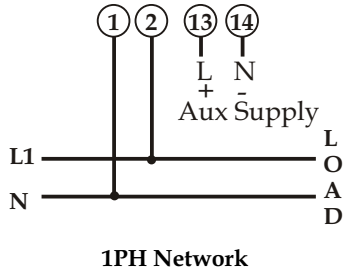
3PH - 3 Wire Network



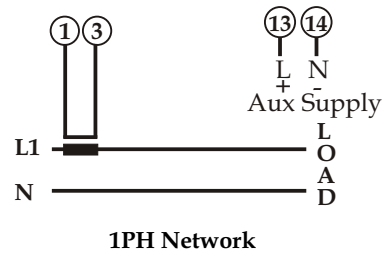
1PH Network

Connection

For 96x96 DPM Beta 20P

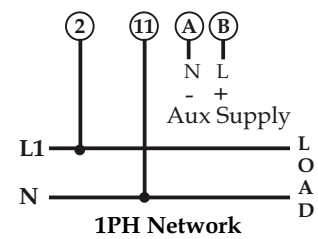
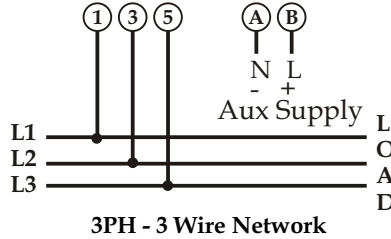
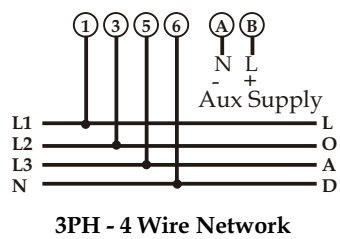


For 96x96 DPM Beta 10P

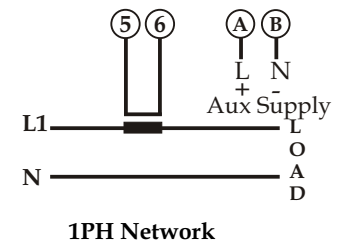
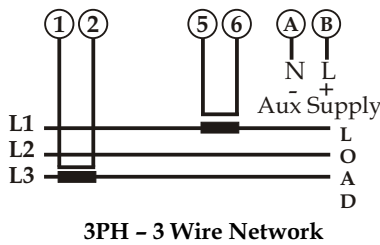
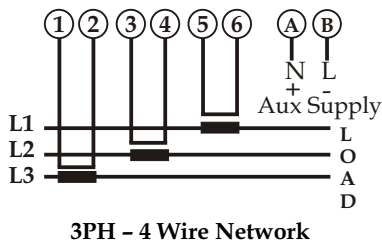


\*Note: For Measurement of parameters in Beta 40P DPM Voltage must be present between terminal 2 & 11 for single phase or 3 phase 4 wire network and between terminal 2 & 5 or 2 & 8 for 3 phase 3 wire network. And for Beta 30 PDDPM current must be present between terminal 1 & 3 for 3 phase 4 wire or 3 phase 3 wire or single phase network.

