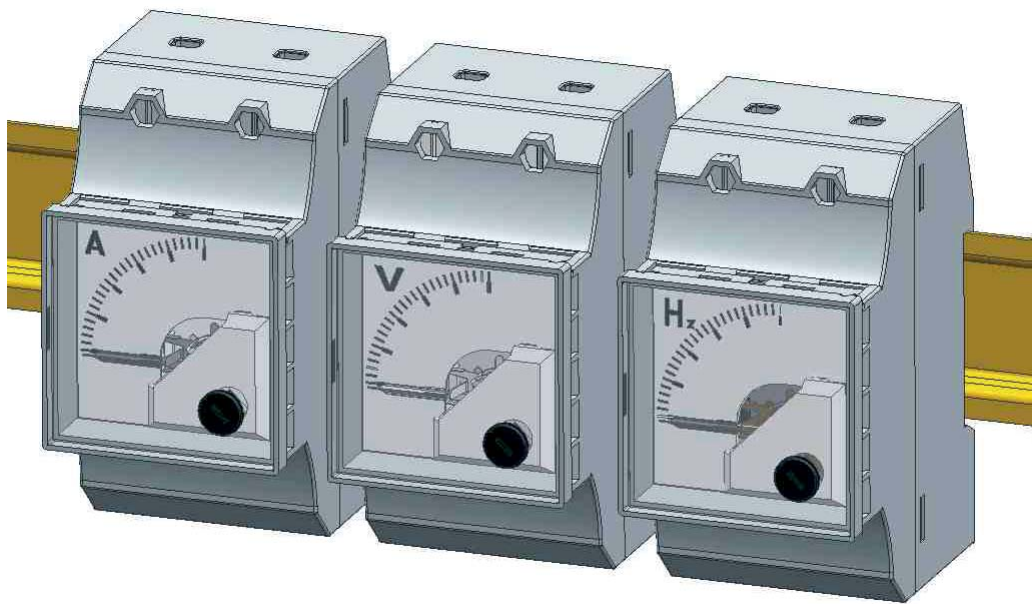


Ziegler

Redefine Innovative Metering

EQ 35 PQ 35 ZQ 35

Analogue Meter Clamping to DIN Rails



© Ziegler Instruments Order No. EQ,PQ,ZQ_90_Deg-DIN Data sheet-E1.R0-920807-43-2013-EN



Applications

The analog EQ 35, PQ 35, ZQ 35 meters, designed for the measurement of current, voltage & frequency in distribution, installations which utilizes 35 mm.DIN rails for equipment mounting. The mounting width is 45 mm.

These meters housed in molded Polycarbonate cases are suitable for the measurement of AC current & voltage, DC current & voltage & Frequency. The moving iron meters indicate rms values practically independent of wave - form even of high harmonics. Error of indication may occur for extreme wave - forms (eg. phase getting controls) & for frequencies above 100 kHz. For the CT operated Ammeters, dials can be field fitted based on CT ratio.

Frequency meters are designed to measure system frequency from 45..65 Hz with different system voltages.

Features

- Easy mounting with 35 mm Din-rail.
- Near linear scale for EQ & linear scale for PQ & ZQ
- Glass filled polycarbonate housing.

Functional Principle

EQ 35 moving-iron movements with shell-type system, silicon oil damping and spring loaded jewel bearings, pivot suspension.

PQ 35 moving-coil movement with core-type magnetic system, dual spring loaded jewel bearings, pivot suspension.

ZQ 35 moving-coil movement with core-type magnetic system, dual spring loaded jewel bearings, pivot suspension, along with frequency transducer.

Applicable Standards

Case & Cutout dimensions	DIN 43700 / IS 2419
Scale & Pointer	DIN 43802 / IS 1248
Connections & Terminal marking	DIN 43807 / IS 1248
Safety Requirements & Protective measures	IEC / EN 61010
Performance Specification	IEC / EN 60051
Front Frame / Bezel	DIN 43718
UL Comabustibility (Case & Bezel)	UL 94 V-0
European Directives(EMC Directive) 73/23/EEC (Low voltage directive) & ammendment 93/68/EEC,for CE mark	89/336/EEC
Mounting rails	DIN EN 50 022

Scale and Pointer

Pointer	Knife- edge pointer
Dial	Interchangeble
Pointer Deflection	0...90°
Scale Characteristics EQ 35	Near linear above 10% of nominal full scale value
PQ 35/ ZQ 35	Linear
Scale Division	Coarse-fine
Scale Length	38mm
Over-Range Scaling Ammeters	2 times rated current
Voltmeters for use on Voltage transformers	1.2 times rated voltage
Scale Interchangeability	Possible in all the ranges

Mechanical Data

Case details	Projecting case clamping to 35 mm mounting rail complying with DIN EN 50022
Material of case	Thermoplastics, self extinguishing
Color of case	Ivory
Material of window	Polycarbonate
Position of use	vertical $\pm 5^\circ$

