

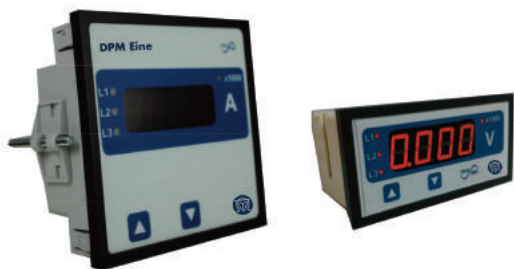
Eine DPM Voltage / Current

page 2/1

Eine + DC Voltage / Current

page 2/5

Eine DPM Voltage / Current



- Fast and easy installation on panel with the help of external swivel screws.
- True RMS measurement.
- 4 digits ultra bright LED Display.
- User selectable CT/PT Primary.
- User selectable CT/PT Secondary.
- User selectable 3ph3wire or 3ph4wire Network.
- Three auxiliary Power Supply available 40V – 300V AC DC, 20-60V DC / 20-40V AC.
- Available in size: 96x96 and 48x96 mm

The digital panel meter programmable Eine DPM Eine 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.

Programmable Eine DPM measures important electrical parameters in 3 phase 4 wire, 3 phase 3 wire and single phase network and replaces the multiple analog panel meters.

True RMS measurement

The instrument measures distorted waveform up to 15th Harmonic.

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 from on site 100 VLL to 999 kVLL for voltage DPM (3V) and 57.5 VLN to 999 kVLN for voltage DPM (V) using front panel keys.

User selectable CT Secondary

The secondary of current transformer can be programmed on site to 1A or 5A for current DPM using front panel keys.

User selectable PT Secondary

The secondary of potential transformer can be programmed on site from 100 VLL to 500 VLL for Voltage DPM (3V) and 57.5 VLN to 300VLN for Voltage DPM (V) using front panel keys.

4 digits LED display

14mm ultra bright 4 digits LED display.

User selectable 3 phase 3 wire or 4 wire Network(for 3A/3V)

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

External CT Connection (3PH Nano CT)

External 3 PH nano CT Connection enables easy, fast and error free Installation. 1.5 meter long cable is provided with CT.

User selectable CT Primary (3PH Nano CT)

The primary of current transformer can be programmed on site from 63A / 125A / 250A for Current DPM using front panel keys.

Onsite selection of Auto scroll / Fixed Screen(for 3A/3V)

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

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 network selection, CT/PT Primary values, CT/PT secondary values, auto scroll 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

Low back depth

The instrument has very low back depth (behind the panel) of less than 40mm.

