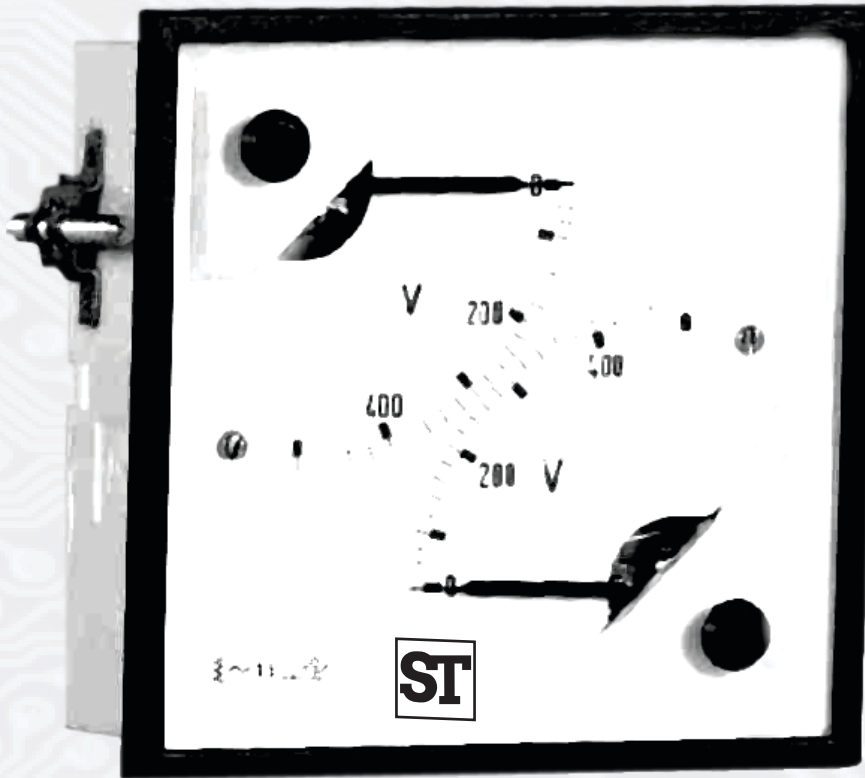




Technical Data Sheet

DE 2 in 1



DE 2 in 1 The moving iron panel meters, 2-in-1 housed in moulded polycarbonate cases are suitable for the measurement of AC currents for frequency range of 15...400Hz and voltages in the frequency range of 15...100Hz.

Special Features

- Two different meters in one case.
- Near linear scale.
- Glass filled polycarbonate housing(UL 94 V-0).
- Easily replacable glass & bezel.
- Knife edge pointer

Application

DE 2 in 1 The moving iron panel meters, 2-in-1 housed in moulded polycarbonate cases are suitable for the measurement of AC currents for frequency range of 15...400Hz and voltages in the frequency range of 15...100Hz. Moving iron meters indicate rms-values practically independent of waveform even of high harmonics. Error of indication may occur for extreme waveforms (e.g. phase gating controls) & for frequencies above 100Hz. These meters offer several advantages in switchboards and Generating Set Panels. Number of meters can be mounted in a single cut out (Mosaic mounting). Front window, Glass and bezel can be easily replaced.

Movement

Moving iron movement has pivots of very high hardness. Movement suspended between spring loaded sapphire jewel and silicon jewel. Movement is critically damped by use of silicon oil.

Specifications

Reference Conditions

Accuracy class	1.5 according to IEC 51/ DIN EN 60051
Ambient temperature	23°C +/-2° C
Position of use	Nominal position 1°
Input Waveform	Rated value of measured quantity sine wave, distortion factor $\leq 5\%$
Frequency	45...65 Hz
Other conditions	IEC 51/ DIN EN 60051

Scale and Pointer

Pointer	Knife - edge pointer
Pointer deflection	0...90°
Scale characteristics	Near Linear above 10% of nominal full Scale value
Scale division	Coarse - fine
Scale length	54mm

Nominal Range of Use

Ambient Temperature	0...50° C
Position of use	Vertical 5°
Frequency	45 ... 65Hz
External magnetic field	At 0.4 kA/m

Environmental Conditions

Climatic suitability	Climate category II as per IEC 60051 (climatic class 3 according to VDE/VDI 3540)
Operating temperature	- 10... + 55° C
Storage temperature	- 25... + 65° C
Relative humidity	$\leq 75\%$ annual average, non-condensing
Shock resistance	15g _r for pulse duration 11 ms
Vibration resistance	10-55-10Hz for ampli. 0.15mm (1.5 g at 50Hz)
Pollution degree	2

Over Range

Ammeters	2 times nominal current
Voltmeters	1.2 times nominal voltage

Over Range

Case details	Moulded square case suitable for mounting in Control / switchgear panels Machinery consoles.
Case material	Polycarbonate , flame retardant and drip proof as per UL 94 V-0.
Front facia	Glass
Colour of bezel	Black
Position of use	Vertical
Panel fixing	Mounting Clamp
Mounting	Stackable in a single cutout
Panel thickness	25 mm

Options

Case	
Front facia	Antiglare glass
Colour of bezel	Red, Yellow , Blue, White
Red index pointer	Front adjustable on site
Position of use	On request 0°...180 °

Dial

Blank dial	With initial and end values marked
Special markings	Numbering / Lettering.
Division markings	Basic divisions without numbering.
Colour markings/bands	Red or green
Over range (Ammeters)	Two, three and five times over range Six times over range

Accessories

Safety Terminal Protection
Full sized polycarbonate back cover to provide protection against accidental contact (hand and fingers).

