sifam tinsley
PRECISION INSTRUMENTATION

CE

DATASHEET Issue 1.0



Multifunction Meters

Transducers & Isolators

Temperature Controllers

Converters & Recorders

Digital Panel Meters

Current Transformers

Analogue Panel Meters

Shunts

Digital Multimeters

Clamp Meters

Insulation Testers

SIGMA SERIES EB-BM METER

The maximum demand ammeters BM 48 and BM/EB 72/96 housed inmoulded polycarbonate cases,monitor the most economic use of transformer stations & LT distribution feeders by indicating the thermal/time characteristics of the load.

The high torque of the thermal movement drive a red slave pointer linked to the instrument pointer. The slave pointer will remain at the maximum value reached for a subsequent reading until being manually reset by a sealable reset knob to the position of the instrument pointer.

Features

- Scale Interchangeability
- Near linear scale for MI scale in EB
- User accessable reset Knob
- Knife edge pointers
- Easily replaceable glass and bezel

SUBJECT TO CHANGE WITHOUT NOTICE
This manual superseded all previous versions – please keep for future reference

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 speci cations for direct acting indicating analogue electrical measuring instruments and their accessories	IEC51/DINEN60051 DIN 43701
Environmental conditions	VDE / VDI 3540
Technical conditions of delivery for electrical instruments.	DIN 43701
Front frames for indicating measuring instruments Principle dimensions	DIN 43718
ULCombustibility Class	UL 94 V-0
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.

Scale and Pointer

Pointer	Knife - edge pointer
Pointer deflection	0...90°
Over range	Bimetallic Moving - iron 1.2 times 2
Scale division	Coarse - fine
Scale length	BM 48 EB 72 EB 96 BM 72
	38 mm 63 mm 97 mm 52 mm 61 mm
	EB 96
	71 mm 97 mm

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	Hexagon studs, M4 screws and wire clamps E3

Electrical Data

Measured Quantity	AC currents
Thermal time delay	15 minutes (8, 20, 30 min on request)
Response time (moving iron)	4 sec
Power consumption	BM EB
1 A rated current	< 1.6 VA < 2.5 VA
5 A rated current	< 2.5 VA < 3.4 VA
Overload capacity	acc to IEC 51
Continuously	1.2 times rated current
Short duration	10 times for 0.5 sec : 9 overloads 10 times for 5 sec : 1 overload
Enclosure code (IEC 529)	IP 52 case IP 00 for terminals without backcover IP 20 for terminals with backcover
Insulation class	Class A according to VDE 0110
Rated insulation voltage	660V
Proof voltage testing	3 kV
Installation category (IEC1010)	300V CAT III
Insulation resistence	> 50 Mohm at 500V DC

Accuracy at Reference Conditions

Accuracy class	1.5 according to IEC 51/DIN EN 60051
3 (bimetallic movement referred to slavepointer)	1.5 (moving - iron movement)
Reference conditions	
Ambient temperature	23° C + 2° C
Position of use	Nominal position + 1
Input	Rated value of current
Frequency	45...65 Hz
Other conditions	As per IEC 51/ DIN EN 60051
Nominal range of use	
Ambient temperature	0...50°C
Position of use	Nominal position + 5°
External magnetic field	At 0.4 kA/m
Frequency	40...65 Hz

Standard Measuring Ranges

Bimetallic	Moving - Iron	For use on CT
1 A	1A	..../ 1A
5A	5A	..../ 5 A
Measuring Ranges		
Moving Iron	2 times rated current	
Bimtal movment	1.2 times rated current	
Moving iron & bimetal	1.2 times rated current	

Environmental Conditions

Climatic Suitability	(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 at 50Hz)
Pollution degree	2

Options

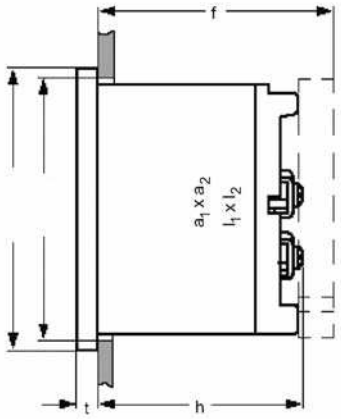
Case	
Front Facia	Antiglare glass
Color of bezel	Black
Position of use	on request 0° ...180°
Dial	
Blank dial	With initial and end values marked
Special markings	Numbering/Lettering
Division dials	Basic divisions without numbering
Color markings/bands	Red or green
Other	
Calibration	For other frequencies 15Hz...400 Hz.
Thermal time delay	8 min / 20 min / 30 min

Accessories

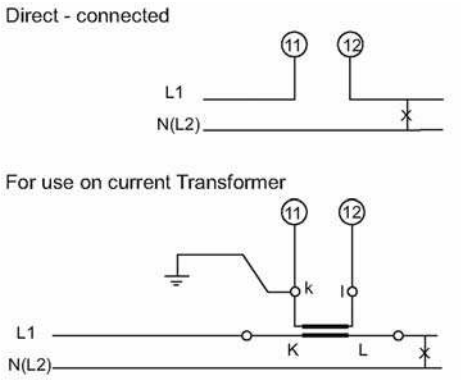
Safety Terminal Protection

Full sized polycarbonat back cover, to provide protection against accidental contact (han and fingers)

Dimensions



Connections



Functional Principle

The thermal bimetallic movement indicates the mean rms value over 15 minutes (optional 8 min, 20 min & 30 min.) and deflects a resettable red slave pointer which shows the maximum value reached. Bimetallic instruments have a specific inertia due to their thermal time lag making these instruments especially suitable to indicate maximum demands or to control long - lasting peak loads. For the measurement of instantaneous rms values, moving - iron movement with pivot suspension, spring loaded shock absorbing jewel bearing and silicon oil damping is incorported. The moving - iron movment has a response time < 4 sec.

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.

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		
48 x 48	48 x 48	5.5	$45^{+0.8}$ x $45^{+0.6}$	51	54
72 x 72	72 x 72	5.5	$68^{+0.7}$ +0.7$^{+0.7}$	54	62.5
96 x 96	96 x 96	5.5	$92^{+0.8}$ +0.8$^{+0.8}$	54	62.5

Contact

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