Terminals	Brass Hexagon studs, M4 screw & self lifting wire clamps E3 (DIN 46282)
Dimensions LxWxH	85 mm x 45 mmx65 mm
Weight approx.	EQ 35 PQ 35 ZQ 35 0.1 kg 0.1kg 0.1kg

Electrical Data

Measuring unit	EQ 35 AC Voltage or AC current PQ 35 DC Voltage or DC current ZQ 35 Frequency
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Overload capacity

Continuously	1.2 times rated voltage / current (5s max.)
Short duration Voltmeters	2 times rated voltage max. 1000V upto 5s
Ammeters	10 times rated current 10 times

Power consumption EQ 35

Voltmeters	approx. 1.5 ... 3 VA
Ammeters	approx. 0.5 ... 1VA
5 second max.	10 times(200A max)
1 second max.	40 times (250A max)
Protection class	I
Enclosure code	IP 52 case IP 00 for terminals without protection against accidental contact group A according to VDE 0110
Insulation class	

Rated insulation

voltage	660 V
Dielectric test	2 kV Based on 50 Hz, 1 min acc. To DIN 57 410

Accuracy at Reference Conditions

Accuracy class	1.5 according to EN 60051/ IS 1248
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Reference conditions

Ambient Temperature	23°C +/- 2°C
Position of Use	Nominal position +/-1°.
Input Quantity	Rated value of measured quantity
Frequency	45...65Hz
Wave form	Sinusoidal, Distortion factor <= 5%
Other conditions	As per EN 60051/IS 1248

Nominal Range of Use

Ambient Temperature	0 ... 50°C
Position of Use	Vertical +/-5°.
Frequency	15 ... 100 Hz (voltage) 15 ... 400 Hz (current)
Wave form	Sinusoidal, Distortion factor <= 5%
Other conditions	As per EN 60051/IS 1248
Ambient temperature	-25°C... +23°C ... + 40°C
Position of use	Nominal position +/- 5°
Frequency	15 ... 100 Hz (voltage) 15 ... 400 Hz (current)
Stray magnetic field	0.5 mT

Environmental Conditions

Climatic Suitability	Climatic class 3 according to VDE/VDI 3540
Operating temperature-range	-10 ... + 55°C
Storage temperature-range	-25 ... + 65°C
Relative Humidity	< 75% annual average, non-condensing

Shock Resistance 15 g, 11ms
 Vibration Resistance 1.5 g, at about 50 Hz

Options

Measuring range

Special Measuring 0 Adjustment of internal resistance to (PQ 35) deviating from standard +/- 1% at 23°C
 Lead Resistance (PQ 35) calibration to > 0.05
 Zero position (PQ 35) mechanically suppressed zero, no zero adjustment.

Performance

Increased Mechanical Loads Shock 30 g, 11ms
 vibration 5g, 5 ... 55 Hz
 Climatic suitability Limited use in the tropics
 climate class 3
 according to VDE/VDI 3540
 Operating temperature range -10..+55°C
 Dielectric test 3 KV based on 50 Hz, 1 min

Dial

Blank dial marked initial and end values to be specified e.g. "Generator"
 Additional lettering to be specified
 Additional figuring red, green or blue for important scale values
 Coloured marks red, green or blue within scale division
 Coloured sector red, green or blue within scale division
 Logo on the dial none or to be specified
 Overload scaling EQ 35 no overload range

