



Power factor meters

for alternating and three-phase current

Type:

LwQX / LdQX 72

LwQX / LdQX 96



Application

Power factor meters are used to measure the ratio between real and apparent power in alternating and three-phase systems of 50 Hz.



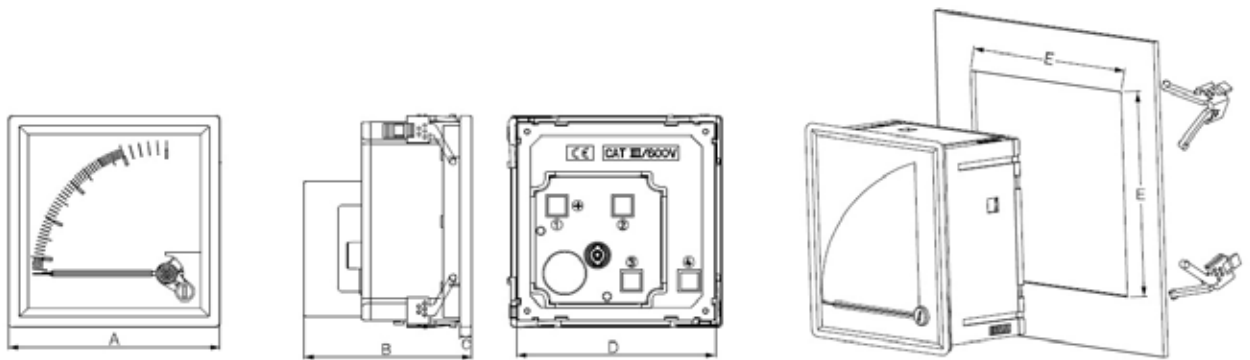
Function / Design

The power factor measuring devices are based on a core magnet moving-coil system with corresponding evaluation electronics. The devices are manufactured in accordance with DIN EN 60 051 and other applicable VDE and DIN regulations. The accuracy is 2.5% related to the scale length. The internal consumption is approx. 0.6 VA in the current path and approx. 2 VA in the voltage path. The auxiliary voltage for supplying the electronics is obtained from the measuring voltage. The voltage range is +/- 20% of the nominal voltage, the current range is 20% to 120% of the nominal current. If these values are exceeded, display errors that are greater than the class accuracy must be expected. Currents < 5% of the nominal value result in an uncontrolled display.

The inputs can be permanently overloaded by a factor of 1.2 and the current path up to a factor of 20 for a short time. DIN EN 60 051 also applies. The electrical connection is made using terminal screws with a maximum of 4 mm².



Dimensions



Size	„A“ mm	„B“ mm	„C“ mm	„D“ mm	„E“ mm
LwQX / LdQX 72	72	76	5,5	67,0	68,5
LwQX / LdQX 96	96	76	5,5	90,5	92,0



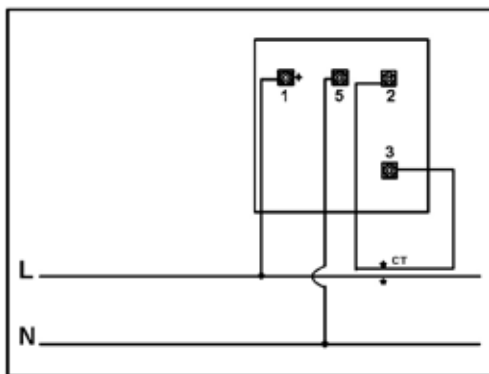
Technical data

Front frame	Dimensions acc. to DIN 43 718. The front frames are delivered als light frames in black colour for all types.
Scale, pointer	Execution acc. to DIN 43 802. The graduation is carried out as coarse graduation, the pointers as knife bar pointers.
Front glass	low glare glass
Zero point correction	All types have a zero point correction.
Connection	Screw connection with clamps
Accuracy	Acc. to DIN EN 60 051. It is defined under reference conditions, based on the measuring range end value. If the zero point is offset, the sum of the two full-scale values applies. In the case of power factor measuring devices and resistance measuring devices (scale curve strongly non-linear), the measurement error is related to the scale length.
Reference conditions	Temperature $20^{\circ}\text{C} \pm 2\text{K}$, nominal position of use $\pm 1^{\circ}$
Influencing variables	Usage position normal vertical $\pm 5^{\circ}$, if the usage position deviates, the angle from the horizontal must be indicated. Influence of temperature, unless otherwise stated, the additional error is $\leq 1.5\%$ at $20^{\circ}\text{C} \pm 10\text{K}$ ambient temperature. Ferromagnetic switchboards have no influence on the measurement accuracy.
Operating temperatur	All types work in a temperature range from -25°C to $+55^{\circ}\text{C}$ (if not otherwise specified, trouble-free).
Relative humidity	75% annual mean, no condensation
Installation location	Interior, max. height of 2000 m above sea level
IP code	IP 52 on front side, IP 20 at terminals with terminal cover acc. to DIN EN 60529
Internal resistance	DC-voltmeters: $1000\ \Omega / \text{V}$, higher internal resistance possible on request DC-ammeters: 0,6 to $250\ \Omega$
Test voltage	5,3 kV AC for 1 min at 50 Hz acc. to IEC 61010-1
Vibrating resistance	1,5 g at 50 Hz
Impact resistance	15 g for 11 ms
EMC	EMC acc. to DIN EN 61 326
Overload behavior	Moving-iron meters: 2-, 5-, 6-fold overload (depending on type) continuous 10-fold overload for 2 seconds only once in lifetime Moving-coil meters: without overload Bimetal meters: 1,2-fold overload continuous

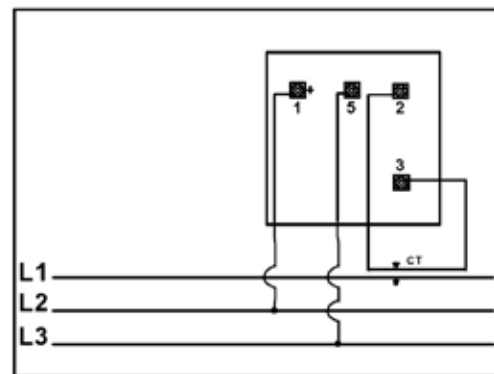


Connection

alternating current





three-phase-current





Measuring ranges

Type			
Front frame		L .. QX 72	L .. QX 96
Cut-out		72 x 72 mm	96 x 96 mm
Length of scale		68 x 68 mm	92 x 92 mm
Pointer deflection		62 mm	90 mm
Accuracy class		90 °	90 °
Front glas		2,5	2,5
Weight		low-glare glas	low-glare glas
		0,25 kg	0,35 kg

Alternating current			LwQX 72	LwQX 96
Measuring ranges		Scale		
5 A	230 V	0,5 cap. - 1 - 0,5 ind.	X	X
1 A	230 V	0,5 cap. - 1 - 0,5 ind.	X	X

Three-phase current			LdQX 72	LdQX 96
Measuring ranges		Scale		
5 A	230 V	0,5 cap. - 1 - 0,5 ind.	X	X
	400 V	0,5 cap. - 1 - 0,5 ind.	X	X
1 A	230 V	0,5 cap. - 1 - 0,5 ind.	X	X
	400 V	0,5 cap. - 1 - 0,5 ind.	X	X

Typing