Enclosure Protection for dust and water

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

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

DIGITAL INSTRUMENTS

Technical Specifications			
Input voltage	Nominal input voltage Ranges (AC RMS) (to be specified while ordering)	Phase - Neutral 57 - 288V L-N , Line-Line 100-500V L-L(For 3V) Phase - Neutral 57.5 - 300V L-N(For V) Phase - Neutral 600VL-N(Only for V(fixed))	
	Max continuous input voltage	120% of rated value	
	Nominal input voltage burden	< 0.3 VA approx. per phase. < 0.4 VA approx. (For 600VLN(1 phase))	
	System PT primary values	100VLL to 999kVLL programmable on site for 3 - Phase Voltage (3V). 57.5VLN to 999kVLN programmable on site for 1 - Phase Voltage (V).	
Input current	Nominal input current Ranges	1A or 5A AC RMS	
	System CT primary values	From 1A up to 999kA (for 1 or 5 A)	
	Max continuous input current	120% of rated value (optional 150% of rated value)	
	Nominal input current burden	< 0.3 VA approx. per phase < 0.3 VA(nano CT)	
Overload indication	"-oL." (If input is greater than 125% of secondary value for Voltage and 125% (optional 155%) of secondary value for current)		
Auxiliry supply	AC DC Auxiliary Supply	40-300V AC-DC (±5%) 20-40V AC / 20-60V DC	
	Frequency range	45 to 65 Hz	
	VA burden	< 3 VA Approx 1 VA approx at 24V AC/DC	
Overload withstand	Voltage	2x rated value for 1 second, repeated 10 times at 10 second intervals	
	Current	4x 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 (optional 10 ... 150% of rated value)	
	Frequency	5 ... 120% (external 3 phase nano CT) 45...65 Hz	
Reference conditions of accuracy	Reference temperature	23°C +/- 2°C	
	Input waveform	Sinusoidal (distortion factor 0.005)	
	Auxiliary supply voltage	Rated Value ±1%	
	Auxiliary supply frequency	Rated Value ±1%	
	Voltage Range	20...100% of Nominal Value	
	Current Range	10...100% of Nominal Value	
	Input Frequency	50 Hz / 60 Hz	
Accuracy	Voltage	±1.0% of Nominal value (Optional ±0.5% Available)	
	Current	±1.0% of Nominal value (Optional ±0.5% Available)	
Influence of variations	Temperature coefficient	0.025%/°C for Voltage	
	(for rated value range of use (0...50°C))	0.05%/°C for Current	
Applicable standards	EMC	IEC 61326-1: 2005	
	Safety	IEC 61010-1-2001 , Permanently connected use	
	IP for water and dust	IEC60529	
Safety	Pollution degree	2	
	Installation category	III	
	High Voltage Test	2.2 kV AC, 50Hz for 1 minute.	
Environmental	Operating temperature	0 to +55°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 (IP 54 on request).	
	Back	IP 20	
Dimensions and weights	a) 96x96 Eine DPM	Bezel size (DIN 43 718)	96 mm x 96 mm.
		Panel cut-out	92 +0.8 mm x 92 + 0.8 mm.
		Overall depth	40 mm.
		Weight	310 gm. Approx.
	b) 48x96 Eine DPM	Bezel size (DIN 43 718)	48 mm x 96 mm.
		Panel cut-out	43.5 + 0.6 mm x 92 + 0.8 mm.
		Overall depth	68 mm.
		Weight	250 gm. Approx.

DIGITAL INSTRUMENTS

Parameters measured and displayed

A) DPM Eine 3V

Network type	Displayed Parameter
1) 3 Phase 4 wire	a. Phase –Neutral Voltage VL1 b. Phase –Neutral Voltage VL2 c. Phase –Neutral Voltage VL3 d. Line-Line Voltage VL1L2 e. Line-Line Voltage VL2L3 f. Line-Line Voltage VL3L1 g. System Voltage
2) 3 Phase 3 wire	a. Line-Line Voltage VL1L2 b. Line-Line Voltage VL2L3 c. Line-Line Voltage VL3L1 d. System Voltage

B) DPM Eine 3A

Network type	Displayed Parameter
1) 3 Phase 4 wire and 3 Phase 3 Wire	a. Phase Current IL1 b. Phase Current IL2 c. Phase Current IL3 d. System Current

C) DPM Eine V

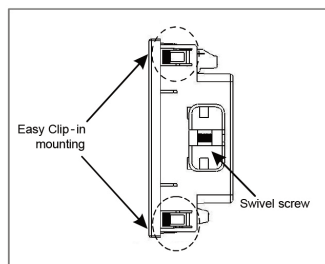
Network type	Displayed Parameter
1 Phase 2 wire	Phase –Neutral Voltage VL

D) DPM Eine 3A

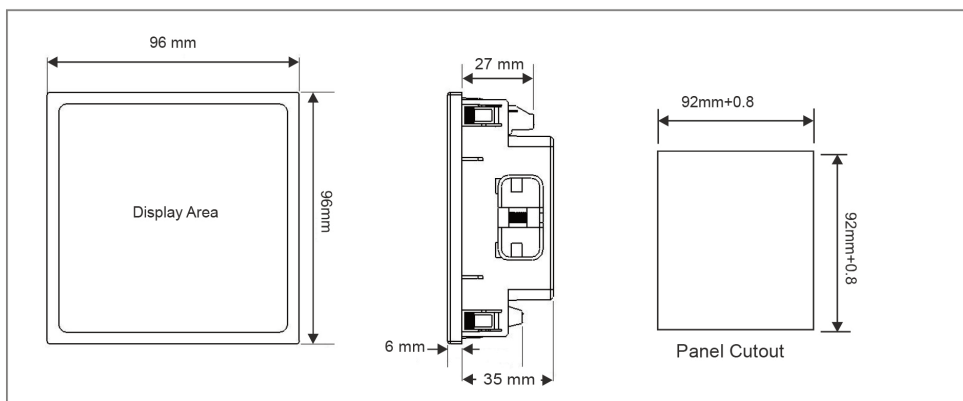
Network type	Displayed Parameter
1 Phase 2 wire	Phase Current IL

