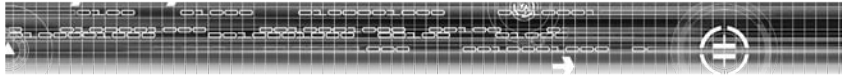


# Digital Panel Meters





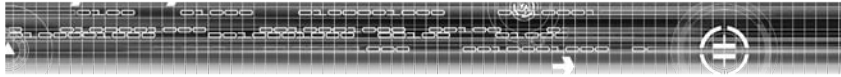
# Ziegler

Redefine Innovative Metering

## DIGITAL PANEL METERS

### SECTION INDEX

1. Digital Panel Meters for DC current & voltage measurement.
2. Digital Panel Meters for AC current & voltage measurement.
3. Digital Panel Meters for Frequency measurement.
4. Digital Panel Meters for Temperature measurement.



## DC Digital Panel Meter

24 x 48	DC Ammeter DC Voltmeter for multirange direct current voltage measurement
24 x 96	
48 x 96	
96 x 96	
72 x 144	



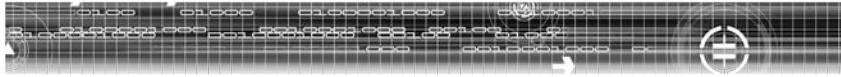
The DC Digital Panel Meter come in 5 standard sizes 24x48, 24x96, 48x96, 96x96, 72x144mm.  
The DC DPM's are designed for industrial applications which require precise and onsite adjustment for display ranges.

### GENERAL FEATURES:

APPLICABLE STANDARDS	
Performance standard for direct acting instrument	DIN EN60051
Digital Measurement	DIN 43 751
Device Safety	IEC 61010
Protection Class (Front Facia)	IP 20 according to IEC 60529 IP 54 (IP 65 on request)
Safety Class	II according to IEC 348/ VDE 0411
Climatic Class	Class 2 VDE / DIN 3540
EMC Immunity	DIN EN 61000-4-1 to 4
EMC Radiated Interference	DIN EN 50081 Class B

### FACT SHEET:

Casing Details	Moulded case suitable for mounting in control / switchgear panels, machinery console
Case Material	Glass filled polycarbonate, Flame retardant & drip proof as per UL 94 V0
Front Facia	Glass-polycarbonate (RED transparent)
Color of Bezel	Black
Position of use	Vertical
Panel Fixing	Metal side clamps / snap in
Panel thickness	≤40mm
Terminals	Plug-in screw terminal block
Display Type	Bright RED seven segment LED
Display Count	1999 <sup>1</sup>
Negative display indication	"-"
Overload indication	Last 3 digits blank
Setting Time	<1sec. (0...99%)
ISOLATION:	
DC voltage version	1kV
AC voltage version	2kV
AMBIENT CONDITIONS:	
Operating Temp.	0...50°C
Storage Temp.	-40°C...80°C



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## TECHNICAL SPECIFICATIONS:

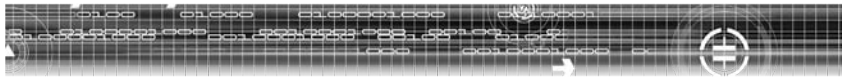
Model	24x48D	24x48F	24x96S	48x96A 96x96A 72x144A 72x144AN	48x96B 96x96B 72x144B 72x144BN	48x96C 96x96C 72x144C 72x144CN	48x96F
Measured Qty	Voltage/ Current	Voltage	Voltage/ Current	Current	Current	Voltage	Voltage
Measurement Range	10V 0...1mA 0...20mA 4...20mA	0...0.2V 0...2V 0...20V	0...0.2V, 0...1V, 0...5V, 0...25V, 0...100V, 0...300V, 0...1mA, 0...20mA, 0...200mA, 4...20mA	0...2mA 0...20mA 0...200mA	0...20mA 4...20mA	0...60mV 0...75mV 0...150mV	0...2V 0...20V 0...200V 0...500V
Range selection by	Positioning DIP switches.		Selectable by using jumpers at the back	Input choice			
Range adjustment span	From 10% to 100% of range		From 20% to 100% of range	From 10% to 100% of range			
Zero offset (suppression)	-	-	upto -1000	-			
Accuracy	<0.2% + 1D			<0.1% + 1D			<0.2% + 1D
Decimal point position	Programmable, settable by DIP switch		Selections by short links	Selectable by rear jumper position <sup>3</sup>			
Digit Height	8mm / 7- segment digits			14mm / 7 - segment digits <sup>2</sup>			
Temperature coefficient	100 ppm / C, plus						
Zero point drift	200 ppm / °C		100 ppm / °C				
Interference voltage suppression	>40dB		-				

## DIMENSIONS & WEIGHTS :

Bezel size	24x48mm DIN 43718	96x24mm DIN 43718	96x48mm DIN 43718
Panel Cutout	45 + 0.6mm x 22.2 + 0.3mm	92 + 0.8mm x 22.2 + 0.3mm	92 + 0.8mm x 43.5 + 0.6mm
Overall depth	69mm	72mm	138mm
Weight	<50g.	210g approx (5V DC version 90g.)	500g. approx.

## POWER SUPPLY :

Direct voltage DC	5V +/- 10%	
	12V +/- 10 %	
	24V (21...30 VDC)	
	48V +/- 10 %	
	-	110V +/- 10 %
Alternating voltage AC	-	24V +10%, -15%
	110V + 10% -15%	115V + 10% -15%
	-	230V + 10% -15%



