Technical Data Sheet

Sigma Series DS Meter



The moving coil panel meters, DS 48/72/96/144 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.

Special Features

- Linear scale.
- Glass filled polycarbonate housing (UL 94-V-0)
- Knife edge pointer.
- Easily replaceble glass and bezel.

Application

The moving coil panel meters, DS 48/72/96/144 housed in moulded polycarbonate cases are suitable for the measurement of DC currents and voltages.

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.

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 < 5 A Ammeters > 5A	Hexagon studs, M4 screws and wire clamps E3 (DIN 46282) Threaded studs M6 with nuts
Ammeters > 60A	Threaded studs M8 with nuts

Electrical Data

Measured Quantity	AC voltage or current
Overload capacity acc. to IEC 51	1.2 times rated voltage /current Continuously

Short Duration

Voltmeters	2 times for 0.5 sec : 9 overloads 2 times for 5 sec : 1 overloads
Ammeters	DS 48, 72, 96 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 IP 20 for terminals with back cover
Insulation class	Group A according to VDE 0110
Rated insulation voltage	DS 48 : 660V DS 72/96 : 1KV
Proof Voltage	DS 48 : 2KV DS72/96 : 3KV
Installation catagory	DS 48 300 V CAT III (IEC 1010) DS 72/96 600V CAT III(IEC 1010)

Insulation resistance > 50 Mohm at 500 V d.c.
*4 Accuracy class 2.5
*5 Total lead resistance of 0.035 ohm or less considered for mV ranges while calibration.
*6 Not applicable for DS 48

Burden

Connection to shunt	Power Consumtion: 6mA Lead resistance: 0.06 W	+10%
1A ... 60 A	Voltage drop : 60 mV	+10%
> 1V	1000 W/V	+5%

Technical Specifications

Applicable Standards

Nominal case and cutout dimensions for indicating Electrical instruments	DIN IEC 61554
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	IEC51/DINEN60051 DIN 43701
Environmental conditions	VDE / VDI 3540
Front frames for indicating measuring instruments Principle dimensions	DIN 43701
UL Compatibility	UL 94 V-0
Technical conditions of delivery for electrical instruments	DIN 43701

Mechanical strength (Free fall test,vibration test)	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.

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	Rated value of measured quantity
Other Conditions	IEC 51/DIN EN 60051

Nominal Range of use

Ambient Temperature	0°...50°C
Position of use	Vertical ± 5°
External Magnetic Field	At 0.4 kA/m

Scale and Pointer

Pointer	Knife - edge pointer			
Pointer deflection	0...90°			
Scale characteristics	Linear*1			
Scale division	Coarse - fine			
Scale length	DS 48	DS 72	DS 96	DS 144
	41 mm	63 mm	97mm	146mm
Scale Interchangeability	Interchangeable*			

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	15 g. for pulse duration 11ms
Vibration resistance	10-55-10Hz for ampli. 0.15mm (1.5g at50Hz)
Pollution degree	2

Standard Measuring Ranges

D. C. Voltage		D. C. Voltage	
Rated Value	**Approx Voltage drop**	**Rated Value**	**Sensitivity (± 10%)**
15uA *4	140 mV	15 mV *4 *5	3.33kohm/V
25uA *4	240 mV	25 mV *4 *5	3.33kohm/V
40 uA *4	374 mV	40 mV *4 *5	3.33kohm/V
50 uA *4	424 mV	50 mV *5	3.33kohm/V
60 uA *4	600 mV	60 mV *5	1 kohm/V
100 uA	400 mV	75 mV *5	1 kohm/V
150 uA	600 mV	100 mV *5	1 kohm/V
250 uA	140 mV	150 mV *5	1 kohm/V
400 uA	540 mV	250 mV *5	1 kohm/V
500 uA	540 mV	400 mV *5	1 kohm/V
600 uA	540 mV	600 mV *5	1 kohm/V
1 mA	37 mV	1 V	1 kohm/V
1.5 mA	196 mV	1.5 V	1 kohm/V
2.5 mA	196 mV	2.5 V	1 kohm/V
4 mA	196 mV	4 V	1 kohm/V
5 mA	196 mV	6 V	1 kohm/V
6 mA	196 mV	10 V	1 kohm/V
10 mA	196 mV	15 V	1 kohm/V
15 mA	11 mV	25 V	1 kohm/V
20 mA	60 mV	30 V	1 kohm/V
25 mA	60 mV	40 V	1 Kohm/V
40 mA	60 mV	50 V	1 kohm/V
60 mA	60 mV	60 V	1 kohm/V
100 mA	60 mV	100 V	1 kohm/V
150 mA	60 mV	150 V	1 kohm/V
250 mA	60 mV	200 V	1 kohm/V
400 mA	60 mV	250 V	1 kohm/V
600 mA	60 mV	300 V	1 kohm/V
1 A	60 mV	400 V	1 kohm/V
1.5 A	60 mV	500 V	1 kohm/V
2. 5 A	60 mV	600 V	1 kohm/V
4 A	60 mV	1000 V	1 kohm/V
5 A	60 mV	For use on	
6 A	72 mV	external	
10 A	60 mV	shunt	
15 A	60 mV	60 mV *5	1 kohm/V
20 A	60 mV	75 mV *5	1 kohm/V
25 A	60 mV	150 mV *5	1 kohm/V
30 A	60 mV		
40 A	60 mV		
60 A	72 mV		
100 A *6	60 mV		
For use on transducer 4-20 mA	60 mV		

