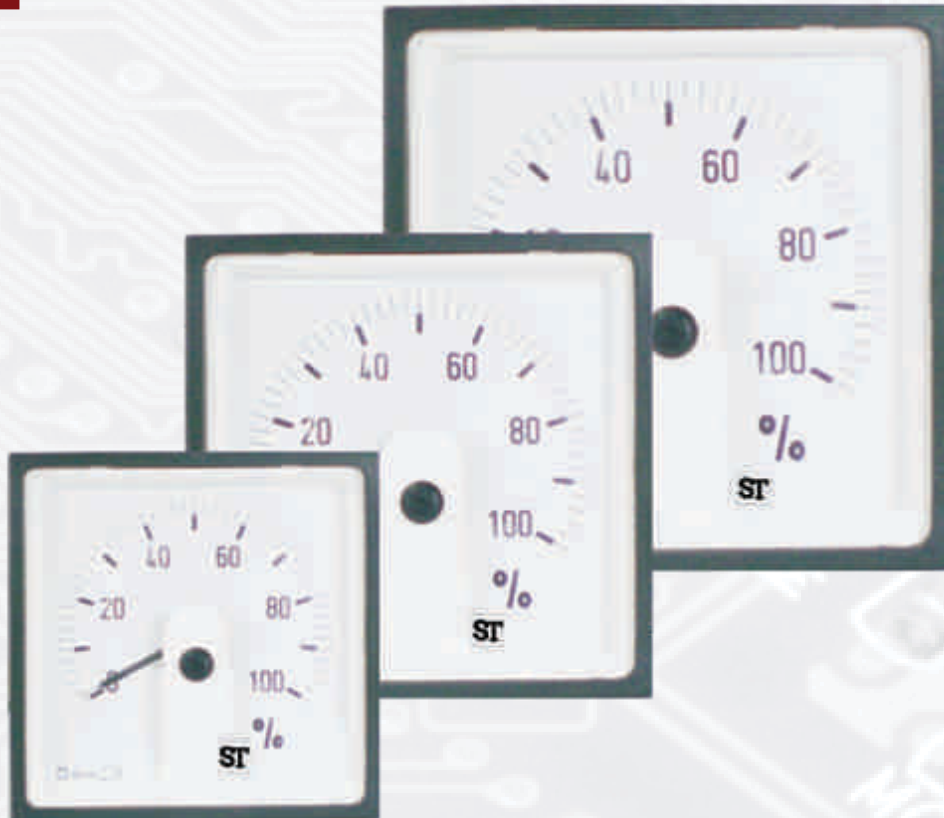




## Technical Data Sheet

# *Sigma Series DSL 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.

### Special Features

- Better resolution.
- Linear scale.
- Glass Filled polycarbonate housing (UL94--0)
- Knife edge pointer.
- Easily replaceable 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 spring loaded sapphire jewels. Movement is properly shielded critically damped by eddy currents induced in coil former.

## 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
Clamp straps or connections.	DIN 4622
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	IEC51/DINEN60051 DIN 43701
Environmental conditions	VDE / VDI 3540
Front frames for indicating measuring instruments Principle dimensions	DIN 43718
UL Combustibility	UL 94 V-0
Technical conditions of delivery for electrical instruments	DIN 43701
Mechanical strength (Free all test, Vibration test)	VDE- 0411, IEC 1010

Comply with following European directives:

2004 / 108 / EC (EMC directive) , 2006 / 95 / EC (low voltage directive) & amendment 93/68/EEC, For CE Marking.

## Scale and Pointer

Pointer	Knife - edge pointer
Pointer deflection	0...240°
Scale characteristics	Linear
Scale division	Coarse - fine

Scale length	DSL48	DSL72	DSL96	DSL144
	70 mm	106mm	142mm	230mm
Scale Interchangeability	Interchangeable			

## 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	Hexagon studs, M4 screws and wire clamps E3
Ammeters <sup>3</sup> 5A	Threaded studs M6 with nuts
Ammeters > 60A	Threaded studs M8 with nuts

## Electrical Data

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

## Short Duration

Ammeters	10 times for 5 sec : 1 overload 10 times for 0.5 sec : 9 overloads
Voltmeters	2 times for 5 sec : 1 overload 2 times for 0.5 sec : 9 overloads
IEC 529)	IP 00 for terminals without backcover IP 20 for terminals with backcover

Enclosures code	IP 52 case
Insulation class	Group A according to VDE 0110
Rated insulation voltage	1000 V
Proof voltage testing	3 kV
Installation category	600 VCAT III (IEC 1010)
Insulation resistance	> 50 Mohm at 500V DC

## Reference Conditions

Accuracy class	1.5 according to IEC 51/ DIN EN 60051
<b>Reference conditions</b>	
Ambient temperature	23 °C ± 2 °C
Position of use	Nominal position + 10
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	0.5 mT

## 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. 11ms
Vibration resistance	10-55-10 Hz / 0.15 mm 1.5 g at about 50 Hz.

