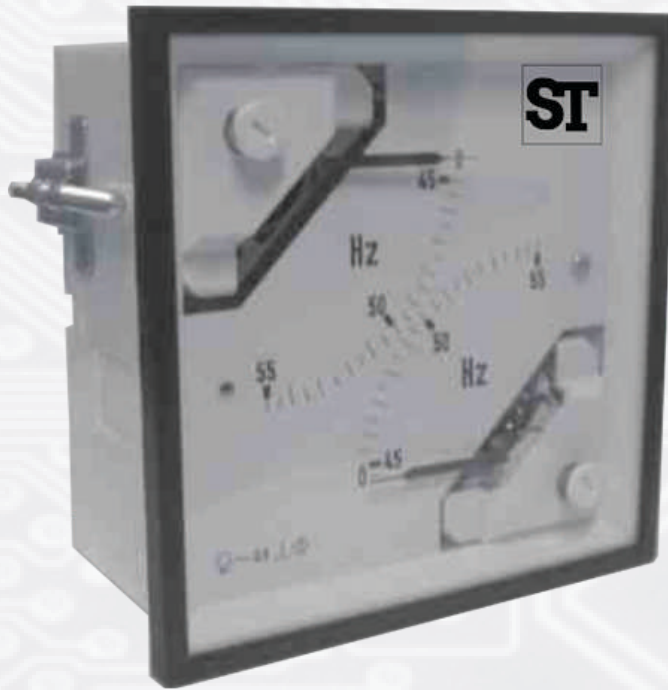




Technical Data Sheet

2 in 1 Frequency Meter



The pointer type frequency meters ,2 in 1 FM 96 housed in moulded polycarbonate cases are suitable for the measurement of frequencies in the range of 45 to 450 Hz.

Special Features

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

Application

The pointer type frequency meters ,2 in1, FM96 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.

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 sapphire jewels. Movement is properly shielded & critically damped by eddy currents induced in coil former.

Scale and Pointer

Pointer	Knife - edge pointer
Pointer deflection	0...90°
Scale characteristics	Linear
Scale division	Coarse - fine
Scale length (FM 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 fascia	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
Input quantity	Alternating voltage in sine waveform (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	660 V
Proof voltage testing	2 kV
Installation category	300V CAT III
Insulation resistance	> 50 M-ohm at 500 V 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 ± 10
Input	Rated value of measured quantity
Voltage	Rated Voltage ± 2%
Other	IEC 60051
Preheating time	≥ 5 Minutes

Environmental Conditions

Climatic suitability	Climate category II as per IS :1248 (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. 11ms
Vibration resistance	10-55-10 Hz / 0.15 mm 1.5 g at about 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 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 or 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
Performance specifications for direct acting indicating analogue electrical measuring instruments and their accessories	IEC51/DINEN60051 DIN 43701
Environmental conditions	VDE / VDI 3540
Front frames for indicating measuring instruments Principle dimensions	DIN 43718

UL Compatibility	UL 94 V-0
Technical conditions of delivery for electrical instruments	DIN 43701
Mechanical strength (Free all test, Vibration test)	IEC 60051 IEC 1010 VDE 0411, part 1, Sec.

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:

2004 / 108 / EC (EMC directive) , 2006 / 95 / EC (low voltage directive) & amendment 93/68/EEC, For **CE** Marking.

Options

Case	
Front facia	Antiglare glass
Colour of bezel	Red, Yellow, Blue, White
Red index pointer	Front adjustable on site
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
Color markings/bands	Red or green

Accessories

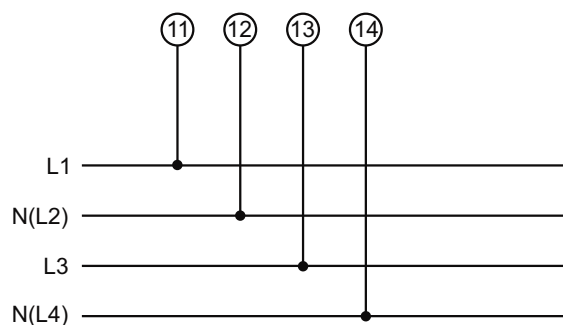
Safety terminal protection

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

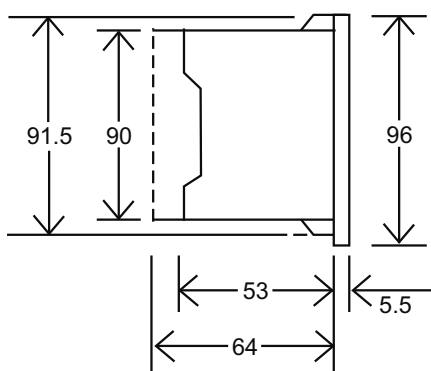
Safety Precautions

- 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

Connection



Dimensions



Cutout Size $92^{+0.8}$
 Weight (approx.) 0.28 kg.

Ordering Information

For more details and product codes, please contact our local office



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