# Ziegler

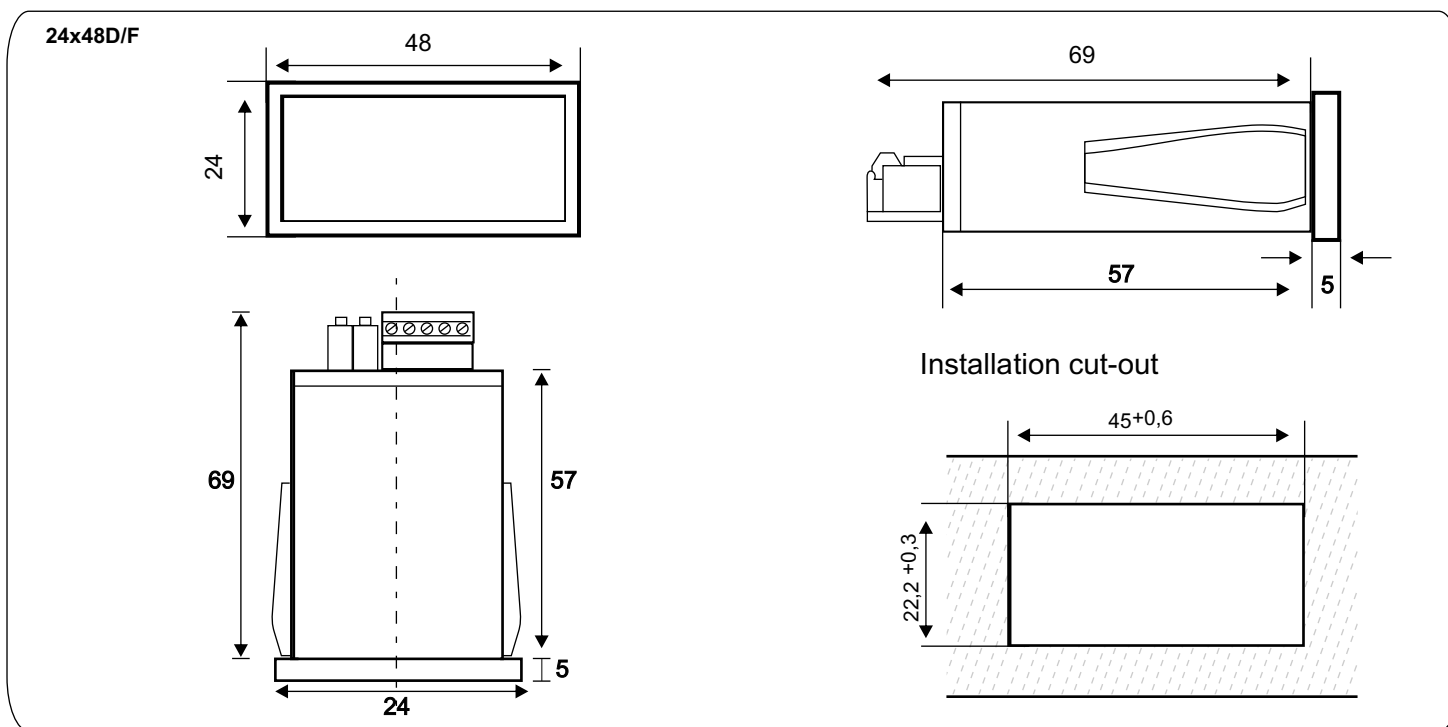
Redefine Innovative Metering

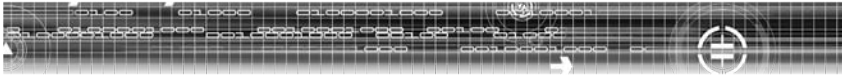
Model	24x48D	24x48F	24x96S	48x96A 96x96A 72x144A&N	48x96B 96x96B 72x144B&N	48x96C 96x96C 72x144C&N	48x96F
Power Consumption	1.2 W approx. (isolated)		110 V DC / 48 V DC : 5.5W 24V DC (21 ... 30 V DC)/12 V DC / 5 V DC : 4 W / 230V / 110V : 2 W	max 5.5W approx (isolated)			

**Note :**

- 1) 4 ½ Digit DPM - display range 19999
- 2) On request 20 mm display height available
- 3) For 48x96 Size decimal point is selected by external wires
- 4) For 24x48 DPM only AC Aux possible

