

Measurement and Sensor Systems



Signal Indication



Signal Indication

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.

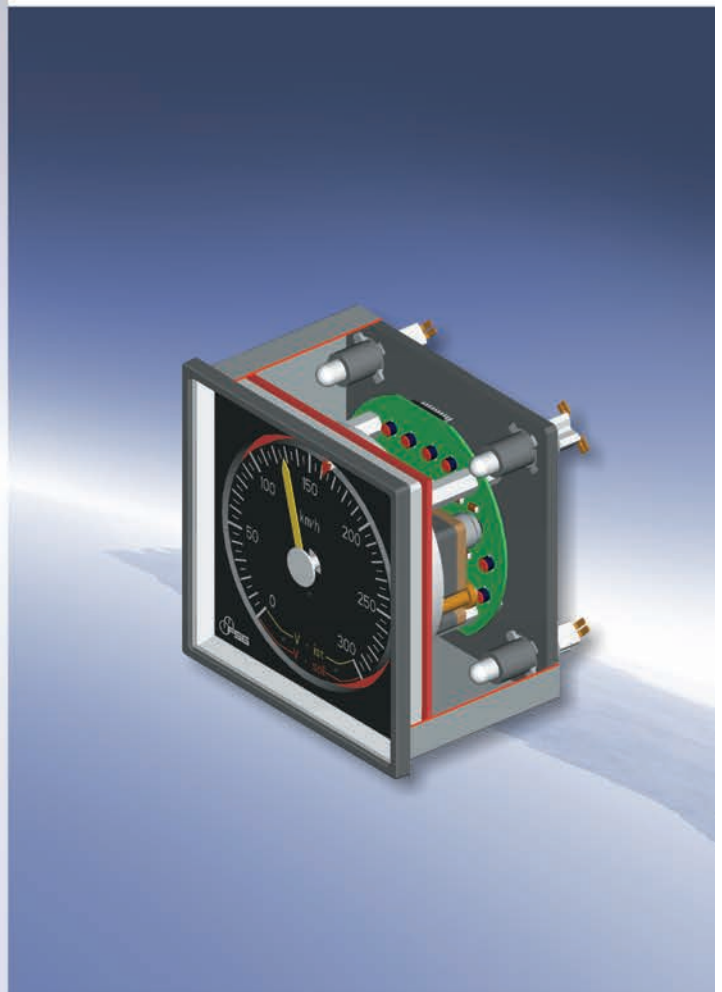
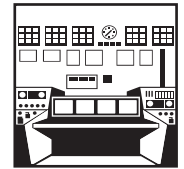
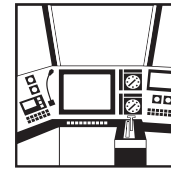
Indicators with two or more measuring systems, e.g. for coarse and fine indication as well as indicators with displays on both sides are also available.

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

Additional models are:

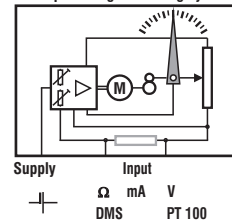
- **coordinate displays for indicating value and direction of a platform's inclination, measured by means of transducers with dual axis pendulum systems**
 - **high precision PTB-approved indicators with wire strain gauge input for weight indication on weighing machines for building materials**
 - **double 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!

