



Technical Data Sheet

File No. E471457

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 3ph-3wire / 3ph-4wire / 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:

| | | | |
|---|---|--|---|
| True RMS measurement | The instrument measures distorted waveform up to 15 th Harmonic. | 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. |
| 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. | Min Max storage of parameters possible | 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. |
| 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. | 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. |
| 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. | Available in two different Sizes | DPM is available in two different sizes 96x96 and 48x96. |
| Higher Security | Provides Security with user programmable password protection. | Enclosure Protection for dust and water | Conforms to IP 50 (for front face) & IP 20 (for back) as per IEC60529. |
| 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. | EMC Compatibility | Compliance to International standard IEC 61326. |
| User selectable PT Primary | The Primary of Potential transformer can be programmed on site from 60 VLN to 999 kVLN for single Phase Voltage DPM & 100VLL to 999 kVLL for three Phase Voltage DPM using front panel keys. | Interference Emission | IEC 61326-1 2005, Class A |
| 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. | Interference Immunity | IEC 61326-1 2005 |
| Onsite selection of Auto scroll/ Fixed Screen | 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. |
| 4 digits LED display (up to 9999) | 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) |
| 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. | 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 | |
|------------------------|--|
| a) 96x96 DPM | |
| Bezel size | 96 mm x 96 mm DI N 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 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. |

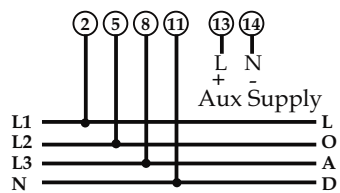
| Applicable Standards | |
|----------------------|---|
| EMC | IEC 61326-1: 2005 |
| Safety | IEC 61010-1-2001, Permanently connected use |
| IP for water & dust | IEC60529 |

Parameters measured and displayed

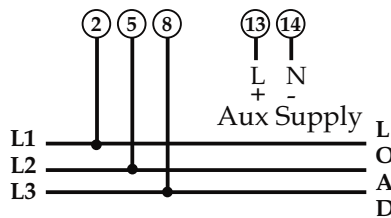
| A) Beta 40P | | B) Beta 30P | |
|--------------------------|------------------------------|--|-------------------------|
| Network type | Displayed Parameter | Network type | Displayed Parameter |
| 1) 3 Phase 4 wire | a. Phase –Neutral Voltage VR | 1) 3 Phase 4 wire and 3 Phase 3 Wire | a. Phase Current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

Connection

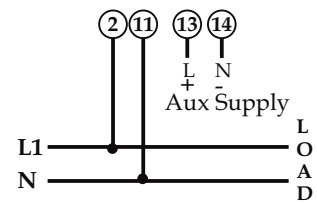
A) For 96x96 DPM BETA 40P



3PH - 4 Wire Network

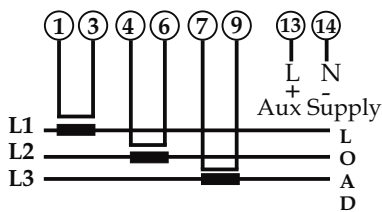


3PH - 3 Wire Network

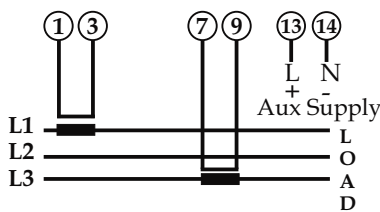


1PH Network

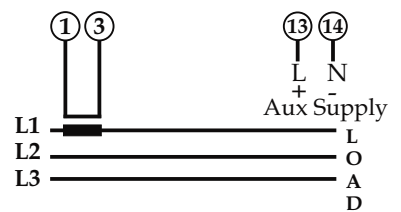
For 96x96 DPM BETA 30P



3PH - 4 Wire Network



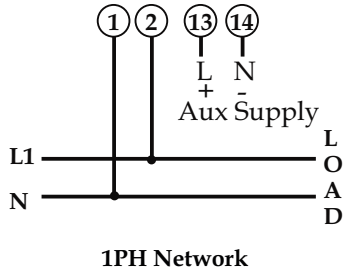
3PH - 3 Wire Network



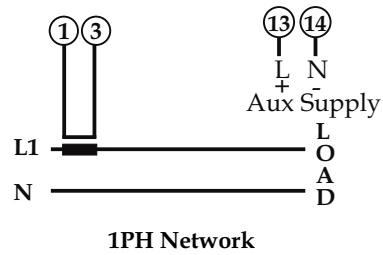
1PH Network

Connection

For 96x96 DPM Beta 20P

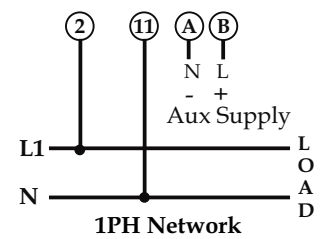
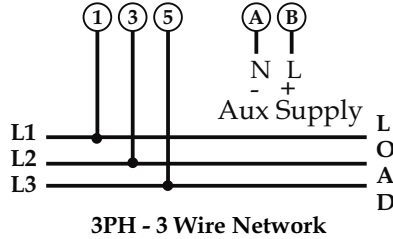
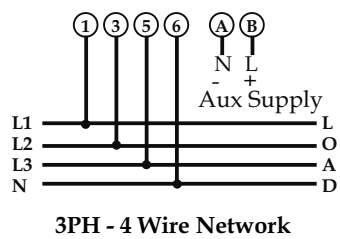


