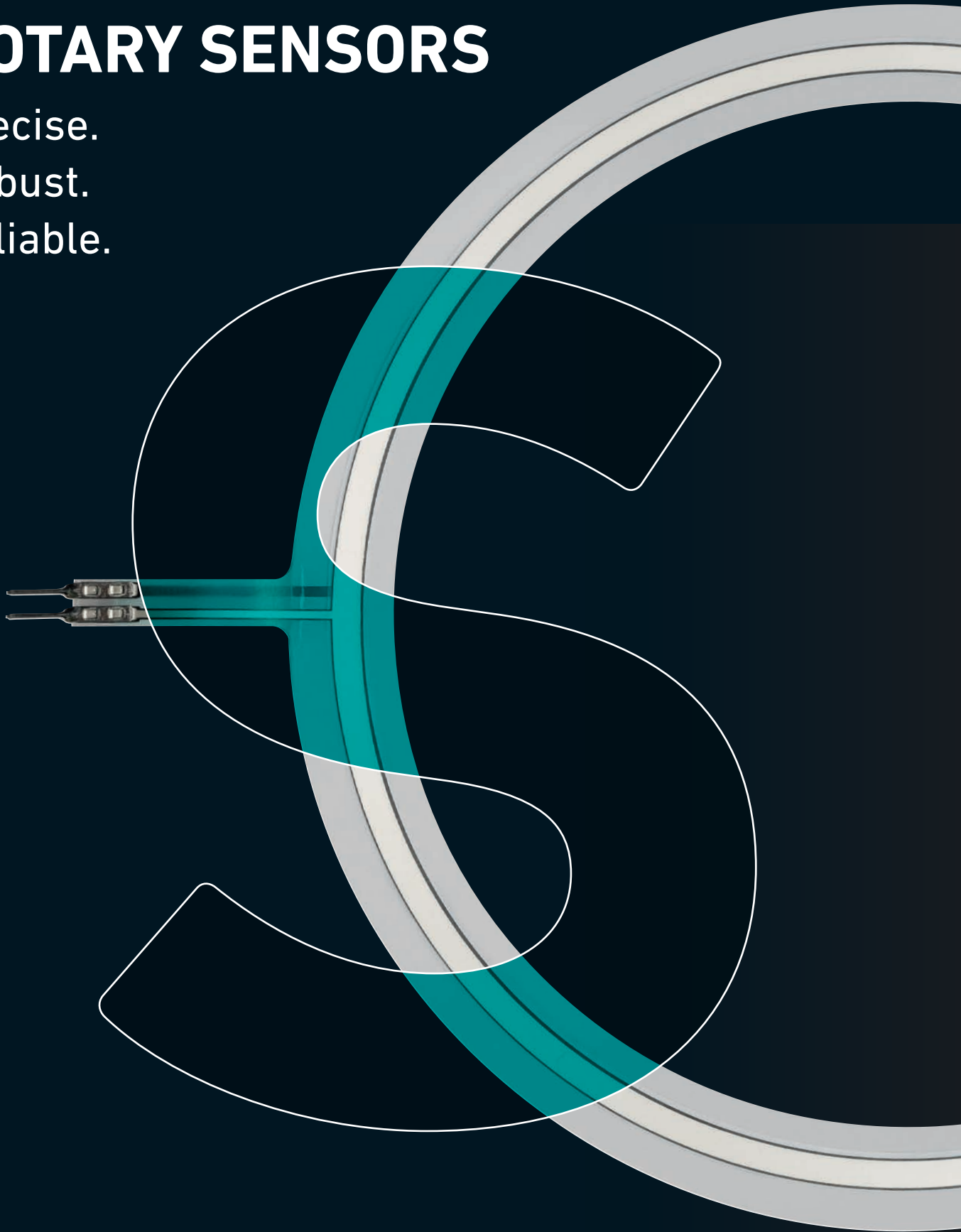


LINEAR AND ROTARY SENSORS

Precise.
Robust.
Reliable.



Sensors, Resistors and Joysticks

Metallux AG is an internationally active, medium-sized company based in Leutenbach near Stuttgart.