Application range

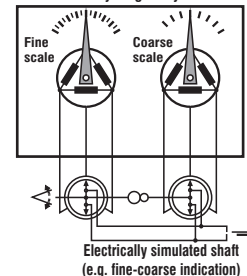


Measuring systems

Compensating measuring system

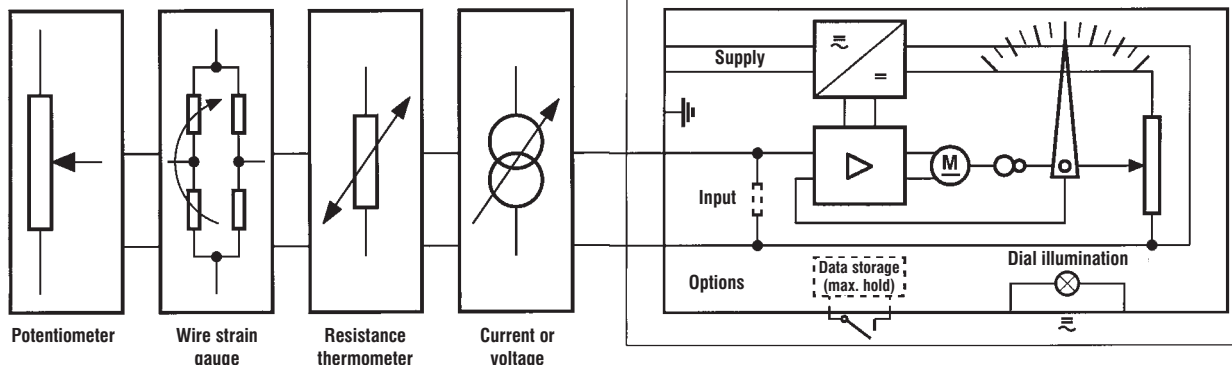


Rotary magnet system



Specifications

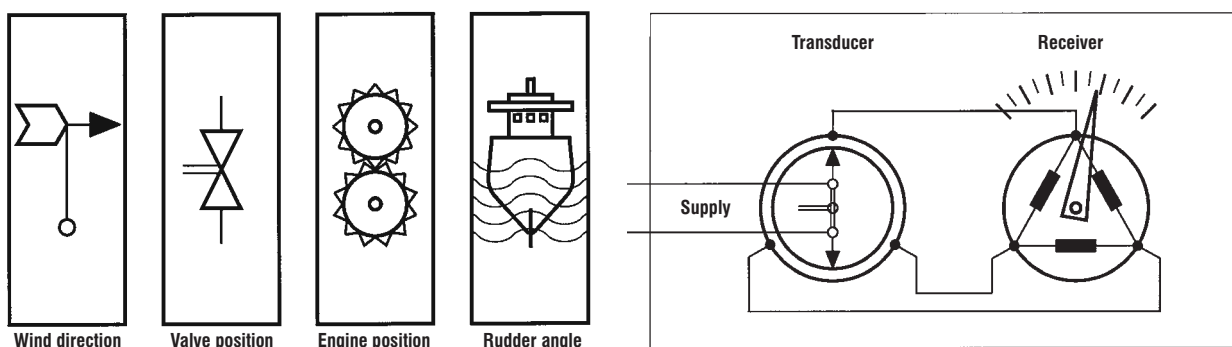
Input values - examples



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

Electrical data	MKO	MKP
Resistance input	0 - 10 Ω up to 0 - 10 k Ω	
Current input	0 - 10 μ A up to 0 - 10 A	
Voltage input	0 - 10 mV up to 0 - 300 V	
Accuracy	\pm 0,5%	\pm 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 up to +70°C	

Application examples



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

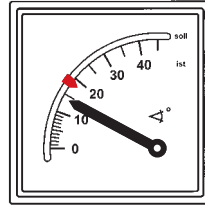
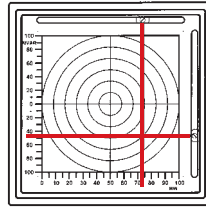
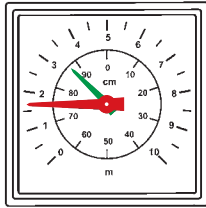
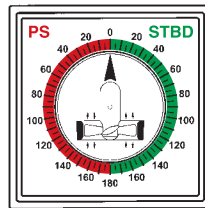
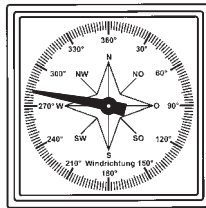
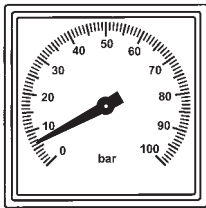
Electrical data	DE*	DM
Resistance input	potentiometer circuit 703	
Pointer angle	rotatable up to 360°	
Setting time	approx. 0,1 sec.	approx. 0,5 sec.
Accuracy	\pm 2°	\pm 3°
Supply	supply (transducer side) 12 or 24 VDC	
Temperature range	-30°C...+70°C	

*Degree of protection EEx also available

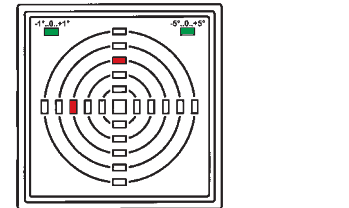
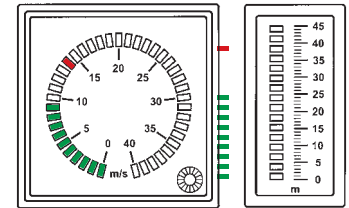
Signal indication

Scales examples

Scales of analog direct reading meters



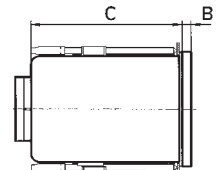
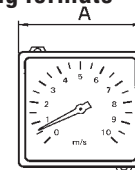
Scales of analog LED-Displays



Models

Mechanical data		
Casing material	sizes according to DIN large formats	plastic or steel sheet steel sheet
Casing degree of protection	frontal terminal side	IP 54 IP 10
Bezel	plastic large formats Al, varnished coating	
Electrical termination	terminal block 1,5 mm ²	
Temperature range	-30°C up to +70°C	

DIN flush mounting formats

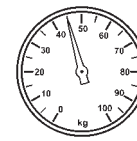
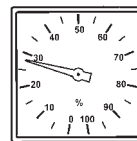


Dimension A	Panel cut-out	Dimension B	Dimension C
□ 48	□ 45,5	5	50
□ 72	□ 68	5	50
□ 96	□ 92	5	100
□ 144	□ 138	7	100

Large formats



Panel cut-out Ø120



Dim. A	Dim. B	T x M6
□ 192	□ 182	4
□ 288	□ 268	8
□ 480	□ 460	12
□ 768	□ 748	12
□ 1000	□ 980	16

Dim. A	Dim. B	T x M6
∅ 230	∅ 210	4
∅ 280	∅ 260	4
∅ 440	∅ 420	6
∅ 640	∅ 620	8

Berlin

Fernsteuergeräte
Kurt Oelsch GmbH
 Jahnstraße 68 + 70
 D-12347 Berlin
 Phone +49 (0 30) 62 91 - 1
 Fax +49 (0 30) 62 91 - 277
 info@fernsteuergeraete.de
 www.fernsteuergeraete.de

Kablow

FSG Fernsteuergeräte
Meß- und Regeltechnik GmbH
 OT Kablow
 Mühlenweg 2 - 3
 D-15712 Königs Wusterhausen
 Phone +49 (0 33 75) 269 - 0
 Fax +49 (0 33 75) 269 - 277

Heppenheim

Fernsteuergeräte
Kurt Oelsch GmbH & Co.KG
 Weiherhausstraße 10
 D-64646 Heppenheim
 Phone +49 (0 62 52) 99 50 - 0
 Fax +49 (0 62 52) 72 05 - 3