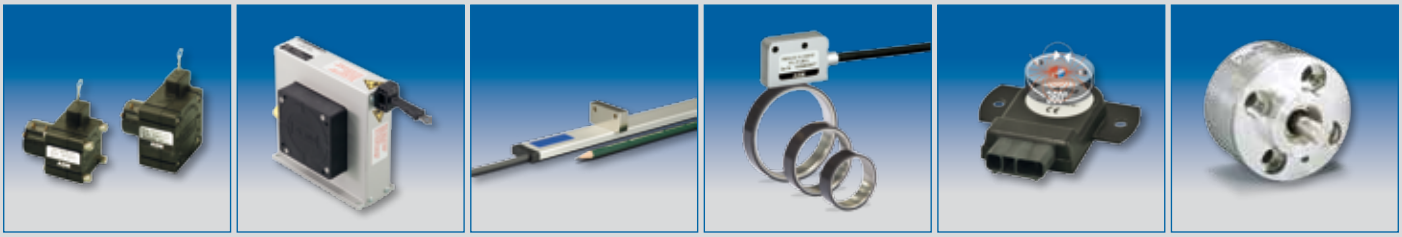
ASM®

perfect in sensors.



Product overview

Linear measurement

POSIWIRE®	Cable Extension Sensors
POSITAPE®	Tape Extension Sensors
POSICHRON®	Magnetostrictive Sensors
POSIMAG®	Magnetic Scale Sensors

Angle measurement

POSIROT®	Magnetic Angle Sensors / Encoders

Tilt measurement

POSITILT®	Inclination Sensors

Welcome to ASM

Your Partner for Position Sensors

ASM is a worldwide leading manufacturer of innovative sensor solutions. Based on over 35 years of experience in the development and manufacturing of position sensors, the company offers superior quality solutions for industrial applications and research using the latest technologies.

From one source: displacement, angle and inclination sensors
With six innovative product lines, ASM offers a comprehensive product program including sensor solutions for displacement, angle, and inclination measurement, which is unparalleled on the sensors market.

Latest technologies for your sensing needs
ASM's product program comprises various technologies and offers perfect solutions for manifold applications.

ASM products stand for precision and reliability
ASM position sensors have always been a synonym for superior quality ensuring consistent productivity and smooth operations. The quality management certified according to DIN EN ISO 9001:2008 and continuous research and development in company-own laboratories guarantee these high quality standards.

ASM – Your partner worldwide
Headquartered in Germany, ASM maintains a worldwide presence through a strategic network of subsidiaries and more than 50 distributors. Being present all over the world, the company ensures closeness to local market needs and quick product and service availability.

POSIWIRE®

Robust. Compact. Reliable.

POSIWIRE® cable extension position sensors capture linear position either absolutely or incrementally using a measuring cable made from stainless steel. Due to their robustness, easy and space-saving installation and the availability of measuring lengths up to 40,000 mm, POSIWIRE® position sensors are the standard solution for many applications.

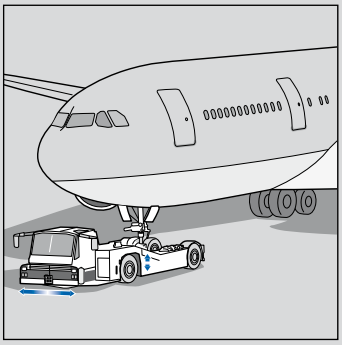
NEW: POSIWIRE® position sensors are now available with **robust magnetic absolute encoder** for safety applications.

Advantages at a glance

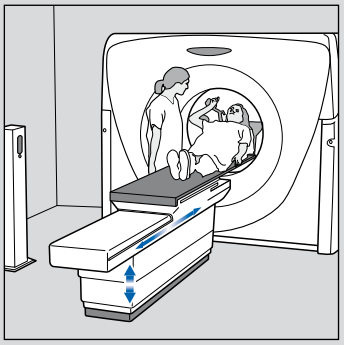
- Fast and easy installation
- Compact design
- Resistant to vibration and shock
- High protection class up to IP68/IP69
- Linearity up to 0.01%
- Measuring lengths up to 40,000 mm
- Numerous output types
- NEW: **also available with magnetic absolute encoder**

Applications

POSIWIRE® position sensors are used in applications where linear movements of elements have to be exactly positioned. The sensors assure reliable operation in many sectors of automation and processing, as well as in the field of industry and research, e.g. in material handling systems, elevators, hoist and conveyor technologies, and are as well suited for medical equipment and wind power plants.



Aircraft tractors



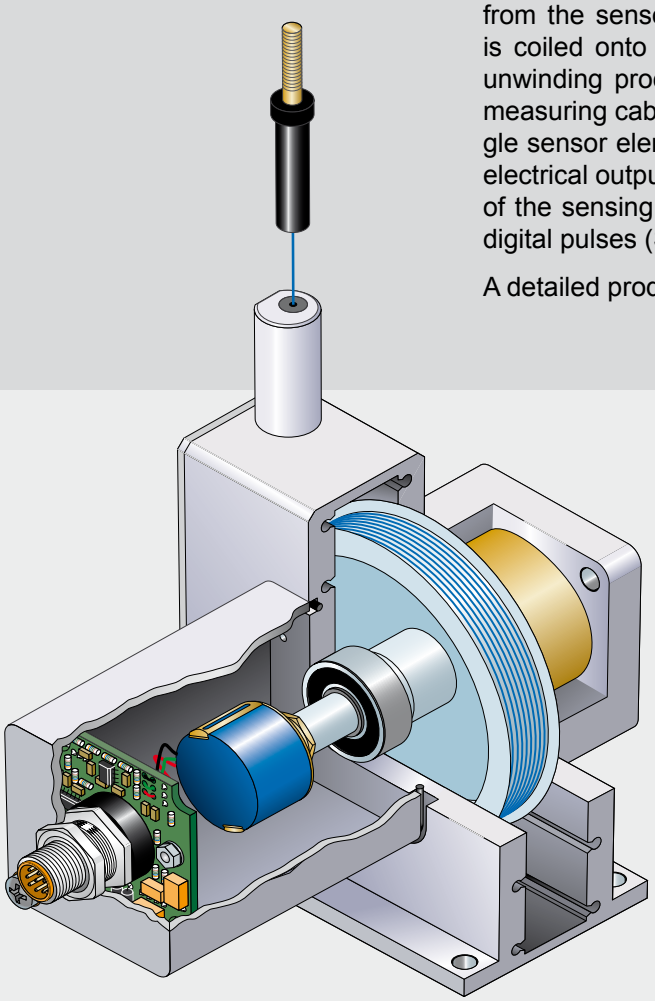
Magnetic resonance scanners

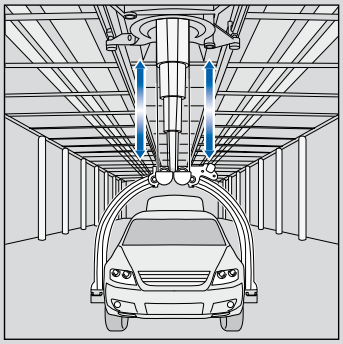
Cable Extension Sensors

The functional principle

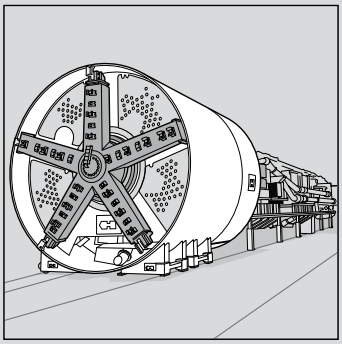
The POSIWIRE® sensor operates by attaching the measurement cable from the sensor directly to the moving object. The measurement cable is coiled onto a cable drum that is under constant spring tension. The unwinding process from the drum converts the linear movement of the measuring cable into an angular movement which is then captured by angle sensor elements (encoders or potentiometers) and converted into an electrical output signal. Subsequent signal conditioners convert the signal of the sensing element into voltage (0...10 Volt), current, (4...20 mA), or digital pulses (SSI) suitable for standard interfaces.

A detailed product catalog for POSIWIRE® position sensors is available.

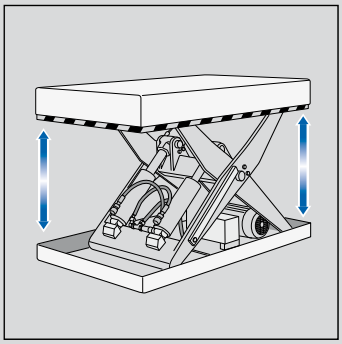




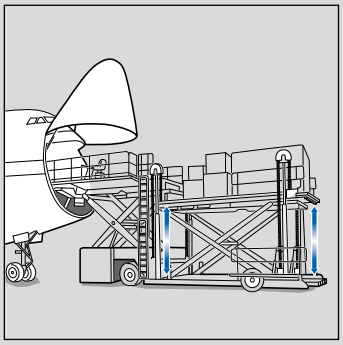
Overhead monorails



Tunneling machines



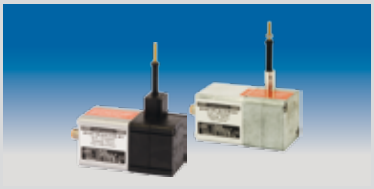
Scissors lift tables



Cargo loaders

POSIWIRE®

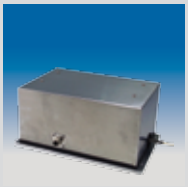
Cable Extension Position Sensors
Selection Guide