With over 160 employees, we have been developing and manufacturing sensors, resistors and industrial joysticks for over 35 years. From the standard product to customer-specific solutions – that is our strength.

What sets us apart:

- Reliable and durable products for demanding applications
- Individual and personal advice
- Extensive portfolio from the standard range to tailor-made, individual solutions
- Development and production in Germany
- Small-scale to large-scale production

You can rely on that.



Pressure sensors

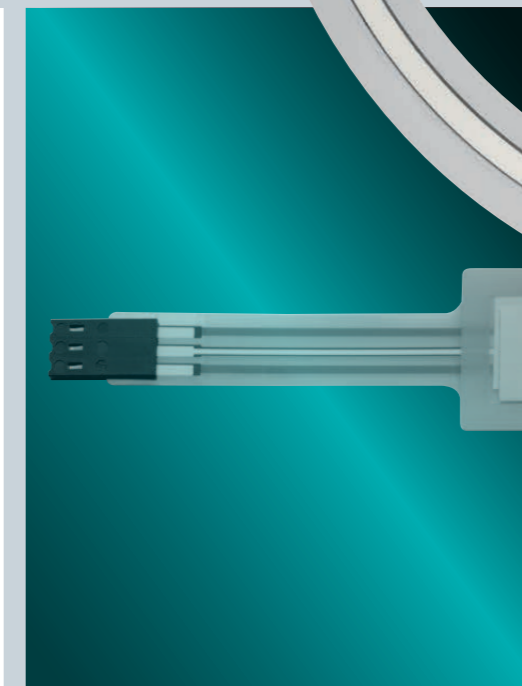


Joysticks



High-voltage resistors

Power resistors



Linear sensors



Rotary sensors

We make position measurable

Our linear and rotary sensors – also known as displacement sensors or encoders – precisely detect positions in devices, systems, drives, actuators, vehicles, and machines. Our portfolio ranges from potentiometer elements and membrane sensors to potentiometers in a wide variety of designs, sizes, and configurations.

All products are absolute measuring and available in potentiometer or Hall sensor technologies.

In addition, we develop customized, individual solutions tailored to your requirements and installation conditions.

Potentiometer Elements

The absolute and analog measuring products made of conductive plastic function as voltage dividers and are individually adapted to your specific requirements.

Membrane Sensors

Membrane sensors are characterized by their particularly flat and flexible design. They are hermetically sealed and easy to mount using adhesive film.

Potentiometers

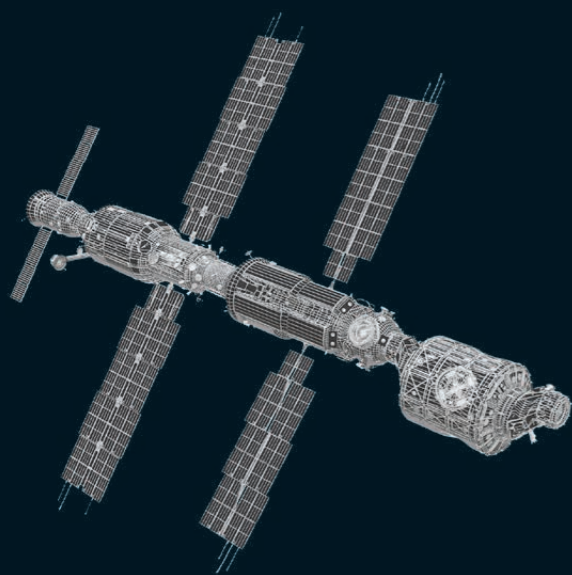
We offer a comprehensive standard range of rotary and linear potentiometers using conductive plastic or contactless Hall technology. Available with ball or plain bearings, as hollow shafts, and with various shaft diameters, rotation angles, and lengths.

