

Product overview.
Innovative sensor solutions –
precise, compact, reliable.



Edition 2012

Welcome to the world of sensors



Properties like precision, reliability, robustness and compact design are crucial factors for the functional safety and economy of an automation solution. Sensors measure, count, sort and monitor. They identify size, position, color, shape or individual objects.

Baumer has the right sensor for every application. Different sensor functions in standard housings ease assembly for the user and limit the setup time to a minimum. Baumer can supply a wide range from inductive to vision sensors and advise you comprehensively.

Innovative sensors and solutions – Baumer is known for its excellence.

Index sensor solutions

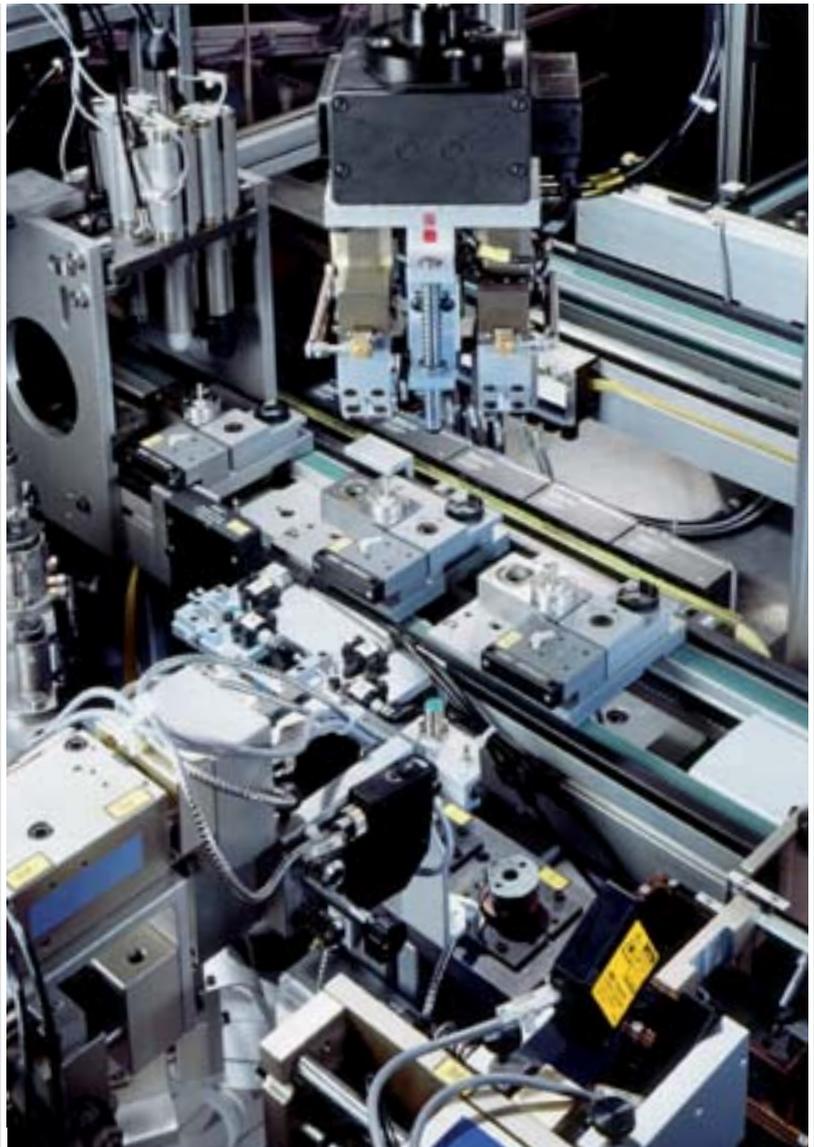
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Sensors for factory automation



Sectors

- Handling and robotics
- Graphic equipment
- Machinery for the plastics industry
- Machine tools
- Medical equipment
- Semiconductor industry
- Textile machines
- Transport
- Water and energy supply
- Mining
- Storage and logistics
- Wood machining
- Packaging industry
- Food and beverage



Sensors for factory automation

Baumer sets benchmarks

High demands are placed on sensors in production automation. Properties like precision, reliability, robustness and compact design are crucial factors for the functional safety and economy of an automation solution. Sensors measure, count, sort and monitor. They identify size, position, color, shape or individual objects. They detect and control movement. Baumer develops and produces sensors and provides services which fulfill the exacting demands of diversified sectors. As one of the market leaders, Baumer constantly sets benchmarks, striving to keep the technical edge. In close collaboration with customers, projects are reliably and quickly realized for joint benefit from market advantage.

Innovative sensors and solutions – Baumer is recognized for its excellence in factory automation.



Sensor solutions



Customized solutions for each customer

No range of products will ever be large enough to provide the optimal solution for every application. Often within an application, there are requirements that move in a completely new direction and cannot be fulfilled to the extent desired by the existing solutions in the market. This is why our development engineers work closely with our customers. Customized solutions for each customer are continuously being created while searching for the optimal solution to specific requirements. The range extends from special mechanical housings all the way to completely new types of sensor systems. An innovative sensor solution may also help you achieve a substantial competitive advantage.