Specifications

Standard Measuring Ranges

A.C. Voltage	A.C. Current
6V	100mA
10V	150mA
15V	250mA
25V	400mA
40V	600mA
60V	1A
100V	1.5A
120V	2.5A
132V	3A
150V	4A
250V	5A
300V	6A
400V	10A
500V	15A
600V	20A
	25A
	30A
For use on voltage transformer	40A
.../100 V secondary	50A
	60A
.../110 V secondary	For use with Current transformer .../1A secondary or .../5A secondary
Any combination	Ammeter / Ammeter Voltmeter / Voltmeter Ammeter / Voltmeter
In case of Ammeter / Ammeter 1 meter could be upto 60A but 2nd one will be only upto 10A Non-Standard ranges available on request.	

Safety Precautions

- 1) Instruments with damaged bezel or glasses must be disconnected from the mains.
- 2) Adequate safety clearance must be maintained to control panel fasteners and to sheet metal housing. If non - insulated connector wires are used.
- 3) The back cover must be snapped into place after connector wires have been clamped for protection against accidental contact.
- 4) Bezel, Scale and Glass may only be replaced under voltage free conditions.
- 5) Instruments to be used in grounded panel.

Terminals

Voltmeters and Ammeters < 30A	Hexagon studs, M4 screws and wire clamps E3
Ammeters > 30A	Threaded studs M6 with Nuts

Electrical Data

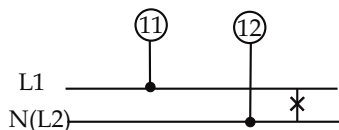
Measured quantity	AC voltage or current
Power consumption Voltmeters	< 4.5VA
Ammeters < 15A	< 0.5VA
Ammeters > 15A	< 0.8 VA
Overload capacity	acc. to IEC 51
Continuously	1.2 times rated voltage / current
Short duration Voltmeters	2 times for 0.5 sec : 9 overloads 2 times for 5 sec : 1 overload
Ammeters	10 times for 0.5 sec : 9 overloads 10 times for 5 sec : 1 overload
Enclosure Code (IEC 529)	IP 52 case IP 00 for terminals without back cover IP 00 for terminals with back cover
Insulation class	Group A according to VDE 0110
Rated insulation voltage	2 in 1 DE 1000V
Proof voltage	3KV
Installation category	600V CAT III
Insulation resistance	> 50 Mohm at 500 V DC

Applicable Standards

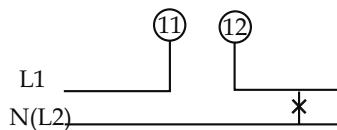
Nominal case and cutout dimensions for indicating Electrical instruments	DIN 43700
Scale and pointer for electrical measuring instruments	DIN 43802
Connections and Terminal markings for panel meters	DIN 43807
Terminal bolts / leads.	DIN 46200/46282
Safety requirements and protective measures for Electrical indicating instruments and their accessories.	DIN 40050 VDE 0110 VDE 0410 IEC 529, IEC 1010
Performance specifications for direct acting indicating analogue electrical Measuring instruments and their accessories environmental conditions	IEC51/DIN EN 60051 DIN 43701 VDE / VDI 3540
Front frames for indicating measuring instruments Principle dimensions	DIN 43718
UL Compatibility	UL 94 - V 0
Comply with following European directives	2004 / 108 / EC
(EMC directive), 2006/95/EC (low voltage directive) & amendment 93/68/EEC, For CE Marking.	

Connections

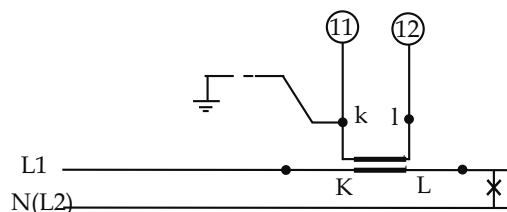
AC Voltage (Direct connected)



AC Current (Direct connected)

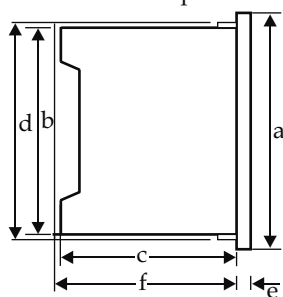


AC Current (for use on current Transformer)

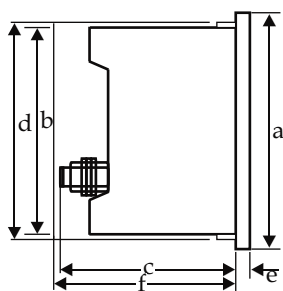


Dimensions

For Voltmeters & Ammeters up to 25A



For Ammeters > 25A



Dimensions (in mm)	DE 96
Bezel a	96
Case b	90
Depth c*	53
d	91.5
e	5.5
cutout size	92 ^{+0.8}
Depth with back cover f**	64
Weight appro.	0.4 kg

* c = 62 mm, for I > 30A & upto 60A

Ordering Information- Only For Representative Products

Cat No.	Description	Class
EQ9T-B123S21NCABST	DE 30A , DE 500V	CL-1
EQ9T-V3M3S2XNCAYST	DE 300V, DE 500V	CL-1
EQ9T-I120921NCAYST	DE 30A, DE 5A	CL-1



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