## Options

<b>Case</b>	
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°

<b>Dial</b>	
Blank dial	With initial and end values marked
Special markings	Numbering/Lettering
Division dials	Basic divisions without numbering
Color markings/bands	Red or green

<b>Others</b>	
Zero position	Centre zero or off-set 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

## Standard Measuring Ranges

D. C. Current		D. C. Voltage	
Rated Value	Approx Voltage drop	Rated Value	Sensitivity (+ 10%)
50 uA *4	540 mV	60 mV *7	200 ohm/V
60 uA *4	540 mV	75 mV *7	200 ohm/V
75 mA	540 mV	100 mV *7	200 ohm/V
100 uA *7	970 mV	150 mV *7	200 ohm/V
150 uA	970 mV	250 mV *7	200 ohm/V
250 uA	810 mV	400 mV *7	1 kohm/V
400 uA	900 mV	600 mV *7	1 kohm/V
600 uA	900 mV	750 mV *7	1 kohm/V
1 mA *7	500 mV	1 V *7	1 kohm/V
1.5 mA	500 mV	1.5 V *7	1 kohm/V
2.5 mA	500 mV	2.5 V *7	1 kohm/V
4 mA	500 mV	4 V *7	1 kohm/V
5 mA *7	40 mV	4 V *7	1 kohm/V
6 mA	40 mV	6 V *7	1 kohm/V
10 mA	75 mV	10 V *7	1 Kohm/V
15 mA	60 mV	15 V *7	1 kohm/V
20 mA	60 mV	25 V *7	1 kohm/V
25 mA	60 mV	30 V *7	1 kohm/V
40 mA	60 mV	40 V *7	1 kohm/V
60 mA	60 mV	60 V *7	1 kohm/V
100 mA	60 mV	100 V *7	1 kohm/V
150 mA	60 mV	150 V *7	1 kohm/V
200 mA	60 mV	200 V *7	1 kohm/V
250 mA	60 mV	250 V *7	1 kohm/V
300 mA	60 mV	300 V *7	1 kohm/V
400 mA	60 mV	400 V *7	1 kohm/V
500 mA	60 mV	500 V *7	1 kohm/V
600 mA	60 mV	600 V *7	
750 mA	60 mV		
1 A	60 mV		
1.5 A	60 mV		
2.5 A	60 mV		
4 A	60 mV		
5 A	60 mV		
6 A	60 mV		
10 A	60 mV		
15 A	60 mV		
20 A	60 mV		
25 A	60 mV		
30 A	60 mV		
40 A *5	60 mV		
60 A *5	60 mV		
100 A *5	60 mV		

For use on external shunt \*6  
 50 mV \*6  
 60 mV \*6  
 75 mV \*6  
 150 mV \*6

200 ohm/V  
 200 ohm/V  
 200 ohm/V  
 200 ohm/V

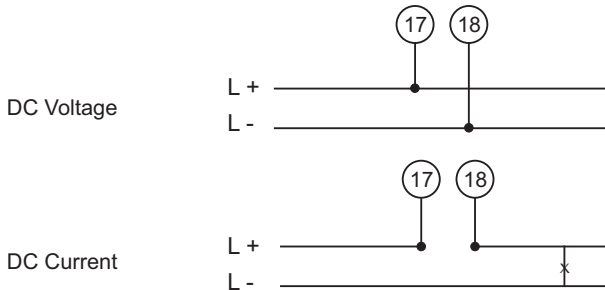
- \*4 Accuracy class 2.5
- \*5 Not applicable for DSL 72
- \*6 Total lead resistance of 0.035 ohm is considered for mV ranges while calibration.
- \*7 Applicable for DSL 48

**Accessories**

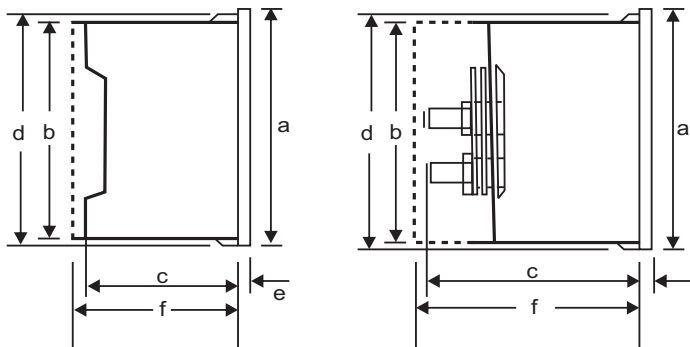
**Safety Terminal protection**

Full sized polycarbonate back cover to provide protection against accidental contact (hand and fingers) acc. to VDE 0410.

**Connections**



**Dimensions**



Dimensions (in mm)		DSL48	DSL72	DSL96
Bezel	a	48	72	96
Case	b	43.5	66	90
Depth	c*	53	53	53
	d	44.5	67.5	91.5
	e	5.5	5.5	5.5
Cutout Size		45 <sup>+0.6</sup>	68 <sup>+0.7</sup>	92 <sup>+0.8</sup>
Weight (approx.)		0.13 kg.	0.25 kg.	0.30 kg.
Depth with Back cover	f**	64	64	64
* c =	68mm,	for I= 5 to 60 A		
* c =	78mm,	for I> 60 A		
** f =	70mm,	for I= 5 to 60 A		

**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.

**Ordering Information\***

Part No.	Description
PL74-I06L2N1CAW0ST	72x72 mm, 1mA, Acc 1%
PL74-V3BL2N1CAW0ST	72x72 mm, 50mV, Acc 1%
PL74-V4PL2N1CAW0ST	72x72 mm, 500V Acc 1%
PL94-I06L1P1CBW0ST	96x96 mm, 1mA BLANK SCALE WITH PC GLS.
PL94-V3BL2N1CAW0ST	96x96 mm, 50mV, Acc 1%
PL94-V4PL2N1CAW0ST	96x96mm, 500V Acc 1%

**\* Only For Representative Products**

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



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