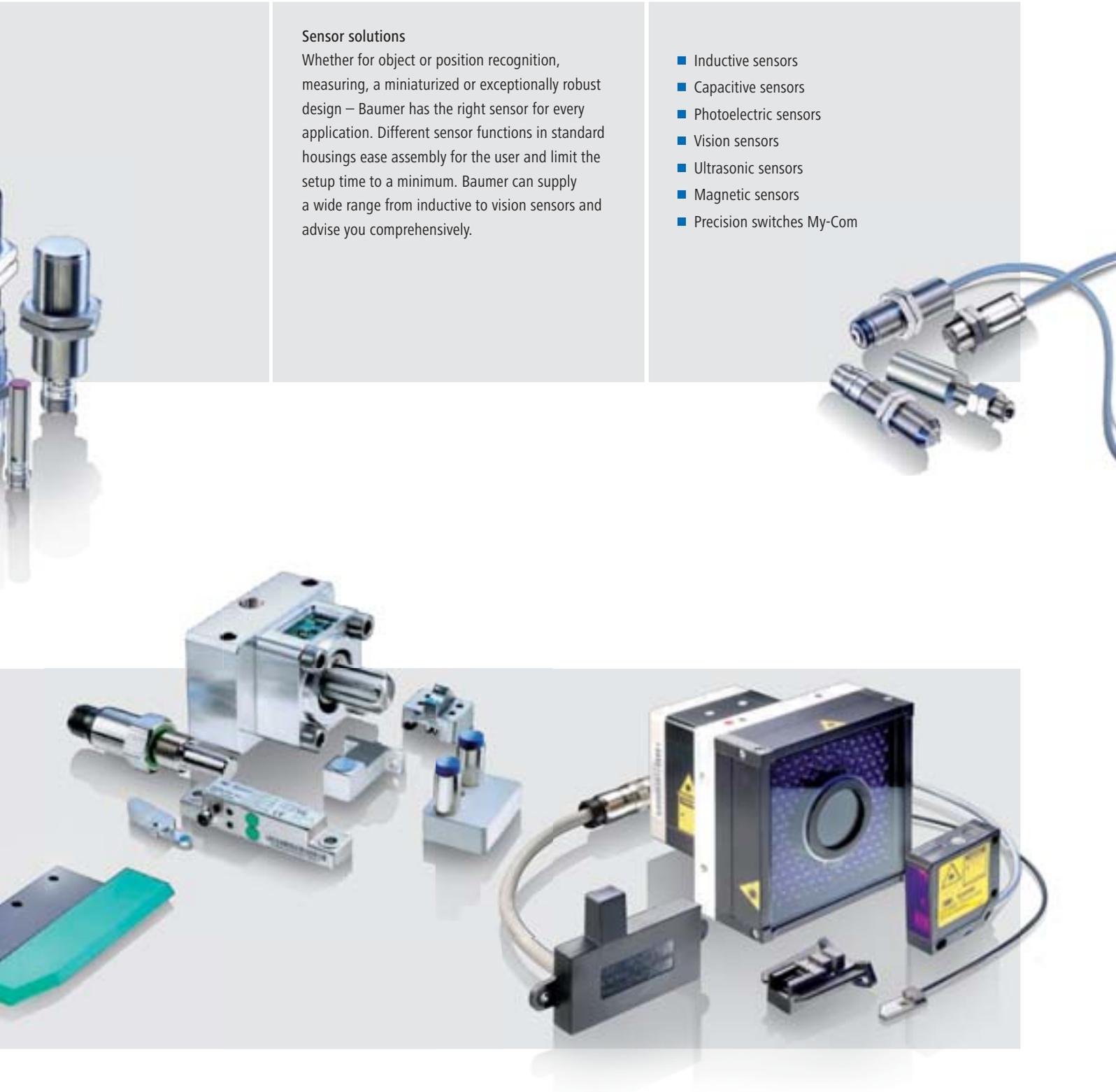
We would be happy to answer your questions!



Sensor solutions

Whether for object or position recognition, measuring, a miniaturized or exceptionally robust design – Baumer has the right sensor for every application. Different sensor functions in standard housings ease assembly for the user and limit the setup time to a minimum. Baumer can supply a wide range from inductive to vision sensors and advise you comprehensively.

- Inductive sensors
- Capacitive sensors
- Photoelectric sensors
- Vision sensors
- Ultrasonic sensors
- Magnetic sensors
- Precision switches My-Com

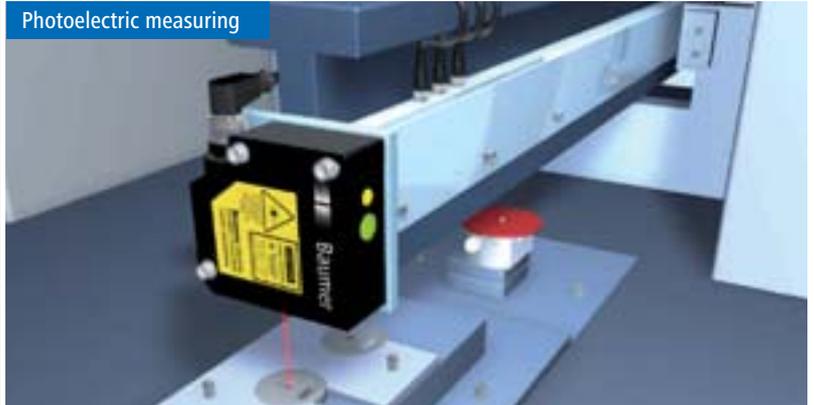


Sensor applications

Distance measuring, sensing movement

- Distance measuring photoelectric sensors
Precise measurement at distances up to 13 m with resolutions to 2 μm .
Virtually independent of material and color.

Photoelectric measuring



- Distance measuring inductive sensors
Absolutely measured distances on metal up to 16 mm. High-resolution, repeatable accuracy and linearity.

Inductive measuring



Compare shapes, detect positions

- Vision sensors VeriSens®
Quick setup through intuitive user guidance.
Powerful and reliable testing via contours.