All our products offer:

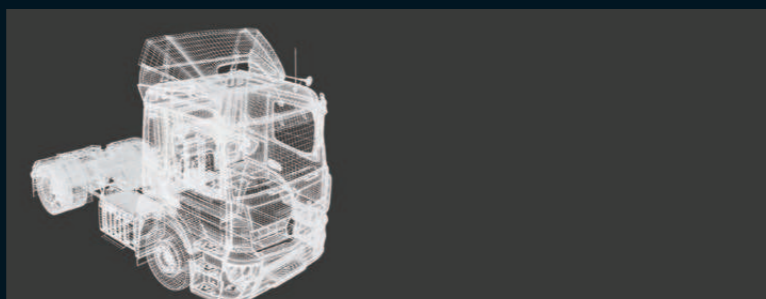
- High resolution, precision, and measurement accuracy
- Linearity up to 0.1%
- Low wear, long service life
- Excellent long-term stability
- High thermal stability
- ESD and EMC compliant
- Easy installation
- Robust and reliable design
- Excellent price-performance ratio

The application fields of our sensors are as diverse as they are demanding. We offer suitable solutions for almost every challenge:

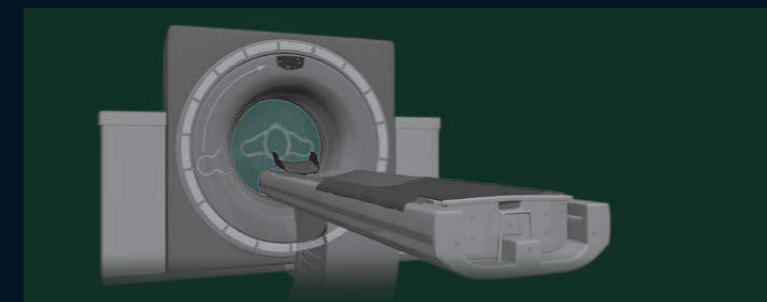
- Robotic arms and cobots
- Operating tables and treatment beds
- Servo systems
- As direction switches in cleaning machines
- Torque control in power tools
- Industrial joysticks
- Valve flap control
- Syringe pumps
- Solar trackers in photovoltaic systems
- Antennas
- Linear actuators