**DIMENSIONAL DRAWINGS:**

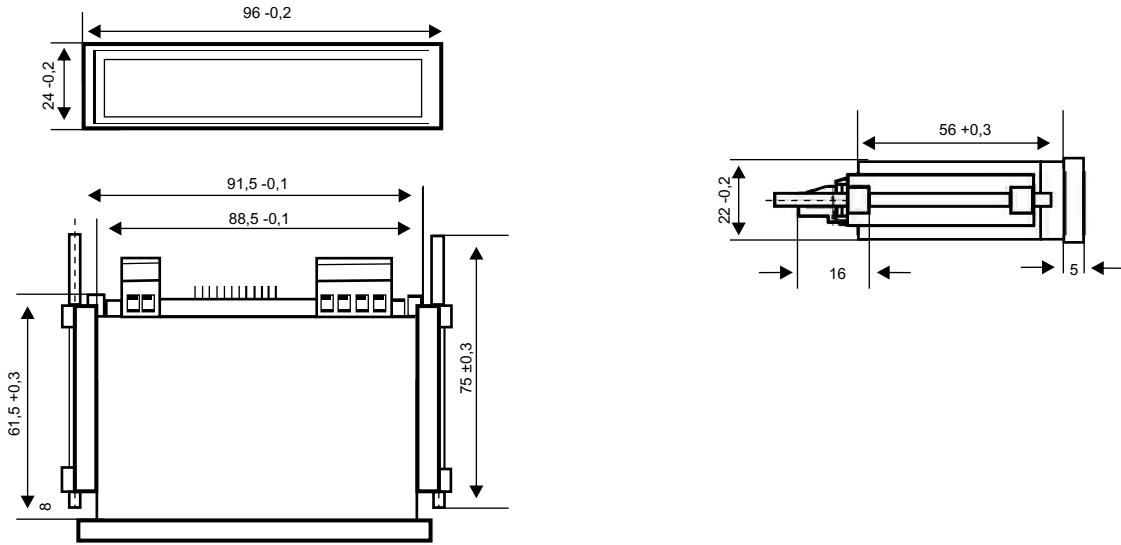




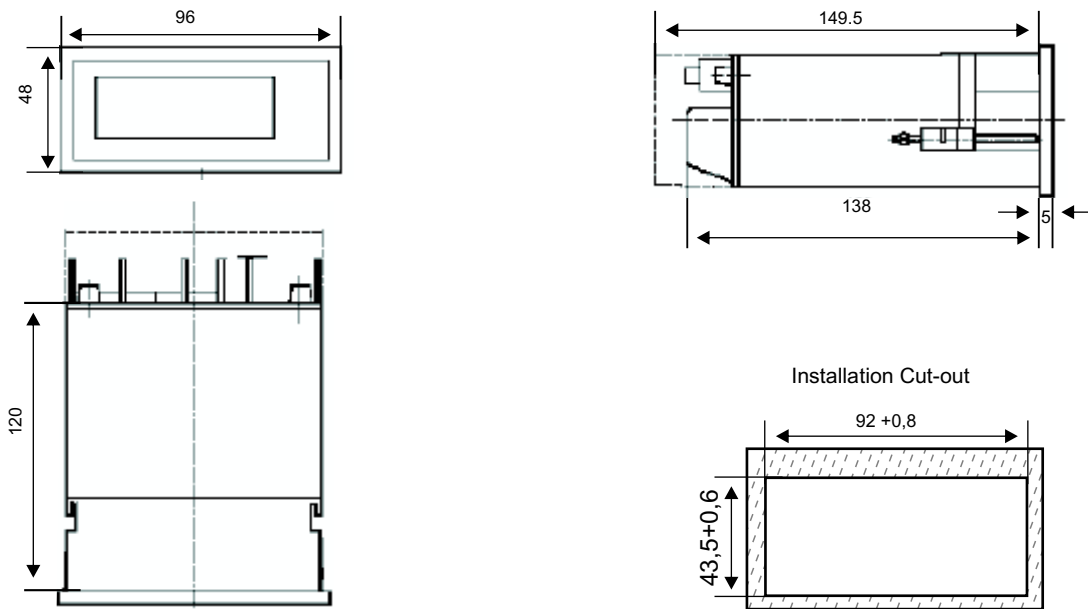
# Ziegler

Redefine Innovative Metering

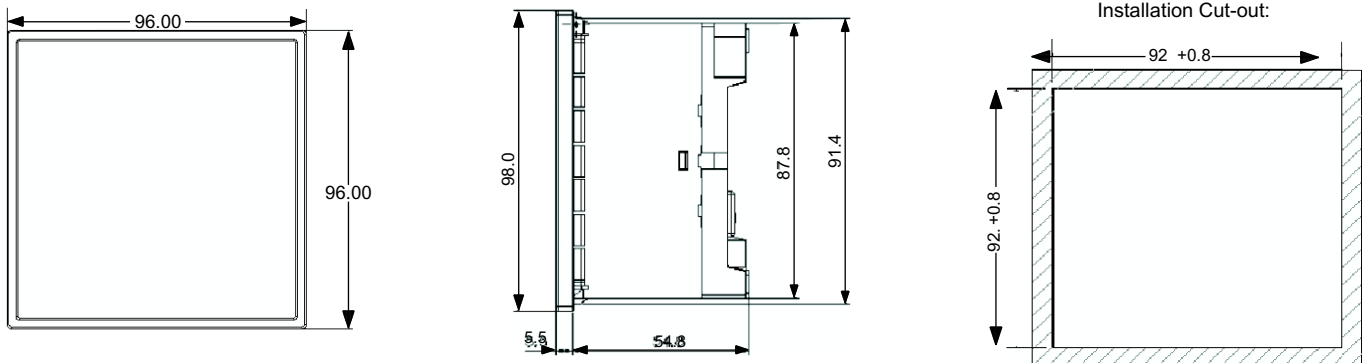
**24x96S**

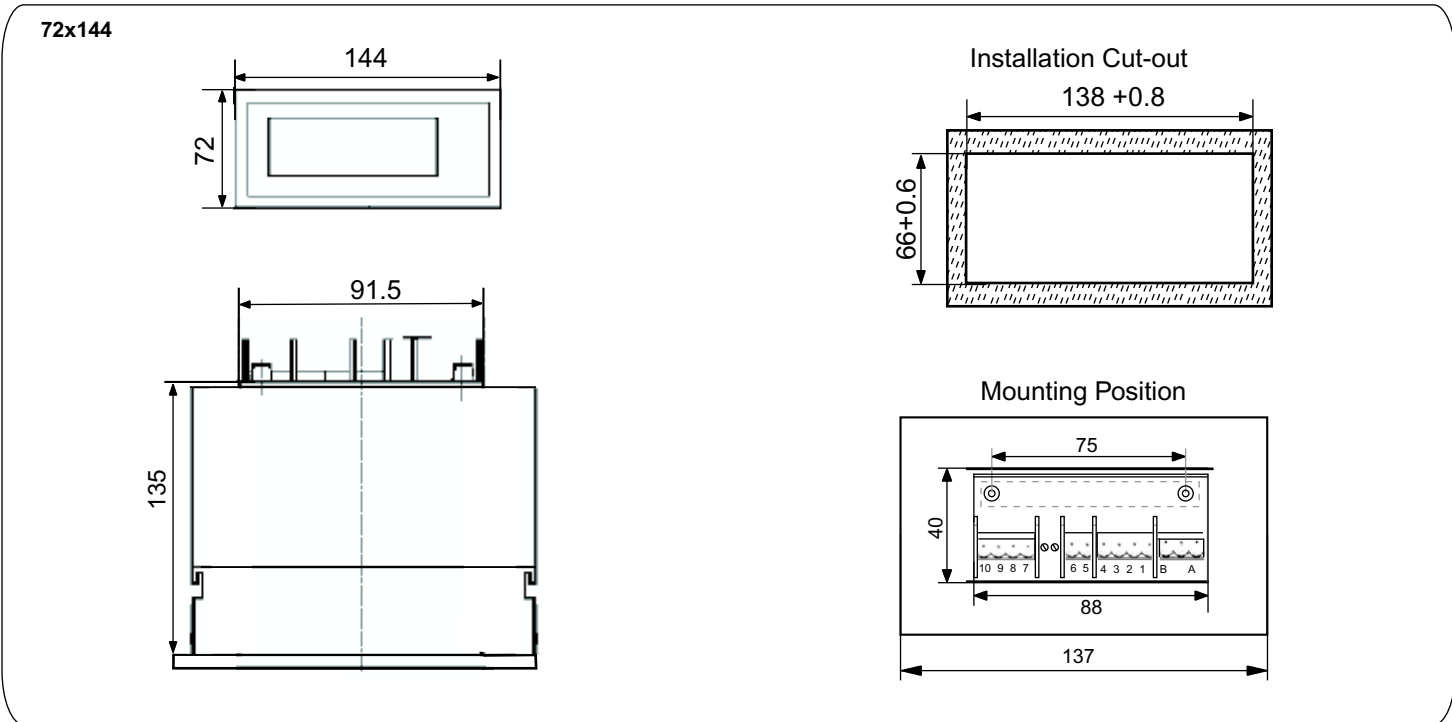
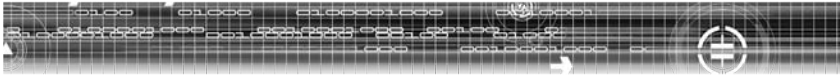


**48x96**

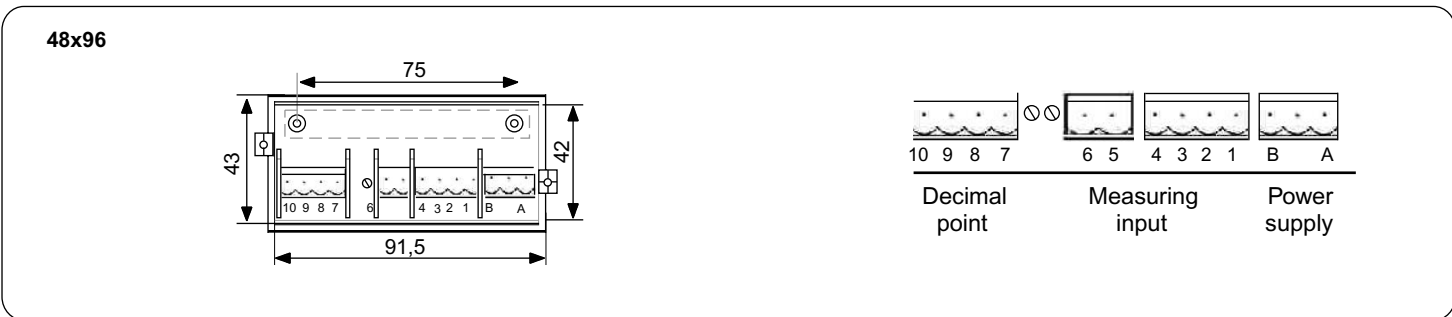
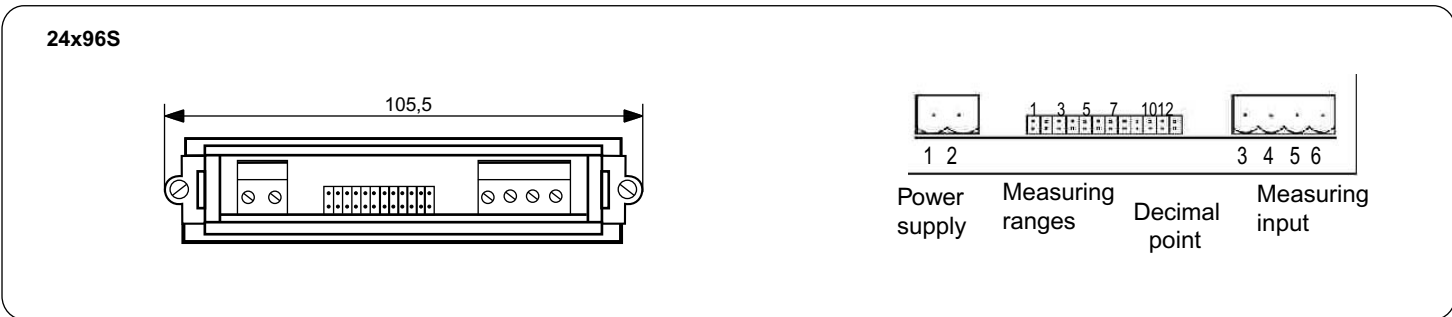


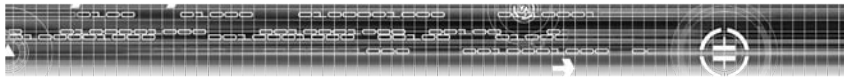
**96x96**





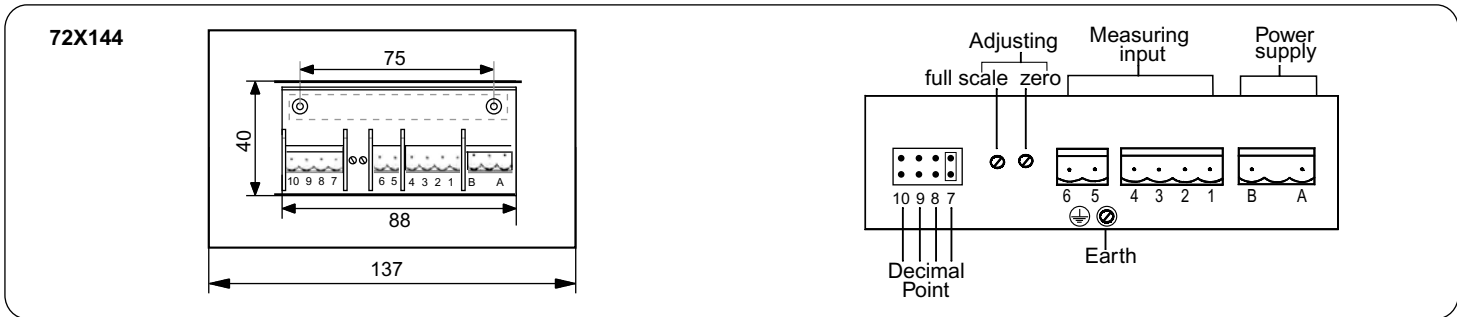
**CONNECTION DIAGRAMS :**





# Ziegler

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### ORDERING INFORMATION

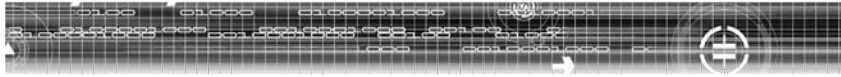
Please specify ordering information as given below,

