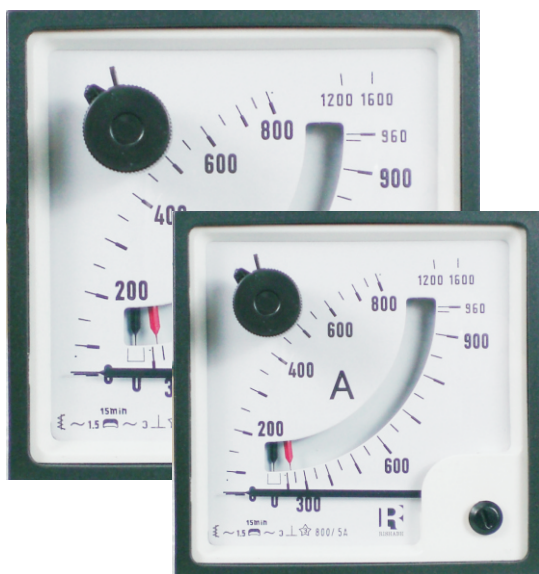


Analogue Maximum Demand Ammeters with Bimetallic Movement, Combined Bimetallic and Moving - Iron Ammeter

BIQ	72
BIQ	96
BIEQ	72
BIEQ	96

Data Sheet

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



Rishabh Instruments



RISHABH

**RISHABH
INSTRUMENTS**

Measure, Control & Record with a Difference

RISHABH INSTRUMENTS PVT.LTD.

F-31, MIDC, Satpur, Nashik-422 007, India.

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

Application

The maximum demand ammeters BIQ/BIEQ 72/96 housed in moulded 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.

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 15-400Hz.

These meters offer several advantages in Switchboard and Generating Set panels. Number of meters can be mounted in a single Cut out (Mosaic Mounting). The bezel, front window glass and dial can be easily replaced

Applicable Standards

Nominal case and cutout dimensions for indicating measuring instruments	: IS 2419 DIN 43700
Scale & pointer for electrical measuring instruments	: IS 1248 DIN 43802
Connections and Terminal markings for panel meters	: IS 1248 DIN 43807
Terminal bolts / leads.	: DIN 46200/46282
Clamp straps for connections	: DIN 46282
Safety requirements for Electrical indicating instruments and their accessories.	: IS 9249 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 & their accessories	: IS 1248 IEC51/DINEN60051 DIN 43701
Environmental conditions	: IS 1248 IS: 9000, Part 5, 7, 8, VDE / VDI 3540
Front frames for indicating measuring instruments Principle dimensions	: DIN 43718
UL Combustibility Class	: UL 94 V-0
Technical conditions of delivery for electrical instruments	: DIN 43701
Mechanical strength (Free fall test, vibration test)	: IS 1248, IEC 51, IS 9000 VDE 0411, Part 1, Sec. 43/44, IEC 1010.

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

Scale and Pointer

Pointer	: Knife - edge pointer
Pointer deflection	: 0...90°
Scale characteristics	: Bimetallic moving - iron quadratic near linear
Over range	: bimetallic moving - iron 1.2 times rated-current 2 times rated-current
Scale division	: Coarse - fine
Scale length	: BIEQ 72 Bimetallic 52 mm Moving - iron 61 mm BIQ 72 Bimetallic --- BIEQ 96 Bimetallic 71 mm Moving - iron 97 mm BIQ 96 Bimetallic --- 97 mm

Mechanical Data

Case details	: Moulded square case suitable for mounting in Control/Switchgear panels, Machinery consoles.
Case material	: Glass filled polycarbonate, flame retardant and drip proof as per UL 94 V-0.
Front fascia	: Glass
Colour of bezel	: Black
Position of use	: Vertical
Panel fixing	: Swivel screws
Mounting	: Stackable in a single cutout
Panel thickness	: <40 mm
Terminals	: Hexagon studs, M4 screw and wire clamps E3

Electrical Data

Measuring quantity	: AC currents
Thermal time delay	: 15 minutes
(bimetallic)	: (8 min / 20 min on request)
Response time (moving iron) Approx	1s
Power consumption	: BIQ 96 BIEQ 96 1 A rated current < 1.6 VA < 2.5 VA 5 A rated current < 2.5 VA < 3.4 VA
Overload capacity (acc to IS 1248 / 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.	
Enclosure code (IEC 529)	: IP 40 case IP 00 for terminals without backcover IP 20 for terminals with backcover
Insulation class	: Group A according to VDE 0110
Rated insulation voltage	: 1000V
Proof voltage testing	: 3 kV
Installation category (IEC 1010)	: 300 V CAT III
Insulation resistance	: > 50 Mohm at 500 V d. c.



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Accuracy at Reference Conditions

Accuracy class	: 3 (bimetallic movement
acc to IS : 1248/	referred to slave pointer)
IEC 51/DIN EN 60051	1.5 (moving - iron movement)

Reference conditions

Ambient temperature	: $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$
Position of use	: Nominal position $\pm 1^{\circ}$
Input	: Rated value of current
Frequency	: 45...65HZ
Other conditions	: As per IS:1248 (IEC 51/ DIN EN 60051)

Nominal range of use

Ambient temperature	: $0\text{---}50^{\circ}\text{C}$
Position of use	: Nominal position $\pm 5\%$
External magnetic field	: 0.5 mT
Frequency	: 15-400Hz.

