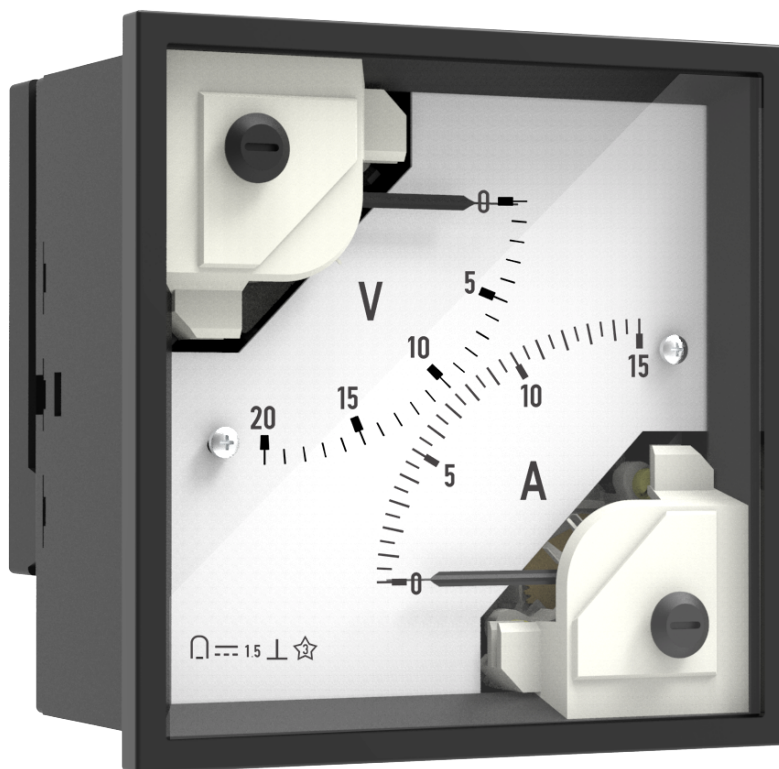




Data Sheet

Dual Moving Coil DC Meters

PQ 2 In 1



Measure



Control



Record



Analyze



Optimize

Application

The moving coil panel meters, 2 in 1 PQ housed in moulded polycarbonate cases are suitable for the measurement of DC currents and voltages. These instruments offer several advantages in switchboards and Generating Set Panels. Number of meters can be mounted in a Panel Cut out (Mosaic mounting). Front glass, Bezel & Dial can be easily replaced.

Features

- Two different meters in one case.
- Linear Scales.
- Glass filled polycarbonate housing(UL 94 V-0).
- Knife edge pointers.
- Easily replaceable glass & bezel.

Movement

Moving coil movement has pivots of very high hardness. Movement is suspended between two spring loaded sapphire jewels. Movement is properly shielded & critically damped by eddy currents induced in coil former.

Specifications

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 bazel	:	Black
Position of use	:	Vertical
Panel fixing	:	Mounting Clamps
Mounting	:	Stackable in a single cutout
Panel thickness	:	≤25 mm
Terminals	:	
Voltmeters and ammeters <5A	:	Hexagon studs, M4 screws and wire clamps E3
Ammeters ≥5A	:	Threaded studs M6 with nuts

Electrical Data

Measured quantity	:	DC voltage or current
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 overloads
Ammeters	:	10 times for 0.5 sec : 9 overloads
	:	10 times for 5 sec : 1 overload

Enclosure code (IEC 529)	:	IP 52 case cover 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	:	PQ 96 : 1000V
Proof Voltage	:	3KV
Installation catagory	:	600 V CAT III (IEC 1010)
Insulation resistance	:	> 50 Mohm at 500 V d.c.

