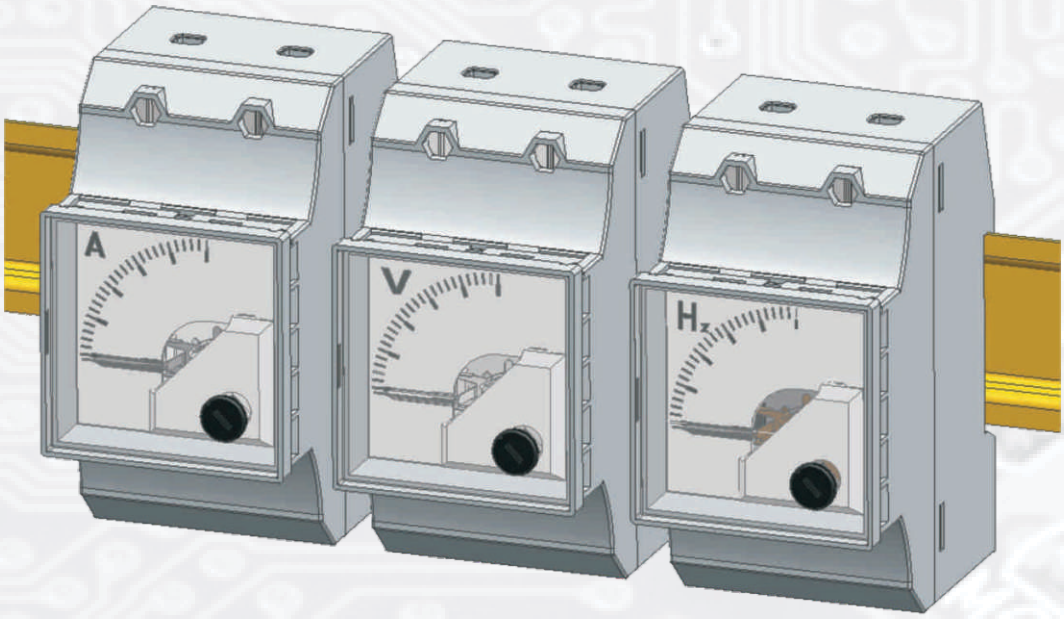
Technical Data Sheet

Analog Meters Clamping to DIN Rails



The analog DE 35, DS 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.

Application

The analog DE 35, DS 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.

Functional Principle

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

Applicable Standards

Case & Cutout dimensions	DIN 43700
Scale & Pointer	DIN 43802
Connections & Terminal marking	DIN 43807
Safety Requirements &Protective measures	IEC / EN 61010
Performance Specification	IEC / EN 60051
Front Frame / Bezel	DIN 43718
UL Compatibility (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 DE 35	Near linear above 10% of nominal full scale value
DS 35/ FM 35	Linear
Scale Division	Coarse- Fine
Scale Length	38mm
Over-Range Scaling Ammeters	2 times rated current
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
Case material	Thermoplastics, self extinguishing
Color of case	Ivory
Material of window	Polycarbonate
Position of use	vertical ± 5°
Terminals	Brass Hexagon studs, M4 screw & self lifting wire clamps E3 (DIN46282)
Dimensions LxWxH	85 mm x 45 mmx 65 mm

Electrical Data

Measured Quantity	DE 35 AC Voltage or AC current 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(Approx)

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
Insulation class	group A according to VDE 0110
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
Ambient temperature	23°C ± 2°C
Position of use	Nominal position ±1°
Input Quantity	Rated value of measured quantity
Frequency	45...65Hz
Waveform	Sinusoidal, Distortion factor ≤ 5%
Other Conditions	as per EN 60051

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
Stray magnetic field	0.5 mT

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	15 g. 11ms
Vibration resistance	1.5g at 50Hz

Options

Measuring range

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

Measuring range

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	With 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

