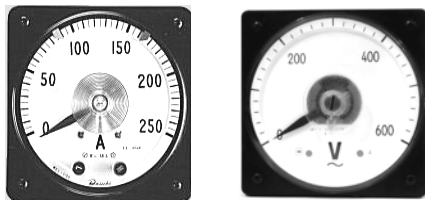


Pointer type Meter ANSI Panel, Analog meter



Application

Square panel meters for alternating current system. All panel meters are response direct indication of measuring input. They are suitable to use on the distribution panel, control panel, switchboard panel, power plant, control panel, 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:

- DC voltage meter
 - Direct connection 0-150V, 0-300V or request.
- DC current meter
 - Direct connection 1, 3, 5, 10, , 20, 30A.
 - Direct connection 500uA, 1mA, 5mA, 10mA, 20mA, 30mA, 50mA, 75 mA, 100 mA, 150 mA, 4...20mA.
 - Shunt resistor 60mV, 75mV, 150mV, 300mV.
- AC voltage meter
 - Direct connection 0-150V, 0-300V, 0-500V, 0-600V.
 - PT connection 100, 110, 115, 120 V.
- AC current meter
 - Direct connection 1, 3, 5, 10, , 20, 30A.
 - Direct connection 10mA, 20mA, 30mA, 50mA, 75 mA, 100mA, 150 mA, 500mA.
 - Current Transformers connection CT/ 1 A or CT/ 5 A
- Frequency meter
 - Input voltage 50V, 100V, 220V, 380V, 440V or request.
 - Frequency range 45-55Hz., 45-65Hz., 55-65Hz., 44-56Hz., 54-66Hz., 450-550Hz., 450-650Hz., 550-650Hz.
- Power Factor meter 1Ph2W, 3Ph3W
 - Input voltage 50V, 100V, 220V, 380V, 440V or request.
 - Input current CT / 1A or CT / 5A .
- Watt or Var meter 1Ph2W, 3Ph3W, 3Ph4W
 - Input voltage 50V, 100V, 220V, 380V, 440V or request.
 - Input voltage PT connection 100, 110, 115, 120V ac.
 - Input current CT / 1A or CT / 5A .
- Others by request or more detail see ordering information.

Meter with Relays Max – Min

Meter relays, with upper or upper/lower limited pointer in the meters for current, voltage, power, power factor or frequency and insulation indication is used for an alarm or a trip signal. (And the position of pointer is adjustable according to each usage.) These meter relays are used for automatic control.

The "Hi" and "Lo" pointer setpoint have each detecting system by opto-light source and opto-light receiver. If the metal strip attached to the indicating pointer intercepts this light path, the photo transistor in the opto-light receiver changes to activate collector current. This change in current is converted to alarm signal, then used to drive the auxiliary relay via the comparator and switching circuit. Output signal are retained once the indicator passes the "Hi" or "Lo" preset point, until it comes back to the preset point.

- Front Dimension 110x110 mm.(4.5inch)
- ANSI C39.1, JIS C1102, JIS C1103
- Polycarbonate, self extinguishing and drip-proof per UL94V-0
- Rugged housing-non combustible, plastic-heat resistance.
- Excellent readability with higher reliability
- Wide angle scale to embossed reading area eliminate reading error

Characteristic

Display

Scale Graduation	Coarse-fine
Pointer	Large with Beam end pointer edge.

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 ! with authorized.
Replaceable	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.

Consumption

Current Path	0.4VA for CT/1A., 0.5VA for CT/5A.
Voltage Path	0.9VA for 500V., 0.6VA for PT Rated.

Ambient Conditions

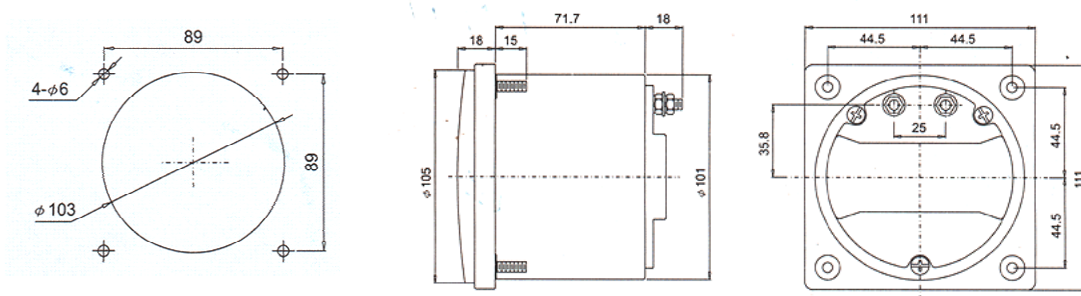
Operating Temperature	- 20 ... + 55 °C
Storage Temperature	- 40 ... + 70 °C
Relative Humidity	max. 95%
Frequency	45...65Hz.