Burden :

Connection to shunt	Power Consumption : 6 mA Lead resistance : 0.06	± 10%
1A ... 40 A	Voltage drop : 60 mV	± 10%
≥ 1V	1000	± 5%

Standard Measuring Ranges

D. C. Current		D. C. Voltage	
Rated Value	Approx Voltage drop	Rated Value	Sensitivity (± 10%)
100 uA	400 mV	40 mV	3.33kohm/V
150 uA	600 mV	50 mV	3.33kohm/V
250 uA	140 mV	60 mV	1 kohm/V
400 uA	540 mV	75 mV	1 kohm/V
500 uA	540 mV	100 mV	1 kohm/V
600 uA	540 mV	150 mV	1 kohm/V
1 mA	37 mV	250 mV	1 kohm/V
1.5 mA	196 mV	400 mV	1 kohm/V
2.5 mA	196 mV	600 mV	1 kohm/V
4 mA	196 mV	1 V	1 kohm/V
5 mA	196 mV	1.5 V	1 kohm/V
6 mA	196 mV	2.5 V	1 kohm/V
10 mA	196 mV	4 V	1 kohm/V
15 mA	11 mV	6 V	1 kohm/V
20 mA	60 mV	10 V	1 kohm/V
25 mA	60 mV	15 V	1 kohm/V
40 mA	60 mV	25 V	1 kohm/V
60 mA	60 mV	30 V	1 kohm/V
100 mA	60 mV	40 V	1 Kohm/V
150 mA	60 mV	50 V	1 kohm/V
250 mA	60 mV	60 V	1 kohm/V
400 mA	60 mV	100 V	1 kohm/V
600 mA	60 mV	150 V	1 kohm/V
1 A	60 mV	200 V	1 kohm/V
1.5 A	60 mV	250 V	1 kohm/V
2.5 A	60 mV	300 V	1 kohm/V
4 A	60 mV	400 V	1 kohm/V
5 A	60 mV	500 V	1 kohm/V
6 A	72 mV	600 V	1 kohm/V
10 A	60 mV	1000 V	1 kohm/V
15 A	60 mV	For use on external shunt	
20 A	60 mV		
25 A	60 mV		
30 A	60 mV		
For use on transducer		60 mV	1 kohm/V
4-20 mA	60 mV	75 mV	1 kohm/V
		150 mV	1 kohm/V

Any combination Ammeter / Ammeter
 Voltmeter / Voltmeter
 Ammeter / Voltmeter

In case of Ammeter / Ammeter 1 meter could be upto 30A but 2nd one will be only upto 1A
Non-Standard ranges available on request.



Measure



Control



Record



Analyze



Optimize

Accuracy at Reference Conditions

Accuracy class	: 1.5 according to IS : 1248 (IEC 51/ DIN EN 60051)
Reference conditions	
Ambient temperature	: 23°C ± 2°C
Position of use	: Nominal position ± 1°
Input	: Rated Value of measured quantity
Other conditions	: IS : 1248 (IEC 51/ DIN EN 60051)

Nominal range of use

Ambient temperature	: 0 ... 50°C
Position of use	: Vertical ± 5°
External magnetic field	: At 0.4KA/m

Scale and Pointer

Pointer	: Knife - edge pointer
Pointer deflection	: 0...90°
Scale characteristics	: linear
Scale division	: Coarse - fine
Scale length	: 54mm

Environmental Conditions

Climatic suitability	: Climate category II as per IS : 1248 (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 11 ms for pulse duration 11ms
Vibration resistance	: 10-55-10Hz for ampli 0.15mm (1.5 g at 50 Hz.)
Pollution degree	: 2

Options

Case	
Front fascia	: 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 & end values marked.
Special markings	: Numbering / Lettering.
Division dials	: Basic divisions without numbering.
Colour markings/bands	: Red or Green
Others	
Zero position	: Centre zero or offset zero
Increased sensitivity	: 4kohm/V for voltmeters 1...600V 10 kohm/V for Voltmeters 15..150V

Adjustment of Resistance (Sensitivity)	: Within ± 1% at 23°C
--	-----------------------

Applicable Standards

Nominal case and cutout dimensions for indicating Electrical instruments	: IS 2419 DIN IEC 61554
Scale and pointer for electrical measuring instruments	: IS 1248 DIN 43802
Connections & Terminal markings for panel meters	: IS 1248 DIN 43807
Terminal bolts / leads.	: DIN 46200/46282
Clamp straps for connections	: DIN 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 measuring instruments & their accessories	: IS 1248 IEC 51/DIN EN 60051 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
Technical conditions of delivery for electrical instruments	: DIN 43701
Mechanical strength (Free fall test, vibration test)	: IS 1248 IS 9000 VDE 0411 IEC 61010
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).