Nominal Range of Use

Bimetallic	Moving - Iron (BIEQ 96 /72)	For use on CT
1 A	1 A	----/ 1 A
5 A	5 A	----/ 5 A

Environmental Conditions

Climatic suitability	: Climatic class 3 according to VDE/VDI 3540
Operating temperature	: $-10\text{...} + 55^{\circ}\text{C}$
Storage temperature	: $-25\text{...} + 65^{\circ}\text{C}$
Relative humidity	: $\leq 75\%$ annual average, non-condensing
Shock resistance	: 15g. 11 ms 10-150 10Hz/0.15mm
Vibration resistance	: 1.5 g at about 50 Hz

Options

Case	
Front facia	Antiglare glass
Colour of bezel	Black
Position of use	on request $15^{\circ}\text{...}165^{\circ}$
Dial	
Blank dial	With initial and end values marked.
Special markings	Numbering / Lettering.
Division dials	Basic divisions without numbering.
Colour markings/bands	Red or Green
Others	
Calibration	For other frequencies 15Hz...400 Hz.
Thermal time delay	8 min.

Accessories

Safety Terminal Protection

Full sized polycarbonate back cover, to provide protection against accidental contact (hand and fingers) acc. to IS 9249, VDE 0410.

Saturating current transformer

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

Functional Principle

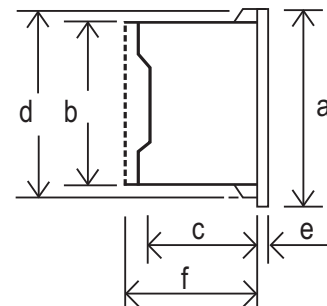
The thermal bimetallic movement indicates the mean rms value over 15 minutes (optional 8 min & 20 min.) and deflects a resettable red slave pointer which shows the maximum value reached.

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.

Dimensions



Dimensions (in mm)	BIQ 72	BIQ 96	BIEQ 72	BIEQ 96
Bezel	a □ 72	□ 96	□ 72	□ 96
Case	b □ 66	□ 90	□ 66	□ 90
Depth	c 53	53	53	53
	d □ 67.5	□ 91.5	□ 67.5	□ 91.5
	e 5.5	5.5	5.5	5.5
Cutout	□ 68 ^{+0.7}	□ 92 ^{+0.8}	□ 68 ^{+0.7}	□ 92 ^{+0.8}
Weight (approx.)	0.22 kg.	0.26 kg.	0.26 kg.	0.3 kg.
Depth with Back cover	64	64	64	64



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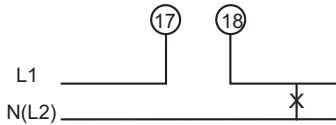
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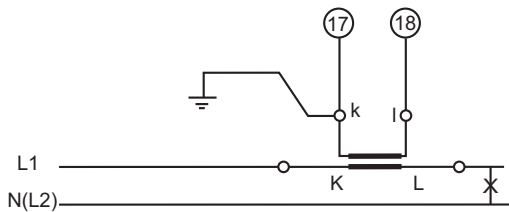
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Connections

Direct - connected




For use on current Transformer



Safety Precautions

- 1) Instruments with damaged bezels or window glasses must be disconnected from the mains.
- 2) Adequate safety clearance must be maintained to control panel fasteners and to sheet metal housing. Id non-insulated connector wires are used.
- 3) The back cover must be snapped into place after connector wired have been clamped for protection against accidental contact.
- 4) Scales may only be replaced under voltage-free conditions.
- 5) Bezels and window glasses may only be replaced under voltage-free Conditions.

Ordering Information

Type	BIQ 72/96 BIEQ 72/96	Maximum demand indicator with bimetallic movement Maximum demand indicator with bimetallic movement
Front dimension	72 mm x 72 mm 96 mm x 96 mm	
Measuring Ranges	1 A 5 A --- /1 A for use on Current transformer --- /5A for use on Current transformer	
Front facia	Normal glass ^{*1} Antiglare glass ^{*3}	
Colour of bezel	Black ^{*1} Red, Blue, Yellow, White ^{*3}	
Position of use	Vertical ^{*1} On request 15 165° ^{*3}	
Dial	Standard scale same as measuring range ^{*1} Blank dial without division ^{*3} Additional lettering on request ^{*3} Additional numbering on request ^{*3} Coloured marking red or green ^{*3} Coloured sector red or green ^{*3}	
 Moving Iron:- Bimtal movement:- Moving iron & bimetal	2 times rated current ^{*1} 1.2 times rated current ^{*1} 1.2 times rated current ^{*3}	
Calibration	50 Hz ^{*1} For frequency 15 - 400 Hz ^{*3}	
Calibration	15 min. ^{*1} 8 min. ^{*3} 20 min. ^{*3}	
Logo	RISHABH for Indian sales ^{*1} C.G. ^{*3} , for export through Crompton Greaves I.D. Others ^{*3}	
Terminal protection	Full sized polycarbonate back cover	
Saturating current transformer	Without ^{*1} ESW 1/5A, 4.25 VA ESW 5/5A. 4.25 VA	

^{*1} standard

^{*3} Please clearly add the desired specifications while ordering

Ordering example

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

Specifications are subject to change without notice(02/09)



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