



DATASHEET

Issue 1.0



Multifunction Meters

Transducers & Isolators

Temperature Controllers

Converters & Recorders

Digital Panel Meters

Current Transformers

Analogue Panel Meters

Shunts

Digital Multimeters

Clamp Meters

Insulation Testers

**MOVING COIL METER WITH RELAY CONTACTS (PQC)
DC Voltage/Current**

ANALOGUE METERS

SUBJECT TO CHANGE WITHOUT NOTICE

This manual superseded all previous versions – please keep for future reference



1. Application

These meters offer several advantages in switchboards and transformers Panels, used for measurement of electrical parameters along with the threshold settings for relay operation.

2. Movement

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

3. Specifications

Scale and Pointer	
Pointer	Knife - edge pointer
Pointer deflection	0...90°
Scale characteristics	Linear
Scale division	Coarse - fine
Scale length	97mm
Over range Ammeters	10 times nominal current for 5 Sec
Voltmeters for use on	2 times nominal voltage for 5 Sec
Voltage transformer	
Scale Interchangeability	Interchangeable
Mechanical Data	
Case details	Moulded square case suitable for mounting in Control / Switchgear panels, Machinery consoles.
Case material	Glass filled 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 Swivel	Mounting Clamps
Mounting	Stackable in a single cutout
Panel thickness	< 25 mm
Terminals	Plug in play terminal block
Electrical Data	
Measured quantity	DC current or voltage
Aux Supply	230VAC +/- 15%, 45-65Hz
Aux Power consumption	< 5.5VA
Power consumption	
Ammeter < 15 A	< 1 VA
Ammeter > 15 A	< 1.5 VA
Voltmeter	< 4.5 VA
Overload capacity	(acc. to IS: 1248 / IEC 51)
Continuously	1.2 times rated voltage / current
Short duration	
Voltmeters	2 times for 5 sec : 1 overload 2 times for 0.5 sec : 9 overloads
Ammeter	10 times for 5 sec : 1 overload 10 times for 0.5 sec : 9 overloads
Relay contact rating	10A @ 250VAC
Time delay	0 - 30 Sec. ± 3 Sec.
Set accuracy	± 5 % of FSD
Trip Setting	0 - 100%
Set accuracy	± 5 % of FSD
Hysterisis	2% of the scale, Max
Enclosure code	IP 52 case
Insulation class	Group A according to VDE 0110

Rated insulation voltage	1000 V
Proof voltage	2KV
Installation category	300 V CAT III (IEC 1010)
Insulation resistance	> 50 Mohm at 500 V d.c
Response time of analog meters	< 4 sec
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	Nomial position ± 1°
Input	Rated value of measured quantity
Nominal Range of Use	
Operating temperature	0...50°C
Storage temperature	- 25... + 65°C
Position of use	Vertical ± 50
External magnetic field	At 0.4 KA/m
Climatic suitability	Climate category II as per IS : 1248 (climatic class 3 according to VDE / VDI 3540)
Relative humidity	<75% annual average, non -condensing
Shock resistance	15g. 11 ms
Vibration resistance 1	0-55-10 Hz / 0.15mm 1.5 g at about 50 Hz
Standard Measuring range	
Current (mA)	1, 1.5, 2.5, 4, 5, 6, 10, 15, 20, 25, 40, 60, 100, 150, 250, 400, 600
Current (A)	1, 1.5, 2.5, 4, 5, 6, 10, 15, 25, 30, 40, 60, 100
Voltage (V)	1, 1.5, 2.5, 4, 6, 10, 15, 25, 30, 40, 50, 60, 100, 150, 250, 300, 400, 500, 600
Options	
Case	
Front facia	Antiglare glass and polycarbonate
Colour of bezel	Red, Yellow, Blue, White
Red index pointer	Front adjustable on site
Dial	
Blank dial	With initial and end values marked.
Special markings	Numbering / Lettering.
Division dials	Basic divisions without numbering.
Colour markings/bands	Red or green
Accessories	
Safety Terminal Protection	
Full sized polycarbonate back cover to provide protection against settings of potentiometer.	

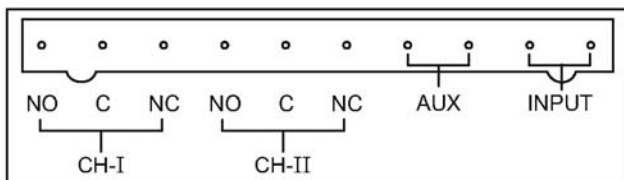
4. Applicable Standards

Nominal case and cutout dimensions for indicating Electrical instruments Scale and pointer for electrical measuring instruments Safety requirements and protective measures for electrical indicating instruments and their accessories.	IS 2419 IEC 61554 IS 1248 DIN 43802 IS 9249 DIN 40050 / 8-70, VDE 0110 / 11-72 VDE 0410 / 10-76 IEC 529, IEC 1010
Performance specifications for direct acting indicating analogue electrical measuring instruments and their accessories. Environmental conditions	IS 1248 IEC 51 / DIN EN 60051 DIN 43701 IS 1248 IS : 9000, Part 5, 7, 8, VDE / VDI 3540
Front frames for indicating measuring instruments principle dimensions	DIN 43718
UL Combustibility Class	UL 94 V-0
Accuracy test for relay	IS 3231
Rated burden test for relay	IS 3231
Insulation test for relay	IS 3231
Vibration test for relay	IS 3231
Dry heat test for relay	IS 3231