Installation and Dimensions

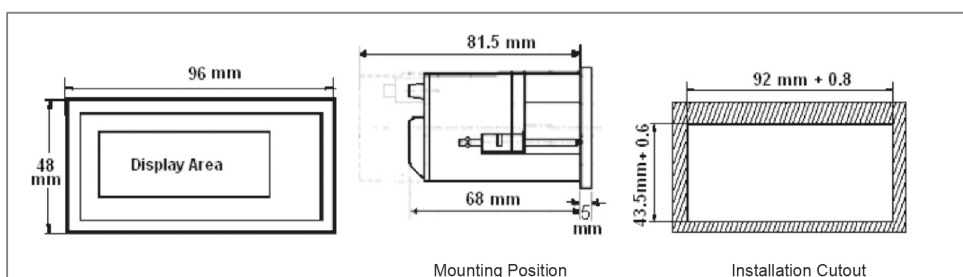
Easy Clip in Installation on Panel for 96x96 DPM:



A) For 96x96 DPM



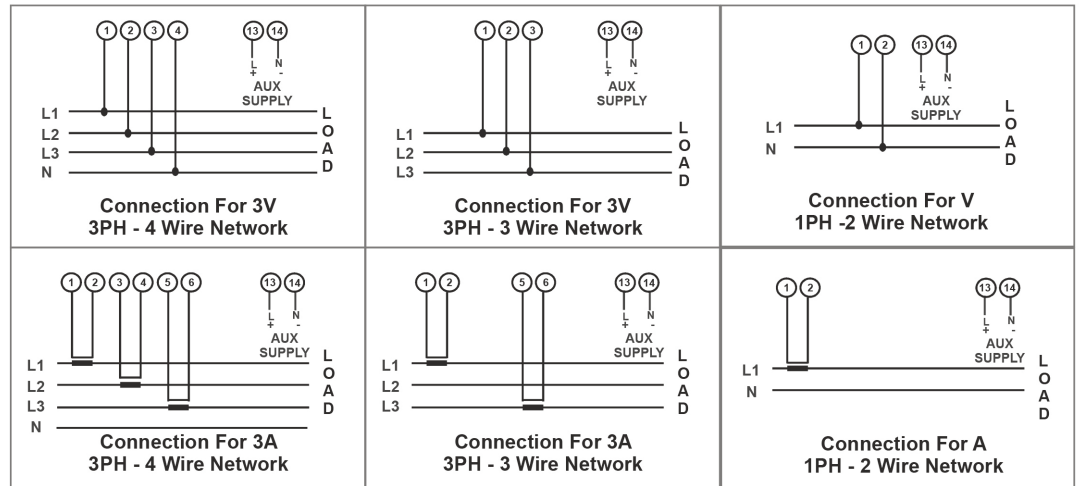
A) For 48x96 DPM



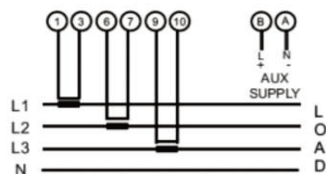
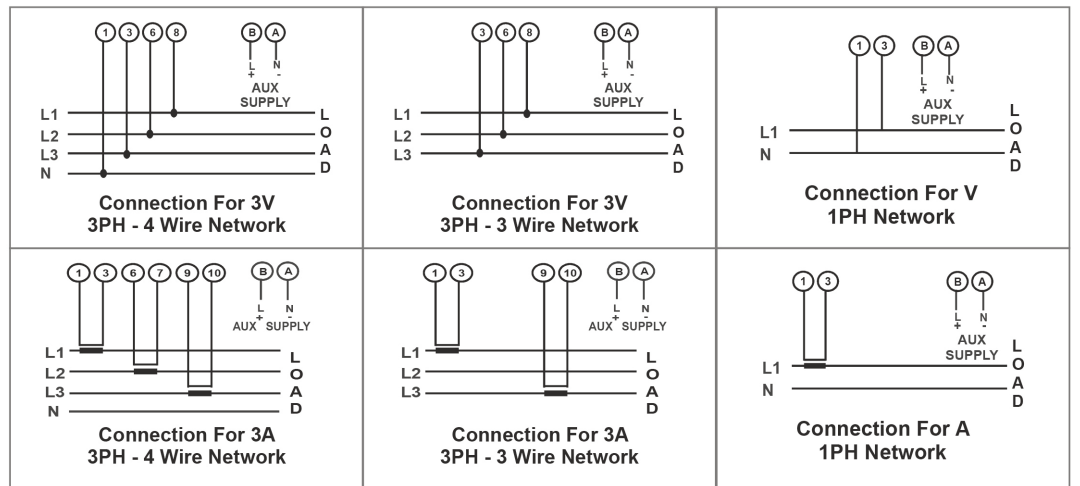
DIGITAL INSTRUMENTS

Parameters measured and displayed

A) For 96x96 DPM



B) For 48x96 DPM



Connect external current transformer secondary of Nano CT to meter as shown below.

1-COM	6-COM	9-COM
3-1S1	7-2S1	10-3S1

Note: Com terminals of meter are internally shorted. No need to be short externally

Order example:

- Eine DPM voltage, 3 phases, 40-300V AC auxiliary supply, dimensions 96x96mm
- Eine DPM Voltage, single phase, 57.5 to 300V L-N input voltage, 40-300V AC auxiliary supply, dimensions 48x96mm
- Eine DPM Current, 3 Phase, 40-300 V AC-DC auxiliary supply, dimensions: 96x96 mm

Celsa Eine + DC Voltage / Current



Celsa Eine+ has been designed for industrial applications, which frequently require precise and on-site adjustment of the display range. It measures electrical DC parameters like DC voltage and DC current.

Low back depth (for model 96x96 model)

The instrument has very low back depth (behind the panel) of less than 40 mm.

