



Data Sheet

Maximum Demand Ammeters (BIQ & BIEQ)



Measure



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Application

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 Principal

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 2 times rated -current -current
Scale division	:	Coarse - fine
Scale length	:	BIQ 72 Bimetallic moving iron 52 mm 61mm
	:	BIQ 72 Bimetallic - 61 mm -
	:	BIQ 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



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Proof voltage testing : 3 kV
 Installation category : 300 V CAT III (IEC 1010)
 Insulation resistance : > 50 Mohm at 500 V dc.

Accuracy at Reference Conditions

Accuracy class : 3 (bimetallic movement referred to slave pointer)
 acc to IS : 1248/
 IEC 51/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...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 and 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 : IS 9249
 Electrical indicating instruments : DIN 40050 / 8-70,
 and their accessories. : VDE 0110 / 11-72

Performance specifications for direct acting indicating analogue electrical measuring instruments and their accessories : IS 1248 IEC 51/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 directives, 73/23/EEC (low voltage directive) & amendment 93/68/EEC, For 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.



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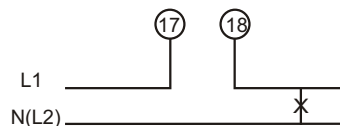
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Safety Precautions

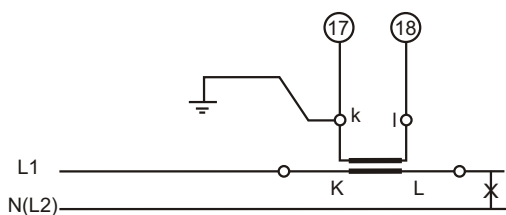
- Instruments with damaged bezels or window glasses must be disconnected from mains.
- Adequate safety clearance must be maintained to control panel fasteners and to sheet metal housing, if non - insulated connector wires are used.
- The back cover must be snapped into place after the connector wires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

Connections

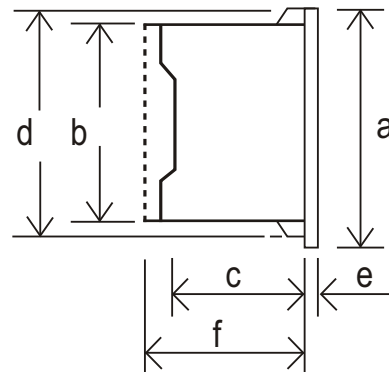
Direct - connected



For use on current Transformer



Dimensions



Dimensions (in mm)	BIQ 72	BIQ 96	BIEQ 72	BIEQ96
Bezel	a □ 72	□ 96	□ 72	□ 96
Case	b □ 66	□ 90	□ 72	□ 96
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.	0.3kg
Depth with Back cover	64	64	64	64



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Ordering Information

Type	
BIQ	Maximum demand indicator with bimetallic movement
BIEQ	Maximum demand indicator with bimetallic movement
Front Dimension	
48	48mm x 48mm
72	72mm x 72mm
96	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 with 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 Ranges	
Moving Iron:-	2 times rated current ^{*1}
Bimetal movement:-	1.2 times rated current ^{*1}
Moving iron & bimetal	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} 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 (11/11)



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Specifications may change without prior notice



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