

## SIRAX BM300

### Analog Meters with Moving-Coil Movement, Rectifier and 90° Scale

#### Description

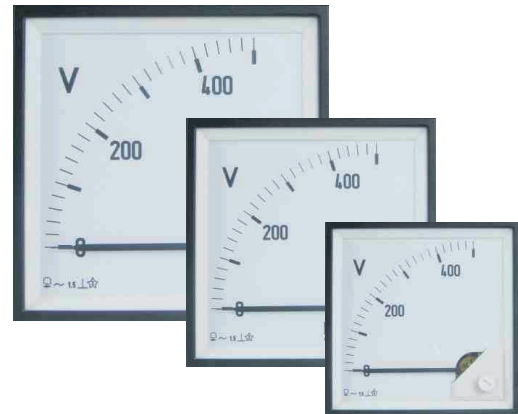
The analog display measuring devices with moving coil measuring mechanism and rectifier SIRAX BM300 in a polycarbonate housing and 90° scale are suitable for measuring AC currents or AC voltages.

The device measure average values and are calibrated to indicate RMS values, assuming a sinusoidal waveform for frequencies from 40...10000 Hz (AC current for frequency range of 40...1000 Hz and AC voltage for frequency range of 40...1000 Hz).

The moving-coil measuring mechanism consists of a core magnet system with spring-loaded point bearings spring-loaded and an upstream rectifier.

The measuring devices are designed for installation in control panels, machine consoles or mosaic grids up to a panel thickness of no more than 25mm.

The bezel, the glass window and the dial can be easily exchanged on site.



#### Features

- Robust polycarbonate housing with high flammability class UL94-V0
- Simple assembly using swivel screw
- Quick and easy connection using screws and clamps
- Full-surface rear wall cover as protection against accidental contact
- 90° scale
- Linear scale
- Easy replacement of the glass window, the front bezel and the scale

#### Technical Data

##### Mechanical Data

Case details	Moulded square case suitable to be mounted in control / switchgear panels, machine tool consoles or mosaic panels			
Material of case	Polycarbonate			
Flammability class	UL94 V-0, self-extinguishing, non-dripping, halogen-free			
Material of window	Glass			
Front frame (bezel)	Polycarbonate black			
Position of use	Vertical $\pm 5^\circ$			
Mounting	stackable next to each other			
Panel thickness	$\leq 25\text{mm}$			
Panel fixing	Swivel screw			
Weight	□48	□72	□96	□144
	0.11kg	0.15kg	0.20kg	0.25kg

##### Connections

Voltmeter or Ammeter $< 6\text{A}$	M4 screws and wire clamps form E3
Ammeter $\geq 6\text{A}$	Threaded studs M6 with nuts

#### Scaling

Pointer	Knife-edge pointer			
Pointer deflection	0 ... 90°			
Scale characteristics	Linear (not for ammeters $> 750\text{mA}$ )			
Scale division	Coarse-fine			
Scale length	□48	□72	□96	□144
	41mm	61mm	97mm	146mm
Scale	Interchangeable (not for ammeters $> 750\text{mA}$ )			

#### Electrical Data

Measuring unit	AC Voltage and AC Current
Overload capacity	acc. to DIN EN 60 051
Continuously	120% $I_n$ , 120% $U_n$
Short time voltage measurement	2 x for 5s
Short time current measurement	10 x for 5s
External magnetic field	0.4 kA/m, less than 6% of fiducial value (not as a percentage class index)

#### Reference conditions

Accuracy class	1.5% acc. to DIN EN 60 051
Reference temperature	23 °C / $\pm 2^\circ\text{C}$
Position of use	Nominal position $\pm 1^\circ$
Input variable	Rated measuring value
Wave form	Sinusoidal, distortion factor $< 5\%$
Frequency	45 ... 65 Hz
Other conditions	DIN EN 60 051-1

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### Environmental conditions

Climatic suitability	Climate category 2 acc. to DIN EN 60 051 Climate category 3 acc. to VDE/VDI 3540
Operating temperature	-10 ... +55 °C
Storage temperature	-25 ... +65 °C
Relative humidity	≤75% annual average, non condensation
Shock	150 m/s <sup>2</sup> (15g) / 11 ms
Vibration	10 ... 55 ... 10 Hz, 0.15 mm amplitude (correspond to 1.5g at 50 Hz)

### Housing protection class

IP52 Housing on the front  
IP00 Connections without contact protection  
IP20 Connections with contact protection