Options

Case	
Front Facia	Antiglare glass
Color 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 dials	Basic divisions without numbering
Color markings/bands	Red or green
Over range (Voltmeters)	Two, three and five times over range
Over range (Ammeters)	Six times over range

Others	
Zero position	Centre zero or off-set zero
Increased sensitivity	4kohm/V for voltmeters 1...600V 10 kohm/V for Voltmeters
Adjustment of Resistance (Sensitivity)	15..150V Within ± 1% at 23^{0}C

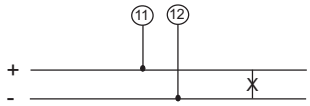
Accessories

Safety Terminal Protection

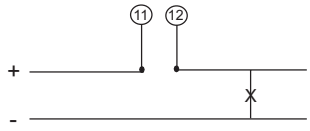
Full sized polycarbonate back cover to provide protection against accidental contact (hand and fingers)

Electrical Connections

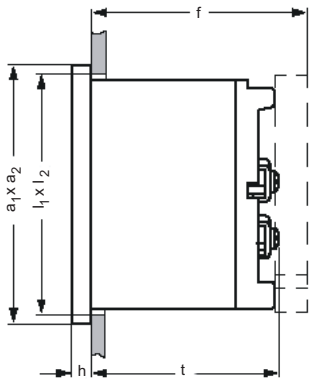
DC voltage



DC current



Dimensions



Front in mm	Nominal Dimensions, mm		Cutout, mm	Installation Depth Including Terminal (t), mm			Installation Depth Incl. Full back Cover (f), mm		
	a_1 x a_2	h	l_1 x l_2	≤ 4A (M4)	5...60A (M6)	60..100A(M8)	≤ 4A	5...60A	60...100A
48 x 48	48 x 48	5.5	$45^{+0.6}$ x $45^{+0.6}$	54	72	–	62.5	75	–
72 x 72	72 x 72	5.5	$68^{+0.7}$ x $68^{+0.7}$	54	67	67	62.5	70	70
96 x 96	96 x 96	5.5	$92^{+0.8}$ x $92^{+0.8}$	54	67	67	62.5	70	70
144 x 144	144 x 144	5.5	138^{+1} x 138^{+1}	54	67	67	62.5	70	70

Ordering Information- Only For Representative Products

Size: 48 x 48 Ammeter

Part No.	Description	Class
PQ44-I12L2N1CAW0ST	1mA DC indicator	CL-1
PQ44-I13L2N1CAW0ST	1.5mA DC indicator	CL-1
PQ44-I14L2N1CAW0ST	2.5mA DC indicator	CL-1
PQ44-I16L2N1CAW0ST	5mA DC indicator	CL-1
PQ44-I17L2N1CAW0ST	6mA DC indicator	CL-1
PQ44-I18L2N1CAW0ST	10mA DC indicator	CL-1
PQ44-I19L2N1CAW0ST	15mA DC indicator	CL-1
PQ44-I20L2N1CAW0ST	20mA DC indicator	CL-1
PQ44-I22L2N1CAW0ST	40mA DC indicator	CL-1
PQ44-I23L2N1CAW0ST	60mA DC indicator	CL-1
PQ44-I42L2N1CAW0ST	4-20mA DC indicator	CL-1

Size: 72 x 72 Ammeter

Part No.	Description	Class
PQ74-I12L2N1CAW0ST	1mA DC indicator	CL-1
PQ74-I13L2N1CAW0ST	1.5mA DC indicator	CL-1
PQ74-I14L2N1CAW0ST	2.5mA DC indicator	CL-1
PQ74-I16L2N1CAW0ST	5mA DC indicator	CL-1
PQ74-I17L2N1CAW0ST	6mA DC indicator	CL-1
PQ74-I18L2N1CAW0ST	10mA DC indicator	CL-1
PQ74-I19L2N1CAW0ST	15mA DC indicator	CL-1
PQ74-I20L2N1CAW0ST	20mA DC indicator	CL-1
PQ74-I22L2N1CAW0ST	40mA DC indicator	CL-1
PQ74-I23L2N1CAW0ST	60mA DC indicator	CL-1
PQ74-I42L2N1CAW0ST	4-20mA DC indicator	CL-1

