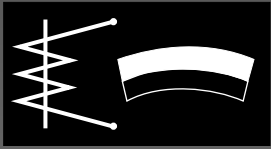


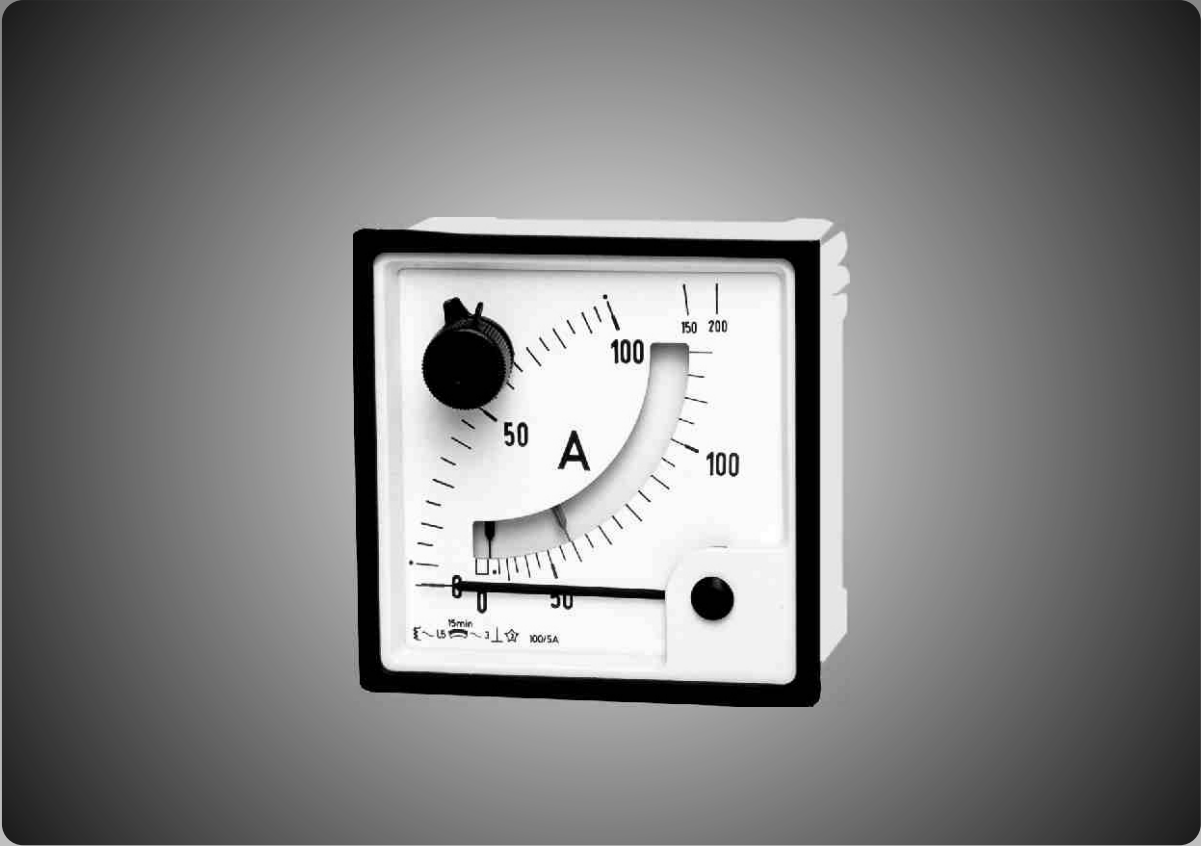
<b>BM</b>	<b>72</b>
<b>EB</b>	<b>72</b>
<b>BM</b>	<b>96</b>
<b>EB</b>	<b>96</b>



# Data Sheet

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**Analogue  
Maximum Demand Ammeters  
with Bimetallic Movement,  
Combined Bimetallic  
and Moving - Iron Ammeter**



## Application

The Maximum Demand Ammeters BIQ72 / BIQ 96 / BIEQ 72 / BIEQ 96 housed in moulded polycarbonate cases, monitor the most economic use of transformer stations and 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.

Where the instantaneous and maximum demand currents are required, the BIEQ 72/96 instrument, which combines a thermal bimetallic and a moving-iron movement in the same case mounted diagonally opposite to each other. These instruments are suitable for frequency range of 15 - 400 Hz.

These meters offer several advantages in switchboards and generating Set Panels. Number of meters can be mounted in a single cut out (mosaic mounting). Front window glass, Bezel & Dial can be easily replaced.

