

# Ziegler

Redefine Innovative Metering

## Technical Datasheet

Frequency Meter ZQ / ZL

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ANALOG PANEL METERS

# FREQUENCY METER ZQ/ZL

## ZQ/ZL

Pointer type Frequency Meters is suitable for the measurement of Frequencies 30 to 450 Hz. These type of frequency meters use in-built electronic transducer and a moving coil movement. For maximum accuracy, the essential measuring range is obtained by suppressing the unwanted frequency span.

### Product Features

- Linear scale.
- Glass filled polycarbonate housing(UL 94-V-0).
- Knife edge pointer.
- Easily replaceable glass and bezel.
- Easy installation with swivel screws.



### Specifications:

Scale & Pointer	
Pointer	Knife - edge Pointer
Pointer Deflection(ZQ)	0...90°
Pointer Deflection(ZL)	0...240°
Scale characteristics	Linear *
Scale division	Coarse – Fine
Scale length(ZQ)	ZQ48 : 41mm, ZQ72 : 63mm, ZQ96 : 97mm, ZQ144 : 146mm
Scale length(ZL)	ZL96 : 142mm, ZL144 : 230mm
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 UL94 V-0.
Front facia	Glass
Colour of bezel	Black
Position of use	Vertical
Panel fixing	Swivel screws
Mounting	Stack-able in a single cutout
Panel thickness	≤25mm
Terminals	Hexagon studs, M4 screws & wire clamps E3
Electrical Data	
Measured quantity	Frequency
Input Quantity	Alternating voltage is sine waveform
Overload capacity (acc to IEC 60051)	Continuously 1.2 times rated voltage
	Short duration: 2 times rated voltage, 5 sec
Enclosure code (IEC 60529) (ZQ)	IP52 for case IP 20 for terminals with back cover
Enclosure code (IEC 60529) (ZL)	IP52 for case IP 00 for terminals without back cover
Insulation class	Group A according to VDE 0110
Rated Insulation Voltage	660V
Proof voltage	2KV
Installation category	300V CAT III

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Insulation resistance	>50 MΩ at 500V DC
Power consumption	<=7 VA
<b>Accuracy at Reference Conditions</b>	
Accuracy Class	0.5 (according to IEC 60051 / DIN EN 60051)
Ambient temperature	23°C ± 2°C
Position of use	Nominal position ± 1°
Input	Rated value of measured quantity
Voltage	Rated voltage ± 2%
Other Conditions	IEC 60051 / DIN EN 60051
Preheating time(ZQ)	>= 3 min
Preheating time(ZL)	>= 5 min
<b>Nominal Range of Use</b>	
Ambient Temperature	0...50°C
Position of use	Nominal position ± 5°
External Magnetic Field	0.5 mT
Voltage	Rated Voltage ± 15 %
<b>Environmental conditions</b>	
Climatic suitability	Climate category II as per IEC60051 (climatic class 3 acc 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/0.15mm, 1.5 g at about 50 Hz
Pollution degree(ZQ)	2

## Standard Measuring Ranges (ZQ/ZL)

### Frequency ranges

30...90...150Hz*	
45...50...55 Hz	
45...55...65 Hz	
55...60...65 Hz	
360...400...440 Hz	
380...400...420 Hz	*only for ZL

## Standard Measuring Ranges(ZQ/ZL)

### 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
289 V

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380 V  
400 V  
415 V  
440 V  
500 V

## Applicable standards(ZQ/ZL)

Nominal case & cutout dimensions for indicating electrical instruments	DIN 43700
Scale & Pointer for electrical measuring instruments	IEC 60051, DIN 43802
Connections and terminal markings for panel meters	IEC 60051, 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 60529, IEC 61010
Performance specifications for direct acting indicating analogue electrical measuring instruments and their accessories Environmental conditions	IEC 60051 IEC 60051 / DIN EN 60051, DIN 43701, 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, VDE 0411,part 1, Sec. 43/44, IEC 61010
Electromagnetic Compatibility (EMC) Compliance as per following standards	EN 50081-2,EN 50082-2, EN 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

Front fascia	Anti glare glass
Colour of bezel	Red, Yellow, Blue, White
Red Index pointer	Front adjustable on site
Position of use	On request 0° ...180°
Blank dial	With initial and end values marked

# FREQUENCY METER ZQ/ZL

Special markings	Numbering / Lettering
Division dials	Basic divisions without numbering
Colour marking / band	Red or green

## Accessories

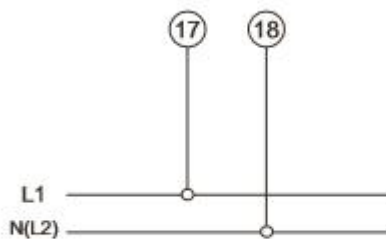
### Safety Terminal Protection

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

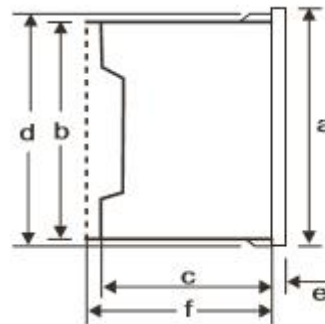
### Safety Precautions

- 1) Instruments with damaged bezels or window glasses must be disconnected from the mains.
- 2) Adequate safety clearance must be maintained to control panel fasteners and to sheet metal housing. If non-insulated connector wires are used.
- 3) The back cover must be snapped into place after connection wires have been clamped for protection against accidental contact.
- 4) Scales should be replaced under voltage-free conditions.
- 5) Bezels and window glasses may only be replaced under voltage-free conditions.

### Connection Diagram :



### 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 <sup>+0.6</sup>	□ 68 <sup>+0.7</sup>	□ 92 <sup>+0.8</sup>	□ 138 <sup>+</sup>
Depth with Back cover	f** 64	64	64	64
Weight (approx.)	0.15 kg.	0.21 kg.	0.28 kg.	0.49 kg.

Dimensions (in mm)	ZL 96	ZL 144
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 <sup>+0.8</sup>	138 <sup>+</sup>
Weight (approx.)	0.45 kg	0.6 kg

# FREQUENCY METER ZQ/ZL

## Ordering information

ZQ/ZL	
Front dimension(ZQ)	48X48mm, 72X72mm, 96X96mm, 144X144mm
Front dimension(ZL)	96X96mm, 144X144mm
Measuring ranges	Refer to table inside
Terminal Protection	Full sized polycarbonate back cover
Front facia	Normal glass *1, PC glass *3, Anti glare glass *3
Colour of bezel	Black *1 Red, Blue, Yellow, White *3
Position of use	Vertical *1 On request 0°...180° *3
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	Ziegler*1, Others*3

\*1 Standard

\*3 Please clearly add the desired specifications while ordering

**Example** – ZQ72/ZL96, Measuring range, Dial with 45.....50.....55 Hz, Rated Voltage AC 230 V  
Specifications are subject to change without notice

# Ziegler

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