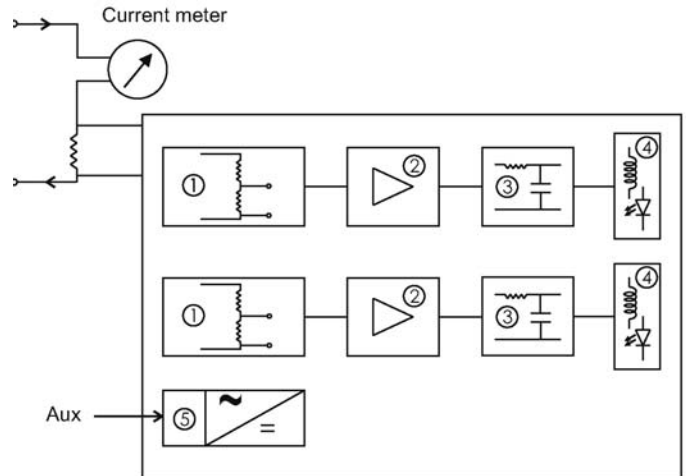
5. Safety Precautions

- 1) Instruments with damaged bezels or window 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 final settings.
- 4) Scales may only be replaced under voltage - free conditions.
- 5) Bezels and window glasses may only be replaced under voltage - free Conditions.

6. Connections

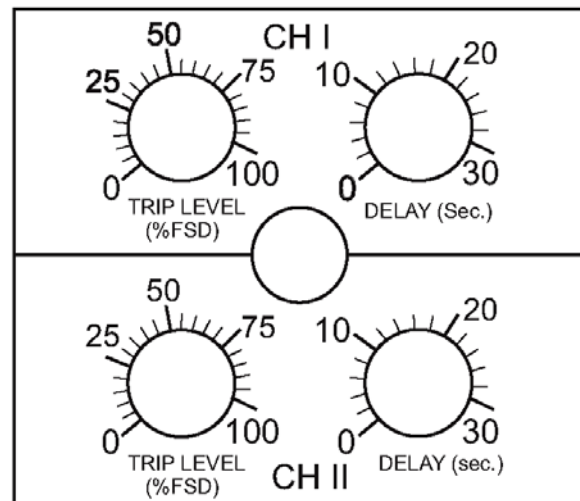


7. Schematic Diagram



1. Attenuator
2. Comparator
3. Delay Circuit
4. Trip Circuit
5. Power Supply

8. Trip level and delay settings



	CH-I	CH-II
Trip level setting	0 - 100%	0 - 100%
Delay setting	0 - 30 sec	0 - 30 sec

9. Relay and LED status

Cascade I mode :

	Relay I	LED I	Relay II	LED II
Healthy condition	ON	OFF	ON	OFF
Trip condition	OFF	ON	OFF	ON

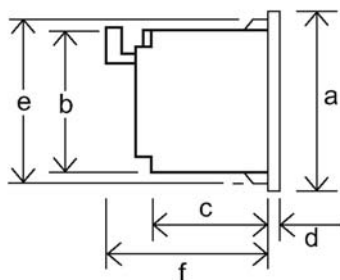
Note : Trip condition will occur after the set delay.

Cascade II mode :

	Relay I	LED I	Relay II	LED II
Healthy condition	OFF	OFF	OFF	OFF
Trip condition	ON	ON	ON	ON

Note : Trip condition will occur after the set delay.

10. Dimensions



Dimensions (in mm)		PQC 96
Bezel	a	96
Case	b	87.5
Depth	c	60
	d	5
	f	72
Cutout Size	(e)	92+0.8
Weight (approx.)		450 gms

11. Ordering Information

Type PQC	Moving - coil panel meter with contacts
Front Dimension	96 mm x 96 mm
Measuring Ranges	Refer standard measuring ranges
Index Pointer	None ¹ Red ²
Front facia	Normal glass ¹ Red ² Antiglare glass ²
Colour of Bezel	Black ¹ Red, Blue, Yellow, White ²
Dial	Standard scale same as measuring range ¹ Blank dial with division ² Additional lettering on request ² Additional numbering on request ² Coloured marking red or green ² Coloured sector red or green ²
Aux	230V ac ¹
Modes	Cascade I / Cascade II
Logo	Sifam Tinsley

¹ Standard

² Please clearly add the desired specifications while ordering

12. Ordering example

PQC 96 4...20mA - Red - Normal glass - Std - 230V ac - Cascade I

Contact



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