Standard Measuring Ranges

AC Current DE 35	AC Voltage DE 35
1A 1.2 A 5 A 6 A 10 A 12A 15A **(For use on Current transformer)**[1]	100 V 120 V 150 V 250 V 300 V 500 V 600 V **(For use on Potential transformer)**[1]
N/1 A N/5 A	.../ 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 internal resistance voltage drop aprox.			DC voltage DS 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

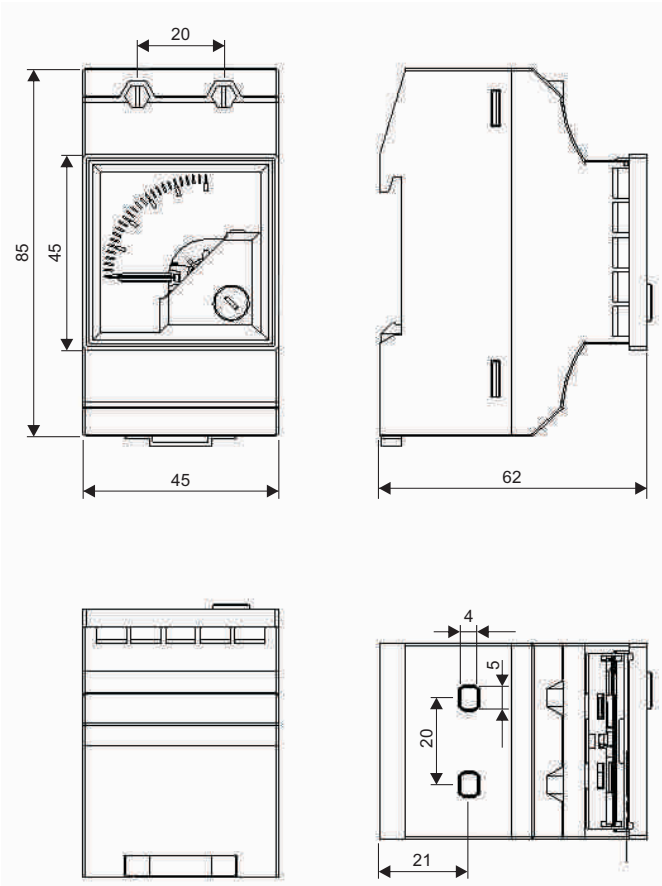
60 mV	1000 Ω/V
150 mV	1000 Ω/V

a total lead resistance of 0.05 Ω is considered in the calibration of the indicator for connecting leads 1 m, 2 x 0.75 mm²

FREQUENCY FM 35	VOLTAGE FM 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



Ordering information- Only For Representative Products

AC Meters

Cat No.	Description
DI35-03X11AW00ST	5A, Scale 0-5A
DI35-04X11AW00ST	10A, Scale 0-10A
DI35-05X11AW00ST	15A,Scale 0-15A

Cat No.	Description
DI35-2AX11AW00ST	25V, Scale 0-25V
DI2-2BX11AW00ST	300V, Scale 0-300V
DI2-2CX11AW00ST	500V, Scale 0-500V

DC Meters

Cat No.	Description
DR35-2AL11AWST00	60mV, Scale 0-60mv
DR35-2BL11AWST00	25V, Scale 0- 25 V
DR35-2DL11AWST00	100v, Scale 0- 100V

Cat No.	Description
DR35-04L11AWST00	4-20mA, Scale 4-20mA
DR35-03L11AWST00	1mA, Scale 0-1mA

For more details and product codes, please contact our local office

sifam tinsley
PRECISION INSTRUMENTATION

Sifam Tinsley Instrumentation Inc.
3105, Creekside Village Drive,
Suite No. 801, Kennesaw,
Georgia 30144 (USA)
E-mail Id : psk@sifamtinsley.com
Web : www.sifamtinsley.com
Contact No. : +1 404 736 4903

Sifam Tinsley Instrumentation Ltd
Unit 1 Warner Drive,
Springwood Industrial Estate
Braintree, Essex, UK, CM72YW
E-mail: sales@sifamtinsley.com
Web: www.sifamtinsley.com/uk
Contact: +44(0)1803615139