Type	Measuring Input	Display	Display caption	Options	Supply voltage
------	-----------------	---------	-----------------	---------	----------------

### ORDER EXAMPLE

24x48 D	0...20mA	0...12.00	pH	-----	24V DC
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## AC Digital Panel Meter

48 x 96	AC Ammeter
96 x 96	AC Voltmeter
	for multirange alternate current & voltage measurement



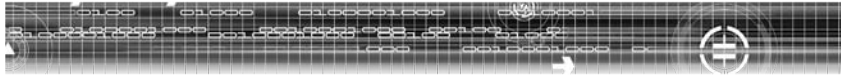
The AC Digital Panel Meter come in 2 standard sizes 48x96, 96x96mm. The AC DPM's are designed for industrial applications which require precise and onsite adjustment for display ranges for AC parameter measurements

### GENERAL FEATURES:

APPLICABLE STANDARDS	
Performance standard for direct acting instrument	DIN EN60051
Digital Measurement	DIN 43 751
Device Safety	IEC 61010
Protection Class (Front Facia)	IP 20 according to IEC 60529 IP 54 (IP 65 on request)
Safety Class	II according to IEC 348/ VDE 0411
Climatic Class	Class 2 VDE / DIN 3540
EMC Immunity	DIN EN 61000-4-1 to 4
EMC Radiated Interference	DIN EN 50081 Class B

### FACT SHEET:

Casing Details	Moulded case suitable for mounting in control / switchgear panels, machinery console
Case Material	Glass filled polycarbonate, Flame retardant & drip proof as per UL 94 V0
Front Facia	Glass-polycarbonate (RED transparent)
Color of Bezel	Black
Position of use	Vertical
Panel Fixing	Metal side clamps
Panel thickness	≤40mm
Terminals	Plug-in screw terminal block
Display Type	Bright RED seven segment LED
Display Count	1999 & 19999
Negative display indication	"_"
Overload indication	Last 3 digits blank
Setting Time	<1sec. (0...99%)
ISOLATION:	
DC voltage version	1kV
AC voltage version	2kV
AMBIENT CONDITIONS:	
Operating Temp.	0...50°C
Storage Temp.	-40°C...80°C



## TECHNICAL SPECIFICATIONS:

Model	48x96AC	48x96ACI 96x96-196A 96x96-396A 96x96-196AN <sup>1</sup> 96x96-396AN <sup>1</sup>	48x96ACV 96x96-196V 96x96-396V 96x96-196VN <sup>1</sup> 96x96-396VN <sup>1</sup>
Measured Qty	Voltage, Current	Current	Voltage
Measurement Range	0...1A <sub>ac</sub> 0...5A <sub>ac</sub> 0...500V <sub>ac</sub>	0...1A <sub>ac</sub> 0...5A <sub>ac</sub>	0...500V <sub>ac</sub> <sup>2</sup>
Frequency Range	For 45Hz - 65Hz & 400Hz		
Range selection by	Positioning DIP switches/ input choice	NA	NA
Range adjustment span	from 10% - 100% of range	from 5% - 100% of range	
Accuracy	<0.5% + 1D		
Display range	1999 & 19999		
Decimal point position	Selectable by rear jumper position & / or short link position		
Digit Height	14mm, 20mm <sup>3</sup> & 26mm/7-segment digits		
Temperature coefficient	100 ppm / °C, plus		
Zero point drift	200 ppm / °C, plus		

## DIMENSIONS & WEIGHTS

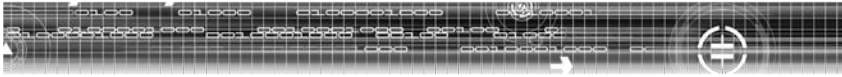
Bezel size	96x48mm & 96x96mm DIN 43718
Panel Cutout	92 + 0.8mm x 43.5 + 0.6mm & 92 + 0.8mm x 92 + 0.8mm
Overall depth	138mm 48x96, 55mm for 96x96 models & 145mm
Weight	500g. approx. for 48x96 & 96x96 models 1000g.

## POWER SUPPLY

Direct voltage DC	5V +/- 10%
	12V +/- 10 %
	24V (21...30 VDC)
	48V +/- 10 %
	110V +/- 10 %
	220V +/- 10 %
Alternating voltage AC	24V +10%, -15%
	115V + 10% -15%
	230V + 10% -15%
Power Consumption	max 5.5W approx (isolated)

### Note :

- 1) 4 ½ Digit DPM
- 2) For 3 phase voltage DPM voltage range are 0...110V<sub>(LL)</sub>, 0...240V<sub>(LL)</sub> & 0...415V<sub>(LL)</sub>
- 3) On request 20mm display height available
- 4) For low backdepth only 60mm