Photoelectric comparing

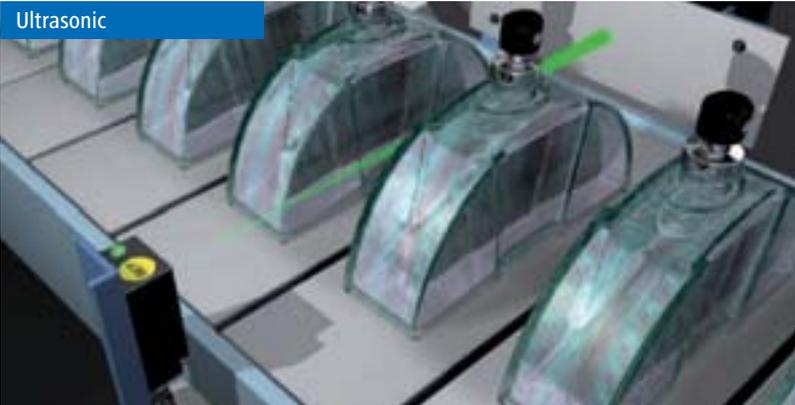


- Inductive sensors
Sensing the copper wire winding. Use on automatic winding machines.

Inductive



Ultrasonic



Object counting

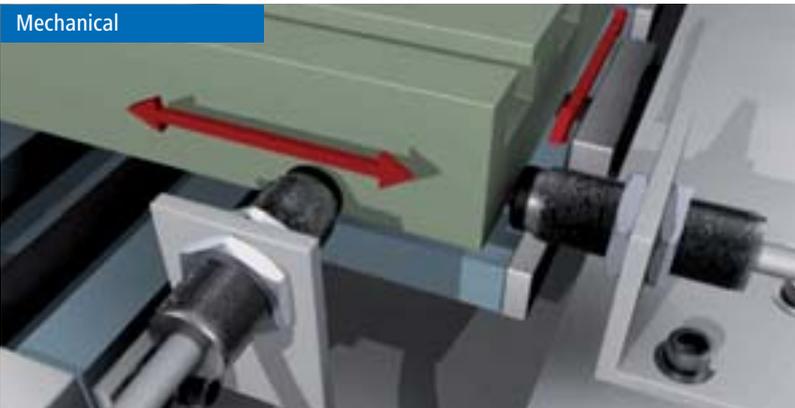
- Ultrasonic sensors
Reliable detection of irregularly shaped, sound-deflecting and absorbing objects.

Photoelectric



- Laser copy counters SCATEC
Contactless counting of lapped sheets of paper and newspapers. Independent of the direction of product travel, color and gloss.

Mechanical



Approaching reference points, positioning object

- Laser sensors
To detect objects with maximum precision down to the smallest shapes.
Extremely quick response times up to $< 0,05$ ms.

Photoelectric



- Laser sensors
To detect objects with maximum precision down to the smallest shapes.
Extremely quick response times up to $< 0,05$ ms.

Sensor applications

Measuring levels, detecting liquids

- **Ultrasonic sensors**
Measure levels regardless of the media surface condition, even in the smallest containers and in aggressive environments.

Ultrasonic



- **Photoelectric liquid level and leakage sensors**
Simple and reliable detection even of non-conducting liquids.
Robust sensor housings for use in aggressive environments.

Photoelectric



Measuring linear motion, determining angles

- **Measuring inductive sensors**
Absolute angular measurement through 360° using an eccentric disk. Linear measurement with a wedge or cone-shaped metal piece.

Inductive measuring



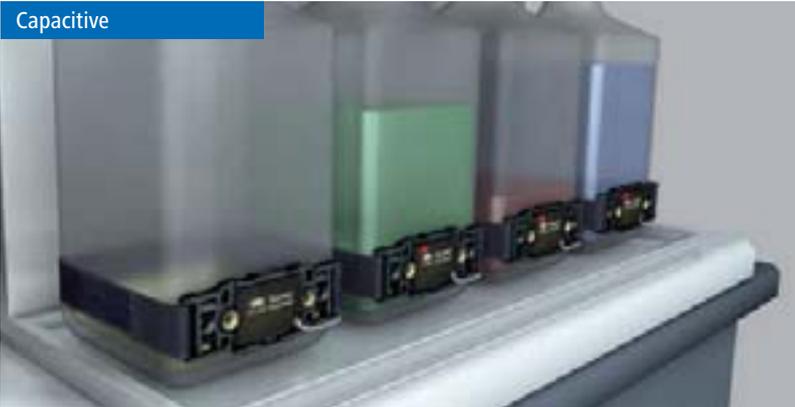
- **Magnet sensors absolute and incremental**
Bearingless and wearless measurement of rotation angles with a resolution of up to 0,09°. Gearwheel pick-up for rpm determination in rough environment.

Magnetic



Sensor applications

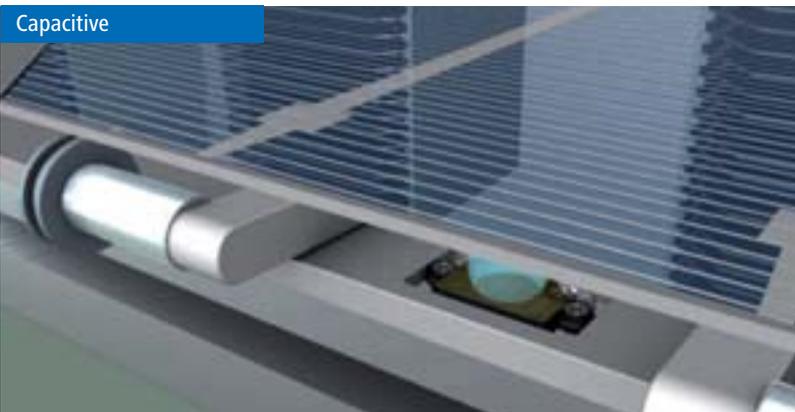
Capacitive



Level detection, detecting objects

- **Capacitive sensors**
Reliable fill level detection of liquids, granulates or bulk goods. Possible detection through the container wall protects the sensor as well as the medium.

