

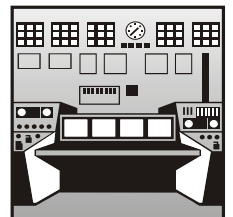
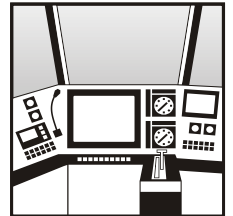
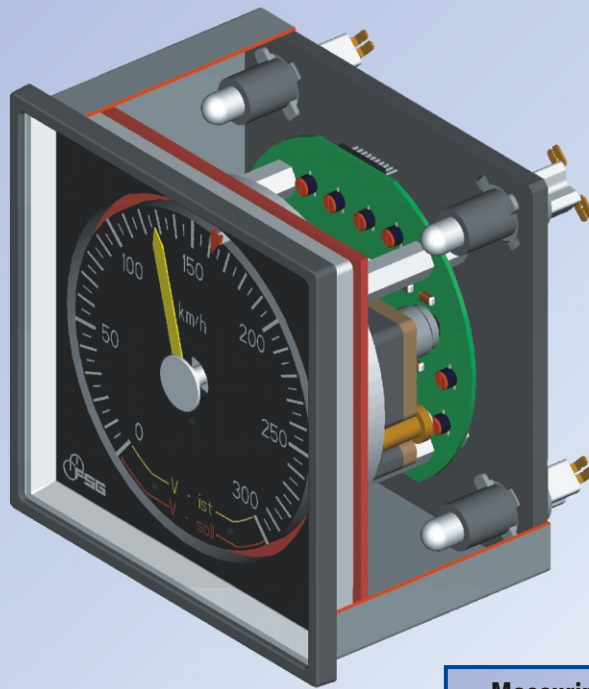
Signal Indication



Signal Indication

analog indicators for high precision display of process parameters

...Construction



For **indication of process parameters and identification of measurand tendency (trend monitoring)** for the most part analog indicators in form of circular scales direct-reading instruments or bar graph displays are used.

Analog indicators contain motor-driven potentiometers as measuring system that can be designed as bridge or balancing circuit accepting resistance, current or voltage inputs.

Such systems provide the design of any scale angle, exceeding the full range of 360° shaft rotation as well e.g. for indicating wind direction or the position of a variable-pitch propeller on ships.

Rotary magnet systems in combination with a threefold tapped potentiometer represent an electrically simulated shaft, allowing a signal indication exceeding 360° as well.

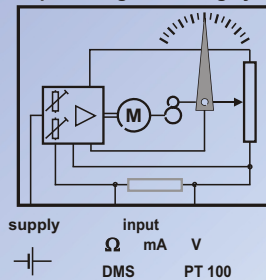
All analog indicators are available with circular, square and rectangular casings both for wall and for flush mounting, standard sizes range from 48 mm x 48 mm to 1 m x 1 m.

According to the type of measurement and signal indication, all displays can be provided with single-coloured or multicoloured - also illuminated - scales, pointer reading angles and pivot points of any Design.

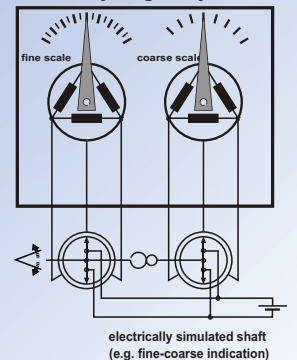
Indicators with two or more measuring systems, e.g. for coarse and fine indication as well as indicators with displays on both sides are also available.

...Measuring systems

compensating measuring system



rotary magnet system



Indicators with motor-potentiometers containing tapered function windings offer a linear scale representation of non-linear measurands.

Additional models are::

coordinate displays for indicating value and direction of a platform's inclination, measured by means of transducers with dual axis pendulum systems

high precision PTB-approved indicators with wire strain gauge input for weight indication on weighing machines for building materials

double indicators for display of Vnom and Vact speed on rail vehicles
heeling angle indicators to display the position of a shipload

special-purpose indicators for applications on cranes, excavators, ships and offshore facilities

Further information on request!