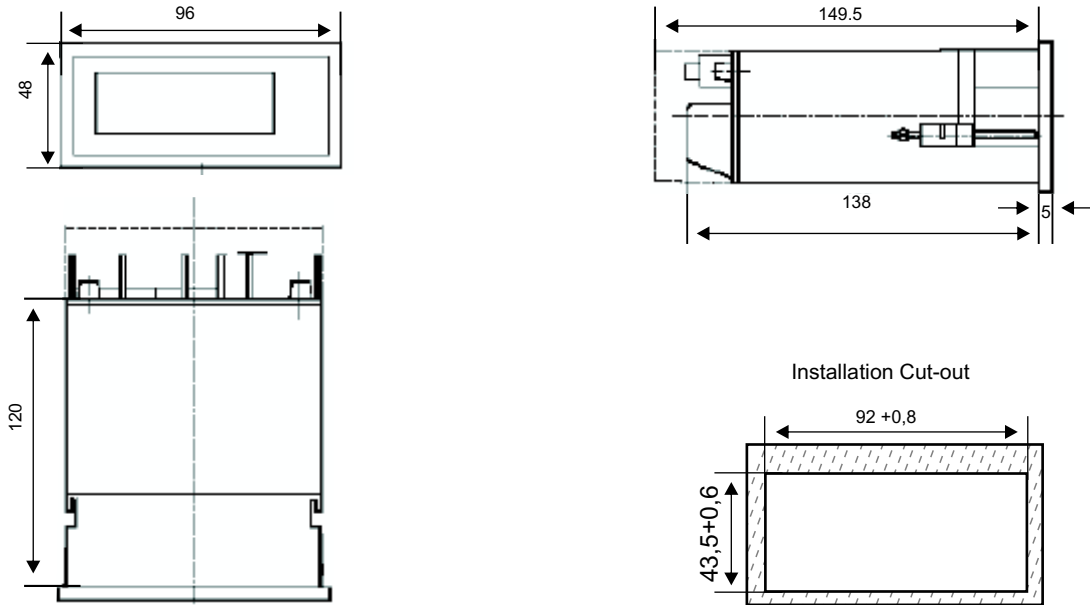


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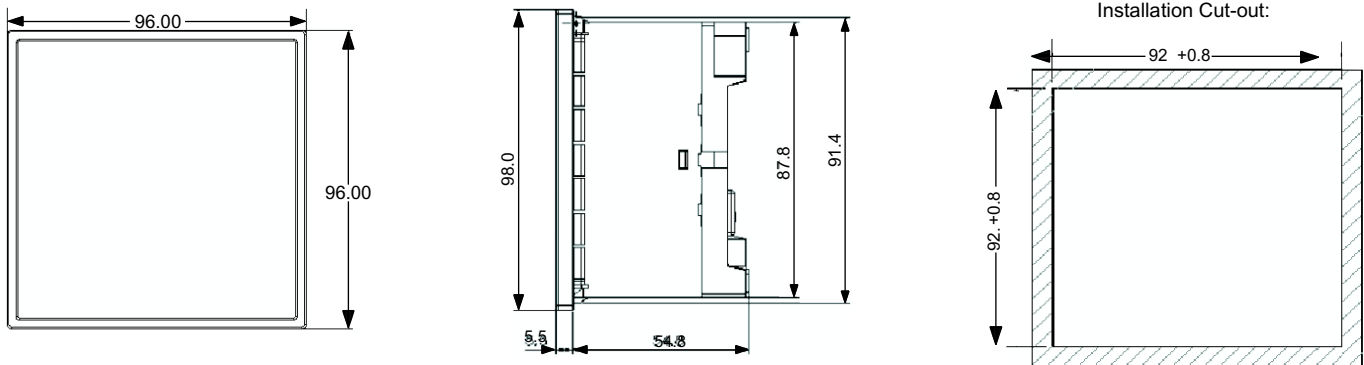
Redefine Innovative Metering

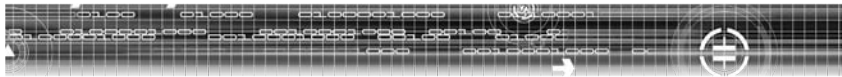
## DIMENSIONAL DRAWINGS:

**48x96**



**96x96**

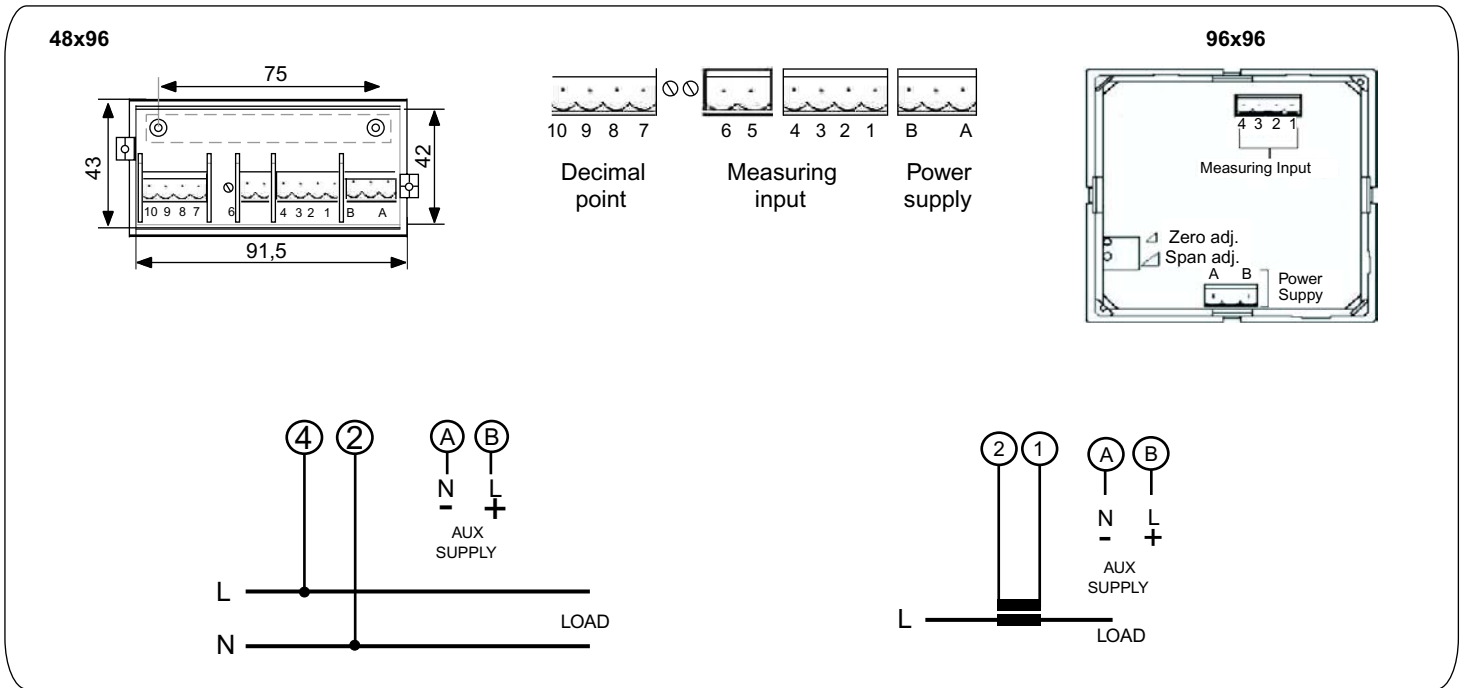




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## CONNECTION DIAGRAMS :



## DECIMAL POINT SELECTION :

Decimal Point position is selectable by short links at the front side of Display

Short Link Position	Decimal Point Position On Display
	XXXX
	X.XXX
	XX.XX
	XXX.X

Note : For 96x96 DPM only

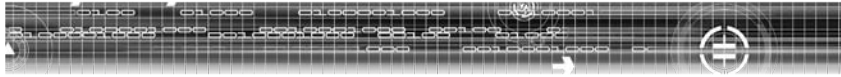
## ORDERING INFORMATION

Please specify ordering information as given below,

Type	Measuring Input	Display	Display caption	Options	Supply voltage
------	-----------------	---------	-----------------	---------	----------------

## ORDER EXAMPLE

48x96 AC I	5 A	1000 A	A	96 Adaptor Plate	230 V AC
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## Digital Panel Meter for Temperature Measurement

48 x 96T

Digital panel meter for measuring temperature with RTD input



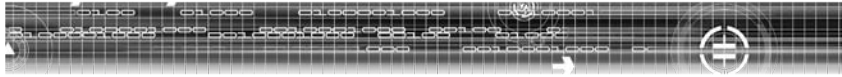
The Temperature Measuring Digital Panel Meter comes 48x96mm size. This instrument accepts resistance input from PT100 and Ni100 sensor, with 2/3/4 wire, and displays the proportionate temperature. The Temperature Measuring DPM's are designed for industrial applications which require precise and onsite adjustment for display ranges.

