

SIRAX BM750

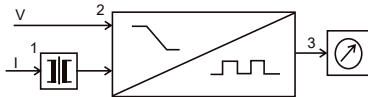
Analog Power Factor meter with 240° Scale

Description

The analog panel power factor meter SIRAX BM750 in a polycarbonate housing and 240° scale are intended for measuring of the phase angle between the voltage and current in single-phase or 3-phase AC power networks.

These meters are calibrated to correspond to the cosine of the angle, i.e. the power factor.

The measuring system comprises a moving coil indicator & phase angle converter attached to the case of indicating instrument. Moving coil movements 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.



A current transformer 1 of the phase angle converter provides input current to the electronic circuit. Both the input voltage and the current are passed to a bistable flip-flop stage 2.

The pulse duty cycle of flip-flop is proportional to the phase angle ϕ . A low pass filter allows the mean value which is proportional to the phase angle and is fed to the moving coil movement 3.

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
- 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
Weight

Swivel screw

□96	□144
0.28kg	0.49kg

Connections/terminals

M4 screws and wire clamps form E3

Scaling

Pointer
Pointer deflection
Scale characteristics
Scale division
Scale length

knife-edge pointer
0 ... 240°
Non-Linear
Coarse-fine

□96	□144
142mm	230mm

Electrical Data

Measuring unit
Frequency

Power factor
49 ... 51 Hz for single phase
45 ... 65 Hz for 3 phase

Overload capacity
Continuously
Short time duration

acc. to DIN EN 60 051
1.2 times rated voltage / current
2 x for 0.5s: 9 overloads
2 x for 5s: 1 overload

External magnetic field
Permissible voltage fluctuation
Permissible current fluctuation
Power consumption voltage
Power consumption current

0.4 kA/m
 $\pm 15\%$
20 ... 120 %
 $\leq 3.5\text{ VA}$
 $\leq 1.0\text{ VA}$

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Reference conditions

Accuracy class	1.5% acc. to DIN EN 60 051
Reference temperature	23 °C / ± 2 °C
Position of use	Nominal position ±1°
Waveform	Sinewave
Current	95 ... 100 % rated current
Voltage	+ 2 % rated voltage
Preheating time	≥ 5 min at min 80% of rated current and 100% of rated voltage
Frequency	50 Hz ±0.1 %
Distortion factor	< 1 %
Other conditions	DIN EN 60 051-1

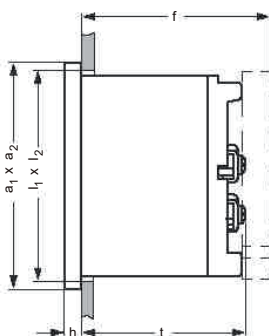
Environmental conditions

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	≤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)

Safety

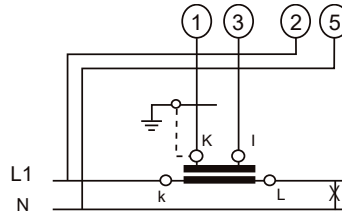
EMC resistance	acc. to EN 61 000-6-2
EMC emission	acc. to EN 61 000-6-4
Safety	acc. to EN 60 010-1
Installation category	300 V CATIII
Pollution degree	2
Rated insulation voltage	660 V
Insulation resistance	> 50 MΩ at 500 V DC
Insulation class	A (acc. to VDE 0110)
Insulation test voltage	2 kV
Housing 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

Dimensions

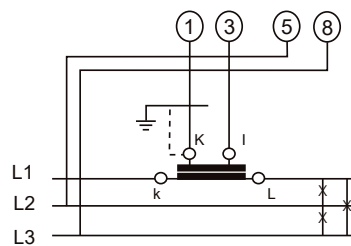


Electrical connections

Single phase



3 phase balanced load



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
System type	Single phase system 3 phase system balanced loadb	
Measuring ranges	COSφ cap 0.5...1...0.5 ind COSφ cap 0.8...1...0.3 ind COSφ cap 0.8...1...0.8 ind	
Rated voltages	single phase: 57.7 V 63.5 V 100 V 110 V 115 V 120 V 127 V 220 V 230 V 240 V 289 V	3 phase: 100 V 110 V 220 V 380 V 400 V 415 V 440 V 500 V
Rated currents	1 A 5 A	

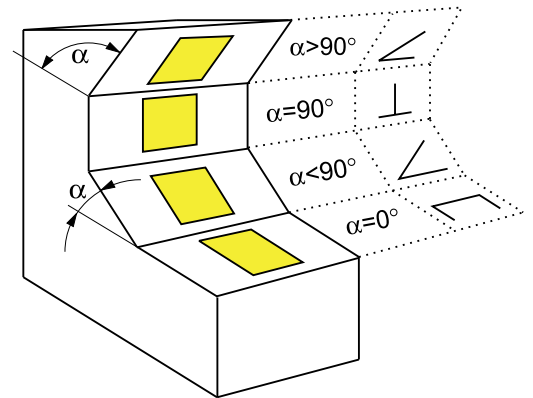
Front [mm]	Nominal Dimensions [mm]		Cutout [mm]	Installation depth (t) including terminal [mm]	Installation depth (f) including back cover [mm]
	a ₁ x a ₂	h			
□96	96 x 96	5.5	92 ^{+0.8} x 92 ^{+0.8}	53	64
□144	144 x 144	5.5	138 ⁺¹ x 138 ⁺¹	53	64

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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	$\alpha = 120^\circ$



Order details

Description	Blockingcode	No-go with blockingcode	Article No. / Feature
SIRAX BM750, Analog Power factor meter with 240° Scala			BM750-
Features, Selection			
01 Dimensions Frontframe			
□96 (96 x 96 mm)			1
□144 (144 x 144 mm)	C		2
02 System type			
Single phase system	A		1
3 phase system balanced load	B		2
03 Measuring ranges			
COSφ cap 0.5...1...0.5 ind			1
COSφ cap 0.8...1...0.3 ind			2
COSφ cap 0.8...1...0.8 ind			3
04 Rated voltage			
57.7 V		B	01
63.5 V		B	02
100 V			03
110 V			04
127 V		B	05
220 V			06
230 V		B	07
240 V		B	08
289 V		B	09
380 V		A	10
415 V		A	11
440 V		A	12
500 V		A	13

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05	Rated voltage			
	1 A			1
	5 A			2
06	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
	$\alpha = 90^\circ$			G
	$\alpha = 105^\circ$			H
	$\alpha = 120^\circ$			I
07	Front window			
	Glass			1
08	Scalefactor			
	Standard			1
	Non Standard (Customized)			2
09	Contact protection			
	without back cover			1
	with back cover			2
10	Color of Dial, pointer and letters			
	Standard (dial white / pointer black / letters black)			1
	Non Standard (dial / pointer / letters customized)			2
11	Red pointer kit			
	Without red pointer kit			1
	With red pointer kit		C	2



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