## Functional Principle

The thermal bimetallic movement indicates the mean rms value over 15 minutes (optional 8 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, a moving-iron movement with pivot suspension, spring loaded shock absorbing jewel bearing and silicon oil damping is incorporated.

The moving-iron movement has a response time of approx. 1s.

## Mechanical Data

Case details	moulded square case suitable for mounting in control / switchgear panels, Machinery consoles
Case material	Glass filled polycarbonate thermoplastics. Flame retardant with UL rating of 94 V-O
Front facia	Glass
Colour of bezel	Black
Position of use	Vertical
Panel fixing	Swivel screw
Mounting	Stackable in a single cutout
Panel thickness	≤ 40 mm
Terminals	Hexagon studs, M4 screws and Wire clamps E3

## Electrical Data

Measured quantity	AC currents	
Thermal time delay (bimetallic)	15 minutes (8 min on request)	
Response time-Moving iron	Approx 1s	
<b>Power consumption</b>	BM 72/96	EB 72/96
1 A rated current	<1.6 VA	<2.5VA
5 A rated current	<2.5 VA	<3.4VA
Overload capacity	Acc. to IEC 51	
Continuously	1.2 times rated current	
Short duration	10 times rated current, 1 sec max	

Saturating current transformers shall be used to protect the movement against overload exceeding specified overload rating

Enclosures code (IEC 529)	IP 40 case IP 00 for terminals without back cover IP 20 for terminals with back cover
Insulation class	Group A according to VDE 0110
Rated Insulation voltage	1000 V
Proof voltage testing	3 kV (2 kV for 72)
Installation category	300 V CAT III (IEC 1010)
Insulation resistance	> 50 Mohm at 500 V d.c.

## Standard Measuring Ranges

Bimetallic	Moving - iron (EB 72/96 only)	For use on Current transformer
1 A	1 A	--- / 1 A
5 A	5 A	--- / 5 A

## Scale and pointer

Pointer	Knife-edge pointer		
Pointer deflection	0 ... 90°		
Scale characteristics	Bimetallic	moving - iron	
	Quadratic,	nearlinear	
Overrange	Bimetallic	moving - iron	
	1.2 times	2 times	
	Rated current	rated current	
Scale division	Coarse-fine		
Scale length	EB72/96	bimetallic	moving - iron
		___/71mm	___/97 mm
	BM 72/96	bimetallic	moving - iron
		___/97mm	___/___ mm

## Accuracy at Reference Conditions

Accuracy class	3 (bimetallic movement referred to slave pointer)
Acc to IEC51 / DIN EN 60051	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	IEC 51 / DIN EN 60051

### Nominal range of use

Ambient temperature	0 ... 50°C
Position of use	Nominal position ± 5°
External magnetic field	0.5 mT
Frequency	15-400 Hz

## 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	15g, 11 ms
Vibration resistance	10-150-10 Hz / 0.15 mm 1.5 g at about 50 Hz

## Applicable standards

Nominal case & cutout dimensions for indicating Electrical instruments	: DIN 43700
Scales 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 for connections	: DIN 46282
Safety requirements for electrical indicating measuring instruments and their accessories	: DIN 40050 / 8-70 VDE 0110 / 11-72 VDE 0410 / 10-76 IEC 529, IEC 1010
Performance specifications for direct acting indicating analogue electrical measuring instruments and their accessories	: IEC 51/ DIN EN 60051 DIN 43701
Environmental conditions	: VDE / VDI 3540
Front frames for indicating measuring instruments Principle dimensions	: DIN 43718
UL Combustibility class	: UL 94 V-O
Technical conditions of delivery for electrical instruments	: DIN 43701
Mechanical strength (Free fall test, vibration test)	: VDE 0411, part 1, Sec.43/44, IEC 1010, IEC 51

Comply with following European directives : 89/336/EEC (EMC directive), 73/23/EEC (low voltage directive) & amendment 93/68/EEC, for **CE** marking.

## Options

<b>Case</b>	
Front facia	Antiglare glass
Colour of bezel	Black
Position of use	On request 0° .... 165°
<b>Dial</b>	
Blank dial	With initial and end values marked.
Special markings	Numbering / Lettering
Division dials	Basic divisions without numbering
Colour marking/bands	Red or Green
<b>Others</b>	
Calibration	For other frequencies 15 Hz... 400 Hz
Thermal time delay	8 Min.

