



### Application

Square panel meters for alternating current system. All panel meters are direct indication of measuring input. They are suitable to use on the distribution panel, control panel, switchboard panel, power plant, mimic board, machines and others.

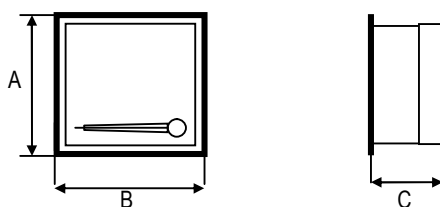
The instruments has designed for industrial applications which required precise, reliable and robust instruments for the display range and indicating. Each measuring instrument is suited for one of the following measuring tasks:

- System available  
1Ph2W  
3Ph3W-Balanced Load  
3Ph4W-Balanced Load  
3Ph3W-Unbalanced Load  
3Ph4W-Unbalanced Load
- Input voltage direct 100V, 110, 230, 240, 380, 415, 440V or request.
- Input voltage PT connection 100, 110, 115, 120V ac or request.
- Input current CT / 1A or CT / 5A .
- and more detail see ordering information.

### Description

Analog Panel Meter with Moving-Coil Movement and Spring-Loaded Pivot Bearings. Adjustments and balancing are especially easy for these rugged,compact instruments. Complete balancing of the model can be accomplished alone from factory.The pre-selection of measuring ranges is accomplished with clearly arranged numbering on ordering detail of the instruments. Zeroing Knop at the front meter's panel allow for precision zero adjustments. Measuring instruments for the remaining ranges are balanced to a standard value prior to shipment. Precision balancing can be performed at the factory upon request.

### Dimension



Size	A	B	C
48x48	48	48	65
72x72	72	72	65
96x96	96	96	65
144x144	144	144	65
80x80	80	80	65
120x120	120	120	65

- Dimension 144x144, 120x120, 96x96, 80x80, 72x72, 48x48mm.
- DIN43700, DIN43802, DIN43718, IEC1010, IEC473, IEC51, BS89
- Polycarbonate, self extinguishing and drip-proof per UL94V-0
- Rugged housing-non combustible, plastic-heat resistance.
- Accuracy  $\pm 1.5\%$  Or class1.0 Or customize.
- 90 Degree and 240 degree.
- CT / 1 A. or CT / 5 A.

### Characteristic

#### Display

Scale Graduation Coarse-fine  
Pointer Beam pointer with knife-edge comply with DIN 43802, parts 2 through 4.

#### Mechanical Design

Housing Material Polycarbonate, self-extinguishing and drip-proof per UL94V-0  
Mounting Fasteners Standard type screw clamp  
Scale Interchangeable scales  
Scales may only be replaced under voltage-free conditions !  
Replaceable Bezels and glass face plates, May only be replaced under voltage-free conditions!  
Terminals M4 screw terminals with self-lifting terminal clips. Screws can be turned with standard screw drivers tool.  
Contact Protection Finger-safe full cover included  
Accuracy 1.5, 1.0 or request.

#### Consumption

Current Path 0.2VA for CT/1A.  
Current Path 0.3VA for CT/5A.  
Voltage Path 3.5VA for 500V.  
Voltage Path 3.0VA for PT Rated.

#### Ambient Conditions

Operating Temperature - 20 ... + 55 °C  
Storage Temperature - 40 ... + 70 °C  
Relative Humidity max. 95%  
Frequency 45...65Hz.

#### Compliance with Regulations

Protection IP 54, front panel, Terminal IP20  
Protection Class 1

Size (mm.)	48x48	72x72	96x96	144x144	80x80	120x120
90 Deg.	W48	W72	W96	W144	W80	W120
	Q48	Q48	Q96	Q144	Q80	Q120
240 Deg.	W48-240	W72-240	W96-240	W144-240	W80-240	W120-240
	Q48-240	Q72-240	Q96-240	Q144-240	Q80-240	Q120-240
Scale Length	37mm.	63mm.	97mm.	120mm.	72mm.	108mm.
	73mm.	113mm.	151mm.	225mm.	136mm.	196mm.
Weight	0.20 Kg.	0.25 Kg.	0.40 Kg.	0.55 Kg.	0.30 Kg.	0.45 Kg.
	0.25 Kg.	0.30 Kg.	0.45 Kg.	0.65 Kg.	0.35 Kg.	0.55 Kg.
Cutout (mm.)	43x43	68x68	92x92	138x138	74x74	112x112
Max Voltage	300 V	600 V	600 V	600 V	600 V	600 V
Test Voltage	2.2 kV	3.25 kV	3.25 kV	3.25 kV	3.25 kV	3.25 kV

