



Data Sheet

DIN Rail Moving Iron Meter

DE, DS, DG, FM 35



Measure



Control



Record



Analyze



Optimize

Application

The analog DE 35, DS 35, DG 35, FM 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 DE & linear scale for DS, DG & FM
- Glass filled polycarbonate housing.

Functional Principle

DE 35 moving-iron movements with shell-type system, silicon oil damping & spring loaded jewel bearings, pivot suspension. DS 35 & DG 35 moving-coil movement with core-type magnetic system, dual spring loaded jewel bearings, pivot suspension. FM 35 moving-coil movement with core-type magnetic system, dual spring loaded jewel bearings, pivot suspension, along with frequency transducer.

Specifications

Scale and Pointer

Pointer	: Knife- edge pointer
Dial	: Interchangeable
pointer Deflection	: 0 ... 90°
Scale Characteristics	
DE 35	: Near linear above 10% of nominal full scale value
DS 35, DG 35/ FM 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 35mm 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(DIN46282)
Dimensions LxWxH	: 85 mm x 45 mm x 65 mm
Weight approx.	: DE 35 DS 35 DG 35 FM 35 0.1 kg 0.1kg 0.1kg...0.1Kg

Electrical Data

Measuring unit current	: DE/DG 35 AC Voltage or AC DS 35 DC Voltage or DC current FM 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 DS 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	: 3 kV 50 Hz, 1 min acc. To DIN 57410

Accuracy at Reference Conditions

Accuracy class	: 1.5 according to EN 60051 /IS1248
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Reference conditions :

Ambient Temperature	: 23°C $\pm 2^\circ$
Position of Use	: Nominal position $\pm 1^\circ$
Input Quantity	: Rated value of measured quantity
Frequency	: 45...65Hz
Wave form	: Sinusoidal, Distortion factor $\leq 5\%$
Other conditions	: As per EN 60051/IS 1248



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Nominal Range of Use

Frequency :

Ambient Temperature	: 0 ... 50° C
Position of Use	: Vertical +/- 5.0
Frequency	: 15 ... 100 Hz (voltage) 15 ... 400 Hz (current)
Wave form	: Sinusoidal, Distortion factor <= 5%
Other conditions	: As per EN 60051/IS 1248
Position of use	: Nominal position +/- 50
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
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 DE 35	A C Voltage DE 35
1 A 1.2 A 5 A 6 A 10 A 12 A 15 A (For use on Current transformer ¹) N/1 A N/5 A	100 V 120 V 150 V 250 V 300 V 500 V 600 V (For use on Potential transformer ¹) .../ 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 DS 35 voltage drop aprox.	DC voltage DS 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	100m V 1000Ω/ V* 150m V 1000Ω/ V 250m V 1000Ω/ V 400m V 1000Ω/ V 600m V 1000Ω/ V

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	1 V 1000 Ω / V 1.5 V 1000 Ω / V 2.5 V 1000 Ω / V 4 V 1000 Ω / V 6 V 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 500 V 1000 Ω / V 600 V 1000 Ω / V
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For use with external shunt

60 mV 150 mV	1000 Ω / V 1000 Ω / V
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a total lead resistance of 0.05Ω is considered in the calibration of the indicator for connecting leads 1 m, 2 x 0.75 mm²

FREQUENCY FM 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

VOLTAGE FM 35

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

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

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



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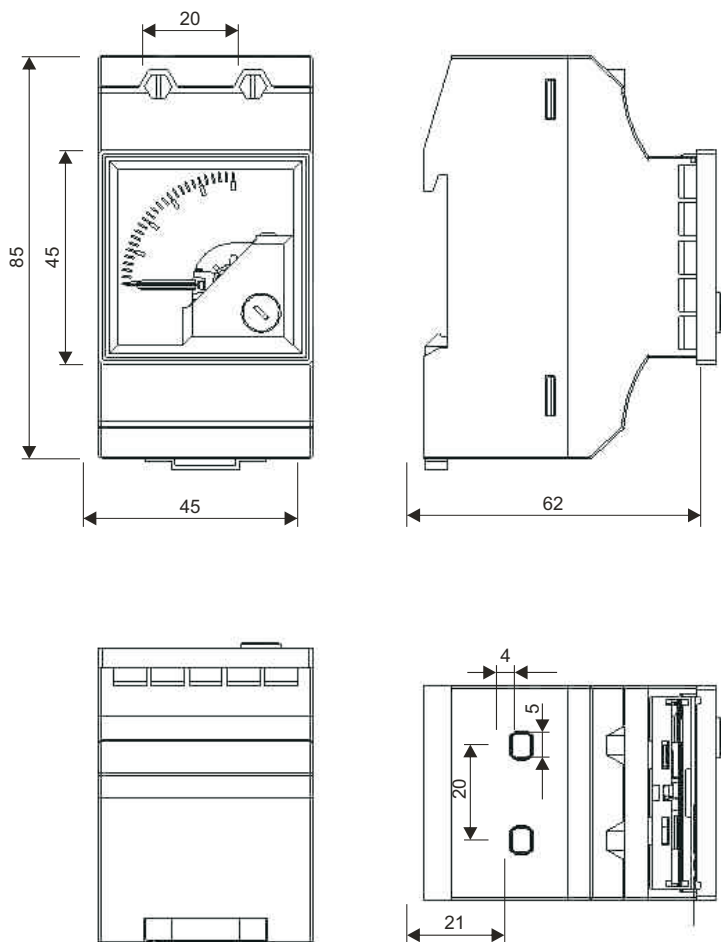
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Front Frame / Bezel	: DIN 43718
UL Combustibility (Case & Bezel)	: UL 94 V-0
European Directives(EMC Directive) 73/23/EEC (Low voltage directive) & ammendment 93/68/EEC, for CE mark	: 89/336/EEC
Mounting rails	: DIN EN 50 022

Dimensions



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Specifications may change without prior notice



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