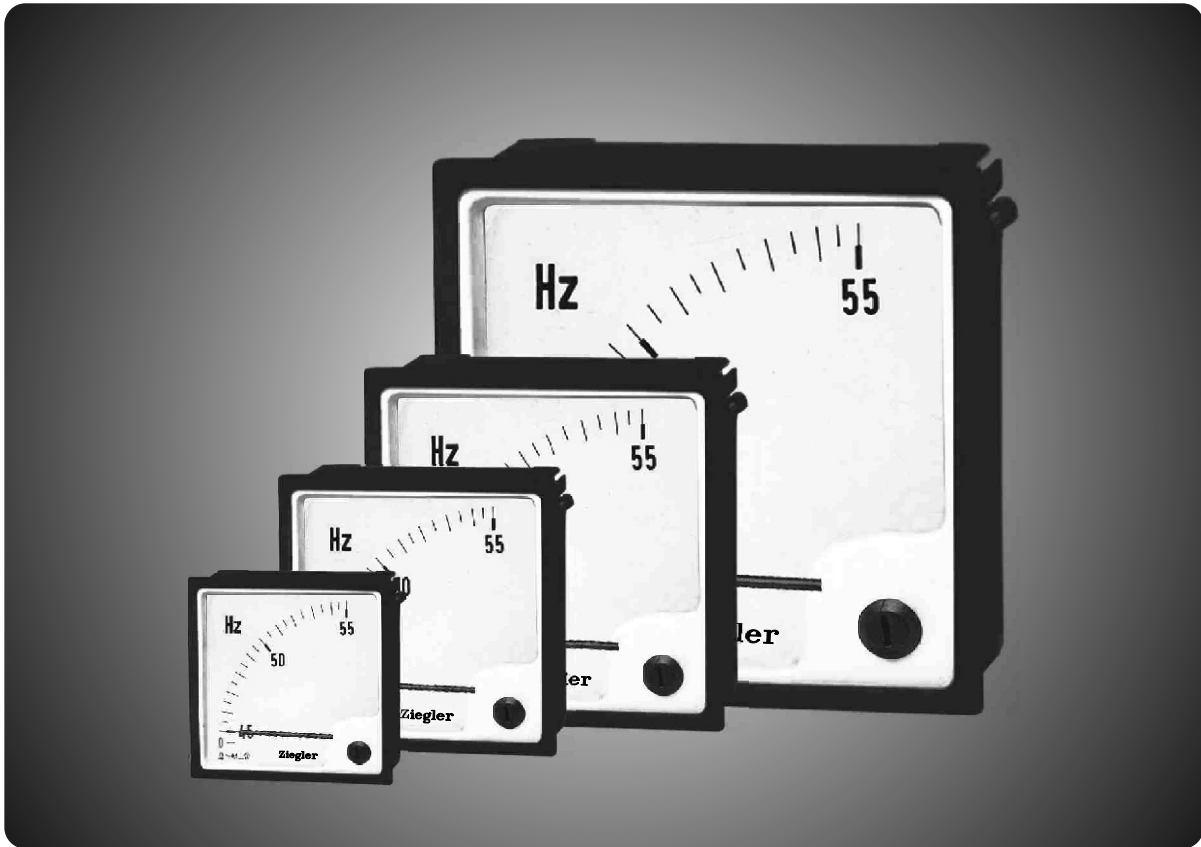


ZQ	48
ZQ	72
ZQ	96
ZQ	144

Data Sheet

Analogue Pointer - Type
Frequency Meters



Application

The Pointer type Frequency Meters ZQ 48/72/96/144 housed in moulded Polycarbonate cases are used for the measurement of frequencies in the range of 45 to 450 Hz.

For maximum accuracy, the essential measuring 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 window glass, Bezel & Dial can be easily replaced.

Functional principle

Frequencies are measured with a built in electronic transducer and a moving-coil indicator.

Moving-coil movements 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.

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-O
Front facia	Glass
Colour of bezel	Black
Position of use	Vertical
Panel fixing	Swivel screw
Mounting	Stackable in a single cutout
Panel thickness	≤40 mm
Terminals	Hexagon studs, M4 screws and wire clamps E3

Electrical Data

Measured quantity	Frequency
Input quantity	Alternating Voltage in Sinusoidal waveform
Overload capacity	(acc. to IEC 51)
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 insulating voltage	660 V
Proof Voltage	2 kV
Installation category	600 V CAT III (IEC 1010)
Insulation resistance	> 50 Mohm at 500 V d.c.

