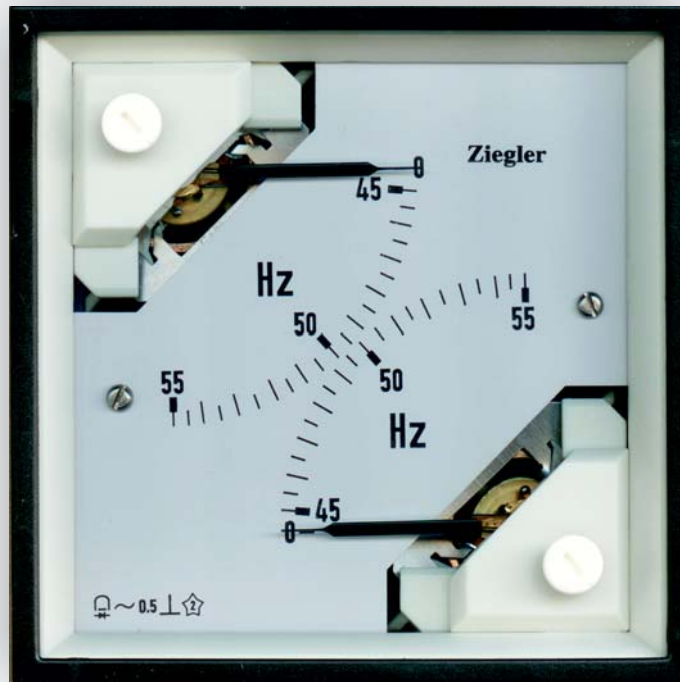


# Ziegler

Redefine Innovative Metering

## DFP 96

Analogue Pointer - Type 2 in 1 Frequency Meters



© Ziegler Instruments Order No. DFP-96-E1.R0-921220-1-2014-EN



## Application

The pointer type frequency meters ,2 in 1 DFP 96 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 sapphire 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	DFP 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 be zel	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	IP 52 case
(IEC 529)	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 Mohm 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 ± 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 (Climate 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
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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
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### 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
Performance specifications for direct acting indicating analogue electrical measuring instruments and their accessories	: IEC 51 DINEN60051 DIN 43701
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 (Free fall test, vibration test)	: IEC 60051 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	
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.
Colour markings/bands	Red or green.

### Accessories

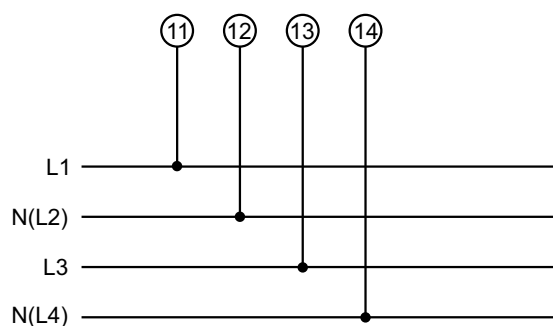
#### Safety terminal protection

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

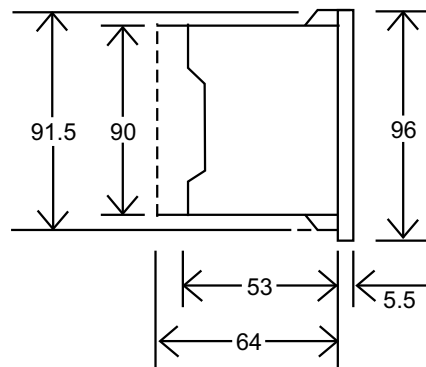
### Safety Precautions

- 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

### Connections



### Dimensions



Cutout Size 92<sup>+0.8</sup>  
Weight (approx.) 0.28 kg.

## Ordering Information

<b>Type DFP</b>	Pointer type frequency meter
<b>Front Dimension 96</b>	96mm x 96mm
<b>Measuring Ranges</b>	Refer to table inside
<b>Front facia</b>	Normal glass <sup>*1</sup> Antiglare glass <sup>*3</sup>
<b>Colour of Bezel</b>	Black <sup>*1</sup> Red, Blue, Yellow, White <sup>*3</sup>
<b>Position of use</b>	Vertical <sup>*1</sup> on request 0...180° <sup>*3</sup>
<b>Terminal Protection</b>	Full sized polycarbonate back cover
<b>Dial</b>	Standard scale same as measuring range <sup>*1</sup> Blank dial with division <sup>*3</sup> Additional lettering on request <sup>*2</sup> Additional numbering on request <sup>*2</sup> Coloured marking red or green <sup>*3</sup> Coloured sector red or green <sup>*3</sup>
<b>Logo</b>	ZIEGLER <sup>*1</sup>

<sup>\*1</sup> Standard

<sup>\*3</sup> Please clearly add the desired specifications while ordering

DFP 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)

## ZIEGLER INSTRUMENTS

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