Rescalable Display range

The meter is completely programmable and user can easily scale the values as per his requirements onfield. Setting for '-ve' sign and decimal point position is also provided.

Function keys

Using 2 function keys it becomes easy and convenient for user to program the meter without any difficulty.

Bent Characteristics

The meter supports bent characteristics. Hence user can configure the meter as per requirement.

Power Factor Display

The meter can be configured to display power factor also.

Ambient Temperature Indication

The meter gives an accurate indication of the ambient temperature in °C and °F.

Auxillary Supply

The Auxillary supply ranges 40-300V AC-DC and 20-60V DC / 20-40V AC are supported.

4 Full digits Ultra Bright LED display

14mm full range display possible of 4 digits having maximum count - 9999.

Wide Input Range

Wide range of voltages and currents to choose from.

Enclosure Protection for dust and water

Conforms to IP 50 (front face) as per IEC 60529.

Compliance to International Safety standards

Compliance to International Safety standard IEC 61010-1- 2010.

EMC Compatibility

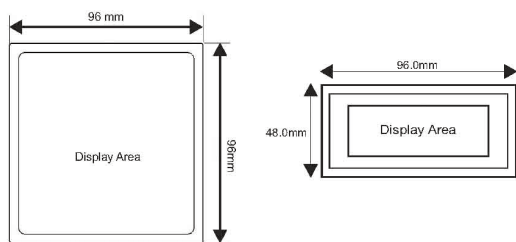
Compliance to International standard IEC 61326 Class B.

