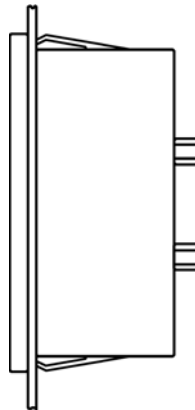


## General description

### Housing

<b>Dimensions</b>	For all types the housing dimensions and the required panel cut-outs comply with DIN 43 700.	
<b>Material</b>	N-Series 48 DIN, PK 72 DIN, PK 96 DIN 72 DIN, 96 DIN, 144 DIN	Lexan 500 (self extinguishing acc. to UL 94 V-0) PC / ABS Sheet steel galvanzited
<b>IP code</b>	All housing follow DIN EN 60 529 and comply with IP 52 on front side or special moduls with IP 54 if possible	
<b>Snap-on fastening</b>	For types of N-series and 48 DIN for panel thickness 1 mm to 3 mm no seperat fastening element required	



<b>Fastening acc. to DIN 43 835</b>	with screw clamp panel thickness 1 mm to 4 mm (standard type, figure 1) with DIN screw clamp shape B, panel thickness 1 mm to 40 mm for types 72 DIN, 96 DIN, 144 DIN (figure 2) against surcharge
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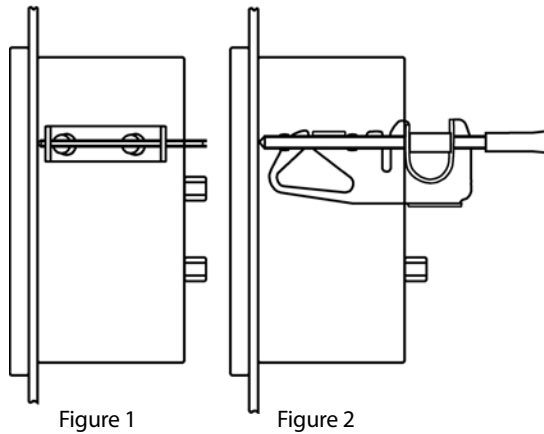
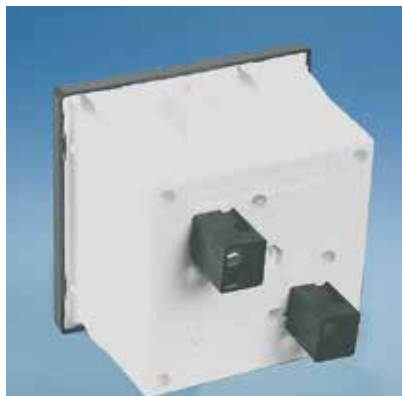


Figure 1

Figure 2

### Contact protection sleeves



## Technical data

<b>Front panel</b>	Dimensions acc. to DIN 43 718. The front frames are delivered as slim frame (black) for all types.
<b>Scale, pointer</b>	Design acc. to DIN 43 802. The scale graduation is designed as rough/fine division, the pointers as bar pointers.
<b>Zero point setting</b>	All analog measuring instruments offers a zero correction
<b>Accuracy</b>	Acc. to DIN EN 60 051. It is defined under reference conditions, referred to the full scale. With zero point offset, the sum of both full scale values applies. In case of power factor measuring instruments and resistance meters (scale characteristics highly nonlinear), the measuring error is referred to the scale length.
<b>Reference conditions</b>	Temperature $20^{\circ}\text{C} \pm 2\text{K}$ , nominal operating position $\pm 1^{\circ}$
<b>Influencing quantities</b>	Operating position normally vertical $\pm 5^{\circ}$ , in case of deviating operating position, the angle of the horizontal position must be specified. Temperature influence, unless specified otherwise, is the additional error $\leq 1,5\%$ at $20^{\circ}\text{C} \pm 10\text{K}$ environmental temperature. Ferromagnetic control panels have no influence on the measuring accuracy.
<b>Operating temperature</b>	The measurement instruments operate faultlessly within a temperature range of $-25^{\circ}\text{C}$ bis $+55^{\circ}\text{C}$ (unless specified otherwise).
<b>Mechanical strength</b>	The measuring elements are designed with a steel tip bearing. Their mobile element is supported in spring-loaded ceramic stones. This guarantees a vibration resistance of up to 2.5 g and an impact resistance of up to 15. For higher levels of stress and loads, carbide tips are used.
<b>EMC</b>	EMC according to DIN EN 61 326
<b>Safety regulations</b>	According to DIN EN 61 010 part 1. Protection class acc. to DIN EN 60 529, connecting terminals with protection against contacts, back-of-hand-proof, IP10.