Measure



Control



Record



Analyze

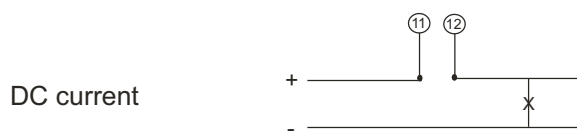
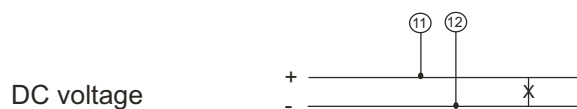


Optimize

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.

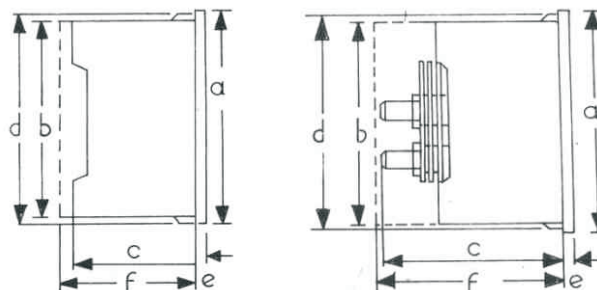
Connections



Dimensions

For Voltmeter & Ammeter < 5A

For Ammeter 5 - 60 A



Dimensions (in mm)	PQ 9T	PQ 1T
Bezel a	☐ 96	☐ 144
Case b	☐ 90	☐ 136
Depth c*	53	53
d	☐ 91.5	☐ 137.5
e	5.5	5.5
Cutout size	☐ 92 ^{+0.8}	☐ 138 ⁺¹
Weight(Approx)	0.2kg	0.4kg
Depth with back cover f**	64	64

* c = 68mm, for I= 6 to 30 A

**f = 70mm, for I= 6 to 30 A



Measure



Control



Record



Analyze



Optimize

Ordering Information

Type PQ	Moving-coil panel meter	Moving-coil panel meter
Front dimension 96	96 mm x 96 mm	144 mm x 144 mm
Measuring Ranges	Refer to table inside	Refer to table inside
Housing color	White ^{*1} , Black ^{*3}	White ^{*1} , Black ^{*3}
Front facia	Normal glass ^{*1} Antiglare glass ^{*3}	Normal glass ^{*1} Antiglare glass ^{*3}
Colour of bezel	Black ^{*1} Red, Blue, Yellow, White ^{*3}	Black ^{*1} Red, Blue, Yellow, White ^{*3}
Position of use	Vertical ^{*1} On request 0 180° ^{*3}	Vertical ^{*1} On request 0 180° ^{*3}
Terminal protection	Full sized polycarbonate back cover	Full sized polycarbonate back cover
Zero position	Left, Offset zero *3 Centre* 1	Left, Offset zero *3 Centre* 1
Increased sensitivity	4 kohm/V for voltmeters 1...600 V *3 10 kohm /V for voltmeters 15 ...150 V *3	4 kohm/V for voltmeters 1...600 V *3 10 kohm /V for voltmeters 15 ...150 V *3
Adjustment Resistance (Sensitivity)	Within ± 1 % at 23 C *3	Within ± 1 % at 23 C *3
Dial	Standard scale same as measuring range ^{*1} Blank dial w ith division ^{*3} Additional lettering on request ^{*3} Additional numbering on request ^{*3} Coloured marking red or green ^{*3} Coloured sector red or green ^{*3}	Standard scale same as measuring range ^{*1} Blank dial w ith 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	RISHABH ^{*1} , Others ^{*3}	RISHABH ^{*1} , Others ^{*3}

*1 Standard

*3 Please clearly add the desired specifications while ordering

Ordering Example

PQ 5A / PQ 500V
PQ 75mV / PQ 10V
PQ 1mA / PQ 1A

Specifications are subject to change without notice (07/10)



Measure



Control



Record



Analyze



Optimize



RISHABH

Specifications may change without prior notice



Measure



Control



Record



Analyze



Optimize

RISHABH INSTRUMENTS LIMITED

Domestic (India): +91 253 2202099 | marketing@rishabh.co.in
International: +91 253 2202004/06/08/99 | global@rishabh.co.in
www.rishabh.co.in