DIGITAL INSTRUMENTS

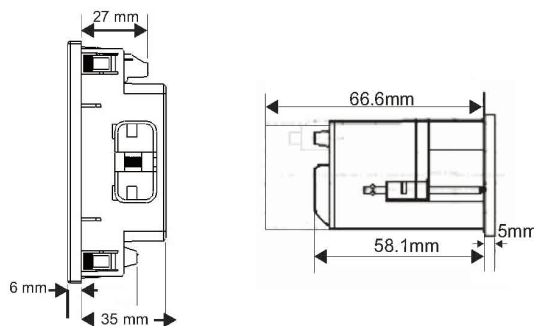
Technical Specifications													
Measuring ranges Celsa Eine + Voltage	Input mV ranges -75...0...75mV, -150...0...150mV Input Voltage range -5...0...5V, -10...0...10V, 0...500V, 0...1000V Max continuous input voltage 120% of Nominal value												
Measuring ranges Celsa Eine + Current	Input Current ranges -10...0...10mA, -20...0...20mA, 4...20mA, -1...0...1A, -5...0...5A Max continuous input current 120% of Nominal value												
Accuracy	Celsa Eine + Voltage <0.5% of Display End value ± 1 digit (Input current < 300uA) for V/mV Celsa Eine + Current <0.5% of Display End value ± 1 digit (Voltage drop < 600mV) for A/mA Ambient Temperature ± 3 °C												
Influence of variations	Temperature coefficient 0.05% / °C, plus Zero point drift 0.025% / °C												
Display	Type 1 line 4-digit LED display Display Count Setting -9999...-10 or +10...+9999 counts Digit Height 14mm Decimal point position Configurable Negative Display indication '' Overload Indication " - oL - " (above 125% of nominal value)												
Auxiliary supply	External Aux 40 - 300V AC - DC 20 - 60V DC / 20-40V AC 80 - 300V AC (for model 96x96) Frequency range 45 - 65Hz VA burden < 4.5VA approx. at 240V _{LN} , 50Hz < 1VA approx. at 24V _{LN} , 50Hz												
Reference conditions for accuracy	Reference Temperature 23°C ± 2 °C Auxiliary Supply Voltage Rated Value ± 1 % Auxiliary Supply Frequency Rated Value ± 1 %												
Applicable standards	EMC IEC 61326-1:2005 Immunity IEC 61000-4-1 up to 4. Level 3 industrial Low level Safety IEC 61010-1:2010 , Permanently connected use IP for water & dust IEC60529 Pollution degree 2 Installation category III 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 +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												
Dimensions and weight	Bezel size 96 mm x 96 mm DIN43718 (for model 96x96) 48 mm x 96 mm DIN43718 (for model 48x96) Panel cut-out 92 +0.8mm x 92 + 0.8mm (for model 96x96) 43.5 +0.6mm x 92 + 0.8mm (for model 48x96) Overall depth <40mm (for model 96x96) <75mm (for model 48x96) Weight 310 gr. approx. (for model 96x96) 250gr. approx. (for model 48x96)												
Factor C (The highest value applies if calculated C is less than 1, then C=1 applies)	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> Linear characteristics: $C = \frac{1 - (Y0/Y2)}{1 - (X0/X2)}$ </td> <td style="width: 10%; text-align: center; vertical-align: middle;">or</td> <td style="width: 5%; text-align: center; vertical-align: middle;">C=1</td> <td style="width: 50%; vertical-align: top;"> Bent characteristics: For $X0 \leq X \leq X1$ $C = \frac{Y1 - Y0}{X1 - X0} \cdot \frac{X2}{Y2}$ </td> <td style="width: 10%; text-align: center; vertical-align: middle;">or</td> <td style="width: 5%; text-align: center; vertical-align: middle;">C=1</td> </tr> <tr> <td style="vertical-align: top;"> $1 - (X0/X2)$ </td> <td></td> <td></td> <td style="vertical-align: top;"> For $X1 \leq X \leq X2$ $C = \frac{1 - (Y1/Y2)}{1 - (X1/X2)}$ </td> <td></td> <td style="text-align: center; vertical-align: middle;">C=1</td> </tr> </table> <p>X0 = Start value of input, Y0 = Start value of display , X1 = Elbow value of input ,Y1 = Elbow value of display X2 = End value of input ,Y2 = End value of display</p>	Linear characteristics: $C = \frac{1 - (Y0/Y2)}{1 - (X0/X2)}$	or	C=1	Bent characteristics: For $X0 \leq X \leq X1$ $C = \frac{Y1 - Y0}{X1 - X0} \cdot \frac{X2}{Y2}$	or	C=1	$1 - (X0/X2)$			For $X1 \leq X \leq X2$ $C = \frac{1 - (Y1/Y2)}{1 - (X1/X2)}$		C=1
Linear characteristics: $C = \frac{1 - (Y0/Y2)}{1 - (X0/X2)}$	or	C=1	Bent characteristics: For $X0 \leq X \leq X1$ $C = \frac{Y1 - Y0}{X1 - X0} \cdot \frac{X2}{Y2}$	or	C=1								
$1 - (X0/X2)$			For $X1 \leq X \leq X2$ $C = \frac{1 - (Y1/Y2)}{1 - (X1/X2)}$		C=1								