Capacitive



- **Capacitive sensors**
Contact-free and color-independent detection of metallic and non-metallic, opaque and transparent objects.

Photoelectric



Sorting objects

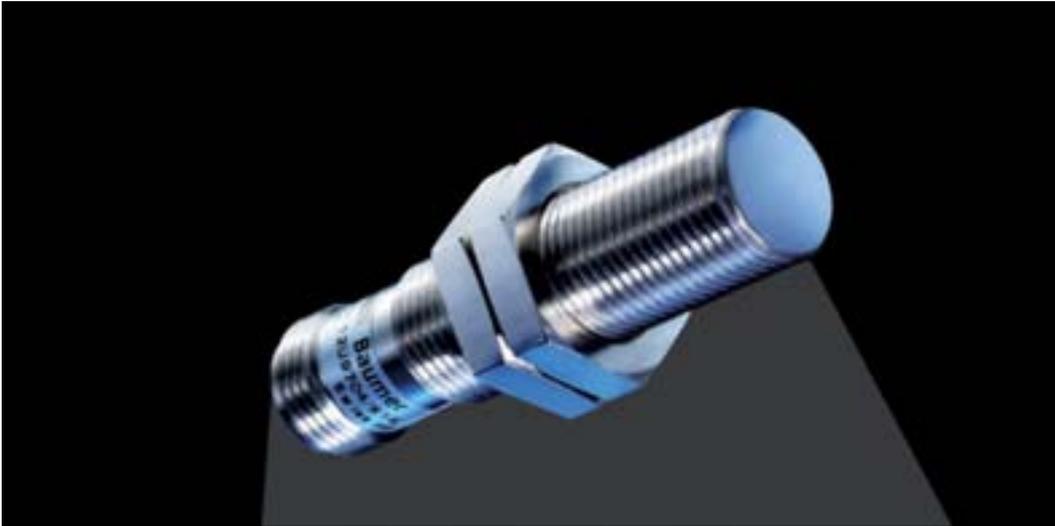
- **Photoelectric color sensors**
Reliable process sorting, automation or quality monitoring using object colors or color markings.

Ultrasonic measuring



- **Ultrasonic sensors**
Sort different objects by measuring the height using a distance-measuring ultrasonic sensor.

Distance measuring inductive sensors *AlphaProx*



				
product family	IWRM 04 <i>AlphaProx</i>	IWRM 06 / 08 <i>AlphaProx</i>	IWRM 12 / IPRM 12 <i>AlphaProx</i>	IWRM 18 <i>AlphaProx</i>
characteristics	<ul style="list-style-type: none"> - Very high resolution - Quick response time - Completely integrated electronics - With M5 connector 	<ul style="list-style-type: none"> - Large measuring distance in a small housing - Very high resolution - Quick response time - Completely integrated electronics 	<ul style="list-style-type: none"> - Measuring range can be limited - Linearized output signal - External Teach-in - Completely integrated electronics 	<ul style="list-style-type: none"> - Measuring range can be limited - Linearized output signal - External Teach-in - Completely integrated electronics
dimension	ø 4 mm	ø 6,5 mm M8	M12 x 1	M18 x 1
measuring distance	0 ... 1 mm	0 ... 2 mm	0 ... 4 mm	0 ... 8 mm
resolution	< 1 µm	< 1 µm	< 4 nm	< 5 µm
response time	< 0,5 ms	< 0,5 ms	< 2 ms	< 2 ms
output signal	0 ... 10 VDC	0 ... 10 mA 0 ... 10 VDC	4 ... 20 mA 0 ... 10 VDC 0 ... 20 mA	4 ... 20 mA 0 ... 10 VDC
specific characteristics			<ul style="list-style-type: none"> - Additional digital PNP output with programmable window function - External Teach-in adapter as an accessory 	<ul style="list-style-type: none"> - Additional digital PNP output with programmable window function - External Teach-in adapter as an accessory

Distance measuring inductive sensors *AlphaProx*

Distance measuring inductive sensors *AlphaProx*

- High-resolution up to 0,05 µm
- Absolute distance measuring up to 16 mm
- High repeat accuracy
- Quick response time up to 0,5 ms
- Low temperature drift
- Linearized output signals
- External signal processing unnecessary
- With Teach-in functions

				
IWRM 30 <i>AlphaProx</i>	IWFM 08 <i>AlphaProx</i>	IWFM 12 <i>AlphaProx</i>	IWFM 18 / 20 <i>AlphaProx</i>	IWFK 20 <i>AlphaProx</i>
- Measuring range can be limited - Linearized output signal - External Teach-in - Completely integrated electronics	- Very high resolution - Compact type - Completely integrated electronics	- Integrated current and voltage output - Completely integrated electronics - Robust housing	- Integrated current and voltage output - Completely integrated electronics - Small linearity deviation - Quick response time	- Measuring range can be limited - Teach-in button integrated into housing - Large measuring range - Plastic housing - Completely integrated electronics
M30 x 1,5	8 x 16 x 4,7 mm	12 x 60 x 12 mm	18 x 30 x 10 mm 20 x 30 x 8 mm	20 x 42 x 15 mm
0 ... 16 mm	0 ... 2 mm	0 ... 4 mm	0 ... 4 mm	0 ... 10 mm
< 5 µm	< 1 µm	< 1 µm	< 1 µm	< 10 µm
< 2 ms	< 1 ms	< 2 ms	< 0,5 ms	< 2,5 ms
4 ... 20 mA 0 ... 10 VDC	0 ... 10 VDC 0 ... 5 VDC	0 ... 10 VDC / 4 ... 20 mA	0 ... 10 VDC / 4 ... 20 mA	0 ... 10 VDC
- Additional digital PNP output with programmable window function - External Teach-in adapter as an accessory	- Extremely low-profile version with front-side single-hole installation			- Additional digital PNP output with programmable window function