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

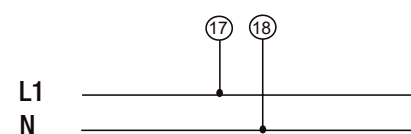
### Safety terminal protection

### Safety

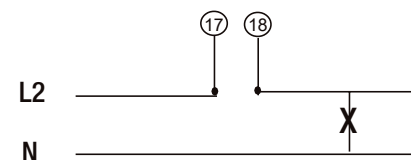
EMC resistance	acc. to EN 61 000-6-2
EMC emission	acc. to EN 61 000-6-4
Safety	acc. to EN 60 010-1
Installation category	300 V CATIII
Pollution degree	2
Maximal working voltage (phase-earth)	1000 V (for □72, □96, □144) 660 V (for □48)
Insulation class	A (acc. to VDE 0110)
Insulation test voltage	3 kV (for □72, □96, □144) 2 kV (for □48)
Insulation resistance	> 50 MΩ at 500 V DC

### Electrical connections

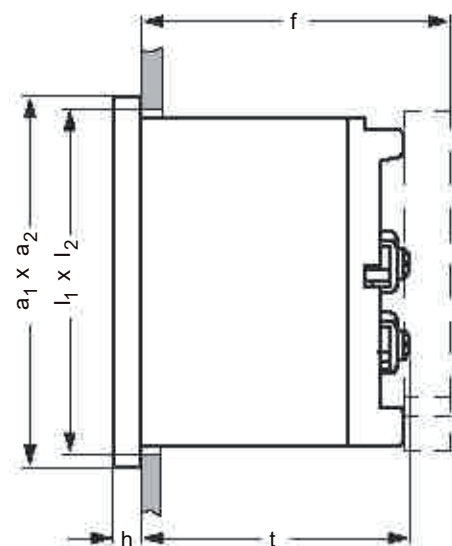
#### AC Voltage



#### AC Current



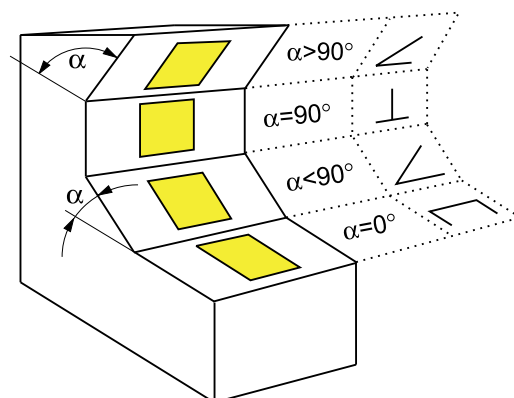
### Dimensions



Front [mm]	Nominal Dimensions [mm]		Cutout [mm]	Installation depth (t) including terminal [mm]	Installation depth (f) including back cover [mm]
	a <sub>1</sub> x a <sub>2</sub>	h	l <sub>1</sub> x l <sub>2</sub>		
□48	48 x 48	5.5	45 <sup>+0.6</sup> x 45 <sup>+0.6</sup>	54	62.5
□72	72 x 72	5.5	68 <sup>+0.7</sup> x 68 <sup>+0.7</sup>	54	62.5
□96	96 x 96	5.5	92 <sup>+0.8</sup> x 92 <sup>+0.8</sup>	54	62.5
□144	144 x 144	5.5	138 <sup>+1</sup> x 138 <sup>+1</sup>	54	62.5

### Working position

Code	Working position	Code	Working position	Code	Arbeitsposition
A	α = 0°	D	α = 45°	G	α = 90°
B	α = 15°	E	α = 60°	H	α = 105°
C	α = 30°	F	α = 75°	I	α = 120°