### GENERAL FEATURES:

APPLICABLE STANDARDS	
Performance standard for direct acting instrument	DIN EN60051
Digital Measurement	DIN 43 751
Device Safety	IEC 61010
Protection Class (Front Facia)	IP 20 according to IEC 60529 IP 54 (IP 65 on request)
Safety Class	II according to IEC 348/ VDE 0411
Climatic Class	Class 2 VDE / DIN 3540
EMC Immunity	DIN EN 61000-4-1 to 4
EMC Radiated Interference	DIN EN 50081 Class B

### FACT SHEET:

Casing Details	Moulded case suitable for mounting in control / switchgear panels, machinery console
Case Material	Glass filled polycarbonate, Flame retardant & drip proof as per UL 94 V0
Front Facia	Glass-polycarbonate (RED transparent)
Color of Bezel	Black
Position of use	Vertical
Panel Fixing	Metal side clamps
Panel thickness	≤40mm
Terminals	Plug-in screw terminal block
Display Type	Bright RED seven segment LED
Display Count	1999
Negative display indication	"-"
Overload indication	Last 3 digits blank
Setting Time	<1sec. (0...99%)
ISOLATION:	
DC voltage version	1kV
AC voltage version	2kV
AMBIENT CONDITIONS:	
Operating Temp.	0...50°C
Storage Temp.	-40°C...80°C



## TECHNICAL SPECIFICATIONS:

<b>Model</b>	<b>48x96T</b>
Measured Qty	Temperature
Measurement Range	-100°C...850°C -199.9°C...199.9°C 2-,3-,4-, wire
Sensor type	PT100, Ni100
Range selection by	Positioning DIP switches
Range adjustment span	5%
Accuracy	<0.2% + 1D
Display range	1999
Decimal point position	Selectable by rear jumper position
Digit Height	14mm /7-segment digits
Temperature coefficient	100 ppm / °C, plus
Zero point drift	100 ppm / °C, plus

## DIMENSIONS & WEIGHTS

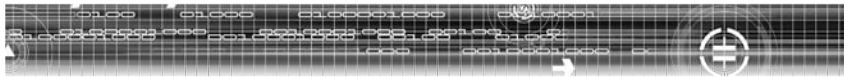
Bezel size	48x96mm DIN 43718
Panel Cutout	92 + 0.8mm x 43.5 + 0.6mm
Overall depth	138mm 48x96
Weight	500g. approx.

## POWER SUPPLY

Direct voltage DC	5V +/- 10%
	12V +/- 10 %
	24V (21...30 VDC)
	48V +/- 10 %
	110V +/- 10 %
Alternating voltage AC	24V +10%, -15%
	115V + 10% -15%
	230V + 10% -15%
Power Consumption	max 5.5W approx (isolated)

## OPTIONS

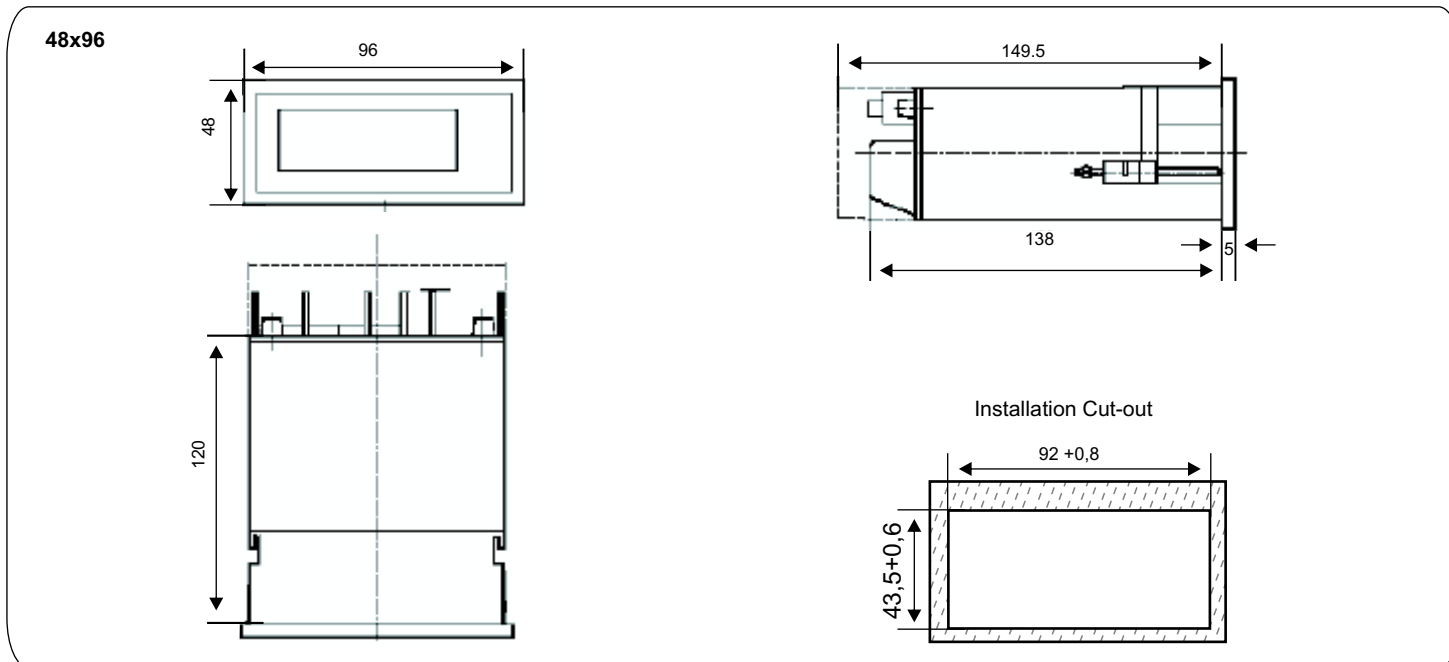
HOLD input	Yes
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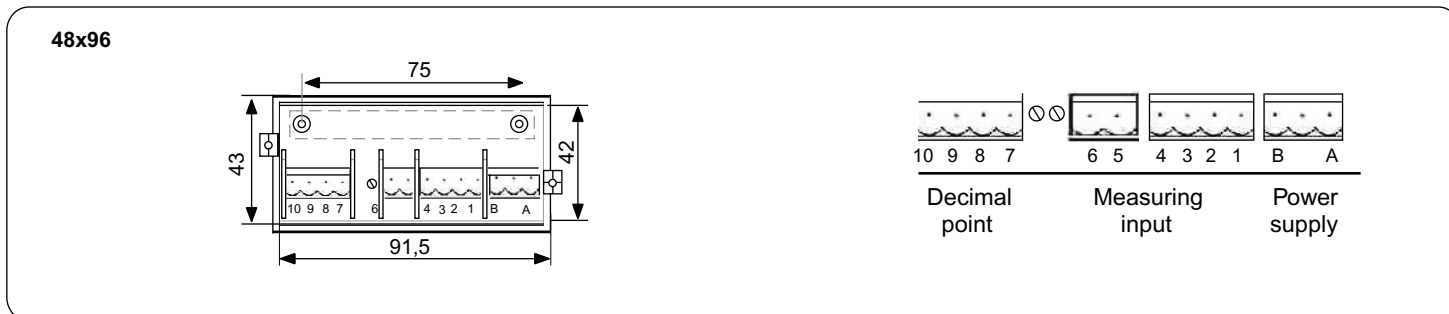
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## DIMENSIONAL DRAWINGS:



## CONNECTION DIAGRAMS :



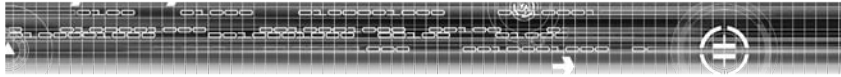
## ORDERING INFORMATION

Please specify ordering information as given below,

Type	Measuring Input	Display	Display caption	Options	Supply voltage
------	-----------------	---------	-----------------	---------	----------------

## ORDER EXAMPLE

48x96 T	PT 100 0...100°C	0...100°C	°C	Hold Option	115 V AC
---------	---------------------	-----------	----	----------------	----------



## Digital Panel Meter for Frequency Measurement

48 x 96AK | Digital panel meter for measuring Frequency.



The Frequency Measuring Digital Panel Meter comes 48x96mm size. The Frequency Measuring DPM's are designed for industrial applications which require precise and onsite adjustment for display ranges.