Inductive sensors, cylindrical type



					
product family	IFRM 03	IFRM 04	IFRM 05	IFRM 06	
characteristics	<ul style="list-style-type: none"> - Robust stainless steel housing - Cable connection 	<ul style="list-style-type: none"> - Robust stainless steel housing - With M5 connector - High installation torque 	<ul style="list-style-type: none"> - Robust stainless steel housing - With M5 connector - High installation torque 	<ul style="list-style-type: none"> - Robust stainless steel housing - Short type 	
dimension	ø 3 mm	ø 4 mm / M4 x 0,5	M5 x 0,5	ø 6,5 mm	
nominal sensing distance S _n	0,8 mm	0,8 ... 1 mm	1 mm	1,5 ... 6 mm	
switching frequency	< 3 kHz	< 5 kHz	< 5 kHz	< 5 kHz	
specific characteristics	<ul style="list-style-type: none"> - Short sensor head with remote electronics 	<ul style="list-style-type: none"> - NAMUR sensors - Short housing with wire output 	<ul style="list-style-type: none"> - NAMUR sensors - Short housing with wire output 	<ul style="list-style-type: none"> - High temperature sensors up to +100 °C - NAMUR/ATEX sensors - GammaProx for large sensing distances 	

Inductive sensors, cylindrical type

Inductive sensors, cylindrical type

- Smallest deviations in series production
- Extremely temperature-stable
- High switching frequency
- Enhanced distance
- Miniature sensors
- Several housing lengths per dimension
- Expanded temperature ranges
- Protection class IP 67
- Output PNP/NPN

				
IFRM 08	IFRM 12	IFRM 12 IFRM 18	IFRM 18	IFRM 30
- Robust stainless steel housing - Short type	- Metal housing brass nickel plated	- Metal housing brass nickel plated - Cable and connector versions - Extended working temperature range -40 ... +80 °C	- Metal housing brass nickel plated	- Metal housing brass nickel plated - Voltage supply range 10 ... 50 VDC
M8 x 1	M12 x 1	M12 x 1 / M18 x 1	M18 x 1	M30 x 1,5
1,5 ... 6 mm	2 ... 10 mm	6 ... 12 mm	5 ... 20 mm	10 ... 15 mm
< 5 kHz	< 2 kHz	< 500 Hz / < 1 kHz	< 500 Hz	< 500 Hz
- High temperature sensors up to +180 °C - NAMUR/ATEX sensors - GammaProx for large sensing distances	- High temperature sensors up to +180 °C - High pressure sensors up to 500 bar - Welding and magnetic noise up to 90 mT - PBT plastic housing - Banking screw of hardened steel - NAMUR/ATEX sensors		- High temperature sensors up to +180 °C - High pressure sensors up to 500 bar - Welding and magnetic noise up to 90 mT - PBT plastic housing - Sensors with two adjustable switching points - NAMUR/ATEX sensors	- PBT plastic housing

Inductive sensors with full metal housing *DuroProx*



Inductive sensors with full metal housing *DuroProx*

- Housing of stainless steel 1.4404 (V4A)
- Compact and extremely robust versions
- Protection class IP 69K
- Expanded temperature ranges
- Output PNP/NPN

				
product family	IFRD 06 <i>DuroProx</i>	IFRD 08 <i>DuroProx</i>	IFRD 12 <i>DuroProx</i>	IFRD 18 <i>DuroProx</i>
characteristics	- Locked full metal housing stainless steel 1.4404 (V4A) - Protection class IP 69K - Expanded temperature range up to +100 °C - With M8 connector	- Locked full metal housing stainless steel 1.4404 (V4A) - Protection class IP 69K - Expanded temperature range up to +100 °C - With M8 connector	- Locked full metal housing stainless steel 1.4404 (V4A) - Protection class IP 69K - Expanded temperature range up to +100 °C - With M12 connector	- Locked full metal housing stainless steel 1.4404 (V4A) - Protection class IP 69K - Expanded temperature range up to +100 °C - With M12 connector
dimension	ø 6,5 mm	M8 x 1	M12 x 1	M18 x 1
nominal sensing distance S _n	2 mm	2 mm	4 mm	6 mm
switching frequency	< 150 Hz	< 150 Hz	< 100 Hz	< 100 Hz
specific characteristics	- M8 connector (PVC) with stainless steel cap nut as an accessory	- M8 connector (PVC) with stainless steel cap nut as an accessory	- M12 connector (PVC) with stainless steel cap nut as an accessory	- M12 connector (PVC) with stainless steel cap nut as an accessory

Inductive sensors, rectangular type



Inductive sensors, rectangular type

- High switching point accuracy
- Small series variance
- Extremely temperature-stable
- High switching frequency
- Wide product range
- Output PNP/NPN

					
	IFFM 04	IFFM 06	IFFM 08	IFFM 12	IFFM 20
	- Robust stainless steel housing - Cable connection	- Metal housing brass nickel plated - With M5 connector	- Metal housing brass nickel plated - Extremely low-profile version in die-cast zinc housing with front-side single-hole installation - With M5 connector	- Metal housing brass nickel plated - With M5 connector	- Metal housing brass nickel plated - With M8 connector - Voltage supply range 10 ... 50 VDC
	4 x 22 x 4 mm	6 x L x 6 mm	8 x L x 8 mm 8 x 16 x 4,7 mm	12 x 28 x 8 mm	20 x 41 x 10 mm
	0,8 mm	1 mm	2 mm	4 mm	5 ... 8 mm
	< 3 kHz	< 5 kHz	< 5 kHz	< 2 kHz	< 1 kHz
			- PBT plastic housing - NAMUR/ATEX sensors	- Inductive code readers, versions with 3 or 6 readers	