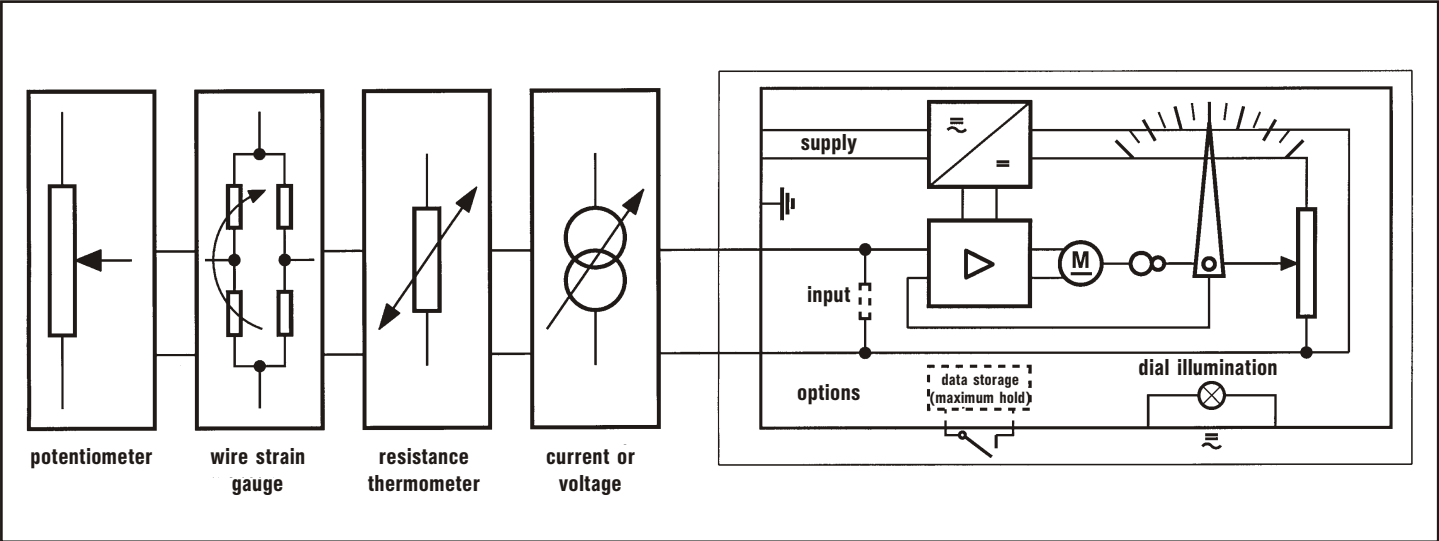
...Specifications

of measuring systems

Self-balancing potentiometer unit for indication of all measurands represented by a resistance, current or voltage variation

Electrical data	MKO	MKP
Resistance input	0-10Ω to 0-10 kΩ	
Current input	0-10μA to 0-10 A	
Voltage input	0-10 mV to 0-300 V	
Accuracy	± 0,5%	± 0,1%
Pointer angle °	up to 360°	max. 350°
Setting time	approx. 1 sec.	approx.. 1 sec.
Supply	18-33 VDC or 230 VAC	
Temperature range	-30°C to +70°C	

input values - examples

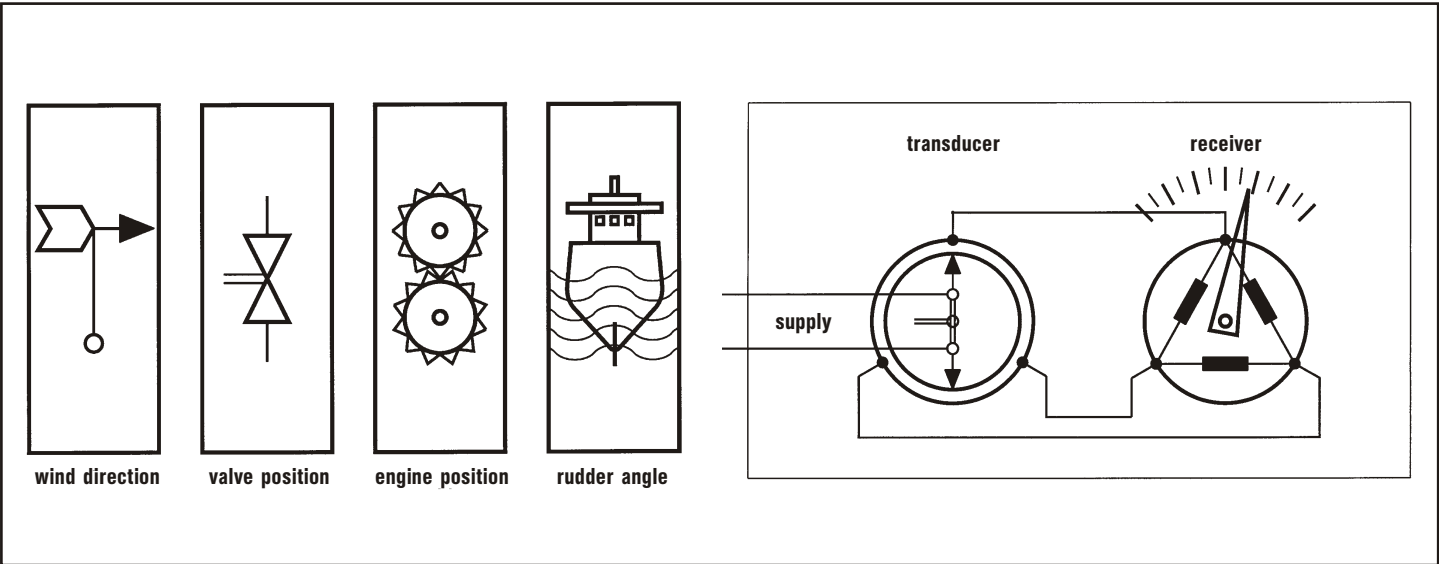


Rotary magnet systems for indication of all measurands that can be determined by means of a potentiometer