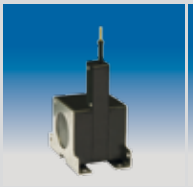
Selection features \ Model				
	WS31 / WS42	**WS10**	**WS17KT**	**WS19KT**
Measurement range 0 to ... [mm]				
100		●		
125		●		
250	●			
375		●		
500	●	●		
750	●	●		
1,000	●	●		
1,250		●		
1,500		●	●	
2,000		●	●	●
2,500			●	
3,000			●	●
3,500				
4,000			●	
5,000			●	●
6,000				
6,250			●	
7,500				
8,000				●
10,000			●	
12,500			●	
15,000			●	●
17,500				
20,000				
25,000				
30,000				
40,000				
Sensing device				
Precision potentiometer	●	●	●	–
Encoder (optical)	●	●	–	●
NEW: Magnetic multiturn encoder, contactless	–	●	–	–
Analog outputs, absolute				
Potentiometer 1 kΩ/10 kΩ	●	●	●	–
Voltage 0 ... 10 V (0.5 ... 10 V)	●	●	●	–
Current 4 ... 20 mA	●	●	●	–
programmable 0...10 V / 4...20 mA	●	●	●	–
Incremental outputs	TTL/HTL/RS422	TTL/HTL/RS422	–	TTL/HTL/RS422
Digital outputs, absolute				
SSI	●	●	●	●
Profibus	–	–	–	●
CAN / CANopen	●	●	●	●
DeviceNet	–	–	–	●
Linearity standard	up to ±0.20%	up to ±0.05%	up to ±0.05%	up to ±0.01%
Protection class (optional)	IP50	IP65	IP64 (IP66)	IP64
Explosion protection (Dust-Ex)	–	Ex	–	–

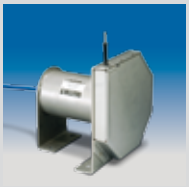
* = connector version with a suitable connector

1) = optional redundant version 0.5 ... 10 V, 0.5 ... 4.5 V, 4 ... 20 mA , CANopen

NEW NEW NEW





Model / Selection features	WS7.5	WS12	WS61	WS85	WS21	WS100M
Measurement range 0 to ... [mm]						
100		●				
125		●				
250						
375						
500		●				
750						
1,000		●				
1,250		●				
1,500		●	●			
2,000		●	●			●
2,500		●	●			
3,000		●	●			
3,500			●			●
4,000			●[2]			
5,000				●		
6,000				●		
6,250						
7,500						●
8,000					●	
10,000	●				●	●
12,500					●	
15,000	●				●	
17,500					●	
20,000	●				●	
25,000	●					
30,000	●					
40,000	●					
Sensing device						
Precision potentiometer	●	●	–	–	–	●
Encoder (optical)	●	●	–	–	–	–
NEW: Magnetic multiturn encoder, contactless	●[1]	●[1]	●[1]	●[1]	●[1]	●
Analog outputs, absolute						
Potentiometer 1 kΩ/10 kΩ	●	●	–	–	–	●
Voltage 0 ... 10 V (0.5 ... 10 V)	●	●	●	●	●	●
Current 4 ... 20 mA	●	●	●	●	●	●
programmable 0...10V / 4...20 mA	●	●	●	●	●	●
Incremental outputs	TTL/HTL/RS422	TTL/HTL/RS422	–	–	–	–
Digital outputs, absolute						
SSI	●	●	●	●	●	●
Profibus	●	–	–	–	–	–
CAN / CANopen	●	●	●	●	●	●
DeviceNet	●	–	–	–	–	–
Linearity standard	up to ±0.01%	up to ±0.05%	up to ±0.05%	up to ±0.05%	up to ±0.05%	up to ±0.05%
Protection class (optional)	IP52	IP67*	IP67/IP69*	IP67/IP69*	IP67/IP69*	IP68/IP69
Explosion protection (Dust-Ex)	–	Ex	–	–	–	–

* = connector version with a suitable connector
[1] = optional redundant version 0.5 ... 10 V, 0.5 ... 4.5 V, 4 ... 20 mA , CANopen
[2] = L35

POSITAPE®

Very robust. Ideal for pulley applications.

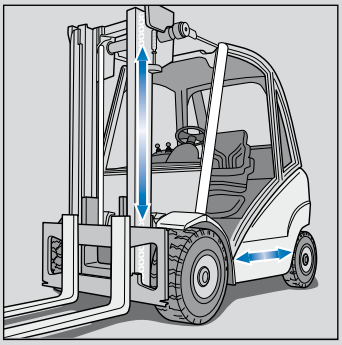
POSITAPE® position sensors utilize the functional principle of the POSIWIRE® position sensors. Instead of using a cable, POSIWIRE® position sensors are constructed with a specially designed stainless steel tape. This high-tech robust stainless steel tape has a nearly unlimited life cycle. Thus, POSITAPE® position sensors are perfectly suited in applications that require pulleys due to the tight locations where the sensor must be installed. The rugged design is shock and vibration resistant and makes POSITAPE® position sensors suitable for use in harsh environmental conditions.

Advantages at a glance

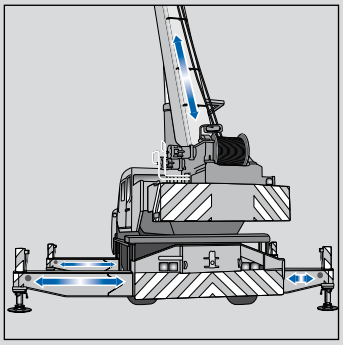
- Nearly unlimited life cycle of the measuring tape
- Extremely robust against dirt
- Narrow axial design
- Low wear
- High linearity due to electronic linearization (up to 0.05%)
- Measurement ranges up to 20,000 mm
- Integrated dust wiper

Applications

Due to the robust stainless steel tape POSITAPE® position sensors are perfectly suited for pulley applications, as well as for use in hostile environments, e.g. in the sector of mobile working machines. POSITAPE® position sensors can also be used in applications in which the absence of particles is required due to hygienic regulations, like in the food processing industry or pharmaceutical industry.



Forklifts



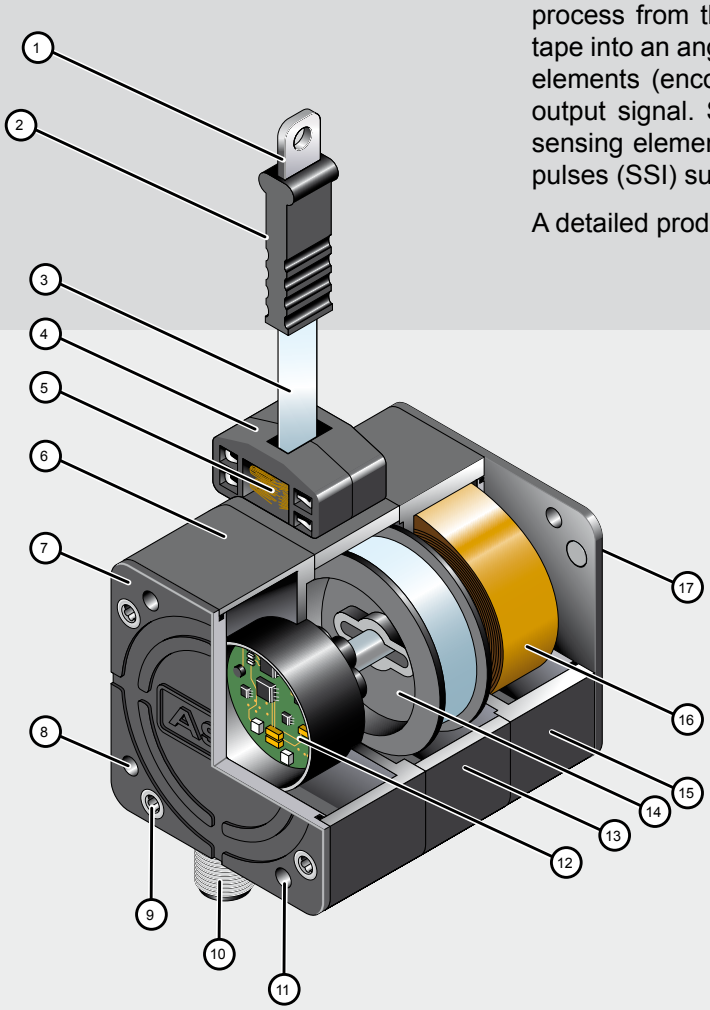
Mobile cranes

Tape Extension Sensors

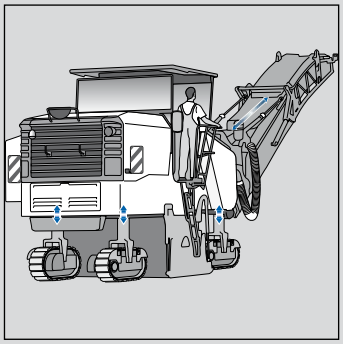
The functional principle

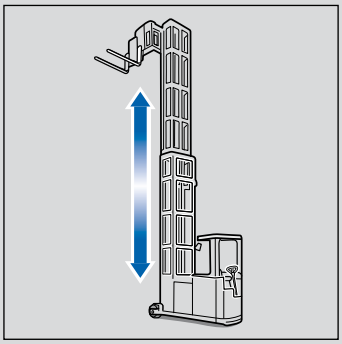
The POSITAPE® sensor operates by attaching the measurement tape from the sensor directly to the moving object. The measurement tape is coiled onto a cable drum that is under constant spring tension. The unwinding process from the drum converts the linear movement of the measuring tape into an angular movement which is then captured using angle sensor elements (encoders or potentiometers) and converted into an electrical output signal. Subsequent signal conditioners convert the signal of the sensing element into voltage (0,5 ...10 V), current, (4...20 mA), or digital pulses (SSI) suitable for standard interfaces.