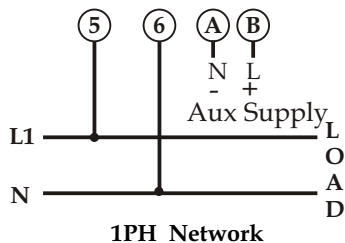
B) For 48x96 DPM Beta 40 P



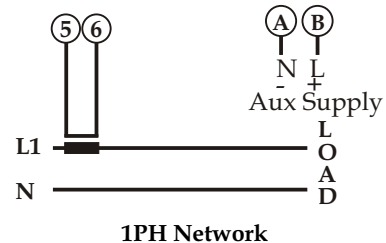
For 48x96 DPM Beta 30 P



For 48x96 DPM Beta 20P



For 96x96 DPM Beta 10P

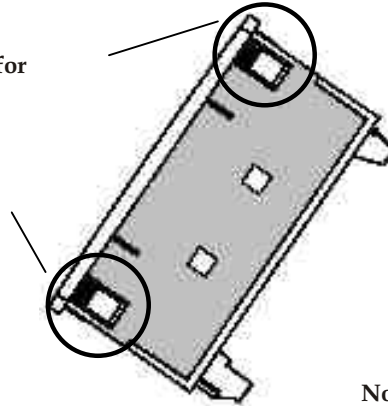


\*Note: For Measurement of parameters in Beta 40P LD DPM Voltage must be present between terminal 1 & 6 for single phase or 3 phase 4 wire network and between terminal 1 & 3 or 1 & 5 for 3 phase 3 wire network. And for Beta 30P LD DPM current must be present between terminal 5 & 6 for 3 phase 4 wire or 3 phase 3 wire or single phase network.

## Installation

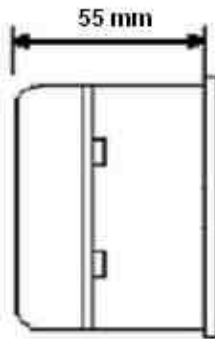
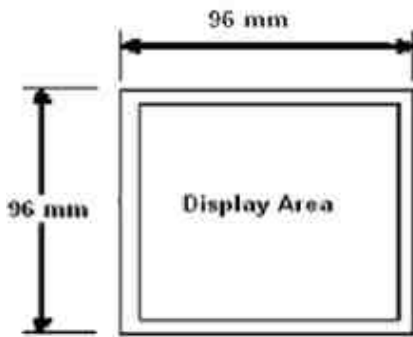
### Easy Clip in Installation on Panel for 96 x 96 size

Easy Clip-in mounting for  
96x96 size

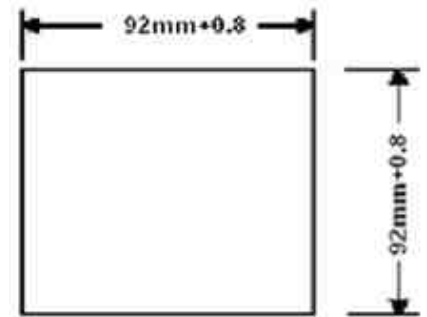


No need of swivel screws

#### A) For 96x96 DPM

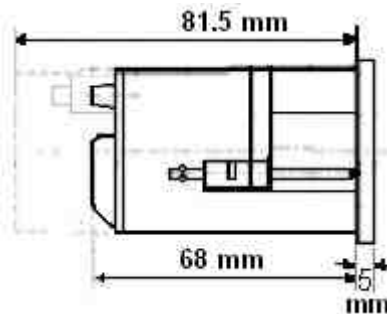
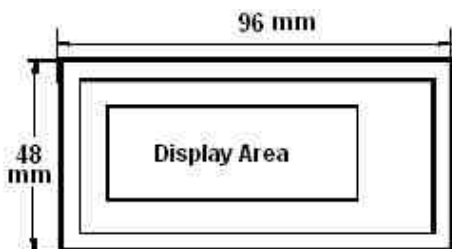


Mounting Position

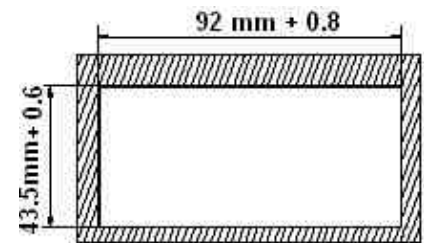


Installation Cutout

#### B) For 48x96 DPM



Mounting Position



Installation Cutout

## Ordering information

Product Code	BT14-	X	X	X	X	XX	X	X	00000
Size	48X96	E							
	96X96	G							
System Type	1P		1						
	3P		3						
Input Type	AC Voltmeter ACV			V					
	AC Ammeter ACI			K					
Display Size	14mm				1				
	20mm				2				
Input Range	5/1A					81			
	60-290LN					4A			
	60-600LN					4B			
	120-600LN					4C			
	100-500LL					4D			
Power Supply	40-300U						L		
IP Protection	W/O IP Protection								0
	With IP Protection								1



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PRECISION INSTRUMENTATION

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