Compliance with Regulations

Protection	IP 52 front panel, Teminal IP20
Protection	Class 1

	Type	Model	Operation	Accuracy
DC	Amp meter	DC11	Moving coil type	1.5
	Volt meter	DC11		1.5
AC	Amp meter	AC11	Rectifier type	1.5
	Volt meter	AC11	Rectifier type	1.5
	Watt meter (1PH2W)	W11-E11	Transducer type	1.5
	(3PH3W) Unbal.	W11-E32	Transducer type	1.5
	(3PH4W) Unbal.	W11-E33	Transducer type	1.5
	Var meter (1PH2W)	Q11-E11	Transducer type	1.5
	(3PH3W) Unbal.	Q11-E32	Transducer type	1.5
	(3PH4W) Unbal.	Q11-E33	Transducer type	1.5
	PF meter (1PH)	PF11-E11	Transducer type	2°
	(3PH)	PF11-E31	Transducer type	2°
	Frequency meter	F11	Transducer type	0.5

Dimension



Ordering Information.



¹ please specify when ordering
or factory standard or consult

MODEL		SYSTEM	INPUT
DC11...	DC Ammeter DC Voltmeter	*E11...Single phase two wire *E31...Three phase three wire bal. load *E32...Three phase three wire unbal. load *E33...Three phase four wire unbal. load	A ?/60mV, ?/1A, ?/5a or 100V, 110V, 115V, 120V, 220V, 230V, 380V, 400V or specify B ?/1A, ?/5a and 58/100V, 63.5/110V, 66.5/115V, 69.5/120V, 220/380V or specify C ?/1A, ?/5a and ?/ 100V, ?/110V, ?/115V, ?/120V or specify
AC11...	AC Ammeter AC Voltmeter		
F11...	Frequency meter	* DC11, AC11, F11 do not need this info. * PF11 available with E11, E31 only.	A for DC11, AC11, F11 only B for W11, Q11, PF11 only C for W11, Q11, PF11 CT, PT rated ? please specify when ordering
PF11...	Power Factor meter		
W11...	Watt meter		
Q11...	Var meter		

OPTION

Min , Max Relays output , Aux supply 110, 230V ac. , Option DC 24, 48, 110, 125 V.

Example

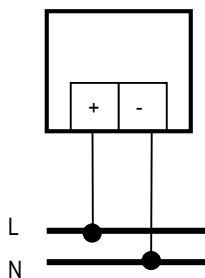
- 1) DC Amp Meter DC11 Input 100A/60mV, Range 0-100A^E
- 2) DC Volt Meter DC11 Input 150V, Range 0-150V^E
- 3) AC Amp Meter AC11 Input CT100/5A, Range 0-100A^E
- 4) AC Volt Meter AC11 Input PT115kV/115V, Range 0-130Kv^E
- 5) F110 Frequency Meter Input 220V, Range 45-55Hz.^E
- 6) AC PF Meter PF11-E31 Input 115V, CT 5A, Range 0.5-1-0.5^E
- 7) AC Watt Meter W11-E33 Input PT115kV/115V, CT 200/5A, Range 0-40MW^E
- 8) AC Var Meter Q11-E32 Input PT115kV/115V, CT 200/5A, Range 0-40MVar^E
- 9) AC Var Meter Q11-E32 Input PT115kV/115V, CT 200/5A, Range 0-40MVar^E with Min, Max Relays Aux. 220V ac.

^E factory standard range or specify when ordering or consult.

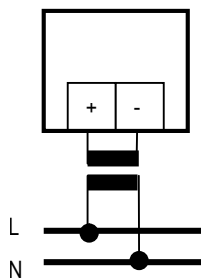
Wiring Diagram.

AC11, DC11 Volt Meter.