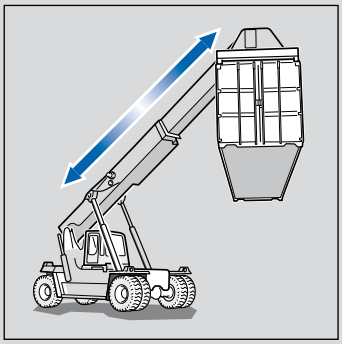
A detailed product catalog for POSITAPE® position sensors is available.

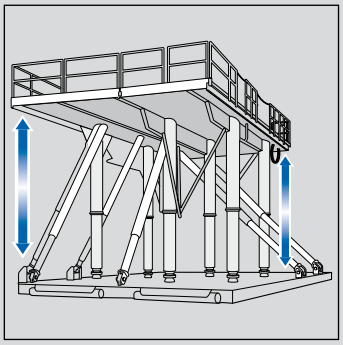


1... Measuring tape clip
2... Shock absorbing end stop
3... Measuring tape
4... Tape inlet with dust wiper
5... Open dust wiper
6... Sealed encoder housing
7... Cover sealed with an O-ring
8... Drilling for mounting brackets
9... Clamping screws
10... Connector (90° rotation)
11... Screw passage for mounting brackets
12... Magnetic Absolute Multiturn Encoder
13... Drum housing with drainage holes
14... Drum
15... Spring housing
16... Flat spring
17... Cover sealed with an O-ring


Cold milling machines


High-rack forklifts


Material handling equipment


Lifting platforms

POSITAPE®

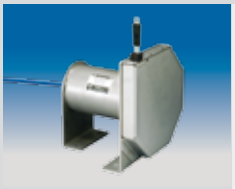
Tape Extension Position Sensors
Selection Guide

Selection features / Model			
	WB10ZG	**WB61**	**WB85**
Measurement range 0 to ... [mm]			
250	●		
375	●		
500	●		
750	●		
1,000	●		
1,250	●		
1,500	●	●	
2,000	●	●	
2,500		●	
3,000		●	
3,500		●	
4,000		●	
5,000			●
6,000			●
7,500			
8,000			
10,000			
12,500			
15,000			
17,500			
20,000			
Analog outputs, absolute[1)]			
Voltage 0.5 ... 10 V	●	●	●
Voltage 0.5 ... 4.5 V	●	●	●
Current 4 ... 20 mA	●	●	●
Programmable (PMU)	●	●	●
Digital outputs, absolute[1)]			
SSI	●	●	●
CANopen	●	●	●
CAN SAE J1939	●	●	●
Linearity			
standard	±0.10 %	±0.10 %	±0.10 %
optional (for meas. ranges ≥ 1000 mm)	±0.05 %	±0.05 %	±0.05 %
Protection class			
standard	IP65	IP67*	IP67*
optional	–	IP67/IP69*	IP67/IP69*

* = connector version with a suitable connector

1) = optional redundant version 0.5 ... 10 V, 0.5 ... 4.5 V, 4 ... 20 mA, CANopen (except WB10ZG)

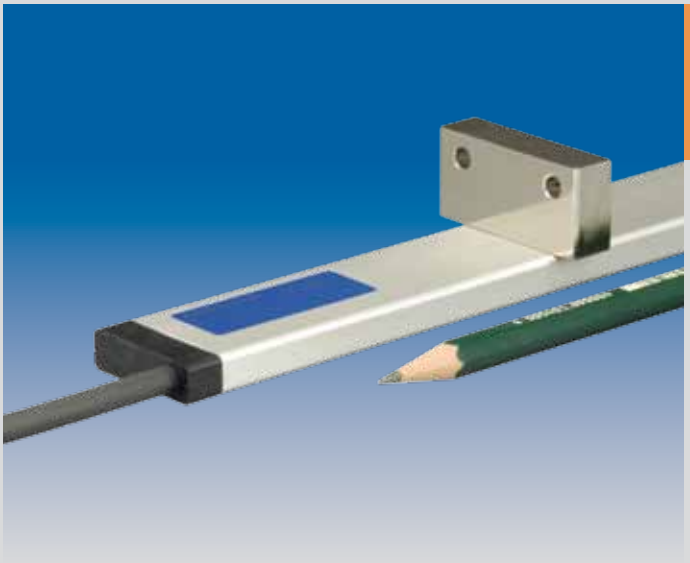




Model / Selection features	WB21	WB12	WB100M
Measurement range 0 to ... [mm]			
250		●	
375		●	
500		●	
750		●	
1,000		●	
1,250		●	
1,500		●	
2,000	●	●	
2,500		●	
3,000		●	
3,500	●	●	
4,000		●	
5,000			
6,000			
7,500	●		
8,000			●
10,000	●		●
12,500			●
15,000			●
17,500			●
20,000			●
Analog outputs, absolute[1)]			
Voltage 0.5 ... 10 V	●	●	●
Voltage 0.5 ... 4.5 V	●	●	●
Current 4 ... 20 mA	●	●	●
Programmable (PMU)	●	●	●
Digital outputs, absolute[1)]			
SSI	●	●	●
CANopen	●	●	●
CAN SAE J1939	●	●	●
Linearity			
standard	±0.10 %	±0.10 %	±0.10 %
optional (for meas. ranges ≥ 1000 mm)	±0.05 %	±0.05 %	±0.05 %
Protection class			
standard	IP67*	IP67*	IP68/IP69
optional	IP67/IP69*	IP67/IP69*	–

* = connector version with a suitable connector

[1)] = optional redundant version 0.5 ... 10 V, 0.5 ... 4.5 V, 4 ... 20 mA, CANopen (except WB10ZG)



POSICHRON®

Non-contact. Fits various installation conditions.

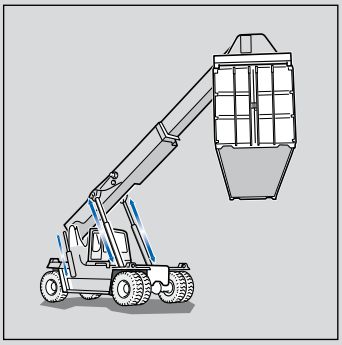
POSICHRON® is an absolute, non-contact and wear-free position measuring system. The key feature of POSICHRON® measuring system is its extreme robustness. Therefore POSICHRON® sensors are best suited for applications where other measuring principles would fail. The availability of various constructions – rod, square profile and ultra flat profile – means that the system can be adapted to suit all kinds of installation conditions.

Advantages at a glance

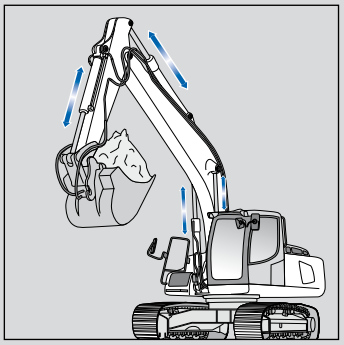
- Wear- and maintenance-free
- Resistant to dirt, humidity and dust
- Protection class up to IP68/IP69K
- Highly resistant to vibration and shock
- Linearity up to ±0.02% f.s.
- Measurement ranges up to 5,750 mm

Applications

POSICHRON® position sensors can be applied universally. The application range comprises e.g. hydraulic cylinders and presses, liquid level measurement, injection molding machines, dosing and mixing systems, die-casting machines, road vehicle tests, tunneling machines, wind power plants und patient beds.



Material handling vehicles



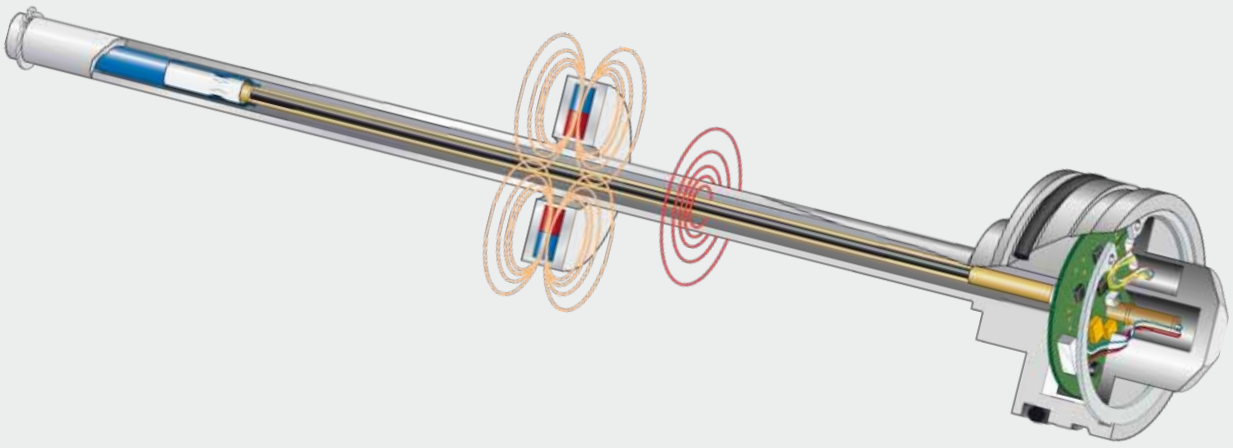
Hydraulic excavators

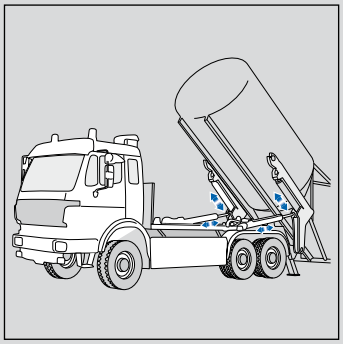
Magnetostrictive Sensors

The functional principle

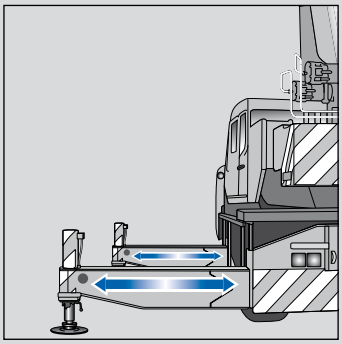
POSICHRON® position sensors consist of a magnetostrictive wave guide and a non-contact position magnet. To determine the position, a current impulse is sent through the wave guide. This current impulse generates a circular magnetic field which propagates around the wave guide. If this circular magnetic field makes contact with the magnetic field of the movable position magnet, a tensional mechanical-elastic density wave is generated as a result of magnetostriction. A detector in the sensor head detects the arrival of this reflected density way. The position is determined by measuring the time difference between the electrical induction current impulse and the mechanical-elastic density wave generated by the magnet (time-of-flight-principle).