DIGITAL INSTRUMENTS

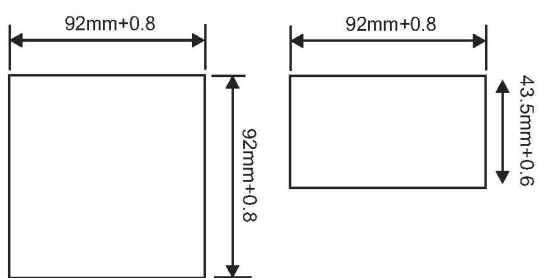
Dimensions:



Front View

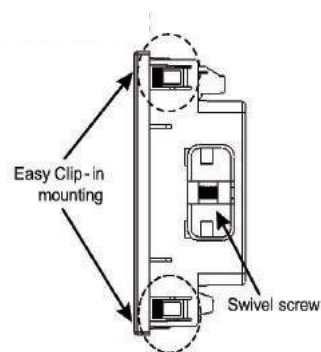


Side View

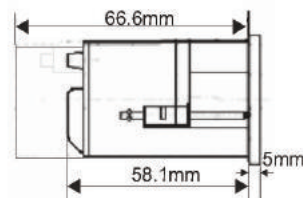


Panel Cutout

Installation:

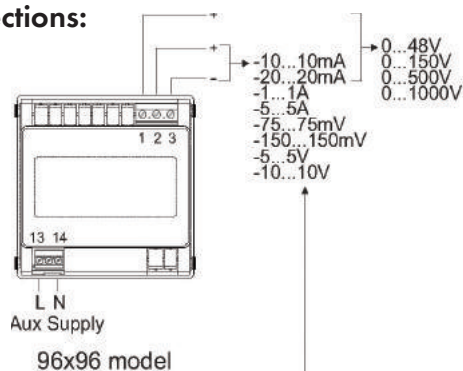


96x96 model

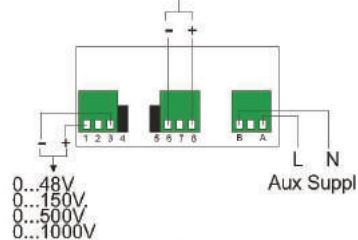


48x96 model

Electrical connections:



96x96 model



48x96 model

Order example:

- Eine + Voltage , VDC, 500 V input voltage, 80-300V AC auxiliary supply, Dimensions: 96x96 mm
- Eine + Current , ADC, 20 mA input current, 40-300 V AC-DC auxiliary supply, Dimensions: 96x96 mm
- Eine + Voltage , VDC, 500 V input voltage, 20-60V DC / 20-40 AC auxiliary supply, Dimensions: 48x96 mm
- Eine + Current , ADC, 20 mA input current, 40-300 V AC-DC auxiliary supply, Dimensions: 48x96 mm



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