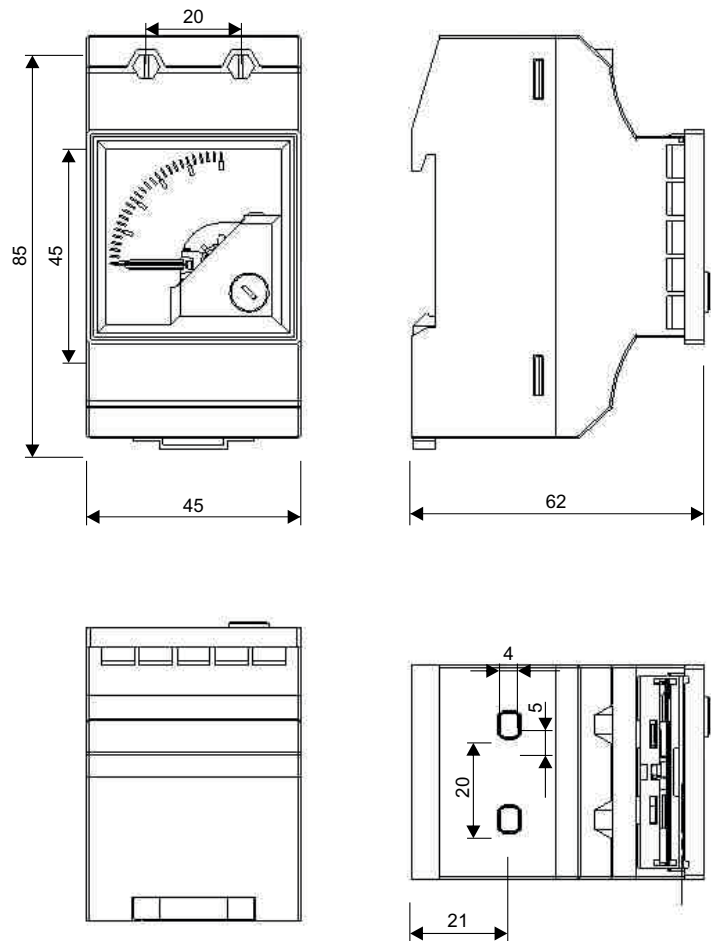
Measuring Ranges

Ac Current EQ 35		AC Voltage EQ 35	
1 A		100 V	
1.2 A		120 V	
5 A		150 V	
6 A		250 V	
10 A		300 V	
12 A		500 V	
15 A		600 V	
(For use on Current transformer)		(For use on Potential transformer)	
N/1 A		.../ 100 V sec.	
N/5 A		.../ 110 V sec	
please state transformer ratio ordering.			
1) full scale value = 2 times rated current (overload scaling)			
2) full scale value = 1.2 times rated voltage (overload scaling)			
DC current PQ 35 internal resistance voltage drop aprox.		DC voltage PQ 35	
1 mA	60 mV	100m V	1000 Ω/V *)
1.5 mA	60 mV	150m V	1000 Ω/V
2.5 mA	60 mV	250m V	1000 Ω/V
4 mA	60 mV	400m V	1000 Ω/V
5 mA	60 mV	600m V	1000 Ω/V
6 mA	60 mV	1 V	1000 Ω/V
10 mA	60 mV	1.5 V	1000 Ω/V
15 mA	60 mV	2.5 V	1000 Ω/V
20 mA	60 mV	4 V	1000 Ω/V
25 mA	60 mV	6V	1000 Ω/V
40 mA	60 mV	10 V	1000 Ω/V
60 mA	60 mV	15 V	1000 Ω/V
100 mA	60 mV	25 V	1000 Ω/V
150 mA	60 mV	40 V	1000 Ω/V
250 mA	60 mV	60 V	1000 Ω/V
400 mA	60 mV	100 V	1000 Ω/V
600 mA	60 mV	150 V	1000 Ω/V
1 A	60 mV	250 V	1000 Ω/V
1.5 A	60 mV	400 V	1000 Ω/V
2.5 A	60 mV	500 V	1000 Ω/V
4 A	60 mV	600 V	1000 Ω/V
6 A	60 mV		

For use with external shunt	
60 mV	1000 Ω/V
150 mV	1000 Ω/V
a total lead resistance of 0.05Ω is considered in the calibration of the indicator for connecting leads 1 m, 2 x 0.75 mm ²	
FREQUENCY ZQ 35	VOLTAGE ZQ 35
45-55 Hz	110 V
55-65 Hz	110 V
45-65 Hz	110 V
45-55 Hz	220 V
55-65 Hz	220 V
45-65 Hz	220 V
45-55 Hz	440 V
55-65 Hz	440 V
45-65 Hz	440 V

*) the resistance values are limited to a tolerance of ± 20%

Dimensions



Nominal Range of Use

Type EQ 35 PQ 35 ZQ 35	Analogue instrument, clamping to DIN rail for AC voltage or AC current, 90° for DC voltage or DC current, 90° for Frequency, 90°
Measuring ranges	refer to preceding table
Special measuring range	to special order **)
Adjustment EQ 35 PQ 35	internal resistance $\pm 20\%$ *) internal resistance $\pm 1\%$ at 230 C lead resistance $>0,05$ W
Calibration EQ 35	50 Hz*) definite frequency 100 ... 1000 Hz **)
zero position PQ 35	unchanged *) 10% Shifted, mechanically suppressed zero **)
Performance loads	shock 15 g, vibration 2.5 g *) shock 30 g, vibration 5 g
climatic suitability	class 2, -25 ... +40°C *) class 3, -10 ... +550 C
dielectric test	2kV*) 3kV
dial	scale division and measuring range alike resp. full-scale values acc. to DIN series 1 - 1.5 - 2.5 - 4 - 6*) blank dial scale division and figuring 0 ... 100%**) linear acc. to DIN series **) ***) linear deviating from DIN series **) ***) calibration fr. non - linear graph or chart *) scaling in ohms for voltmeters **) additional lettering to be specified ** additional figuring to be specified * coloured marks red, green or blue **) coloured sector red, green or blue **)
Logo on the dial	none
overload scaling EQ 35 ammeters	none 2 times rated current *)

*) Standard

***) Please clearly add the desired specifications.

****) PQ 35, USP 00 only

Ordering example

PQ 35 measuring range and scaling 0 ... 1A

ZIEGLER INSTRUMENTS

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