A detailed product catalog for POSICHRON® position sensors is available.

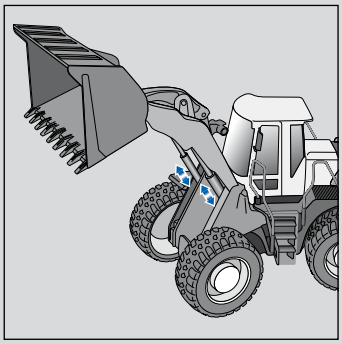




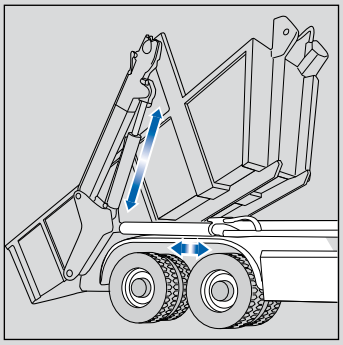
Commercial vehicles



Mobile crane outriggers



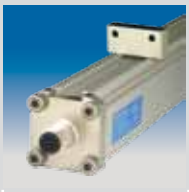
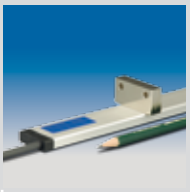
Wheel loaders



Skip loaders

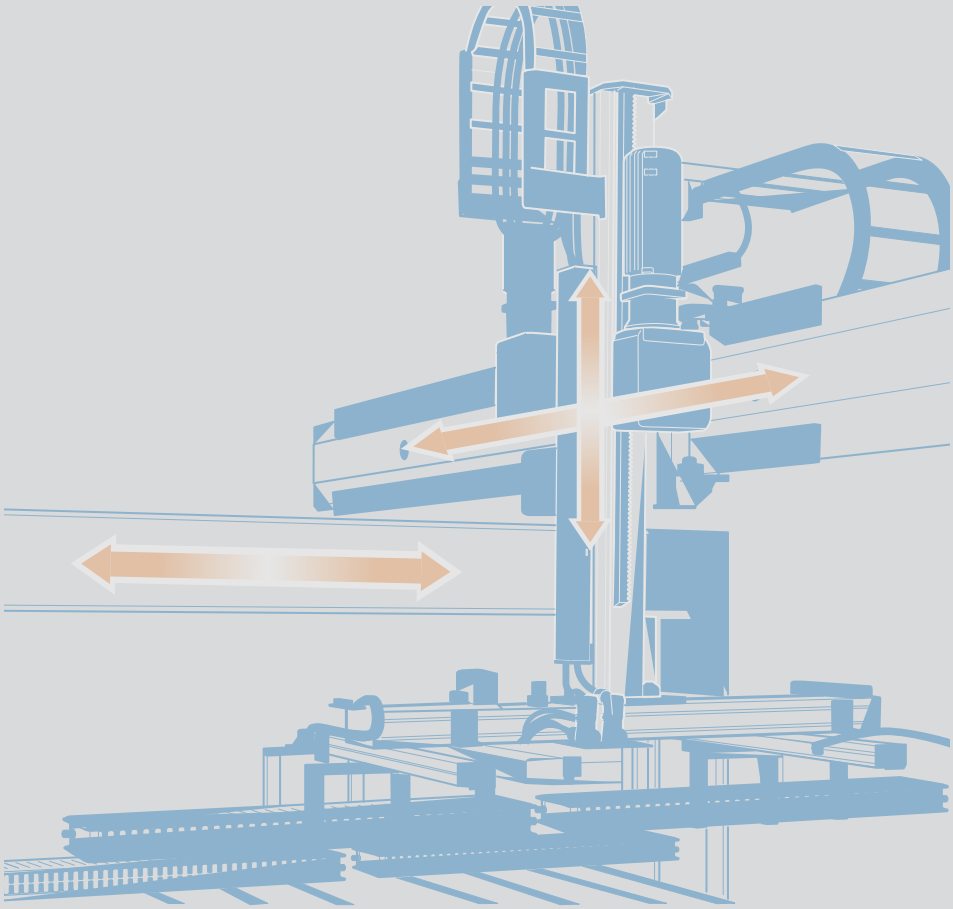
POSICHRON®

Magnetostrictive Position Sensors
Selection Guide

Selection features \ Model					
	PCQA22	**PCQA24**	**PCFP23**	**PCFP24**	**PCFP25**
Measurement range					
100 ... 5,750 mm	●	●	●	●	●
Analog outputs[1)]					
0.5 ... 10 V 0.5 ... 4.5 V 4 ... 20 mA	●	●	●	●	●
Digital outputs					
SSI	●	●	●	●	●
CANopen	●	●	●	●	●
CAN SAE J1939	●	●	●	●	●
Protection class					
Standard	IP64	IP67*	IP64	IP67*	IP64
optional	–	IP67/IP69*	–	IP67/IP69*	IP67

[1)] = 1 or 2 position magnets; Position und velocity programmable (PMU)

* = connector version with a suitable connector



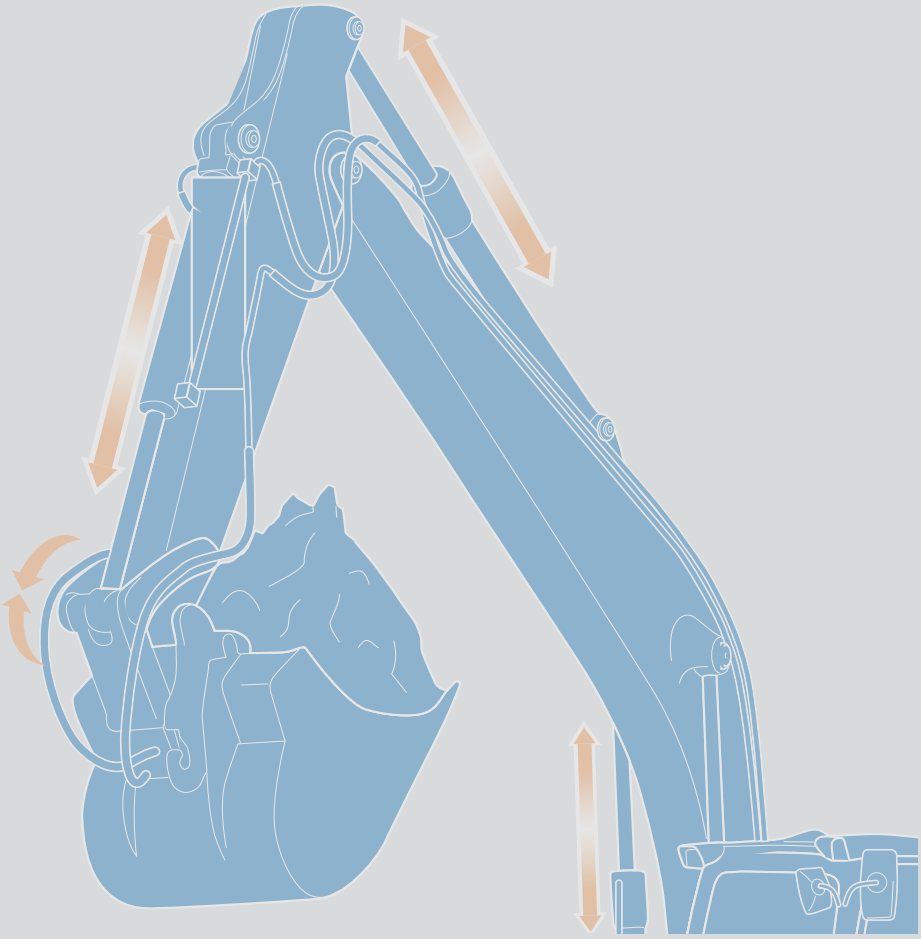




Model / Selection features					
PCRP21	**PCRP32**	**PCST24**	**PCST25**	**PCST27**	
					Measurement range
●	●	●	●	●	100 ... 5.750 mm
					Analog outputs[1)]
●	●	●	●	●	0.5 ... 10 V 0.5 ... 4.5 V 4 ... 20 mA
					Digital outputs
●	●	●	●	●	SSI
●		●	●	●	CANopen
●	●	●	●	●	CAN SAE J1939
					Protection class
IP64	IP68/IP69	IP67*	IP67	IP68/IP69	Standard
–	–	IP67/IP69*	IP67/IP69	–	optional

[1)] = 1 or 2 position magnets;
Position und velocity
programmable (PMU)

* = connector version with a suitable connector



POSIMAG®

Non-contact. High resolution.