Standard Measuring Ranges

Frequency range

45.....50.....55 Hz
48.....50.....52 Hz
45.....55.....65 Hz
55.....60.....65 Hz
58.....60.....62 Hz
180.....200.....220 Hz
360.....400.....440 Hz
380.....400.....420 Hz

Rated Input Voltage

57.7 V
63.5 V
100 V
110 V
115 V
120 V
127 V
208 V
220 V
230 V
240 V
250 V
289 V
380 V
400 V
415 V
440 V
500 V

Scale and pointer

Pointer	Knife-edge pointer
Pointer deflection	0 90°
Scale characteristics	Linear
Scale division	Coarse-fine
Scale length	ZQ 48 ZQ 72 ZQ 96 ZQ 144
	41mm 63mm 97mm 146mm

Accuracy at Reference Conditions

Accuracy class	0.5 according to IEC 51 / DIN EN 60051
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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 51 / DIN EN 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	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	10-150-10 Hz / 0.15 mm 1.5 g at about 50 Hz

Applicable standards

Nominal case & cutout dimensions for indicating measuring instruments	: DIN 43700
Scales 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.	: 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/ DIN EN 60051 DIN 43701
Environmental conditions	: VDE / VDI 3540
Front frames for indicating measuring instruments Principle dimensions	: DIN 43718
UL Combustibility class	: UL 94 V-O
Technical conditions of delivery for electrical instruments	: DIN 43701
Mechanical strength (Free fall test, vibration test)	: VDE 0411, part 1, Sec.43/44, IEC 1010 / IEC 51
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.

Accessories

Safety Terminal Protection

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

Data Sheet

Analogue Pointer - Type Frequency Meters

Options

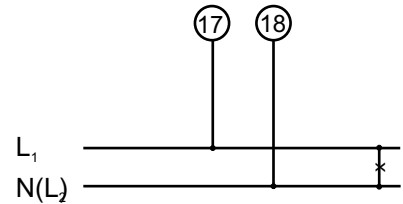
Case

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°

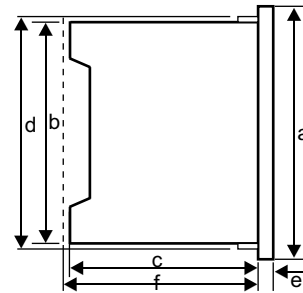
Dial

Blank dial	With initial and end values marked
Special markings	Numbering / Lettering
Division dials	Basic divisions without numbering
Colour markings/bands	Red or green

Connections



Dimensions



Dimensions (in mm)	ZQ48	ZQ72	ZQ96	ZQ144
Bezel a	□ 48	□ 72	□ 96	□ 144
Case b	□ 43.5	□ 66	□ 90	□ 136
Depth c*	53	53	53	53
d	□ 44.5	□ 67.5	□ 91.5	□ 137.5
e	5.5	5.5	5.5	5.5
cutout size	□ 45 ^{+0.6}	□ 68 ^{+0.7}	□ 92 ^{+0.8}	□ 138 ⁺¹
Depth with back cover f	64	64	64	64
Wt. (approx.)	0.15 kg	0.21 kg	0.28 kg	0.49 kg

Ordering Information

Type ZQ	Pointer - type frequency meter
Front dimension 48 72 96 144	48 mm x 48 mm 72 mm x 72 mm 96 mm x 96 mm 144 mm x 144 mm
Measuring ranges	Refer to table inside
Rated Voltage	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, Green or Blue ^{*3} coloured sector Red, Green or Blue ^{*3}
logo	Without ^{*3} OEM logo ^{*3}

^{*1} standard

^{*3} please clearly add the desired specifications while ordering.

Safety precautions

- Instruments with damaged bezels or window glasses must be disconnected from the 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.

Ordering example

ZQ 96 measuring range 45.....50.....55 Hz, rated voltage AC 230 V

Specifications are subject to change without notice (07/02)

Ziegler

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