Electrical data	DE*	DM
Resistance input	potentiometer circuit 703	
Pointer angle	rotatable up to 360°	
Setting time	approx. 0,1 sec.	approx. 0,5 sec.
Accuracy	± 2°	± 3°
Supply	supply (transducer side) 12 VDC or 24 VDC	
Temperature range	-30°C...+70°C	

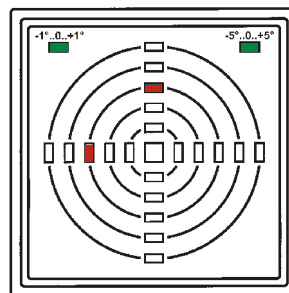
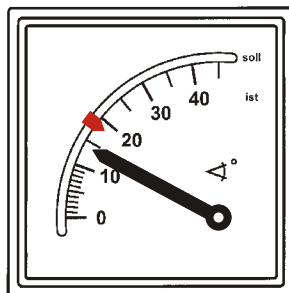
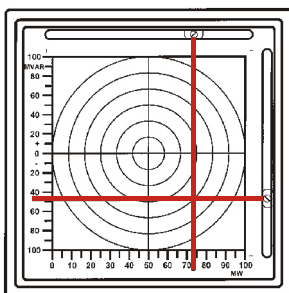
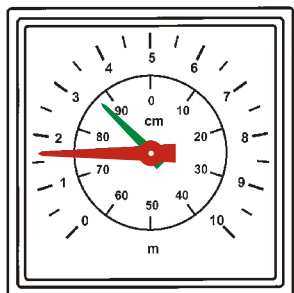
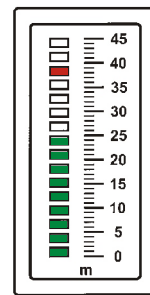
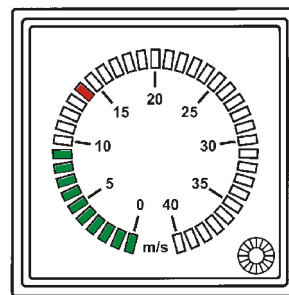
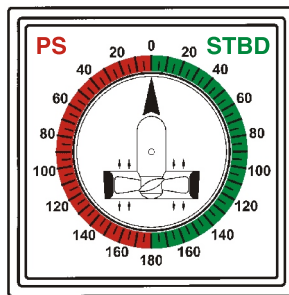
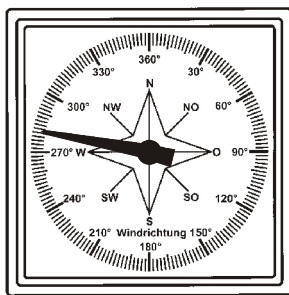
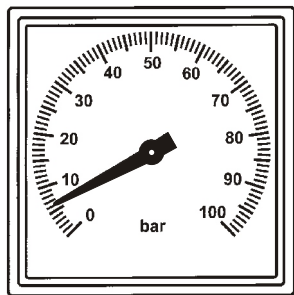
* Degree of protection EEx also available

Application examples



...Signal indication

scales of analog direct reading meters – examples

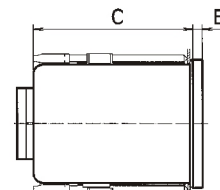
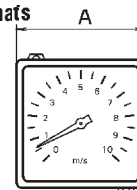


Mechanical data

Casing material	sizes according to DIN	plastic or steel sheet
Casing degree of protection	frontal	IP 54
Bezel	plastic	IP 10
Electrical termination	terminal block 1.5 ² mm	
Temperature range	-30°C to +70°C	

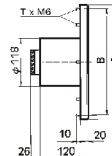
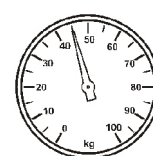
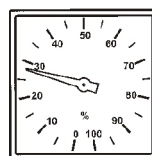
...Models

DIN flush mounting formats



Dimension A	Panel cut-out	Dimension B	Dimension C
□ 48	□ 45,5	5	50
□ 72	□ 68	5	50
□ 96	□ 92	5	100
□ 144	□ 138	7	100

Large formats



Dim.	A	B	T x M6		A	B	T x M6
Panel cut-out Ø 120	□ 192	□ 182	4	Panel cut-out Ø 120	Ø 230	Ø 210	4
	□ 288	□ 268	8		Ø 280	Ø 260	4
	□ 480	□ 460	12		Ø 440	Ø 420	6
	□ 768	□ 748	12		Ø 640	Ø 620	8
	□ 1000	□ 980	16				

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