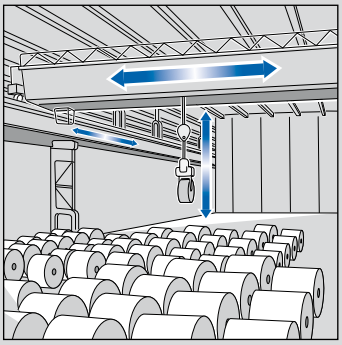
POSIMAG® is a non-contact, high resolution magnetic position measuring system for measuring lengths of up to approx. 30 meters. Because of its sturdiness and resistance to dirt, together with the system's exceptional resistance to wear and tear, POSIMAG® is also suitable for use under challenging environmental conditions.

Advantages at a glance

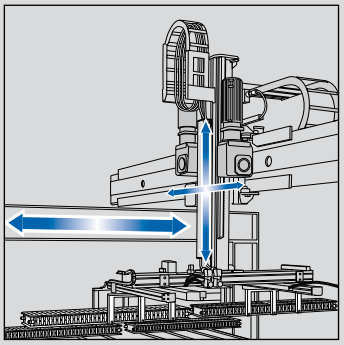
- Non-contact and wear-free
- Resistant to dirt
- Shielded metal housing
- Simple installation and adjustment
- Standard quadrature encoder interface
- Protection class up to IP67
- Measuring ranges up to 30,000 mm

Applications

POSIMAG® position sensors are suitable for linear position measurement in many industrial applications in the production of machinery, plants and precision equipment, in which sturdiness and wear-free design play a crucial role, like e.g. in material handling systems. The POSIROT® product family was developed for similar types of rotary positioning applications.



Overhead cranes

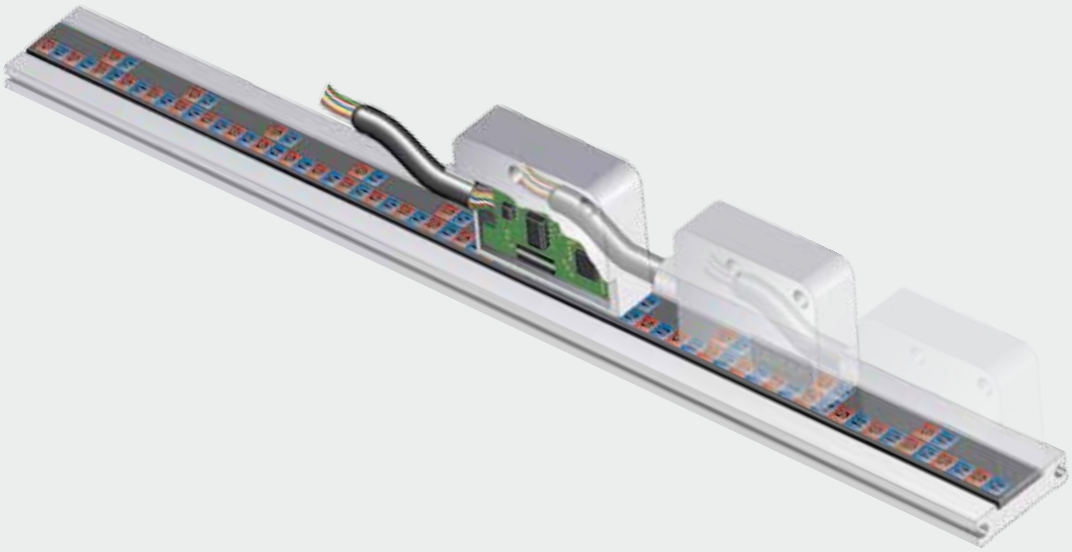


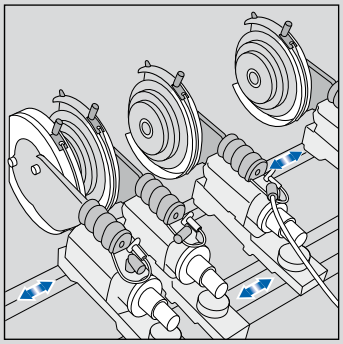
Handling systems

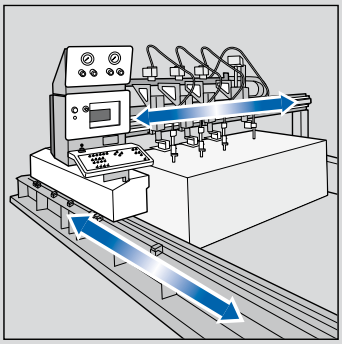
Magnetic Scale Sensors

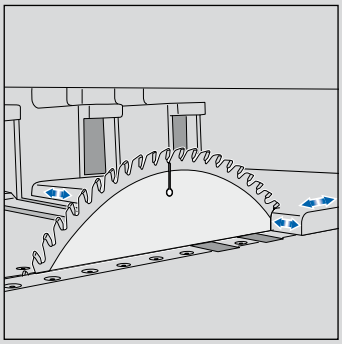
The functional principle
POSIMAG® consists of a magnetic measuring strip and a non-contact magnetoresistive scanning head. The magnetic measuring strip is periodically magnetized with magnetic north and south poles. To capture a position the magnetoresistive sensor head samples sinusoidal magnetic fields above the magnetic measuring. Standard Resolutions up to 1 µm are available. The signals can be processed by all common industrial control units with suitable signal processing speeds, or displayed directly using a digital display unit from ASM´s PRODIS® series.

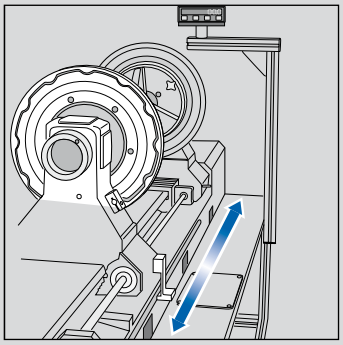
A detailed product catalog for POSIMAG® position sensors is available.




Slitter winders


Flame cutting machines

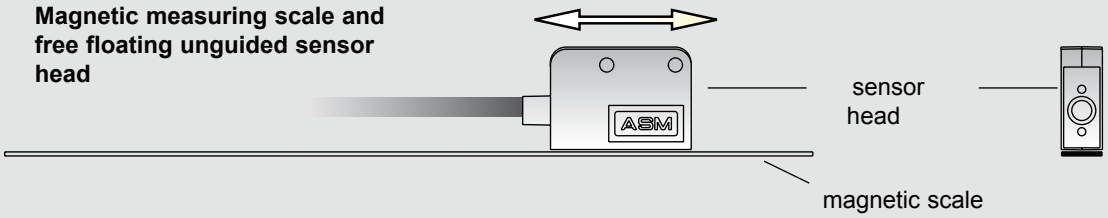

Dimensioning saws


Special-purpose lathes

POSIMAG®

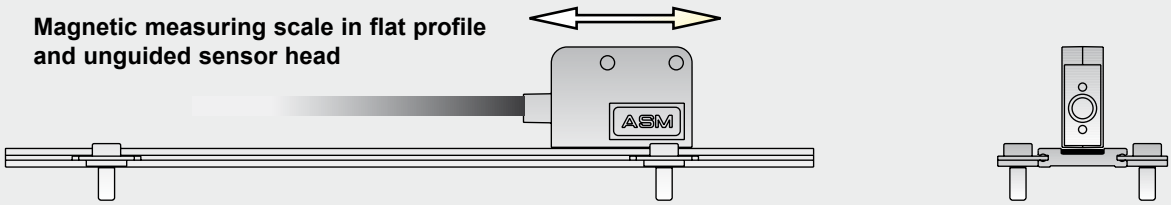
Magnetic Scale Position Sensors
Overview

Magnetic measuring scale and free floating unguided sensor head



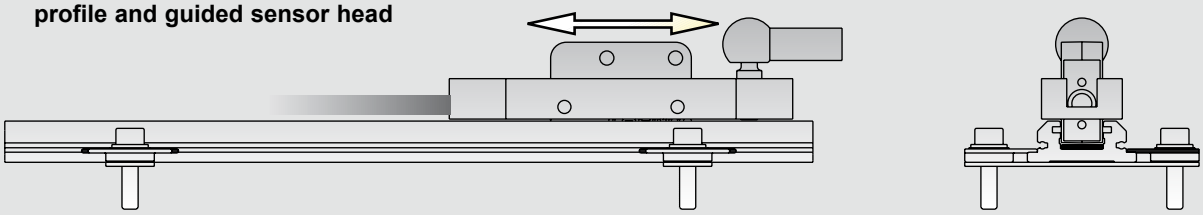
For direct adhesive taping – the cost-effective mounting method.

Magnetic measuring scale in flat profile and unguided sensor head



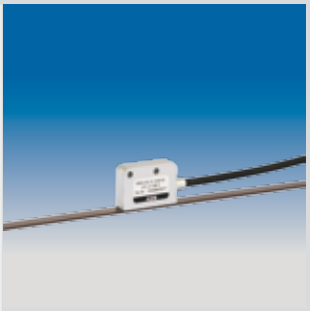
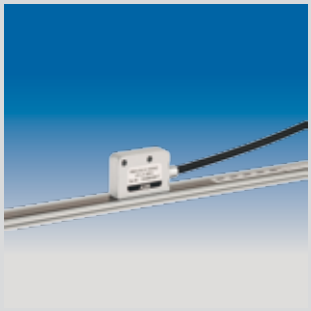
Easy to mount.
Adjustment on site possible.
Can be stacked by 3 m units up to 30 m length.