Inductive sensors in hygienic and washdown design



					
product family	IFBR 06	IFBR 11	IFBR 17	IFRR 08	
characteristics	<ul style="list-style-type: none"> - Robust stainless steel housing - IP 68 / IP 69K - EHEDG-certified - Ecolab-tested - FDA-compliant - Extended operating temperature range -40 ... +100 °C 	<ul style="list-style-type: none"> - Robust stainless steel housing - IP 68 / IP 69K - EHEDG-certified - Ecolab-tested - FDA-compliant - Extended operating temperature range -40 ... +100 °C 	<ul style="list-style-type: none"> - Robust stainless steel housing - IP 68 / IP 69K - EHEDG-certified - Ecolab-tested - FDA-compliant - Extended operating temperature range -40 ... +100 °C 	<ul style="list-style-type: none"> - Robust stainless steel housing - IP 68 / IP 69K - Ecolab-tested - FDA-compliant - Extended operating temperature range -40 ... +100 °C 	
dimension	ø 6,5 mm	ø 11 mm	ø 17 mm	M8 x 1	
nominal sensing distance Sn / Measuring distance	3 mm	4 ... 6 mm	8 ... 12 mm	3 mm	
switching frequency / response time	< 3 kHz	< 1 kHz	< 0,5 kHz	< 3 kHz	
versions	- Plug connection	- Plug connection	- Plug connection	- Plug connection	

Inductive sensors in hygienic and washdown design

Inductive sensors in hygienic and washdown design

- Robust stainless steel housing
- *proTect+* sealing concept
- Protection class IP 68 / IP 69K
- EHEDG-certified
- Expanded temperature ranges
- Enhanced sensing distance

				
IFRR 12	IFRR 18	IWRR 18 <i>AlphaProx</i>		
<ul style="list-style-type: none"> - Robust stainless steel housing - IP 68 / IP 69K - Ecolab-tested - FDA compliant - Extended operating temperature range -40 ... +100 °C 	<ul style="list-style-type: none"> - Robust stainless steel housing - IP 68 / IP 69K - Ecolab-tested - FDA-compliant - Extended operating temperature range -40 ... +100 °C 	<ul style="list-style-type: none"> - Robust stainless steel housing - FDA-compliant - Extended operating temperature range -40 ... +70 °C - IP 68 		
M12 x 1	M18 x 1	M18 x 1		
4 ... 6 mm	8 ... 12 mm	0 ... 7 mm		
< 1 kHz	< 0,5 kHz	< 2 ms		
- Plug connection	- Plug connection	- Connector version		

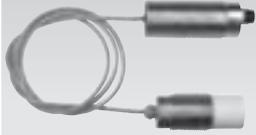
Capacitive sensors



					
product family	CFAK 12	CFAK 12/18/30	CFAK 18/30	CFAM 12 / 18 / 30	
characteristics	<ul style="list-style-type: none"> -For applications in contaminated, water-based media -Level control, in contact with medium -Sealed housing -Compact and smooth surface -Suppression of dirt and cleaning agents 	<ul style="list-style-type: none"> -Unshielded -Fixed sensing distance -Sealed housing -Level control, in contact with medium -Reliable detection via suppression of mist and contamination 	<ul style="list-style-type: none"> -Unshielded -Sensing distance adjustable -Sealed housing -Level control, in contact with medium -Reliable detection via suppression of mist and contamination 	<ul style="list-style-type: none"> -Shielded -Housing material brass nickel plated -Sensitivity adjustment using potentiometer -Cable and connector versions 	
dimension	M12 x 1	M12/18 x 1 M30 x 1,5	M18 x 1 M30 x 1,5	M12 x 1 M18 x 1 M30 x 1,5	
nominal sensing distance Sn	0 mm	0,5 ... 8 mm	2 ... 30 mm	4 / 8 mm	
switching frequency	< 15 Hz	< 15 Hz	< 50 Hz	< 50 Hz	

Capacitive sensors

- Material-independent detection
- Detection possible even through container wall
- Reduced susceptibility to contamination using compensation electrode
- Various housings
- Expanded temperature ranges
- Active area made of PTFE
- No blind region

				
CFBM 20	CFAH 30	CFDM 20	CFDK 25	CFDK 30
- Shielded - Unthreaded metal housing - Sensitivity adjustment using potentiometer	- Unshielded - Sensitivity adjustment via potentiometer - Expanded temperature range -40 °C to +250 °C - Anti-stick sensor head made of PTFE and V2A stainless steel - Highly resistant to aggressive media	- Shielded - Fixed sensing distance - Robust and compact metal housing - M8 connector	- Shielded - Fixed sensing distance - For filling levels and object identification - Flexible installation options thanks to innovative mounting frame - Extra flat design	- Shielded - Sensitivity adjustment using potentiometer - Cable and connector versions
ø 20 mm	M30 x 1,5	20 x 35 x 12 mm	25 x 53 x 6 mm	30 x 65 x 18,5 mm
10 mm	15 mm	5 mm	2 / 3 / 4 / 8 / 12 / 15 mm	15 mm
< 50 Hz	< 50 Hz	< 50 Hz	< 35 Hz	< 50 Hz