Types	Measuring category	Working voltage phase to neutral AC effective or DC	Test voltage/ Conditions
For all N ... types, WQ 48 DIN, PQ 48 DIN, WAS 45, SZAS 45 (Plastic housing)	CAT III	300 V	4 kV
For all PQ..., WQ..., MQ..., DWQ..., LWQ..., F..., SZ..., MWQ72, MWQ96 (Metal housing)		300 V	2,5 kV installed in grounded metal panel
Round scale indicator 240° of Pk typ Narrow profile of the device types P 48 x 24, P 72 x 24, P 96 x 24, P 144 x 36 (Plastic housing)		150 V	2,5 kV
MWQ144 (Metal housing)		150 V	2,5 kV installed in grounded metal panel
PAS 45 (Plastic housing)		100 V	2,5 kV

## General special versions

<b>Increased requirements</b>	Shakeproof > 2,5 g up to 5 g from 100 $\mu$ A and 100 mV	€ 6,50	
	Acid-resistant and splash proof	€ 9,50	
	IP 54, front side	● Types 72 DIN and 96 DIN € 9,50	
	(with screw fixing only)	● N-Series € 15,00	
	conditionally tropicalized	€ 15,00	
<b>Pointer</b>	Red marker pointer, adjustable at front side, for sizes 72, 96, 144 only	€ 22,50	
<b>Scales</b>	Imprint	red marking at arbitray position of scale	€ 6,50
		colored sector at arbitray position of scale	€ 6,50
		e.g. charge / discharge	€ 6,50
		second scale numbering	€ 9,50
	Double scale		€ 15,00
	Special calibration	according to curve or table	€ 30,00
		in different measuring unit, e.g. min <sup>-1</sup> , bar, m/s	€ 6,50
	Special scale	blanc scale (without scale graduation and measuring unit)	€ --,--
		scale black, pointer, graduation and numbering white or yellow (as far as possible)	€ 35,00
		scale fine graduation	€ 15,00
	Illumination	by means of 12 V or 24 V lamp plugged at rear side	€ 35,00
		(as far as possible)	
	<b>Fastening</b>	screw clamp shape B acc. to DIN 43 835	€ 3,00
<b>Front frame</b>	grey (similar to RAL 7037, as far as possible)	€ 3,00	
<b>Front glass</b>	low-glare glass	€ 6,50	
	plexiglass	€ 6,50	
<b>Cover frame</b>	with glass pane acc. to DIN 43 718 for cut-outs acc. to DIN 43 700		
	68 mm x 68 mm	€ 9,50	
	92 mm x 92 mm	€ 9,50	
	138 mm x 138 mm	€ 15,00	
<b>Blind cover</b>	from black plastic material for cut-outs acc. to DIN 43 700		
	45 mm x 45 mm (front 48 mm x 48 mm)	€ 6,50	
	68 mm x 68 mm (front 72 mm x 72 mm)	€ 9,50	
	92 mm x 92 mm (front 96 mm x 96 mm)	€ 9,50	
	92 mm x 22 mm (front 96 mm x 24 mm)	€ 9,50	
	92 mm x 45 mm (front 96 mm x 48 mm)	€ 9,50	
<b>Protective cover</b>	IP 65 protection for front 72 x 72 mm	€ 22,50	
	IP 65 protection for front 96 x 96 mm	€ 22,50	
<b>Test report</b>	up to 10 test points (depending on type)	€ 60,00	