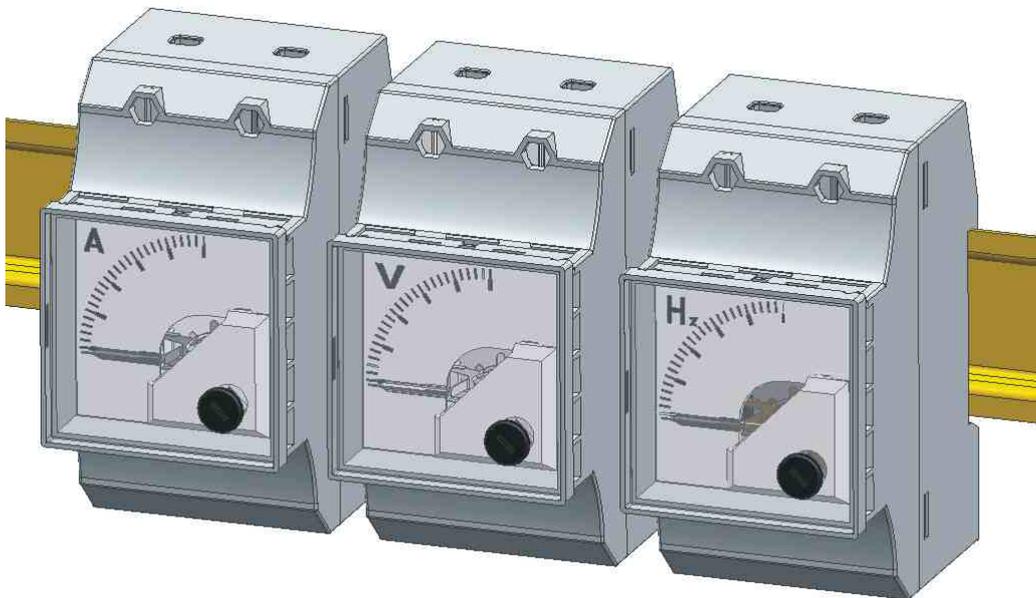


# Analog Meters Clamping to DIN Rails

EQ	35
PQ	35
ZQ	35

## Data Sheet

Analogue Meter Clamping  
to DIN Rails



## 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, alongwith frequency transducer.

## Specifications

### 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 mm x 65 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
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
Insulation class	: group A according to VDE 0110
Rated insulation voltage	: 660 V
Dielectric test	: 2 kV 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

## Measuring Ranges

AC Current EQ 35	AC Voltage EQ 35
1 A 1.2 A 5 A 6 A 10 A 12 A 15 A <b>(For use on Current transformer<sup>1</sup>)</b> N/1 A N/5 A	100 V 120 V 150 V 250 V 300 V 500 V 600 V <b>(For use on Potential transformer<sup>1</sup>)</b> .../ 100 V sec. .../ 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 voltage drop aprox.	DC voltage PQ 35 internal resistance
1 mA 60 mV 1.5 mA 60 mV 2.5 mA 60 mV 4 mA 60 mV 5 mA 60 mV 6 mA 60 mV 10 mA 60 mV 15 mA 60 mV 20 mA 60 mV 25 mA 60 mV 40 mA 60 mV 60 mA 60 mV 100 mA 60 mV 150 mA 60 mV 250 mA 60 mV 400 mA 60 mV 600 mA 60 mV 1 A 60 mV 1.5 A 60 mV 2.5 A 60 mV 4 A 60 mV 6 A 60 mV	100m V 1000 Ω/V* 150m V 1000 Ω/V 250m V 1000 Ω/V 400m V 1000 Ω/V 600m V 1000 Ω/V 1 V 1000 Ω/V 1.5 V 1000 Ω/V 2.5 V 1000 Ω/V 4 V 1000 Ω/V 6V 1000 Ω/V 10 V 1000 Ω/V 15 V 1000 Ω/V 25 V 1000 Ω/V 40 V 1000 Ω/V 60 V 1000 Ω/V 100 V 1000 Ω/V 150 V 1000 Ω/V 250 V 1000 Ω/V 400 V 1000 Ω/V 600 V 1000 Ω/V
<b>For use with external shunt</b>	
60 mV 150 mV	1000 Ω/V 1000 Ω/V
a total lead resistance of 0.05 Ω is considered in the calibration of the indicator for connecting leads 1 m, 2 x 0.75 mm <sup>2</sup>	
FREQUENCY ZQ 35	VOLTAGE ZQ 35
45-55 Hz 55-65 Hz 45-65 Hz 45-55 Hz 55-65 Hz 45-65 Hz 45-55 Hz 55-65 Hz 45-65 Hz	110 V 110 V 110 V 220 V 220 V 220 V 440 V 440 V 440 V