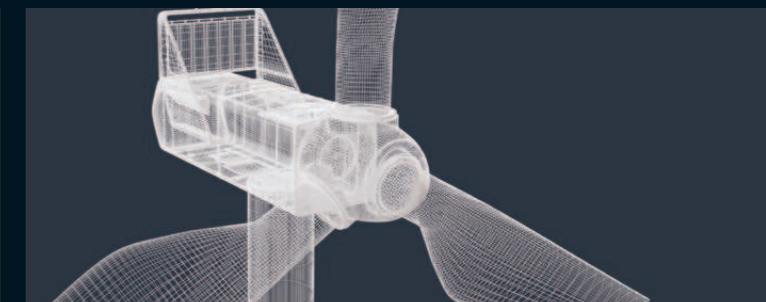
Aerospace industry



Forestry, agricultural, construction and special-purpose vehicles



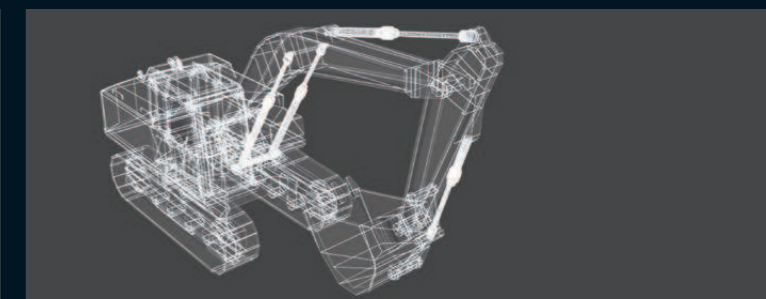
Medical technology



Energy and environmental technology



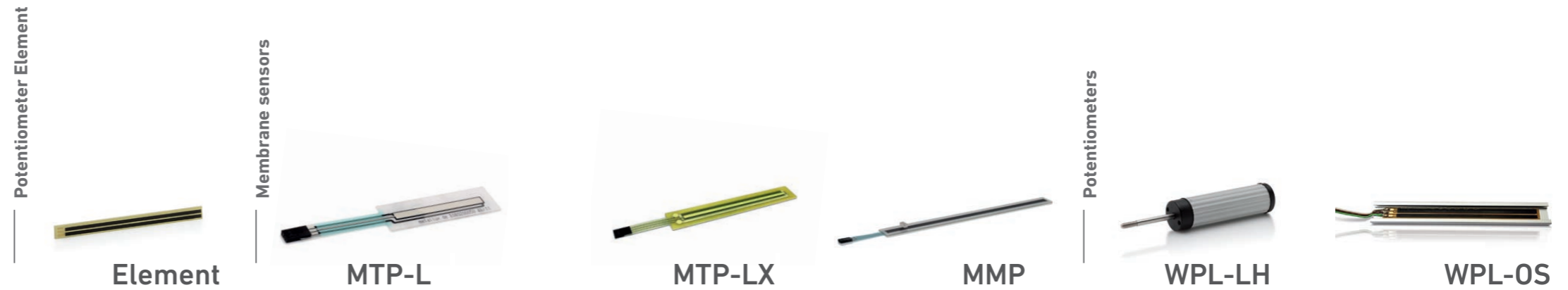
Vehicle manufacturing and electromobility



Materials handling, hoisting and transport technology

Portfolio

Linear sensors



	Element	MTP-L	MTP-LX	MMP	WPL-LH	WPL-OS
General data						
Sensor technology	Potentiometric	Potentiometric	Potentiometric	Potentiometric	Potentiometric	Potentiometric
Type of contact	Wiper	Spring loaded pin	Spring loaded pin	Non-contact, magnetic	Wiper	Wiper
Sensor type	Absolute measuring	Absolute measuring	Absolute measuring	Absolute measuring	Absolute measuring	Absolute measuring
Circuit	As voltage divider	As voltage divider	As voltage divider	As voltage divider	As voltage divider	As voltage divider
Electrical data						
Measuring range, adjustable	20 – 500 mm	30 – 500 mm	50 – 500 mm	50 – 500 mm	25 – 300 mm	30 – 300 mm
Output signal	Analog	Analog	Analog	Analog	Analog	Analog
Independent linearity	± 2 %, ± 0.25 % optional	± 2 %	± 0.3 %	± 2 %	± 1 %	± 2 %, ± 0.25 % optional
Resolution*	approx. 10 µm	0.05 mm achievable	0.05 mm achievable	0.1 mm achievable	0.05 mm achievable	0.05 mm achievable
Resistance range	5 kΩ, 10 kΩ	2,5 kΩ per 100 mm travel	4 kΩ per 100 mm travel	2.5 kΩ per 100 mm travel	Standard 10 kΩ, 5 kΩ possible	5 kΩ, 10 kΩ
Resistance tolerance	± 20 %	± 30 %	± 30 %	± 30 %	± 20 %	± 20 %
Max. wiper current	5 mA in case of malfunction	5 mA in case of malfunction	5 mA in case of malfunction	5 mA in case of malfunction	5 mA in case of malfunction	5 mA in case of malfunction
Supply voltage	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible
Mechanical data						
Sensor thickness	1.5 mm	0.8 mm	1.8 mm	< 2 mm	16 mm	5.5 x 17 mm
Travel speed	> 2 m/sec	1 m/sec	1 m/sec	≤ 3 m/sec	2 m/sec	2 m/sec
Lifespan in cycles	Up to 50 M	> 5 M	> 25 M	50 M	Up to 5 M	10 M
Mounting	Self-adhesive	Self-adhesive	Self-adhesive	Self-adhesive	Screw, clamp	Glue
Environmental data						
Operating temperature	-40 °C to +125 °C	-25 °C to +85 °C	-25 °C to +105 °C	-10 °C to +70 °C	-25 °C to +65 °C	-25 °C to +85 °C
Protection class acc. to IEC 60529	–	IP 65**	IP 67**	IP 65**	IP 63	–
EMC/ESD	Uncritical	Uncritical	Uncritical	Uncritical	Uncritical	Uncritical
Electrical connection						
Solder pad	•	•	•	•		•
Cable					•	
Connector		•	•	•		
Crimp		•	•	•		

*Resolution analog: limited by evaluation unit

**Except for electrical connection and connector

For more information about the products, please refer to the respective product data sheet.

