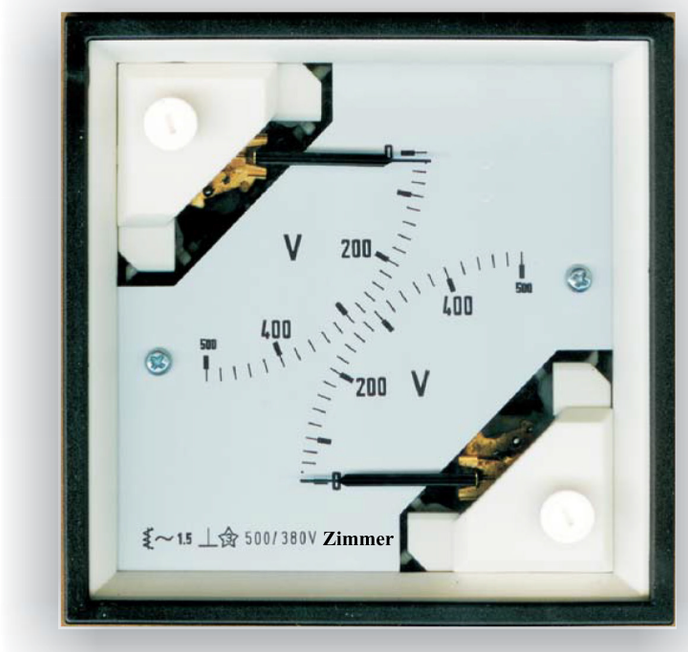
DE/2 96

2 in 1 Analogue Meters With Moving Iron Movement



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Application

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 fruencies 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.

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

Movement

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

Specifications

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

Over Range

Ammeters	:	2 times nominal current
Voltmeters	:	1.2 times nominal voltage

Mechanical Data

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

Terminals

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

Electrical Data

Measured quantity	:	ACvoltage or current
Power consumption:		
Voltmeters	:	< 4.5VA
Ammeters < 15A	:	< 0.5VA
Ammeters > 15A	:	< 0.8 VA
Overload capacity	:	(acc. to IS: 1248 / 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 20 for terminals with back cover
Insulation class	:	Group A according to VDE 0110
Rated insulation voltage	:	2 in 1 DE/2 1000V
Proof voltage	:	3KV
Installation category	:	600V CAT III
Insulation resistance	:	> 50 Mohm at 500 V DC

Reference Conditions

Accuracy class	:	1.5 according to IS : 1248 (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 <= 5 %
Frequency:	:	45...65HZ
Other conditions	:	IS : 1248 (IEC 51/ DIN EN 60051)

Nominal Range of Use

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

Environmental Conditions

Climatic suitability	:	Climate category II as per IS : 1248, IEC 60051 (climatic class 3 according to VDE/VDI 3540)
Operating temperature	:	- 10... + 55°C
Storage temperature	:	- 25... + 65°C
Relative humidity	:	≤ 75% annual average, non-condensing
Shock resistance	:	$15g_n$ for pulse duration 11 ms
Vibration resistance	:	10-55-10Hz for ampli. 0.15mm (1.5 g at 50Hz)
Pollution degree	:	2

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

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150V	4A
250V	5A
300V	6A
400V	10A
500V	15A
600V	20A
	25A
	30A
For use on voltage transformer	40A
.../100 V secondary	50A
.../110 V secondary	60A
	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.

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

Applicable Standards

Nominal case and cutout dimensions for indicating Electrical instruments	:	IS 2419 DIN 43700
Scale and pointer for electrical measuring instruments	:	IS 1248 DIN 43802
Connections and Terminal markings for panel meters	:	IS 1248 DIN 43807
Terminal bolts / leads.	:	DIN 46200/ 46282
Safety requirements and protective measures for Electrical indicating. instruments and their accessories.	:	IS 9249 DIN 40050 VDE 0110 VDE 0410 IEC 529, IEC 1010
Performance specifications for direct acting indicating analogue electrical	:	IS 1248 IEC51/DINEN 60051
measuring instruments and their accessories		DIN 43701
Environmental conditions	:	IS 1248 IS : 9000 VDE / VDI 3540
Front frames for indicating measuring instruments Principle dimensions	:	DIN 43718
UL Combustibility Class	:	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.

Accessories

Safety Terminal Protection

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

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.

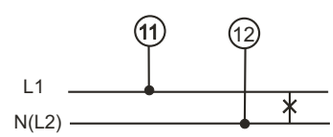
3) The back cover must be snapped into place after connector wires have been clamped for protection against accidental contact.

4) Bezel, Scale and Glass may only be replaced under voltage free conditions.

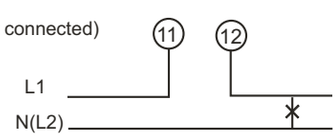
5) Instruments to be used in grounded panel.

Connections

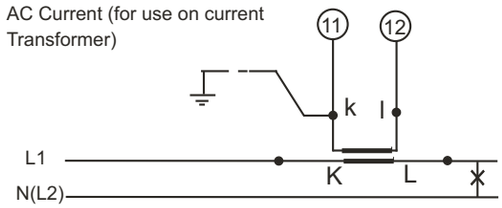
AC Voltage (Direct connected)



AC Current (Direct connected)

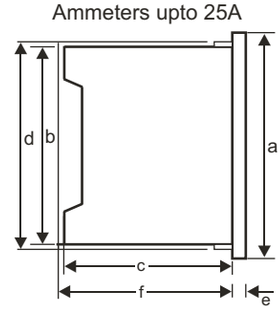


AC Current (for use on current Transformer)

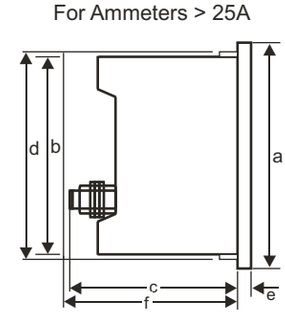


Dimensions

For Voltmeters & Ammeters upto 25A



For Ammeters > 25A



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Dimensions (in mm)		DE/2 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
	*	c = 62 mm, for I > 30A & upto 60A
Weight appro.		0.4 kg

Ordering Information

Type DE/2	Moving-iron panel meter
Front dimension 96	96 mm x 96 mm
Over range (Ammeters)	2 times, 3 times 6 times, 5 times
Measuring Ranges	Refer to table inside
Terminal protection	full sized polycarbonate backcover
Panel Fixing	Mounting Clamps
Red Index Pointer	None *1 Required *3
Front facia	Normal glass *1 Antiglare glass *3 Polycarbonate glass *3
Colour of bezel	Black *1 Red,Blue,Yellow,White *3
Position of use	Vertical *1 On request 0 .... 180° *3
Dial	Standard scale same as measuring range *1 Blank dial with division *3 Additional lettering on request *3 Additional numbering on request *3 Coloured marking red or green *3 Coloured sector red or green *3
Logo	ZIMMER *1

*1 standard
*3 Please clearly add the desired specifications while ordering

Ordering example

DE/2 30A - DE/2 500V
DE/2 300V - DE/2 500V
DE/2 30A - DE/2 5A

Specifications are subject to change without notice

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