



Data Sheet

Dual Frequency Meters

ZQ 2 In 1



Measure



Control



Record



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Application

The pointer type frequency meters ,2 in 1 ZQ 96 & 144 housed in moulded polycarbonate cases are suitable for the measurement of frequencies in the range of 45 to 450 Hz. For maximum accuracy, the essential measuring range is obtained by suppressing the unwanted frequency span. These instruments offer several advantages in switchboards and Generating Set Panels. Number of meters can be mounted in a single Cut out(Mosaic mounting). Front glass, Bezel & Dial can be easily replaced.

Features

- Two different meters in one case.
- Linear Scales.
- Knife edge pointers.
- Easily replaceable glass & bezel.
- Glass filled polycarbonate housing.

Functional Principle

Frequencies are measured with a built in electronic transducer and moving coil indicator. Moving coil movement has pivots of very high hardness. Movement is suspended between spring loaded saphire jewels. Movement is properly shielded & critically damped by eddy currents induced in coil former.

Specifications

Scale and Pointer

Pointer	: Knife pointer
Pointer deflection	: 0 ... 90°
Scale characteristics	: Linear
Scale di vision	: Coarse-fine
Scale length	: ZQ 96 54mm

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	: Metal Side Clamp.
Mounting	: Stackable in a single cutout
Panel thickness	: ≤ 25 mm
Terminals	: Hexagon studs, M4 screws and wire clamps E3

Electrical Data

Measured quantity	: Frequency
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Input quantity	: Alternating voltage in sine wave form (acc. to IEC 60051)
Overload capacity	: IEC 60051
Continuously	: 1.2 times rated voltage
Short duration	: 2 times rated input voltage, 5 Sec.
Power consumption	: < 7 VA
Enclosures code (IEC 529)	: IP 52 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	: 660V
Proof voltage testing	: 2KV
Installation category	: 300V CAT III
Insulation resistance	: > 50 Mohm at 500V d.c

Accuracy at Reference Conditions

Accuracy class	: 0.5 according to IEC 60051
Reference conditions	
Ambient temperature	: 23°C ± 2°C
Position of use	: Nominal position ± 1°
Input	: Rated Value of measured quantity
Voltage	: Rated Voltage ± 2%
Others	: IEC 60051
Preheating time	: ≥ 5 Minutes
Nominal range of use	
Ambient temperature	: 0 ... 50°C
Position of use	: Nominal position ± 5°
External magnetic field	: 0.5 mT
Voltage	: Rated voltage ± 20%

Environmental Conditions

Climatic suitability	: Climate II category (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 50 Hz.

Standard Measuring Ranges

Frequency Range	: 45.....50.....55 Hz 45.....55.....65 Hz 55.....60.....65 Hz 360...400...440 Hz 380...400...420 Hz
Rated input voltage	: 57.7 V 63.5V 100 V 110 V 115 V 120 V 127V 208 V 220 V 230 V 240 V



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289 V
380 V
400 V
415 V
440 V
500 V

Applicable Standards

Nominal case and cutout dimensions for indicating Electrical instruments : DIN 43700
Scale 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 and protective measures for Electrical indicating instruments and their accessories. : DIN 40050/8-70, VDE 0110/ 11-72, VDE 0410/ 10-76, IEC 529, IEC 1010
Environmental conditions : 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 : IEC 60051
(Free fall test, vibration test) : IEC 1010, VDE 0411, part 1, Sec. 43/44,

Electro Magnetic Compatibility (EMC) compliance as per following standards:-

EN 50081-2, EN 50082-2, N 55011/CISPR 11,
EN 60555-2, IEC 555-2
EN 61000-4-4/IEC 1000-4-4,
EN 61000-4-2/IEC 1000-4-2,
EN 61000-4-5/IEC 1000-4-5, ENV 50140.

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 : Antiglare glass
Front fascia : Red, Yellow, Blue, White
Colour of bezel : Front adjustable on site
Red index pointer : on request 0°....180°
Position of use : With initial and end values marked.
Dial : Numbering /Lettering.
Blank dial : Basic divisions without numbering.
Special markings : Red or green.
Division dials :
Colour markings/bands :

Accessories

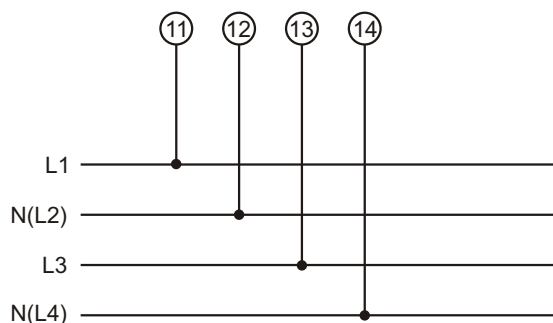
Safety terminal protection

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

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



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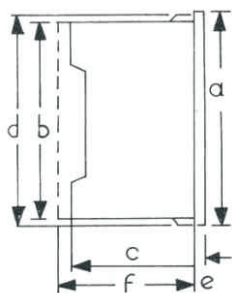


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Dimensions



Dimensions (in mm)		ZQ 9T	ZQ 1T
Bezel	a	☐ 96	☐ 144
Case	b	☐ 90	☐ 136
Depth	c	53	53
	d	☐ 91.5	☐ 137.5
	e	5.5	5.5
Cutout size		☐ 92 ^{+0.8}	☐ 138 ⁺¹
Weight(Approx)		0.2kg	0.4kg
Depth with back cover f		64	64

Ordering Information

Type ZQ	Pointer type frequency meter
Front dimension 96 & 144	96 mm x 96 mm 144 mm x 144 mm
Measuring Ranges	Refer to table inside
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 0 180° ^{*3}
Terminal protection	Full sized polycarbonate back cover
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}
Logo	RISHABH ^{*1}

*1 Standard

*3 Please clearly add the desired specifications while ordering

Ordering Example

ZQ 96, measuring 45...50...55 Hz / 55...60...65 Hz, rated voltage
AC 230 V/ AC 380 V.

Specifications are subject to change without notice (11/11)



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