Size: 96 x 96 Ammeter

Part No.	Description	Class
PQ94-I12L2N1CAW0ST	1mA DC indicator	CL-1
PQ94-I13L2N1CAW0ST	1.5mA DC indicator	CL-1
PQ94-I14L2N1CAW0ST	2.5mA DC indicator	CL-1
PQ94-I16L2N1CAW0ST	5mA DC indicator	CL-1
PQ94-I17L2N1CAW0ST	6mA DC indicator	CL-1
PQ94-I18L2N1CAW0ST	10mA DC indicator	CL-1
PQ94-I19L2N1CAW0ST	15mA DC indicator	CL-1
PQ94-I20L2N1CAW0ST	20mA DC indicator	CL-1
PQ94-I22L2N1CAW0ST	40mA DC indicator	CL-1
PQ94-I23L2N1CAW0ST	60mA DC indicator	CL-1
PQ94-I42L2N1CAW0ST	4-20mA DC indicator	CL-1

Size: 48 x 48 Voltmeter

Part No.	Description	Class
PQ44-VOSL2N1CAW0ST	0-10V DC Voltmeter	CL-1
PQ44-VOTL2N1CAW0ST	0-15V DC Voltmeter	CL-1
PQ44-VOVL2N1CAW0ST	0-30V DC Voltmeter	CL-1
PQ44-VOXL2N1CAW0ST	0-50V DC Voltmeter	CL-1
PQ44-VOYL2N1CAW0ST	0-60V DC Voltmeter	CL-1
PQ44-VOZL2N1CAW0ST	0-100V DC Voltmeter	CL-1
PQ44-V1AL2N1CAW0ST	0-150V DC Voltmeter	CL-1

Size: 72 x 72 Voltmeter

Part No.	Description	Class
PQ74-VOSL2N1CAW0ST	0-10V DC Voltmeter	CL-1
PQ74-VOTL2N1CAW0ST	0-15V DC Voltmeter	CL-1
PQ74-VOVL2N1CAW0ST	0-30V DC Voltmeter	CL-1
PQ74-VOXL2N1CAW0ST	0-50V DC Voltmeter	CL-1
PQ74-VOYL2N1CAW0ST	0-60V DC Voltmeter	CL-1
PQ74-VOZL2N1CAW0ST	0-100V DC Voltmeter	CL-1
PQ74-V1AL2N1CAW0ST	0-150V DC Voltmeter	CL-1

Size: 96 x 96 Voltmeter

Part No.	Description	Class
PQ94-VOSL2N1CAW0ST	0-10V DC Voltmeter	CL-1
PQ94-VOTL2N1CAW0ST	0-15V DC Voltmeter	CL-1
PQ94-VOVL2N1CAW0ST	0-30V DC Voltmeter	CL-1
PQ94-VOXL2N1CAW0ST	0-50V DC Voltmeter	CL-1
PQ94-VOYL2N1CAW0ST	0-60V DC Voltmeter	CL-1
PQ94-VOZL2N1CAW0ST	0-100V DC Voltmeter	CL-1
PQ94-V1AL2N1CAW0ST	0-150V DC Voltmeter	CL-1

For more details and product codes, please contact our local office

Sifam Tinsley Instrumentation Inc.
3105, Creekside Village Drive,
Suite No. 801, Kennesaw,
Georgia 30144 (USA)
E-mail Id : psk@sifamtinsley.com
Web : www.sifamtinsley.com
Contact No. : +1 404 736 4903

Sifam Tinsley Instrumentation Ltd
Unit 1 Warner Drive,
Springwood Industrial Estate
Braintree, Essex, UK, CM72YW
E-mail: sales@sifamtinsley.com
Web: www.sifamtinsley.com/uk
Contact: +44(0)1803615139

Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

Sifam Tinsley:

XN35-275031S000000 3/02/DRN110 006 /1004 /236 3/03/DR110-006/237/233 AC 798
BT90-C031K90000000 IS 10999 YN01-22751WS000000 3/03/TPN130-006/237/224 S111 125BK
SP151 250 BLACK TT20-I74H2DRZ00000 3/03/TPN130-006/237/230 EQ94-V70X2N1CAW0ST
TT20-V8EH2DRZ00000 YN01-17751WS000000 IS 11010 K70104 S211 250BK BT90-C031J60000000
PQ44-V0TL2N1CAW0ST XM07-185051S000000 XM07-205051S000000 ND20LITE-22100U0
PQ74-V0VL2N1CAW0ST PQ94-I42S2N1CAW0ST XM02-175051S000000 C150-BLK
EQ44-I1622N1CAW0ST EQ44-V71X2N1CAW0ST XM22-375131S000000