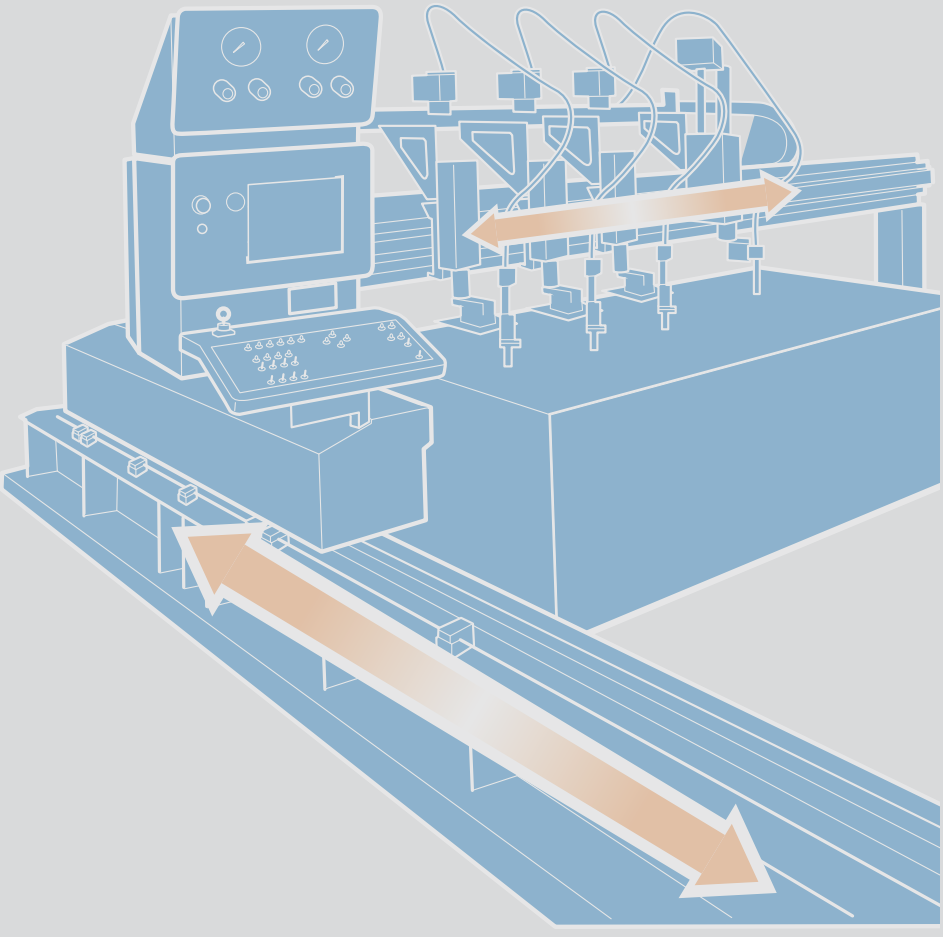
Magnetic measuring scale in guidance profile and guided sensor head



Provides integral linear guidance for applications without own linear guidance by system.

POSIMAG®
Magnetic Scale Position Sensors
Selection Guide

Model / Selection features						
	Magnetic scale		**Flat profile**		**High profile**	
Measurement range	0 ... 30,000 mm		0 ... 30,000 mm		0 ... 30,000 mm	
Magnetic period	2 mm	5 mm	2 mm	5 mm	2 mm	5 mm
Resolution	up to 1 µm	up to 2.5 µm	up to 1 µm	up to 2.5 µm	up to 1 µm	up to 2.5 µm
Digital outputs, incremental						
HTL	●	●	●	●	●	●
TTL	●	●	●	●	●	●
TTL24V	●	●	●	●	●	●
Linearity	15 µm ±40 µm/m	30 µm ±40 µm/m	15 µm ±40 µm/m	30 µm ±40 µm/m	15 µm ±40 µm/m	30 µm ±40 µm/m
Protection class	IP67		IP67		IP67	



POSIROT®

Magnetic. Flexible. Suitable for outdoor use.

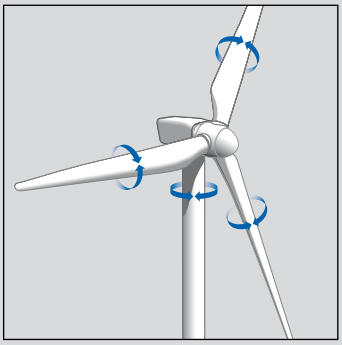
POSIROT® angle sensors are absolute, rotary position sensors utilizing a non-contact position magnet. Due to their extraordinary resistance to shock, vibration and dirt, POSIROT® position sensors are best suited especially for outdoor applications in hostile environments, being even superior to optical encoders. Various designs from flat housing to M12 housing in stainless steel allow easy adaptation for numerous applications.

Advantages at a glance

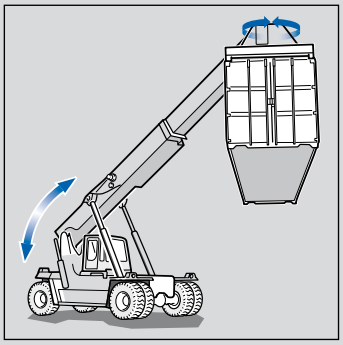
- Measurement range 0° to 360°
- Magnetic measurement principle
- Non-contact or with 10 mm shaft
- Resistant to vibration, shock and dirt
- Protection class up to IP68/IP69

Applications

Due to their outstanding sturdiness POSIROT® angle sensors are well suited for the rotary position measurement in applications with harsh environmental conditions, such as those found on mobile working machines, vessels, cranes, excavators, and also on wind power plants and medical equipment.



Wind power plants



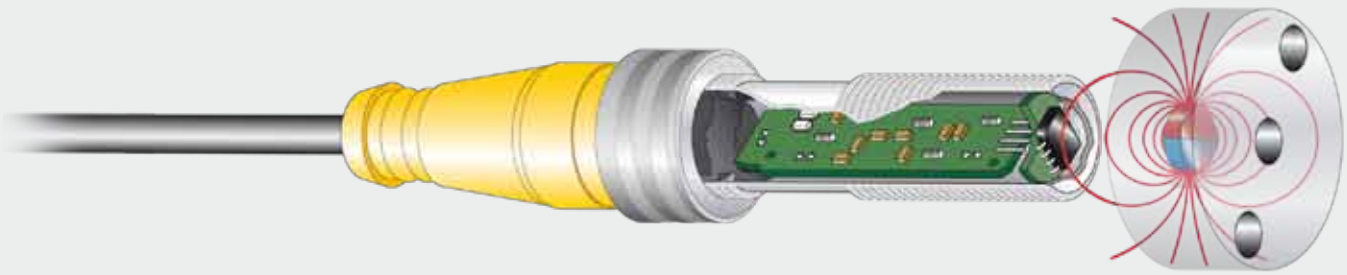
Material handling vehicles

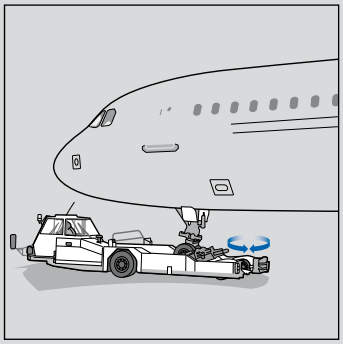
Magnetic Angle Sensors

The functional principle

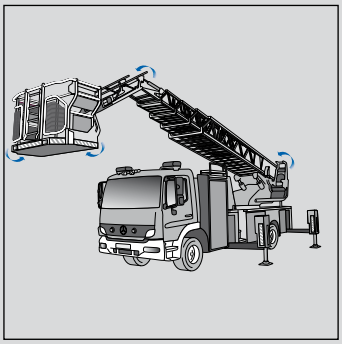
POSIROT® angle sensors provide an absolute rotary position by utilizing a multiple Hall-Effect sensor array and a position magnet.

A detailed product catalog for POSIROT® angle sensors is available.