# Data Sheet

## Analogue Maximum Demand Ammeters with Bimetallic Movement, combined Bimetallic and Moving - Iron Ammeter

### Accessories

#### Safety Terminal protection

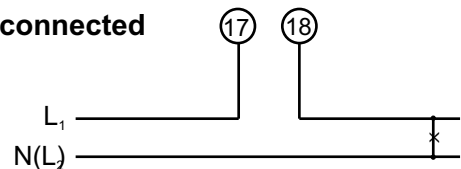
Full sized polycarbonate back cover to provide protection against accidental contact (hand and fingers) acc to VDE 0410.

#### Saturating current transformer

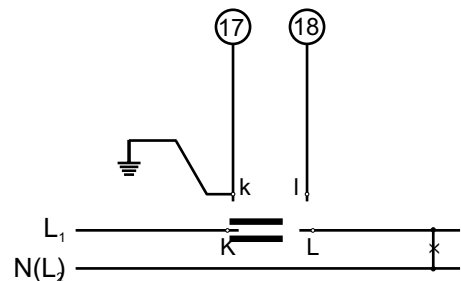
Saturating transformer accuracy class 3, 50 Hz to protect the movements against continuous overloads.

### Connections

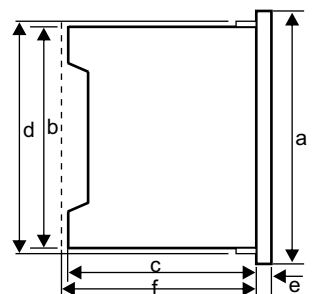
#### Direct - connected



#### For use on current transformer



### Dimensions



Dimensions (in mm)	BM 72	BM 96	BM 72	EB 96
Bezel a	□ 72	□ 96	□ 72	□ 96
Case b	□ 66	□ 90	□ 66	□ 90
Depth c	53	53	53	53
d	□ 62.5	□ 91.5	□ 62.5	□ 91.5
e	5.5	5.5	5.5	5.5
cutout size	□ 68 <sup>+0.7</sup>	□ 92 <sup>+0.8</sup>	□ 68 <sup>+0.7</sup>	□ 92 <sup>+0.8</sup>
Wt. (approx.)	0.20 kg	0.26 kg	0.3 kg	0.3 kg
Depth with back cover f	64	64	64	64

## Ordering Information

<b>Type</b> <b>BM 72/96</b>	maximum demand indicator with bimetallic movement
<b>EB 72/96</b>	combined M.D.I. & moving-iron ammeter
<b>Front dimension</b>	72 mm x 72 mm 96 mm x 96 mm
<b>Measuring range</b>	1 A 5 A ---/1 A for use on current transformer ---/5 A for use on current transformer
<b>Front facia</b>	Normal glass <sup>*1</sup> antiglare glass <sup>*3</sup>
<b>Colour of Bezel</b>	Black <sup>*1</sup> Red, Blue, Yellow, White <sup>*3</sup>
<b>Position of use</b>	Vertical <sup>*1</sup> on request 15...165° <sup>*3</sup>
<b>Dial</b>	Standard scale same as measuring range <sup>*1</sup> without dial blank dial without division <sup>*3</sup> additional lettering on request <sup>*3</sup> additional numbering on request <sup>*3</sup> coloured marking red or green <sup>*3</sup> coloured sector red or green <sup>*3</sup>
<b>Over range</b> Moving Iron : Bimetal movement : Moving iron & bimetal :	2 times rated current <sup>*1</sup> 1.2 times rated current <sup>*1</sup> 1.2 times rated current <sup>*3</sup>
<b>calibration</b>	50 Hz <sup>*1</sup> for frequency 15 - 400 Hz <sup>*3</sup>
<b>Thermal time delay</b>	15 min. <sup>*1</sup> 8 min. <sup>*3</sup>
<b>logo</b>	Without <sup>*3</sup> OEM logo <sup>*3</sup>
<b>Terminal protection</b>	Full sized polycarbonate back cover
<b>Saturating current transformer</b>	Without <sup>*1</sup> ESW 1/5A, 4.25 VA ESW 5/5A, 4.25 VA

<sup>\*1</sup> standard

<sup>\*3</sup> please clearly add the desired specifications while ordering

### Ordering example

EB 96 for use on current transformer 300/5A thermal time delay 15 min.

## Safety precautions

- Instruments with damaged bezels or window glasses must be disconnected from the mains.
- Adequate safety clearance must be maintained to control panel fasteners and to sheet metal housing, if non-insulated connector wires are used.
- The back cover must be snapped into place after the connector wires have been clamped for protection against accidental contact.
- Scales should be replaced under voltage-free conditions.
- Bezels and window glasses should be replaced under voltage-free conditions.

Specifications are subject to change without notice (07/02)