Distance measuring photoelectric sensors



					
product family	OADM 12	OBDM 12	OADM 13	FADK 14	
characteristics	<ul style="list-style-type: none"> -Smallest laser distance sensor -Measuring range can be limited -Highest resolution 	<ul style="list-style-type: none"> -Difference sensor for sensing steps, changes in distance, distance windows or tolerance ranges 	<ul style="list-style-type: none"> -Large measuring distance in a small housing -Measuring range can be limited -Spot or line laser beam 	<ul style="list-style-type: none"> -Red light point source LED -Measuring range can be limited -IO-Link 	
dimension	12,4 x 37 x 34,5 mm	12,4 x 37 x 34,5 mm	13,4 x 48,2 x 40 mm	14,8 x 43 x 31 mm	
measuring distance	16 ... 120 mm	16 ... 120 mm	50 ... 550 mm	50 ... 400 mm	
resolution	2 µm		10 µm	0,1 mm	
response time	< 0,9 ms	< 1 ms	< 0,9 ms	< 5 ms	
output	4 ... 20 mA 0 ... 10 V	PNP NPN	4 ... 20 mA 0 ... 10 V RS 485 / RS 232	4 ... 20 mA 0 ... 10 V	
specific characteristics	<ul style="list-style-type: none"> -Incorrect measurements are suppressed, the output remains at the last measured value for up to 30 ms 	<ul style="list-style-type: none"> -Step height, differences, ranges to be evaluated set using Teach-in -Teach-in using cabling or button 	<ul style="list-style-type: none"> -Incorrect measurements are suppressed, the output remains at the last measured value for up to 30 ms 	<ul style="list-style-type: none"> -An alarm output indicates an incorrect measurement or if the object is outside of the measuring range -Information on due maintenance can be retrieved 	

Distance measuring photoelectric sensors

Distance measuring photoelectric sensors

- Precise distance measuring up to 13 m
- Virtually independent of the object condition
- Highest resolution up to 2 μm
- Suitable for high-speed processes
- Measuring range can be individually set using Teach-in
- Extremely compact housing
- Completely integrated evaluation electronics
- High temperature stability
- High ambient light immunity
- Protection class IP 67

				
OADM 20	OADM 20	OADM 21	OADM 250	OADM 260
- Measuring range can be limited - Spot or line laser beam	- Line beam - Increased vibration immunity - Increased ambient light immunity 100 klux - Suitable for outdoor applications	- High resolution at large measuring distance - Measuring range can be limited - Spot or line laser beam	- High resolution - Measurement up to 4 m independent of colors - Alarm output - Measuring range can be limited	- Large measuring range up to 13 m - Alarm output - Measuring range can be limited
20,6 x 65 x 50 mm	20,6 x 65 x 50 mm	20,4 x 135 x 45 mm	25,4 x 66 x 51 mm	25,4 x 66 x 51 mm
30 ... 1000 mm	50 ... 1000 mm	100 ... 1000 mm	0,5 ... 4 m	0,5 ... 13 m
4 μm	10 μm	10 μm	1,2 mm	5 mm
< 0,9 ms	< 2,5 ms	< 5 ms	< 10 ms	< 10 ms
4 ... 20 mA 0 ... 10 V RS 485	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V
- An alarm output indicates an incorrect measurement or if the object is outside of the measuring range - Input for synchronizing measurements - Laser diode can be switched on/off	- Missing measurement signals or incorrect measurements are suppressed	- An alarm output indicates an incorrect measurement or if the object is outside of the measuring range - Input for synchronizing measurements - Laser diode can be switched on/off	- An alarm output indicates an incorrect measurement or if the object is outside of the measuring range	- An alarm output indicates an incorrect measurement or if the object is outside of the measuring range

Photoelectric sensors



					
					
product family	FHDK 04	FxxK 07 <i>Minos</i>	FxxM 08	FxDK 10 OxDK 10	
characteristics	- Diffuse sensor with background suppression - Can be integrated in rails - Fixed sensing distance - IO-Link	- Smallest adjustable sensor family - SmartReflect™	- Robust metal housing - Fixed sensing distance	- Different beam shapes optimized for the application - Compact and high-performance sensor family	
dimension	4 x 44,8 x 6,2 mm	8 x 16,2 x 10,8 mm	M8 x 56 mm 8 x 58 x 12 mm	10,4 x 27 x 14 mm	
ranges					
diffuse sensors background suppression	30 mm / 50 mm	10 ... 60 mm		20 ... 130 mm	
SmartReflect™ light barriers		10 ... 45 mm			
diffuse sensors		20 ... 150 mm	40 mm / 80 mm	200 mm	
retro-reflective sensor		0,6 m		4,5 m	
through beam sensor		2,5 m	1 m / 3 m	10 m	
response / release time	< 0,5 ms	< 0,5 ms	< 1 ms	< 1 ms	
specific characteristics				- Sensors with laser light source - Sensors for transparent objects	

Photoelectric sensors

- SmartReflect™ – the first light barrier without a reflector
- Precise background suppression
- Response time up to 50 µs
- Sensing distance up to 20 m
- Laser beams with diameters up to 0,1 mm
- Extremely small housings
- Sensors in robust metal housing
- Sensors for transparent objects
- Output PNP/NPN, push-pull