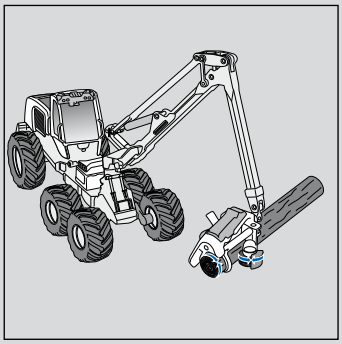




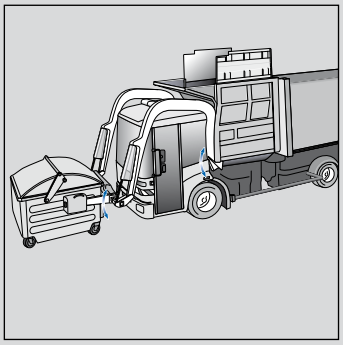
Aircraft tractors



Turnable ladder vehicles



Harvesters



Communal vehicles

POSIROT®
Angle Sensors and Encoders
Selection Guide

Selection features \ Model												
	PRAS20	PRAS21	PRAS27	PRDS27	PRAS1	PRDS1	PRAS2	PRDS2	PRAS3	PRDS3	PRAS5	PRDS5
Measurement range	A	A	A	D	A	D	A	D	A	D	A	D
0°... 360°	●	●	●	●	●	●	●	●	●	●	●	●
Analog outputs, absolute												
Voltage 0.5 ... 10 V	●		●		●		●		●		●	
Voltage 0.5 ... 4.5 V	●	●	●		●		●		●		●	
Current 4 ... 20 mA	●		●		●		●		●		●	
Redundant version (optional)	●		●				●		●		●	
Digital outputs, absolute												
SSI - RSSI5V, RSSI24V						●		●		●		●
CANopen				●				●		●		●
CAN SAE J1939				●				●		●		●
Digital outputs, incremental												
RS5V, RS24V						●		●		●		●
RS5VF, RS24VF								●		●		●
HT24V						●		●		●		●
HT24VF								●		●		●
Linearity (standard)	±0.5%		±0.5%	±1°	±0.3%	±1°	±0.3%	±1°	±0.3%	±1°	±0.3%	±1°
Protection class												
Standard	IP60		IP67		IP67		IP67		IP67		IP67/IP69*	
optional	–		–		IP67/IP69*		IP67/IP69*		IP67/IP69*		IP68/IP69	

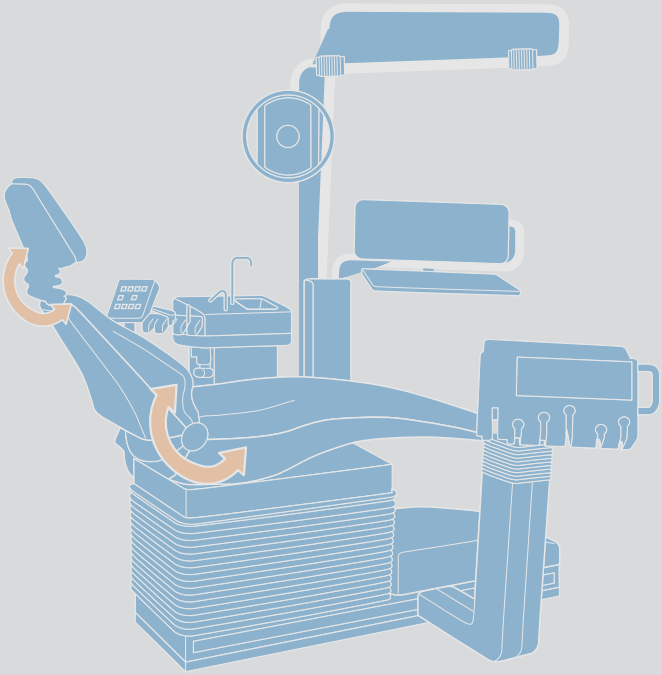
A = Analog outout D = Digital ouput

* = with a suitable IP67/IP69 connector

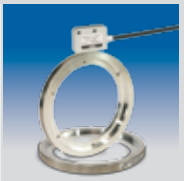
NEW

Selection features \ Model	
	PRAS26
Measurement range	A
0°... 360°	●
Analog outputs, absolute	
Voltage 0.5 ... 10 V	●
Voltage 0.5 ... 4.5 V	●
Current 4 ... 20 mA	●
Redundant version (optional)	–
Linearity (standard)	±0.5%
Protection class	
Standard	IP67
optional	–

A = Analog output



POSIROT®
Magnetic Incremental Encoders
Selection Guide

Selection features \ Model				
	PMIS4/PMIR5		PMIS4/PMIR7(N)	
Measurement range				
0°... 360°	●	●	●	●
Digital outputs, incremental				
HTL	●	●	●	●
TTL	●	●	●	●
TTL24V	●	●	●	●
Linearity (standard)	±0.1°	±0.1°	±0.1°	±0.1°
Protection class	IP67		IP67	

POSIROT®
Angle Sensors, Dust-Ex-Proof
Selection Guide

Selection features \ Model			
	PRAS2EX	PRAS3EX	PRAS5EX
Measurement range	A	A	A
0°... 360°	●	●	●
Analog outputs, absolute			
Voltage 0.5 ... 10 V	●	●	●
Voltage 0.5 ... 4.5 V	●	●	●
Current 4 ... 20 mA	●	●	●
Linearity (standard)	±0.3%	±0.3%	±0.3%
Protection class	IP65	IP65	IP65
Ex Protection class (dust)	**II 3D Ex tD A22 IP65 T80°C X**		

A = Analog output

POSITILT®

Micromechanical. Very robust. Wear-free.

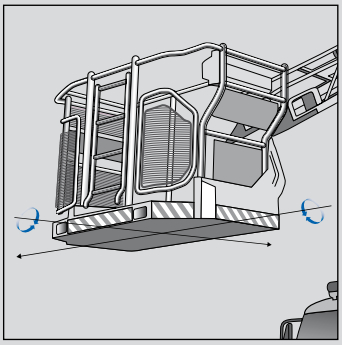
POSITILT® inclination sensors measure inclination between 0 and +/-180° in a non-contact, wear-free and absolute way. Utilizing the MEMS technology, these sensors are extremely resistant to shock, vibration and dirt, and are therefore well suited for outdoor applications. Various sensor enclosure designs open possibilities for many different types of applications.

Advantages at a glance

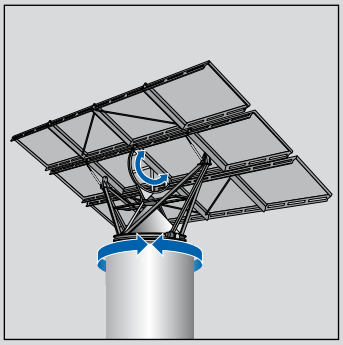
- Wear-free
- Measurement range +/-180°
- Protection class up to IP68/IP69
- Resistant to shock and vibration
- MEMS technology
- Measurement with 1 or 2 axes

Applications

POSITILT® inclination sensors are the ideal solution for determining inclination position in harsh applications such as solar power plants, commercial vehicles, transportation, and are best suited for industrial applications in which inclination position has to be precisely measured, monitored and continuously adjusted.



Turnable ladder vehicles



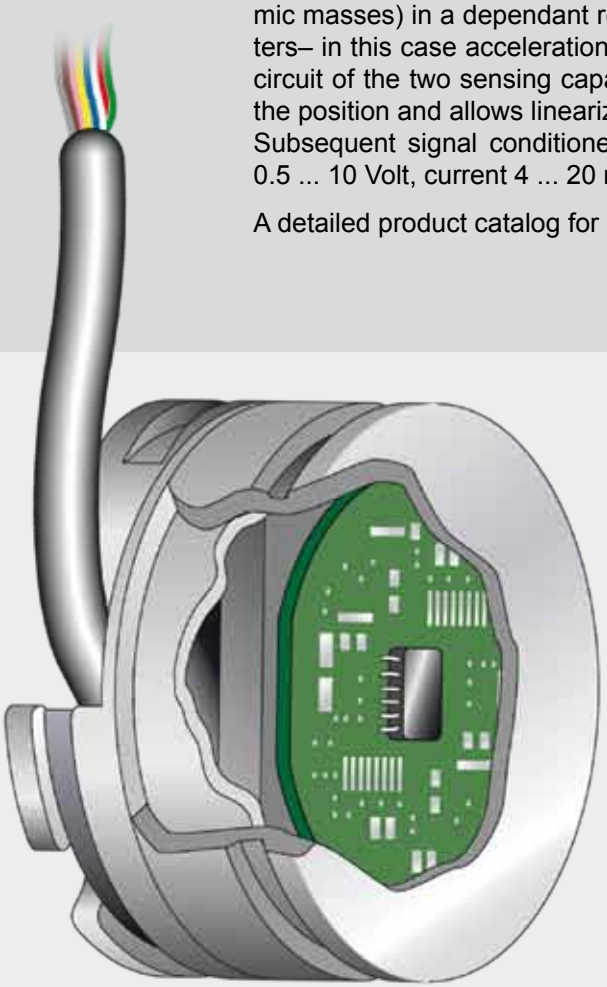
Photovoltaic modules

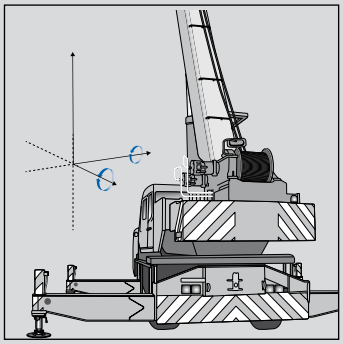
MEMS Inclination Sensors

The functional principle

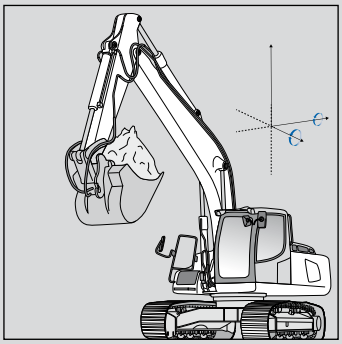
POSITILT® inclination sensors work using micro electro mechanical systems. They utilize the typical spring-mass systems which measure the deflection of small proof masses (seismic masses) in a dependant relationship to the position. They are capacitive accelerometers– in this case acceleration systems with differential capacitors. The signal processing circuit of the two sensing capacitors forms a capacitive voltage divider which determines the position and allows linearization or compensation.
Subsequent signal conditioners convert the signal of the sensing element into voltage 0.5 ... 10 Volt, current 4 ... 20 mA. A digital CAN-Bus output is also available.

A detailed product catalog for POSITILT® inclination sensors is available.