Portfolio Rotary sensors

Potentiometer Element



Element

Membrane sensors



MTP-R



MTP-RX

Potentiometers



HMS 220



POH 120



POH 120

General data	Sensor technology	Potentiometric	Potentiometric	Potentiometric	Hall	Hall	Hall
Type of contact	Wiper	Spring loaded pin	Spring loaded pin	Spring loaded pin	Magnet	Magnet	Magnet
Sensor type	Absolute measuring	Absolute measuring	Absolute measuring	Absolute measuring	Absolute measuring	Absolute measuring	Absolute measuring
Curcuit	As voltage divider	As voltage divider	As voltage divider	As voltage divider	-	-	-
Electrical data	Measuring range, adjustable	0° – 355°	25° – 345°	25° – 345°	0° – 360°, programmable	0° – 360°, programmable	0° – 360°, programmable
Output signal	Analog, 0 to 100 % of supply voltage	Analog, 0 to 100 % of supply voltage	Analog, 0 to 100 % of supply voltage	Analog, 0 to 100 % of supply voltage	Analog, 10 to 90 % of supply voltage	Analog, 10 to 90 % of supply voltage	Analog, 10 to 90 % of supply voltage
Independent linearity	± 2 %, optional ± 0.25 %	± 2 %	± 2 %	± 2 %, optional ± 0.3 %	± 0.5 %	± 0.5 %	± 0.5 %
Resolution*	Analog	Analog	Analog	Analog, 0.05 mm achievable	Analog 12 bit, SPI 14 bit, PWM 14 bit	12 bit, <0.1°	12 bit, <0.1°
Resistance range	5 kΩ, 10 kΩ	2.5 kΩ per 25 mm circumference	2.5 kΩ per 25 mm circumference	Depending on component size	-	-	-
Resistance tolerance	± 20 %	± 30 %	± 30 %	± 30 %	-	-	-
Max. wiper current	5 mA in case of malfunction	5 mA in case of malfunction	5 mA in case of malfunction	5 mA in case of malfunction	11 mA	11 mA	11 mA
Supply voltage	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC ± 10 %	5 VDC ± 10 %	5 VDC ± 10 %
Mechanical data	Sensor thickness	1.5 mm	0.8 mm	0.8 mm	-	-	-
Housing Ø	-	-	-	-	22.2 mm	13 mm	13 mm
Shaft length / Ø	-	-	-	-	6.7 mm, Ø 6 mm	15.5 mm, Ø 3 mm	7 mm, Ø 3 mm
Travel speed	2 m/sec	1 m/sec	1 m/sec	1 m/sec	-	-	-
Lifespan in cycles	Up to 50 M	> 5 M	> 5 M	> 25 M	200 M	> 10 years	10 M
Bearing	-	-	-	-	Double ball bearing	Decoupled	Plain bearing
Mechanical coupling	-	-	-	-	Shaft	Shaft	Shaft
Mounting	Self-adhesive / screw	Self-adhesive	Self-adhesive	Self-adhesive	Thread	Servo flange	Servo flange
Environmental data	Operating temperature	-40 °C to +125 °C	-25 °C to +85 °C	-25 °C to +85 °C / 105 °C	-40 °C to +105 °C	-40 °C to +85 °C	-40 °C to +85 °C
Protection class acc. to IEC 60529	-	IP 65**	IP 65**	IP 65**	IP 65	IP 65	IP 65
EMC/ESD	Uncritical	Uncritical	Uncritical	Uncritical	-	-	-
Electrical connection	Solder pad	•					
Cable	•	•	•	•	•	•	•
Connector	•	•	•	•			
Crimp		•	•	•			

*Resolution analog: limited by evaluation unit

**Except for electrical connection and connector

For more information about the products, please refer to the respective product data sheet.