Direct Connection

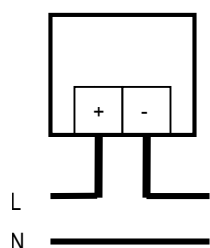


PT Connection

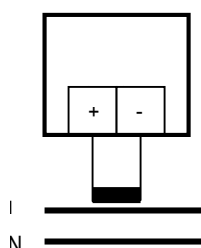


AC11, DC11 Current Meter.

Direct Connection

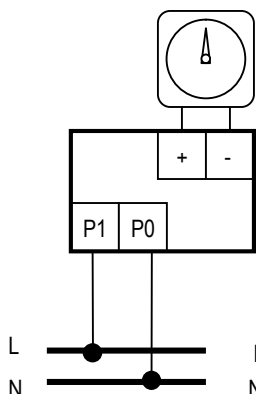


CT Connection

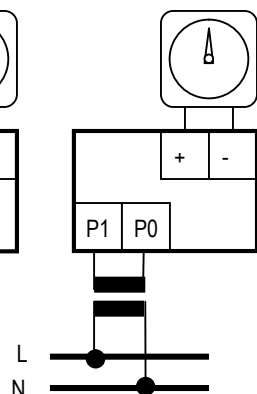


F11 Volt Meter & Frequency Meter.

Direct Connection

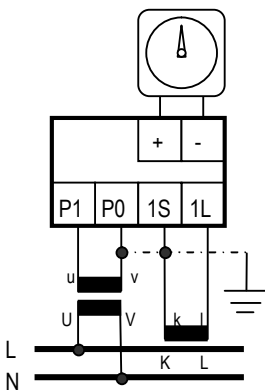


PT Connection

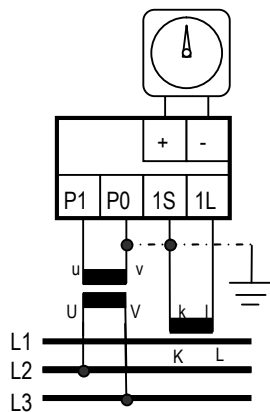


PF11 Power Factor Meter.

Direct Connection

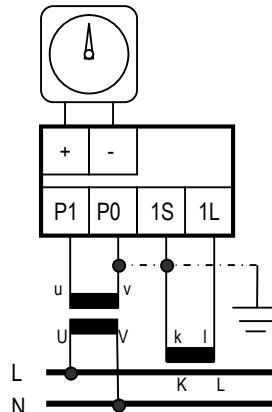


PT Connection

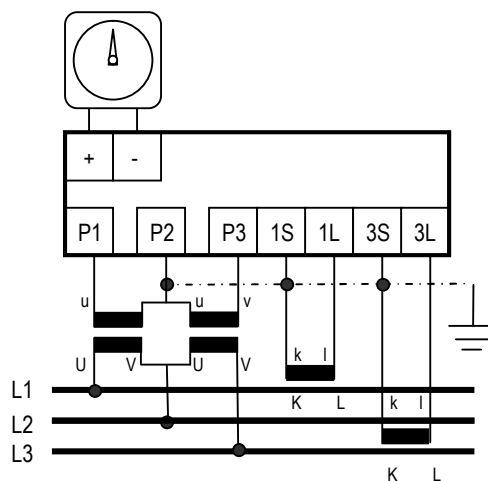


W11, Q11 Watt – Var Meter.

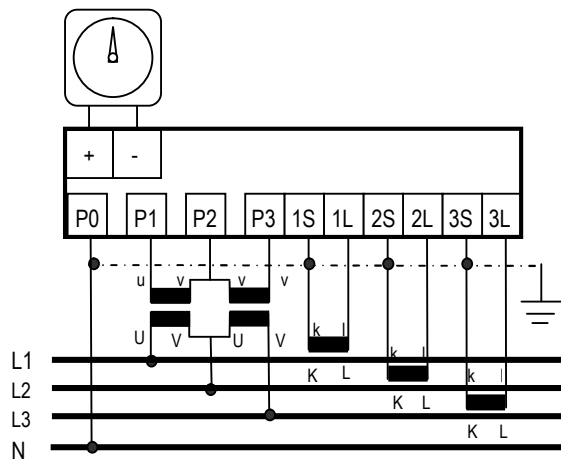
1Ph 2W



3Ph 3W



3Ph 4W



Meter with Relays