For 96x96 DPM Beta 10P

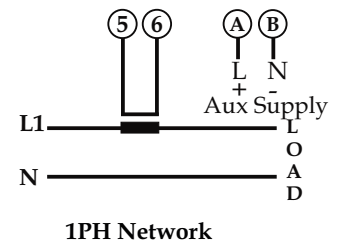
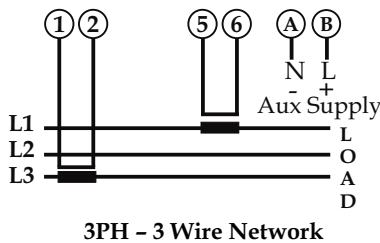
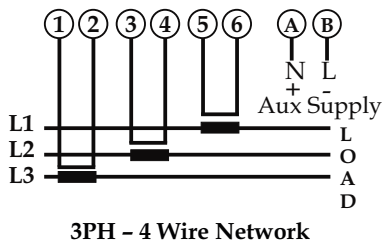


*Note: For Measurement of parameters in Beta 40P DPM Voltage must be present between terminal 2 & 11 for single phase or 3 phase 4 wire network and between terminal 2 & 5 or 2 & 8 for 3 phase 3 wire network. And for Beta 30 PDDPM current must be present between terminal 1 & 3 for 3 phase 4 wire or 3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

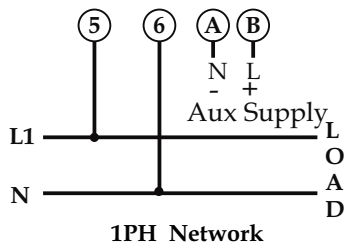
B) For 48x96 DPM Beta 40 P



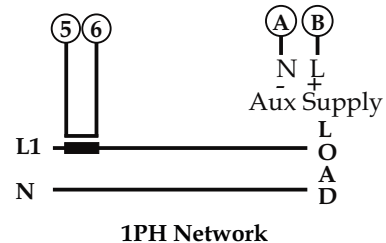
For 48x96 DPM Beta 30 P



For 48x96 DPM Beta 20P



For 96x96 DPM Beta 10P

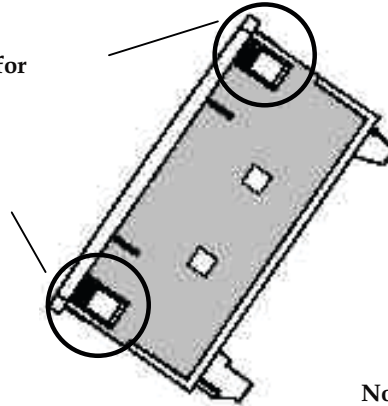


*Note: For Measurement of parameters in Beta 40P LD DPM Voltage must be present between terminal 1 & 6 for single phase or 3 phase 4 wire network and between terminal 1 & 3 or 1 & 5 for 3 phase 3 wire network. And for Beta 30P LD DPM current must be present between terminal 5 & 6 for 3 phase 4 wire or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

Installation

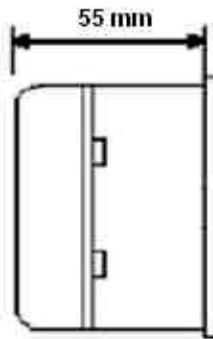
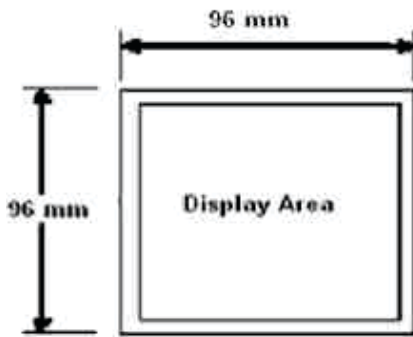
Easy Clip in Installation on Panel for 96 x 96 size

Easy Clip-in mounting for
96x96 size

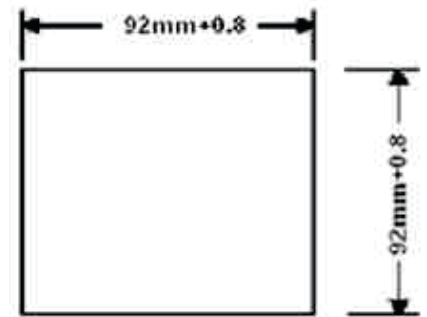


No need of swivel screws

A) For 96x96 DPM

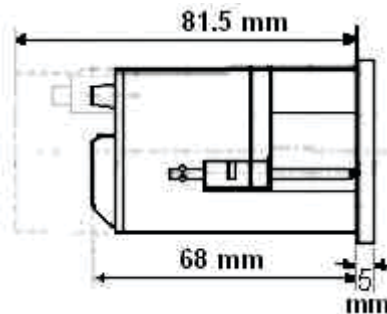
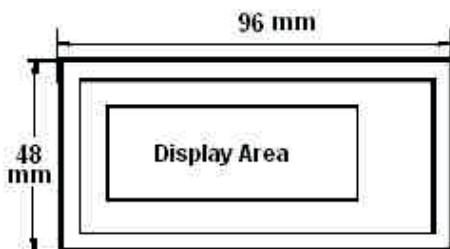


Mounting Position

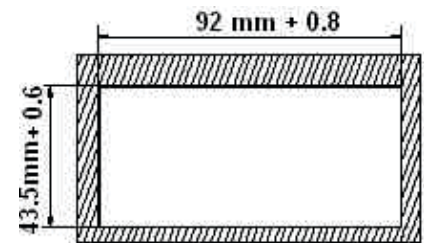


Installation Cutout

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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