## Analog Meters with Moving-Coil Movement, Rectifier and 90° Scale

### Measurement ranges

Type	□48 (48 x 48mm)	□72 (72 x 72mm)	□96 (96 x 96mm)	□144 (144 x 144mm)
Internal resistance $\pm 10\%$ or voltage drop				
Measuring range	self-consumption			
AC Current				
100 $\mu$ A	1.30 V	1.30 V	1.30 V	1.30 V
150 $\mu$ A	2.40 V	2.40 V	2.40 V	2.40 V
250 $\mu$ A	2.40 V	2.40 V	2.40 V	2.40 V
400 $\mu$ A	2.40 V	2.40 V	2.40 V	2.40 V
600 $\mu$ A	2.40 V	2.40 V	2.40 V	2.40 V
1 mA	2.40 V	2.40 V	2.40 V	2.40 V
1.5 mA	1.40 V	1.40 V	1.40 V	1.40 V
2.5 mA	1.40 V	1.40 V	1.40 V	1.40 V
4 mA	1.40 V	1.40 V	1.40 V	1.40 V
6 mA	1.40 V	1.40 V	1.40 V	1.40 V
10 mA	1.40 V	1.40 V	1.40 V	1.40 V
15 mA	1.70 V	1.70 V	1.70 V	1.70 V
25 mA	1.70 V	1.70 V	1.70 V	1.70 V
40 mA	1.70 V	1.70 V	1.70 V	1.70 V
60 mA	1.70 V	1.70 V	1.70 V	1.70 V
100 mA	1.70 V	1.70 V	1.70 V	1.70 V
150 mA	1.33 V	1.33 V	1.33 V	1.33 V
250 mA	0.80 V	0.80 V	0.80 V	0.80 V
400 mA	0.50 V	0.50 V	0.50 V	0.50 V
600 mA	0.33 V	0.33 V	0.33 V	0.33 V
750 mA	0.27 V	0.27 V	0.27 V	0.27 V
1 A <sup>1)</sup>	0.20 V	0.20 V	0.20 V	0.20 V
1.5 A <sup>1)</sup>	0.14 V	0.14 V	0.14 V	0.14 V
2.5 A <sup>1)</sup>	0.80 V	0.80 V	0.80 V	0.80 V
4 A <sup>1)</sup>	0.50 V	0.50 V	0.50 V	0.50 V
6 A <sup>1)</sup>	0.03 V	0.03 V	0.03 V	0.03 V
10 A <sup>1)</sup>	0.02 V	0.02 V	0.02 V	0.02 V
AC Voltage				
6 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V
10 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V
15 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V
25 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V
40 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V
60 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V
100 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V
150 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V
250 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V
400 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V
500 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V
600 V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V	900 $\Omega$ / V

<sup>1)</sup> Scales are non-linear and not interchangeable

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## Analog Meters with Moving-Coil Movement, Rectifier and 90° Scale

### Order details

Description	Blockingcode	No-go with blockingcode	Article No. / Feature
SIRAX BM300, Analog meters with moving-coil movement, rectifier and 90° Scale			BM300-
<b>Features, Selection</b>			
<b>01 Dimensions Frontframe</b>			
□48 (48 x 48 mm)			1
□72 (72 x 72 mm)			2
□96 (96 x 96 mm)			3
□144 (144 x 144 mm)	C		4
<b>02 Measuring input</b>			
AC Current	A		1
AC Voltage	B		2
<b>03 Measuring range</b>			
AC Current			
100 µA		B	01
150 µA		B	02
250 µA		B	03
400 µA		B	04
600 µA		B	05
Special range AC Current			
0 ... >100 µA ... <600 µA		B	40
1 mA		B	06
1.5 mA		B	07
2.5 mA		B	08
4 mA		B	09
6 mA		B	10
10 mA		B	11
15 mA		B	12
25 mA		B	13
40 mA		B	14
60 mA		B	15
100 mA		B	16
150 mA		B	17
250 mA		B	18
400 mA		B	19
600 mA		B	20
750 mA		B	21
Special range AC Current			
0 ... >1 mA ... <750 mA		B	41

## Analog Meters with Moving-Coil Movement, Rectifier and 90° Scale

1 A		B	22
1.5 A		B	23
2.5 A		B	24
4 A		B	25
6 A		B	26
10 A		B	27
Special range AC Current			
0 ... >1 A ... <10 A		B	42
Connection to current transformer			
...A/1A		B	43
...A/5A		B	44
AC Voltage			
6 V		A	28
10 V		A	29
15 V		A	30
25 A		A	31
40 V		A	32
60 V		A	33
100 V		A	34
150 V		A	35
250 V		A	36
400 V		A	37
500 V		A	38
600 V		A	39
Special range AC Voltage			
0 ... >6 V ... <600 V		A	45
Connection to voltage converter			
.../100V		A	46
.../110V		A	47
<b>04 Working position</b>			
$\alpha = 0^\circ$			A
$\alpha = 15^\circ$			B
$\alpha = 30^\circ$			C
$\alpha = 45^\circ$			D
$\alpha = 60^\circ$			E
$\alpha = 75^\circ$			F
$\alpha = 90^\circ$			G
$\alpha = 105^\circ$			H
$\alpha = 120^\circ$			I

**Analog Meters with Moving-Coil Movement, Rectifier and 90° Scale**

<b>05</b>	<b>Zero Position</b>			
	Left			1
	Centre			2
	Shifted			3
<b>06</b>	<b>Front window</b>			
	Glass			1
<b>07</b>	<b>Scalefactor</b>			
	Standard			1
	Non Standard (Customized)			2
<b>08</b>	<b>Contact protection</b>			
	without back cover			1
	with back cover			2
<b>09</b>	<b>Color of Dial, pointer and letters</b>			
	Standard (dial white / pointer black / letters black)			1
	Non Standard (Customized)			2
<b>10</b>	<b>Red pointer kit</b>			
	Without red pointer kit			1
	With red pointer kit		C	2



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