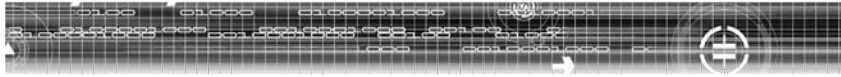
### GENERAL FEATURES:

APPLICABLE STANDARDS	
Performance standard for direct acting instrument	DIN EN60051
Digital Measurement	DIN 43 751
Device Safety	IEC 61010
Protection Class (Front Facia)	IP 20 according to IEC 60529 IP 54 (IP 65 on request)
Safety Class	II according to IEC 348/ VDE 0411
Climatic Class	Class 2 VDE / DIN 3540
EMC Immunity	DIN EN 61000-4-1 to 4
EMC Radiated Interference	DIN EN 50081 Class B

### FACT SHEET:

Casing Details	Moulded case suitable for mounting in control / switchgear panels, machinery console
Case Material	Glass filled polycarbonate, Flame retardant & drip proof as per UL 94 V0
Front Facia	Glass-polycarbonate (RED transparent)
Color of Bezel	Black
Position of use	Vertical
Panel Fixing (mountable in a single cutout)	Metal side clamps
Panel thickness	≤40mm
Terminals	Plug-in screw terminal block
Display Type	Bright RED seven segment LED
Display Count	1999
Negative display indication	"-"
Overload indication	1..." if display>1999
Setting Time	<1sec. (0...99%)
ISOLATION:	
DC voltage version	1kV
AC voltage version	2kV
AMBIENT CONDITIONS:	
Operating Temp.	0...50°C
Storage Temp.	-40°C...80°C





## TECHNICAL SPECIFICATIONS:

<b>Model</b>	<b>48x96AK</b>
Measured Qty	Frequency
Measurement Range	12... 199.9 Hz (80... 700 V) 12... 500 Hz (80... 700 V)
Accuracy	± (0.25% + 5 digit)
Display range	1999
Decimal point position	adjustable at front panel
Digit Height	14mm /7-segment digits
Temperature coefficient	< 190 ppm/ °k, plus
Zero point drift	max. 0.2 digit /°k
Series Mode Rejection Ratio (SMRR)	>50dB at 50Hz

## DIMENSIONS & WEIGHTS :

Bezel size	48x96mm DIN 43718
Panel Cutout	92 + 0.8mm x 43.5 + 0.6mm
Overall depth	138mm 48x96
Weight	500g. approx.

## POWER SUPPLY :

Direct voltage DC	5V +/- 10%
	12V +/- 10 %
	24V (21...30 VDC)
	48V +/- 10 %
	110V +/- 10 %
Alternating voltage AC	24V +10%, -15%
	115V + 10% -15%
	230V + 10% -15%
Power Consumption	max 5.5W approx (isolated)

## OPTIONS :

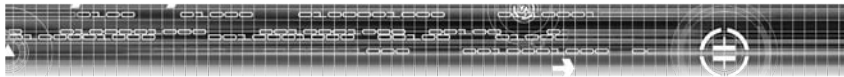
LED color	Green
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## A-D CONVERSION :

Converion Method	Dual Slope
Integration Time	Approx. 100ms
Measurements per Second	Typically 3, response time for the entire instrument is dependent upon the measured quantity

## CONTROL COMMANDS :

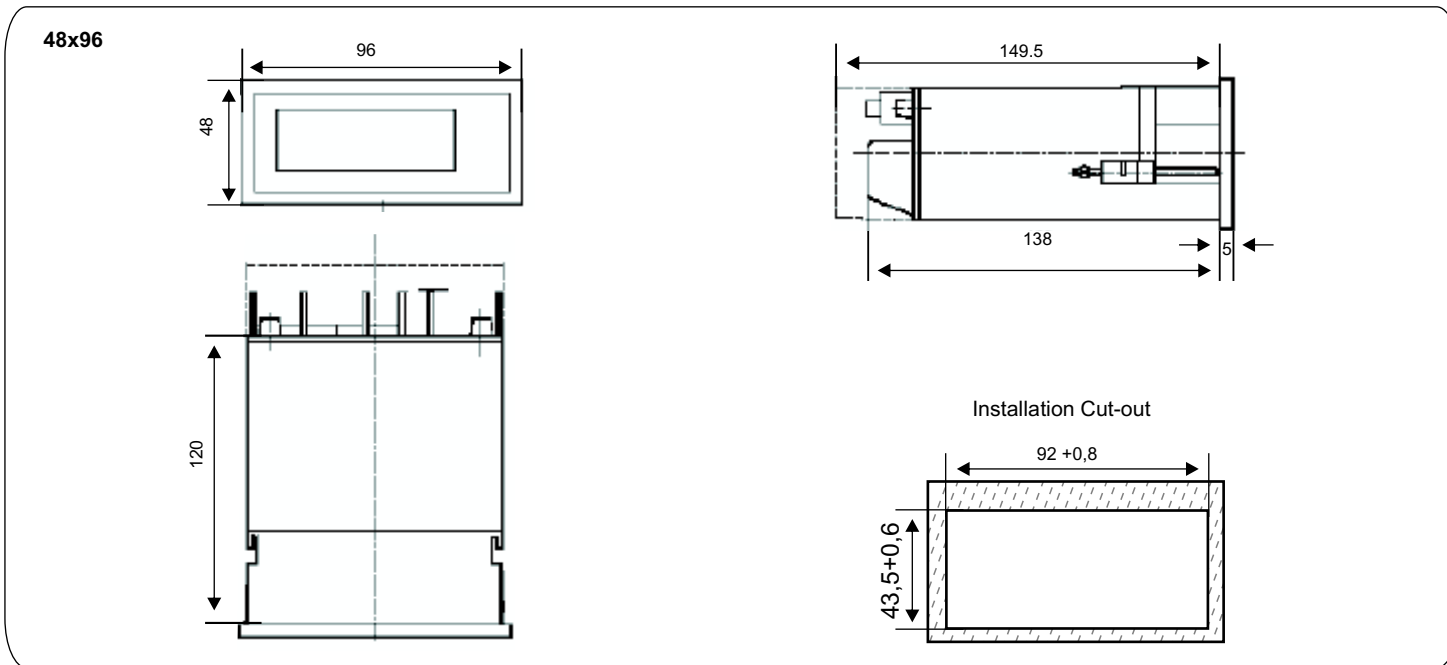
Display Value Storage	externally controlled
Segment Test	externally controlled



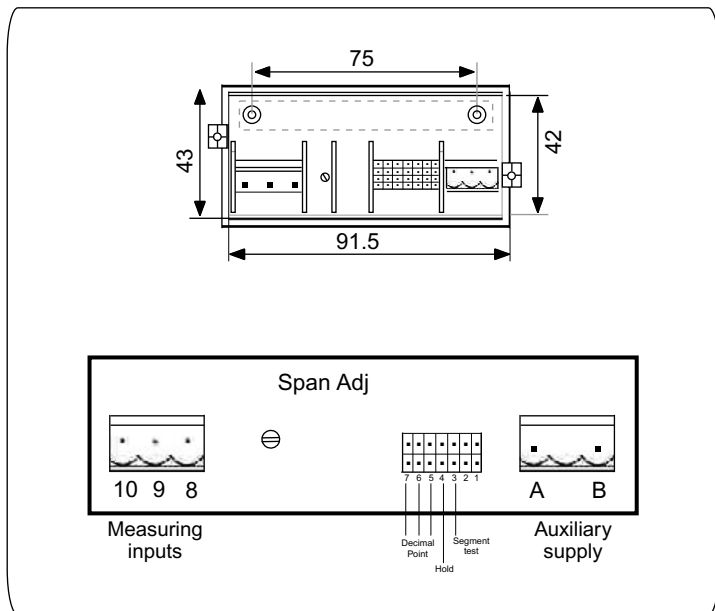
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## DIMENSIONAL DRAWINGS:



## CONNECTION DIAGRAMS :



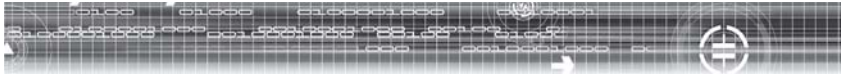
## ORDERING INFORMATION

Please specify ordering information as given below.

