

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

BIQ	48
BIQ	72
BIQ	96
BIEQ	72
BIEQ	96

Data Sheet

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



Applications

The maximum demand ammeters BIQ 48/72/96 / 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

Features

- Scale Interchangeability.
- Near linear scale for MI scale in BIEQ.
- User accessible reset Knob.
- Knife edge pointers.
- Easily replaceable glass and bezel.
- Easy installation with swivel screws.

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 2s.

Specifications

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	Moving - iron
		52 mm	61 mm
	BIQ 72	Bimetallic	---
		61 mm	
	BIEQ 96	Bimetallic	Moving - iron
		71 mm	97 mm
	BIQ 96	Bimetallic	---
		97 mm	
	BIQ 48	Bimetallic	---
		38 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 facia	: Glass
Colour of bezel	: Black
Position of use	: Vertical
Panel fixing	: Swivel screws
Mounting	: Stackable in a single cutout
Panel thickness	: ≤ 25 mm
Terminals	: Hexagon studs, M4 screw and wire clamps E3

Electrical Data

Measuring quantity	: AC currents
Thermal time delay (bimetallic)	: 15 minutes
	: (8 min / 20 min on request)

Response time (moving iron) Approx 2s

Power consumption	: BIQ	BIEQ
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 dc. Page 2 of 4

Accuracy at Reference Conditions

Accuracy class acc to IS : 1248/ IEC 51/DIN EN 60051	: 3 (bimetallic movement referred to slave pointer)
	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...65HZ
Other conditions	: As per IS:1248 (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	: 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... + 55°C
Storage temperature	: - 25... + 65°C
Relative humidity	: ≤ 75% annual average, non-condensing
Shock resistance	: 15g. 11 ms
Vibration resistance	: 10-55-10Hz/0.15mm
	1.5 g at about 50 Hz

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.

Options

Case

Front facia	Antiglare glass
Colour 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.
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

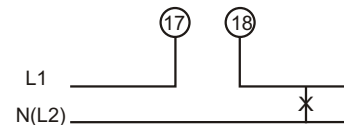
Saturating transformer accuracy class 3, 50 Hz to protect the movements against continuous overloads.

Safety Precautions

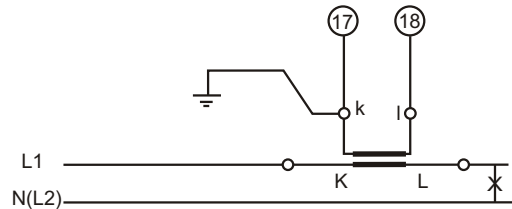
- 1) Instruments with damaged bezels or window glasses must be disconnected from the mains.
- 2) Adequate safety clearance must be maintained to control panel fasteners and to sheet metal housing. If non-insulated connector wires are used.
- 3) The back cover must be snapped into place after connector wire 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.

Connections

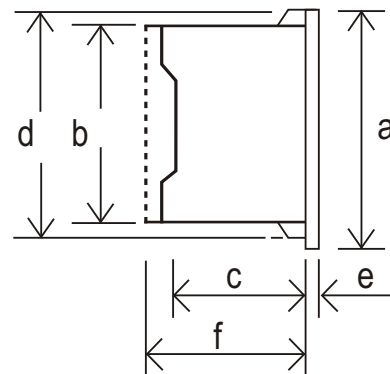
Direct - connected



For use on current Transformer



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

Ordering Information

Type	BIQ BIEQ	Maximum demand indicator with bimetallic movement Maximum demand indicator with bimetallic movement
Front dimension	48 72 96	48mm x 48mm 72mm x 72mm 96mm x 96mm
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 ⁰ ^{*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}
Over range	Moving Iron:- Bimetal 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}
		Full sized polycarbonate back cover
		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 (11/11)



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