

SIRAX BM650

Analog Panel Pointer Frequency meter with 240° Scale

Description

The analog panel pointer frequency meter SIRAX BM650 in a polycarbonate housing and 240° scale are intended for measuring of frequencies in the range of 45...450 Hz.

For maximum accuracy, the essential measuring range is obtained by suppressing the unwanted frequency span.

Frequencies are measured with a built in electronic transducer & moving coil indicator. Moving coil movement has pivots of very high hardness. Movement is suspended between spring loaded saphire jewels. Movement is properly shielded & critically damped by eddy currents induced in coil former.

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
- 240° 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	<table border="1"> <tr> <td>$\square 96$</td> <td>$\square 144$</td> </tr> <tr> <td>0.28kg</td> <td>0.49kg</td> </tr> </table>	$\square 96$	$\square 144$	0.28kg	0.49kg
$\square 96$	$\square 144$				
0.28kg	0.49kg				
Connections/terminals	M4 screws and wire clamps form E3				

Scaling

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

Scale length

$\square 96$	$\square 144$
142mm	230mm

Electrical Data

Measuring unit	Frequency
Input quantity	Alternating voltage in sine waveform
Overload capacity	acc. to DIN EN 60 051
Continuously	1.2 times rated voltage
Short time voltage measurement	2 x for 0.5s: 9 overloads 2 x for 5s: 1 overload
External magnetic field	0.4 kA/m
Permissible voltage fluctuation	$\pm 15\%$
Power consumption	$\leq 7\text{ VA}$

Reference conditions

Accuracy class	0.5% 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
Preheating time	$\geq 5\text{ min}$
Other conditions	DIN EN 60 051-1

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	$\leq 75\%$ annual average, non condensation
Shock	150 m/s ² (15g) / 11 ms
Vibration	10 ... 55 ... 10 Hz, 0.15 mm amplitude (correspond to 1.5g at 50 Hz)

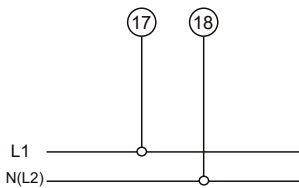
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Safety

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
Rated insulation voltage	660 V
Insulation resistance	> 50 MΩ at 500 V DC
Insulation class	A (acc. to VDE 0110)
Insulation test voltage	2 kV
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

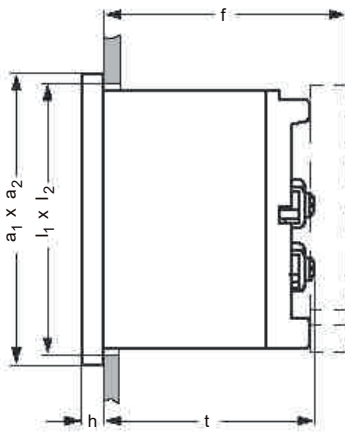
Electrical connections



Measurement ranges

Dimensions frontframe [mm]	96 x 96	144 x 144
Scale length [mm]	142	230
Weight [kg]	0.28	0.49
Type	□96	□144
Frequency range	45...50...55 Hz 45...55...65 Hz 45...60...65 Hz 360...400...440 Hz 380...400...420 Hz	
Rated input voltage	57.7 V 63.5 V 100 V 110 V 115 V 120 V 127 V 208 V 220 V 230 V 240 V 289 V 380 V 400 V 415 V 440 V 500 V	

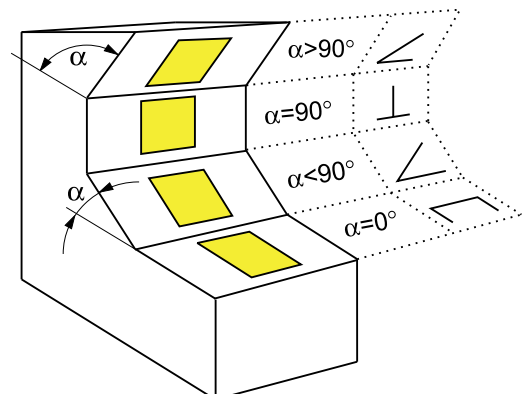
Dimensions



Front [mm]	Nominal Dimensions [mm]		Cutout [mm]	Installation depth (t) including terminal [mm]	Installation depth (f) including back cover [mm]
	a ₁ x a ₂	h	l ₁ x l ₂		
□96	96 x 96	5.5	92 ^{+0.8} x 92 ^{+0.8}	53	64
□144	144 x 144	5.5	138 ⁺¹ x 138 ⁺¹	53	64

Working position

Code	Working position	Code	Working position	Code	Working position
A	$\alpha = 0^\circ$	D	$\alpha = 45^\circ$	G	$\alpha = 90^\circ$ (vertical)
B	$\alpha = 15^\circ$	E	$\alpha = 60^\circ$	H	$\alpha = 105^\circ$
C	$\alpha = 30^\circ$	F	$\alpha = 75^\circ$	I	$\alpha = 120^\circ$



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Order details

Description	Blockingcode	No-go with blockingcode	Article No. / Feature
SIRAX BM650, Analog Panel Pointer Frequency meter with 240° Scala			BM650-
Features, Selection			
01. Dimensions Frontframe			
□96 (96 x 96 mm)			1
□144 (144 x 144 mm)	A		2
02. Frequency range			
45...50...55 Hz			01
45...55...65 Hz			02
45...60...65 Hz			03
360...400...440 Hz			04
380...400...420 Hz)			05
03. Rated voltage			
57.7 V			01
63.5 V			02
100 V			03
110 V			04
115 V			05
120 V			06
127 V			07
208 V			08
220 V			09
230 V			10
240 V			11
289 V			12
380 V			13
400 V			14
415 V			15
440 V			16
500 V			17
04. Working position			
$\alpha = 0^\circ$			A
$\alpha = 15^\circ$			B
$\alpha = 30^\circ$			C
$\alpha = 45^\circ$			D
$\alpha = 60^\circ$			E
$\alpha = 75^\circ$			F
$\alpha = 90^\circ$ (vertical)			G
$\alpha = 105^\circ$			H
$\alpha = 120^\circ$			I

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05. Front window Glass			1
06 Scalefactor Standard			1
Non Standard (Customized)			2
07 Contact protection without back cover			1
with back cover			2
08 Color of Dial, pointer and letters Standard (dial white / pointer black / letters black)			1
Non Standard (dial / pointer / letters customized)			2
09 Red pointer kit Without red pointer kit			1
With red pointer kit		A	2



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