Portfolio Rotary sensors

Potentiometers



HWL 60



PGL 60



POL 120



POL 200



POL 220



POL 230



POL 790

General data	Sensor technology	Potentiometric	Potentiometric	Potentiometric	Potentiometric	Potentiometric	Potentiometric	Potentiometric
Type of contact		Wiper	Wiper	Wiper	Wiper	Wiper	Wiper	Wiper
Sensor type		Absolute measuring	Absolute measuring	Absolute measuring	Absolute measuring	Absolute measuring	Absolute measuring	Absolute measuring
Curcuit		As voltage divider	As voltage divider	As voltage divider	As voltage divider	As voltage divider	As voltage divider	As voltage divider
Electrical data	Measuring range, adjustable	320°	320°	308°	320°	320°	340°	350°
Output signal		Analog, 0 to 100 % of supply voltage	Analog, 0 to 100 % of supply voltage	Analog, 0 to 100 % of supply voltage	Analog, 0 to 100 % of supply voltage	Analog, 0 to 100 % of supply voltage	Analog, 0 to 100 % of supply voltage	Analog, 0 to 100 % of supply voltage
Independent linearity		± 2 %	± 2 %	± 2.5 %	± 2 %	± 2 %	± 2 %	± 2 %
Resolution*		Analog	Analog	Analog	Analog	Analog	Analog	Analog
Resistance range		10 kΩ	10 kΩ	10 kΩ	10 kΩ	5 kΩ	5 kΩ	5 kΩ, 10 kΩ
Resistance tolerance		± 20 %	± 20 %	± 20 %	± 20 %	± 20 %	± 20 %	± 20 %
Max. wiper current		5 mA in case of malfunction	5 mA in case of malfunction	5 mA in case of malfunction	5 mA in case of malfunction	5 mA in case of malfunction	5 mA in case of malfunction	5 mA in case of malfunction
Supply voltage		5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible	5 VDC typ., 3 to 30 VDC possible
Mechanical data	Sensor thickness	10 mm	17.6 mm	-	-	-	-	-
Housing Ø		30 x 32 mm	31 mm	13 mm	20 mm	22.2 mm	22.2 mm	79 mm
Shaft length / Ø		Hollow shaft Ø 6 mm	Hollow shaft Ø 6 mm	7 mm / Ø 3 mm	13 mm / Ø 6 mm	15 mm / Ø 6 mm	10 mm / Ø 3.165 mm	13 mm / Ø 8 mm
Travel speed		-	-	-	-	-	-	-
Lifespan in cycles		3 M	25 M	3 M	1 M	10 M	20 M	10 M
Bearing		Floating plain bearing	Ball bearing	Plain bearing	Plain bearing	Plain bearing	Ball bearing	Plain bearing
Mechanical coupling		Hollow shaft	Hollow shaft	Shaft	Shaft	Shaft	Shaft	Shaft or rotary disk
Mounting		Stick	Thread	Servo flange	Thread	Thread	Servo flange	Screw
Environmental data	Operating temperature	-25 °C to +85 °C	-25 °C to +85 °C	-25 °C to +85 °C	-25 °C to +85 °C	-25 °C to +85 °C	-25 °C to +85 °C	-25 °C to +85 °C
Protection class acc. to IEC 60529		IP 50	IP 63	IP 65	IP 50	IP 65	IP 63	IP 67
EMC/ESD		Uncritical	Uncritical	Uncritical	Uncritical	Uncritical	Uncritical	Uncritical
Electrical connection	Solder pad	•			•	•	•	
Cable		•	•	•	•	•	•	
Connector								•

*Resolution analog: limited by evaluation unit
For more information about the products, please refer to the respective product data sheet.



The great feeling of being understood and perfectly looked after from a technical perspective – that's a constituent part of our corporate philosophy. Customers and business partners appreciate this attitude and reward us with many years of loyalty.

Our versatile creativity brings many advantages, especially for our business partners. We create optimal solutions in the fields of sensor systems, resistor technology and joysticks.

Our customers can be sure:
whatever challenge has to be solved
with whatever product – we'll find a way!



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