

General Information

Engineer standards:

Our measuring instruments and equipment usually correspond to:

general:	IEC 60051	housing:	DIN 43700; DIN 43880
safety:	IEC 61010; VDE 0410	environmental conditions:	IEC 60068; IEC 60654; IEC 60721
protection:	IEC 60529	measurement ranges:	DIN 43701

Housing and panel:

The housing dimensions of the square DIN switchboard instruments are manufactured according to **DIN 43 700**.

The front frames and the housing of the square DIN switchboard instruments are made of ABS-synthetic material, self-extinguishing.

The front frames are also available similar RAL 7037.

Pointer and front glass:

We are using a beam-shaped pointer with a knife end. Square DIN switchboard instruments are available with a red tolerance pointer.

The front glass of the square DIN switchboard instruments is available as low-reflecting glass.

Protection:

Front IP52, for an additional price IP54, IP55; IP65 – if possible.

Back IP00. Terminal cover included.

Temperature conditions:

Standard configuration climatic class 2:

The reference temperature for class accuracy is +20°C.

Operating temperature : -25°C to +50°C

Transport and storage temperature: -40°C to +80°C

Climatic change: relative humidity max. 85% (temperature max. 35°C) only for 60 days a year; Average annual humidity 65%.

Special realization climatic class 3 according to VDE 3540 "tropicalized":

The reference temperature for class accuracy is +20°C.

Operating temperature : -25°C to +60°C

Climatic change: relative humidity max. 95% (temperature max. 35°C) only for 30 days a year; Average annual humidity 75%.

Test voltage:

Test voltage is 2kV/50Hz for 1 minute. This allows a max. operating voltage of 660 V.

Mark of conformity: ☆

Overload:

Ammeters continuously 1,2-times and instantaneous 10-times for 5 sec.

Voltmeters continuously 1,2-times and instantaneous 2-times for 5 sec.

Measuring ranges:

The measuring ranges refer to the standardized numbers according to DIN 43 701

(1 - 1,2 - 1,5 - 2 - 3 - 4 - 5 - 6 - 8 and their decimal multiple).

Accuracy and operating positions:

The accuracy refers class 1,5 according to DIN 43 780. Raising to accuracy class 1% is possible for some types. The class accuracy is only applicable for the operating position shown by relevant sign on the instrument. The class accuracy is printed on the scale.

The normal operating position of the panel instruments is vertical.



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General Information

Panel Meter with Moving Iron

Moving iron instruments are usually used for alternating current and voltage with frequencies from 40-60 Hz special realizations 400Hz.

The measuring of direct current and voltage affects an additional error of 1% .

Moving iron instruments indicate TRMS values.

The measuring range starts at 20% of the full scale value.

Measuring range:

The measuring ranges refer to the standardized number according to DIN 43 701:

1 - 1,5 - 2 - 2,5 - 4 - 6 und their decimal multiple.

For connection on current transformer the measuring ranges are:

1 - 1,2 - 1,5 - 2 - 2,5 - 3 - 4 - 5 - 6 - 7,5 - 8 and their decimal multiple.

Accuracy:

The accuracy refers class 1,5 according to DIN 43 780.

Rising to accuracy class 1% is possible for some types.

Panel Meter with Moving Coil

Moving coil instruments are usually used for direct current and voltage.

Moving coil instruments with rectifier indicate the arithmetic mean of the current. The calibration is based on TRMS-values with sinusoidal alternating current.

Measuring range:

The measuring ranges refer to the standardized number according to DIN 43 701:

1 - 1,5 - 2 - 2,5 - 4 - 6 and their decimal multiple.

For connection on shunts the measuring ranges are:

1 - 1,2 - 1,5 - 2 - 2,5 - 3 - 4 - 5 - 6 - 7,5 - 8 and their decimal multiple.

Accuracy:

The accuracy refers class 1,5 according to DIN 43 780.

Rising to accuracy class 1% is possible for some types.

Wattmeter and Varmeter

The measuring ranges should be chosen between the 0,6- and 1,2-times value of the calculated apparent power.

$N = \sqrt{3} \times U \times I \times (0,6-1,2)$.

W (Watt), kW (kilowatt) or MW (Megawatt) for active power.

var (var), kvar (kilovar) or Mvar (Megavar) for reactive power.

Zero point in the center of the scale is available.

Rising to accuracy class 1% is possible for some types.

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