Type	Measuring Input	Display	Display caption	Options	Supply voltage
------	-----------------	---------	-----------------	---------	----------------

## ORDER EXAMPLE

48x96 AK	500V	12...199.9Hz	Hz	-----	230 V AC
----------	------	--------------	----	-------	----------



## DPM 96x96 (KW, KVar, KVA, PF)

96 x 96	Active Power (KW) DPM
	Reactive Power (Kvar) DPM
	Apparant Power (KVA) DPM
	Power Factor (PF) Meter



DPM 96x96 Series measures system active power (Import / Export), Reactive power(Import / Export), Apparent Power & Power Factor of three phase & single phase network. IT has 4 digit single line auto ranging LED display with polarity Indication

### GENERAL FEATURES:

APPLICABLE STANDARDS	
Performance standard for direct acting instrument	DIN EN60051
Digital Measurement	DIN 43 751
Device Safety	IEC 61010
Protection Class (Front Facia)	IP 54 according to IEC 60529
Safety Class	II according to IEC 348/ VDE 0411
Climatic Class	Class 2 VDE / DIN 3540
EMC Immunity	DIN EN 61000-43
EMC Radiated Interference	IEC 61326
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%

### FACT SHEET:

Casing Details	Moulded case suitable for mounting in control / switchgear panels, machinery console
Case Material	Glass filled polycarbonate, Flame retardant & drip proof as per UL 94 V0
Front Facia	Glass-polycarbonate
Color of Bezel	Black
Position of use	Vertical
Panel Fixing	Side clamps
Panel thickness	≤40mm
Terminals	Plug-in screw terminal block
Display Type	Bright RED seven segment LED
Negative display indication	“_”
Overload indication	Last 3 digits blank
Setting Time	<1sec. (0...99%)
ISOLATION:	
DC voltage version	1kV
AC voltage version	2kV
AMBIENT CONDITIONS:	
Operating Temp.	-10 to +55°C
Storage Temp.	-20 to +65°C

## TECHNICAL SPECIFICATIONS:

Model	DPM kW	DPM kVA	DPM kVar	DPM PF
Measured Qty	kW	kVA	kVar	PF
Input Range	Voltage : 57.7 - 277V L-N (100-480V L-L) Current : 1A or 5A AC programmable onsite			
Frequency Range	40-70Hz			
Accuracy	0.5% of range	1% of range	2%	
Digit Height	11mm & 20mm			
Temperature Coefficient	0.025% /°C for Voltage, 0.05% / °C for Current			

## DIMENSIONS & WEIGHTS

Bezel size	96x96mm
Panel Cutout	92.08mm x 92.08mm
Overall depth	<80mm
Weight	0.7 Kg

## POWER SUPPLY

Direct DC voltage	12V to 48V DC +/- 10%
Alternating AC voltage	110V, 230V, 380VAC -15% +20%
AC/DC Voltage	100-250V AC/DC +/- 10%

### VA Burden:

Nominal input voltage burden	< 0.2 VA approx. per phase
Nominal input current burden	< 0.6 VA approx. per phase
AC Supply burden	Approx. 4 VA

### Overload Withstand:

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

### Operating Measuring Ranges

Voltage	5... 120% of rated value
Current	5 ... 120% of rated value
Frequency	40...70 Hz
Power Factor	0.5 Lag ... 1... 0.5 Lead for kW, kVA DPM / 0.1 Lag ... 1... 0.1 lead for PF DPM

## Application:

DPM 96x96 series measures system active Power (Import / Export), Reactive Power (Import / Export), Apparent Power & Power Factor of Three phase and single phase Network. It has 4 digit single line auto ranging LED display with polarity indication.

## Product Range :

- Active Power (kW) DPM.
- Reactive Power (kVar) DPM.
- Apparent Power (kVA) DPM.
- Power Factor (PF) meter.

## Product Features:

### \*On site programmable PT/CT ratios:

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

### \*User selectable 3 phase 3W or 4W

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

\*Note: For Power Factor DPM Customer need to specify CT ratio, PT ratio & network type 3phase (3 or 4 wire) / single phase (1P2W) requirement while ordering.

### User selectable Power Parameter

User can select any one of the power parameter (Active / Reactive / Apparent) on site as per its requirement, reducing inventory cost.

### True RMS measurement:

The instrument measures distorted waveform up to 15<sup>th</sup> Harmonic.

### High brightness LED display

Single line four digit. Digit heights 11mm or 20 mm.

### Enclosure Protection for dust and water:

conforms to IP 54 (front face) as per IEC60529

### Compliance to International Safety standards:

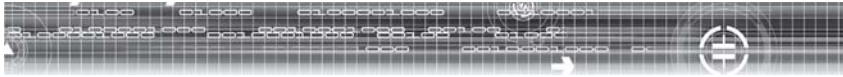
Compliance to International Safety standard IEC 61010-1- 2001

### EMC Compatibility :

Compliance to International standard IEC 61326

### Low back depth:

The instrument has very low back depth (behind the panel) of less than 80 mm .



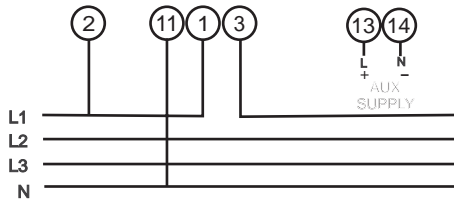
# Ziegler

Redefine Innovative Metering

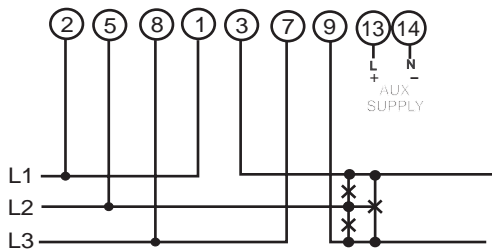
## CONNECTION DIAGRAMS :

## DIMENSIONAL DIAGRAMS :

For Single Phase

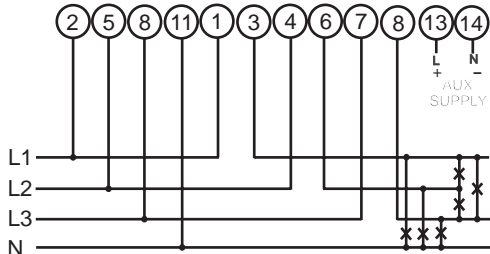


3 Phase 3 Wire Unbalanced Load

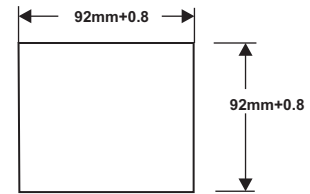
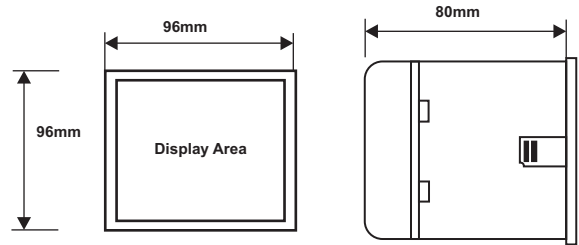


For Direct operated meter

3 Phase 4 Wire Unbalanced Load



For Direct operated meter



Panel Cutout

## ORDERING INFORMATION

Please specify ordering information as given below,

Type	System	Voltage	Current	Aux. Supply	Digit Height
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## ORDERING EXAMPLE

DPM-PF	3P4W	415V <sub>LL</sub>	5A	230VAC	11
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It is recommended that the wires used for connections to the instrument should have lugs soldered at the end. That is, the connections should be made with Lugged wires for secure connections. The Maximum diameter of the lug should be 7.0mm and maximum thickness 3.5 mm.

Permissible cross section of the connection wires:  
 $\leq 4.0 \text{ mm}^2$  single wire or  $2 \times 2.5 \text{ mm}^2$  fine wire