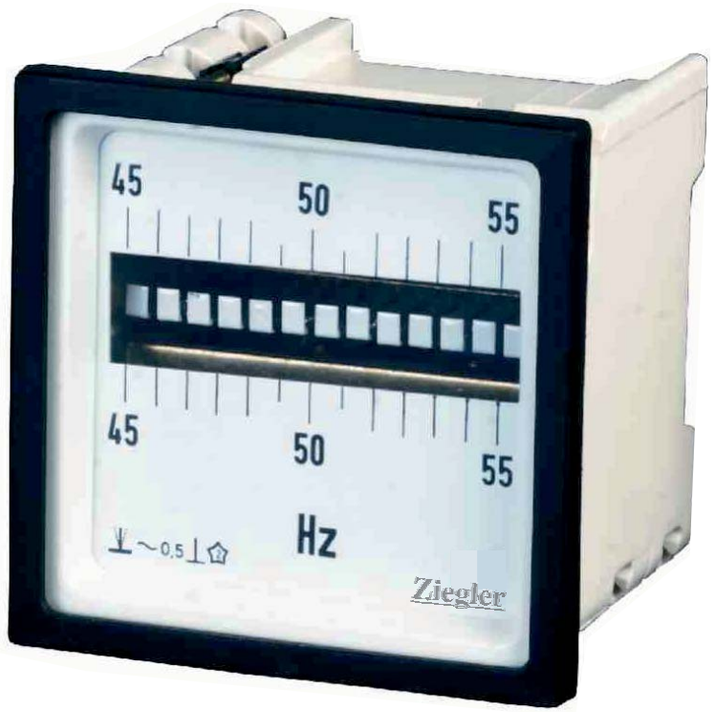
Ziegler

Redefine Innovative Metering

FQ 72 | 96

Vibrating Reed Type Frequency Meter



Application

The reed type frequency meters, FQ 72 / 96 housed in moulded polycarbonate cases are suitable for the measurement of frequencies in the range of 45 to 65 Hz.

These instruments offer several advantages in switchboard 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

- Glass filled polycarbonate housing (UL 94 V-0)
- Easily replacement of glass and bezel.
- Easy installation with swivel screws.

Functional Principle

Vibrating reed type frequency meter is a mechanical resonance type frequency meter which consists of an electromagnet and reeds. This movement consists of a number of thin steel strips called reeds fixed on a steel plate. These reeds are placed in a row close to an electromagnet as shown in Figure 1. The coil of an electromagnet is connected across the supply, whose frequency is to be measured, along with a series resistance, mounted on the backside of the instrument.

Specifications

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 screws And wire clamps E3
Mechanical properties	VDE 0411, Part 1 Clause 43/44

Electrical Data

Measured quantity	Frequency
Input quantity	Alternating voltage in sine waveform
Overload capacity	(acc. to IS: 1248 / IEC 51)
Continuously	1.2 times rated voltage
Short duration	2 times rated voltage,5 sec
Protection against ingress of foreign bodies	IEC 529 (DIN 40050)
Enclosure 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	2KV
Installation catagory	300V CAT III
Insulation resistance	> 50 Mohm at 500 V d.c
Power consumption	<=5VA

Standard Measuring Ranges

Frequency Range

45.....50.....55 Hz
45.....55.....65 Hz
55.....60.....65 Hz
47.....50.....53 Hz

Rated input voltage

110 V
220 V
230 V
240 V
400 V
415 V
440 V

Accuracy at Reference Conditions

Accuracy class	0.5 according to IS: 1248 (IEC 51/ DIN EN 60051)
Reference conditions	
Ambient temperature	23 ^{o}C ± 2 ^{o}C
Position of use	Nominal position ± 1 ^{o}
Input	Rated Voltage ± 2%
Other conditions	IS : 1248 (IEC 51/ DIN EN 60051)
Nominal range of use	
Ambient temperature	0...50 ^{o}C
Position of use	Nominal position ± 5 ^{o}
External magnetic field	0.5 mT
Voltage	Rated Voltage ± 15 %

Environmental Conditions

Climatic suitability	:	Climate category II as per IS : 1248, IS 9000 (climatic class 3 according to VDE/VDI 3540)
Operating temperature	:	- 10... + 55 ^{o} C
Storage temperature	:	- 25... + 65 ^{o} C
Relative humidity	:	± 75% annual average, non-condensing
Shock resistance	:	15g, 11ms
Vibration resistance	:	10-55-10 Hz / 0.15mm 1.5 g at about 50 Hz.
Pollution degree	:	2

Options

Case

Front facia	:	Antiglare glass
Colour of bezel	:	Red,Yello w ,Blue,White.
Position of use	:	on request 0 ....180 ^{o}

Applicable Standards

Specifications for direct acting indicating analogue electrical instruments & their accessories.	:	IS 1248, IEC 51
Dimensions for panel mounted indicating and recording electrical measuring instruments	:	IS 2419 DIN 43700
Front frames for indicating measuring instruments Principle dimensions	:	DIN 43718
Safety requirements for indicating and recording electrical measuring instruments	:	IS 9249 VDE 0410 - 10.76 VDE 0106
Degrees of protection provided by the enclosures for electrical instruments	:	IEC 529, DIN 40050, VDE 0411

	:	VDE / VDI 3540
Electrical panel mounting measuring instruments; terms of delivery.	:	DIN 43701
UL Combustibility Class	:	UL 94 V-0

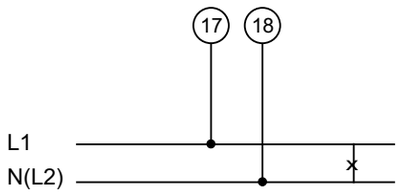
Safety Terminal Protection

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

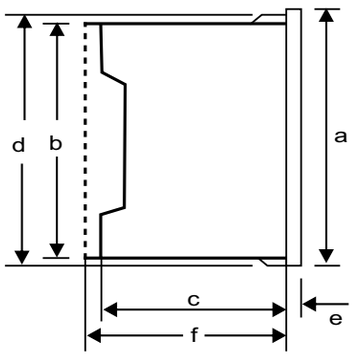
Safety Precautions

- Instruments with damaged be zels 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.
- Be zels and window glasses should be replaced under Voltage - free conditions.

Connections



Dimensions



Dimensions (in mm)		FQ 72	FQ 96
Bezel	a	☐ 72	☐ 96
Case	b	☐ 66	☐ 90
Depth	c*	☐ 53	☐ 53
	d	☐ 67.5	☐ 91.5
	e	5.5	5.5
Cutout Size		☐ $68^{+0.7}$	☐ $92^{+0.8}$
Depth with Back cover	f **	64	64
Weight (approx.)		0.21 kg.	0.28 kg.

Ordering Information

Type FQ	Pointer type frequency meter
Front dimension 72 96	 72 mm x 72 mm 96 mm x 96 mm
Measuring Ranges	Refer to table inside
Terminal protection	Full sized polycarbonate back cover
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
Logo	ZIEGLER *1

*1 standard

*3 Please clearly add the desired specifications while ordering

Ordering example

FQ 96 Measuring range 45....50....55 Hz, rated voltage AC 230V

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

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