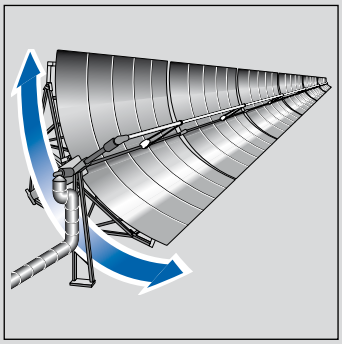




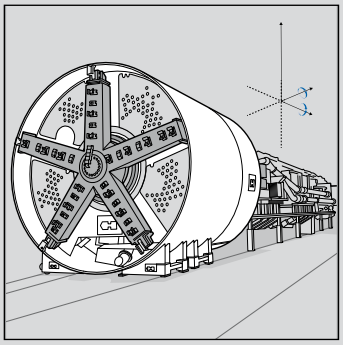
Mobile cranes



Excavators



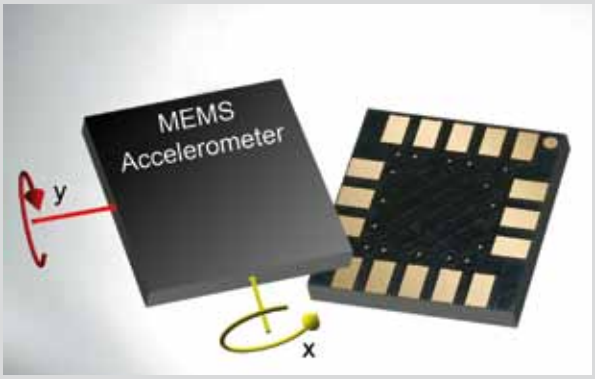
Thermal solar collectors



Tunneling machines

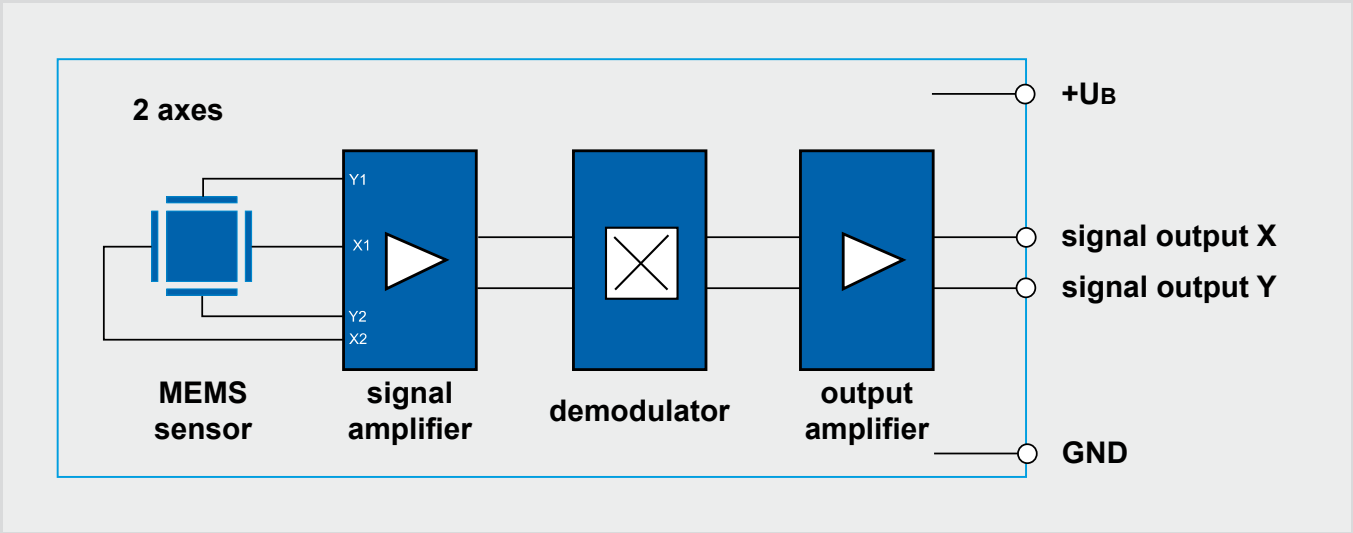
POSITILT®

Inclination Sensors
MEMS Technology



POSITILT® inclination sensors utilize the MEMS technology (MEMS = **M**icro **E**lectro **M**echanical **S**ystems). MEMS sensors contain mechanical components like springs, wafers, proof masses (seismic masses) or membranes of fine-structured crystal silicon. Also materials like metals, ceramic, plastic and many others are used. Physical parameters like pressure, acceleration, rotation rate, and flow quantity or gas structure are measured precisely and reliably.

Volume micro-machined systems and surface micro-machined systems are distinguished. The volume micro-machined systems are constructed as a combination of silicon wafers or silicon wafers with glass wafers, whereas the surface micro-machined systems mostly use production methods, which are also employed in semiconductor and IC industry. Apart from the typical thin film method, molding, etching and vertical structuring of silicon are used as a production method.



Integrated electronic circuits process the subtle sensor signals and relay them via analog or digital interfaces to the processing control devices.

POSITILT®
Inclination Sensors
Selection Guide



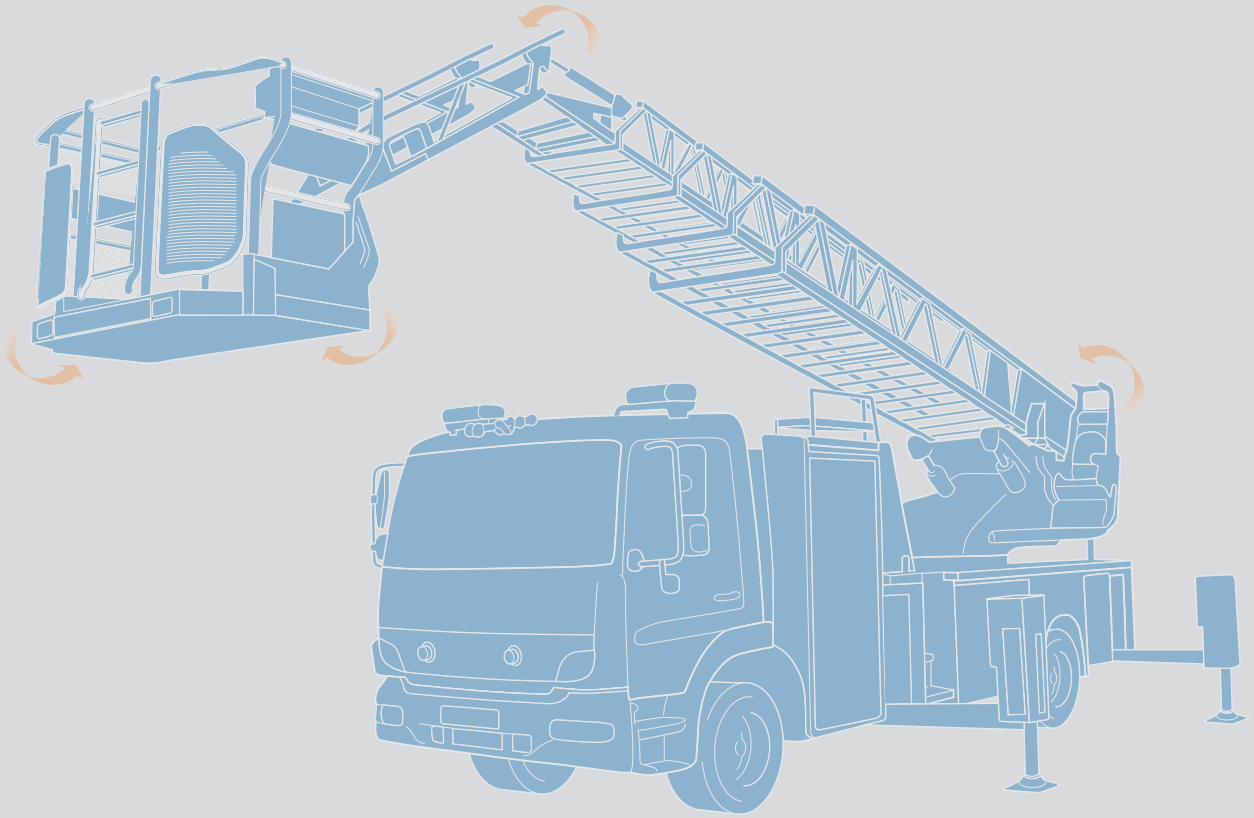


	PTAM27	PTDM27	PTAM2	PTDM2	PTAM5	PTDM5	PTAM2EX	PTAM5EX
Measurement range	A	D	A	D	A	D	A	A
1 axis ±180°	●	●	●	●	●	●	●	●
2 axes ±60°		●	●	●	●	●	●	●
2 axes ±180°	●							
Analog outputs, absolute[1)]								
Voltage 0.5 ... 10 V	●		●		●		●	●
Voltage 0.5 ... 4.5 V	●		●		●		●	●
Current 4 ... 20 mA	●		●		●		●	●
Digital outputs, absolute								
CANopen		●		●		●		
CAN SAE J1939		●		●		●		
Linearity (standard)	±0.5°		±0.5°		±0.5°		±0.5°	±0.5°
Protection class								
Standard	IP67		IP67		IP67/IP69*		IP65	IP65
optional	–		IP67/IP69*		IP68/IP69		–	–

A = Analog output D = Digital output

* = with a suitable IP67/IP69 connector
[1)] = programming the ZERO point (PMZ), optional

Dust-Ex-Proof versions on request



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