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

## Options

### Measuring range

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

### Performance

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

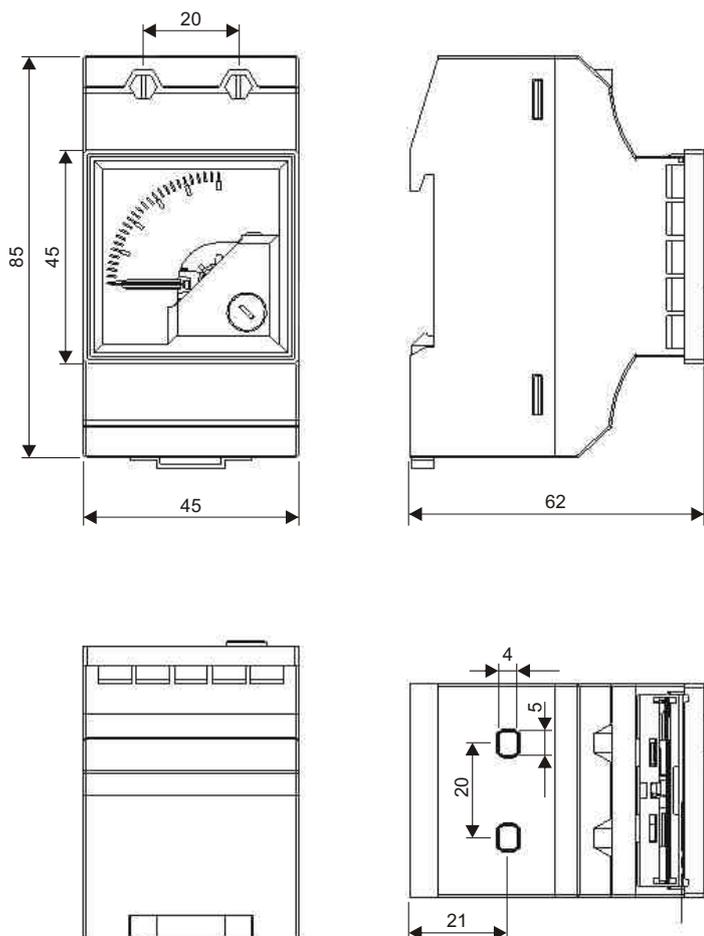
### Dial

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

## Applicable Standards

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

## Dimensions



## Ordering information

<b>Type</b> EQ 35 PQ 35 ZQ 35	Analog instrument, clamping to DIN rail for AC voltage or AC current, 90° for DC voltage or DC current, 90° for Frequency, 90°
<b>Measuring ranges</b>	refer to preceding table
<b>Special measuring range</b>	to special order **)
<b>Adjustment</b> EQ 35 PQ 35	internal resistance $\pm 20\%$ *) internal resistance $\pm 1\%$ at 23°C lead resistance $> 0,05 \Omega$
<b>Calibration</b> EQ 35	50 Hz*) definite frequency 100 ... 1000 Hz **)
<b>zero position</b> PQ 35	unchanged *) 10% Shifted, mechanically suppressed zero **)
<b>Performance loads</b>	shock 15 g, vibration 2.5 g *) shock 30 g, vibration 5 g
<b>climatic suitability</b>	class 2, -25 ... +40°C *) class 3, -10 ... +55°C
<b>dielectric test</b>	2kV*) 3kV
<b>dial</b>	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 **)*)
<b>Logo on the dial</b>	none
<b>overload scaling</b> EQ 35 ammeters	none 2 times rated current *)
<p>*) Standard                  **) Please clearly add the desired specifications.                  ***) PQ 35, USP 00 only</p> <p><b>Ordering example</b>                  PQ 35 measuring range and scaling 0 ... 1A</p>	



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