**Ordering Information.**

**1) Model**

W48	Watt, Dimension	48x48 mm.	Scale	90 Degree
W72	Watt, Dimension	72x72 mm.	Scale	90 Degree
W96	Watt, Dimension	96x96 mm.	Scale	90 Degree
W144	Watt, Dimension	144x144 mm.	Scale	90 Degree
W80	Watt, Dimension	80x80 mm.	Scale	90 Degree
W120	Watt, Dimension	120x120 mm.	Scale	90 Degree
W48-240	Watt, Dimension	48x48 mm.	Scale	240 Degree
W72-240	Watt, Dimension	72x72 mm.	Scale	240 Degree
W96-240	Watt, Dimension	96x96 mm.	Scale	240 Degree
W144-240	Watt, Dimension	144x144 mm.	Scale	240 Degree
W80-240	Watt, Dimension	80x80 mm.	Scale	240 Degree
W120-240	Watt, Dimension	120x120 mm.	Scale	240 Degree
Q48	Var, Dimension	48x48 mm.	Scale	90 Degree
Q72	Var, Dimension	72x72 mm.	Scale	90 Degree
Q96	Var, Dimension	96x96 mm.	Scale	90 Degree
Q144	Var, Dimension	144x144 mm.	Scale	90 Degree
Q80	Watt, Dimension	80x80 mm.	Scale	90 Degree
Q120	Watt, Dimension	120x120 mm.	Scale	90 Degree
Q48-240	Var, Dimension	48x48 mm.	Scale	240 Degree
Q72-240	Var, Dimension	72x72 mm.	Scale	240 Degree
Q96-240	Var, Dimension	96x96 mm.	Scale	240 Degree
Q144-240	Var, Dimension	144x144 mm.	Scale	240 Degree
Q80-240	Watt, Dimension	80x80 mm.	Scale	240 Degree
Q120-240	Watt, Dimension	120x120 mm.	Scale	240 Degree

**2) System**

- E11: 1Ph 2Wire
- E31: 3Ph 3Wire Balanced Load
- E32: 3Ph 3Wire Unbalanced Load
- E33: 3Ph 4Wire Unbalanced Load

**3) Voltage**

- E11: 50, 100, 240, 380, 415, 440V or request
- E31: 50, 100, 240, 380, 415, 440V or request
- E32: 50, 100, 240, 380, 415, 440V or request
- E33: 58/100, 63/110, 66.4/115, 69.3/120, 127/220, 220/380V or request

**Or**

PT Rated  $\frac{?}{100}, \frac{?}{110}, \frac{?}{115}, \frac{?}{120V}$  & customize  
 ? please specify when ordering

**4) Current**

CT Connection  $\frac{?}{1A}, \frac{?}{5A}$   
 ? please specify when ordering

**5) Class**

Standard class 1.5 or request.

**Example**

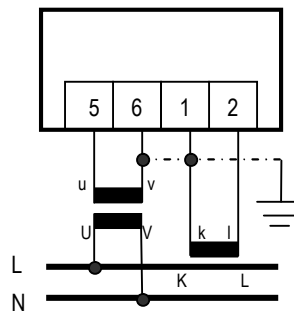
1) W96- E33 AC Watt Meter Input PT115kV/115V, CT 200/5A, Range 0-40MW\*, class 1.5, Scale 90 Degree.

2) W96-240-E32 AC Watt Meter Input PT115kV/115V, CT 200/5A, Range 0-40MW\*, class 1.5, Scale 240 Degree.

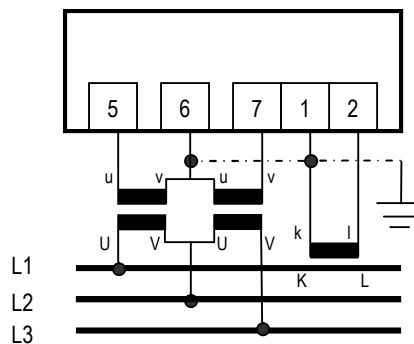
\* Dimension 48, 72, 144, 80, 120 with External converter  
 \* specify when ordering or factory standard or consult.

**Wiring Diagram.**

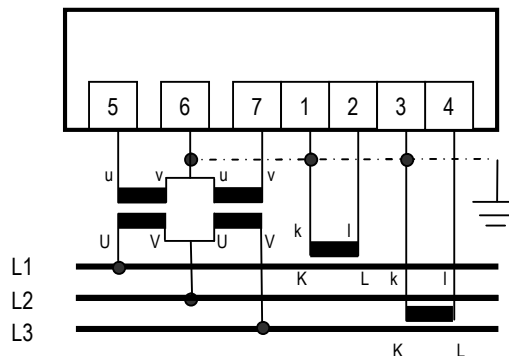
**1Ph 2W, 3Ph4W Balanced Load**



**3Ph 3W Balanced Load**



**3Ph 3W Unbalanced Load**



**3Ph 4W Unbalanced Load**