				
FxDM 12 OxDM 12	FxDK 14 OxDK 14	FxDM 16 OxDM 16	FxAM 18	
- Robust metal housing - Diffuse laser sensors with negligible black/white shift	- The sensor family for a wide range of applications - SmartReflect™ light barrier	- Robust metal housing - Red light and laser versions	- Robust metal housing - Doubling lenses to double the range	
12,4 x 35 x 35 mm	14,8 x 43 x 31 mm	15,4 x 50 x 50 mm	M18 x 50 mm	
15 ... 300 mm	20 ... 500 mm	20 ... 600 mm		
	25 ... 800 mm			
30 ... 250 mm	5 ... 600 mm	0 ... 400 mm	60 ... 430 mm	
5,5 m	8 m	9 m	4 m	
7,5 m	15 m	10 m	20 m	
< 1 ms	< 1 ms	< 1 ms	< 1 ms	
- Sensors with single lens optics	- Sensors for transparent objects - Laser sensors in laser class 1	- Sensors with laser light source - Laser sensors for wafer detection	- Sensor can be used with glass fiber optics	

Photoelectric sensors in hygienic and washdown design



	 	 		
product family	FxDR 14	FxDH 14	product family	FKDR 14 FKDH 14
characteristics	- Washdown design - IP 68 / IP 69K - IO-Link	- Hygienic design - 100% groove-free design - IP 68 / IP 69K - IO-Link	characteristics	- Contrast sensor - Washdown / hygienic design - IP 68 / IP 69K - White light
dimension	19,6 x 62,4 x 33,8 mm	19,6 x 99,5 x 33,6 mm	dimension	19,6 x 62,4 x 33,8 mm
ranges			sensing distance Tw	12,5 mm
diffuse sensors background suppression	400 mm	400 mm	response time	50 µs
SmartReflect™ light barriers	800 mm	800 mm	size of measuring spot	1 x 2,2 mm
retro-reflective sensor	3,5 m	3,5 m		
response / release time	< 1,8 ms	< 1,8 ms		

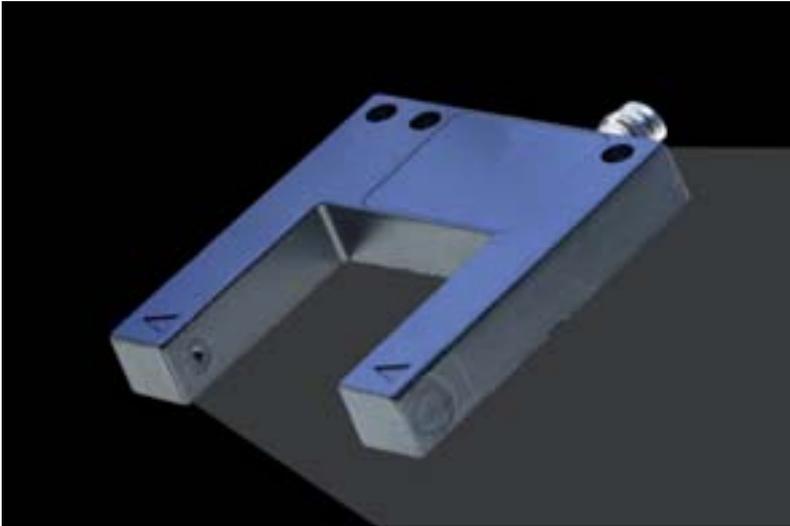
Photoelectric sensors in hygienic and washdown design

Photoelectric sensors in hygienic and washdown design

- Stainless steel housing V4A
- *proTect+* sealing concept
- Ecolab-tested and -certified
- EHEDG-certified
- FDA-conform materials
- SmartReflect™ – the first light barrier without reflector
- Washdown design for wet zone applications
 - Traditional mounting concept
- Hygienic design for applications in the food industry
 - Groove-free design, dirt accumulation not possible

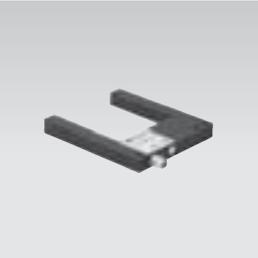
				
product family	FADR 14	FADH 14	OADR 20	
characteristics	<ul style="list-style-type: none"> - Distance measuring sensor - Washdown design - IP 68 / IP 69K - Measuring range can be limited - Red light 	<ul style="list-style-type: none"> - Distance measuring sensor - Hygienic design - 100% groove-free design - IP 68 / IP 69K - Measuring range can be limited - Red light 	<ul style="list-style-type: none"> - Distance measuring sensor - Washdown design - IP 69K - Measuring range can be limited - Laser beam 	
dimension	19,6 x 62,4 x 33,8 mm	19,6 x 99,5 x 33,6 mm	20,3 x 65 x 50 mm	
measuring distance	50 ... 400 mm	50 ... 400 mm	30 ... 600 mm	
resolution	0,1 mm	0,1 mm	5 µm	
response time	< 5 ms	< 5 ms	< 0,9 ms	
output	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V	
specific characteristics	<ul style="list-style-type: none"> - An alarm output indicates an incorrect measurement or if the object is outside of the measuring range - Service status indicator when soiled 	<ul style="list-style-type: none"> - An alarm output indicates an incorrect measurement or if the object is outside of the measuring range - Service status indicator when soiled 	<ul style="list-style-type: none"> - An alarm output indicates an incorrect measurement or if the object is outside of the measuring range - Input for synchronizing measurements - Laser diode can be switched on/off 	

Photoelectric fork sensors



Photoelectric fork sensors

- Quick response times up to 0,01 ms
- High repeat accuracy
- Robust metal housing
- Narrow parallel light beam
- Smallest detectable object 0,05 mm
- Different gap widths 3 ... 158 mm
- Output PNP/NPN

				
product family	FGUM	FGLM	OGUM	
characteristics	- Potentiometer or Teach-in version - Narrow, virtually parallel light beam, sensors can be mounted side-by-side	- Special L-type - Narrow, virtually parallel light beam, sensors can be mounted side-by-side	- Very precise - Extremely narrow light beam, sensors can be mounted side-by-side - Laser	
fork width	20 mm 30 mm 50 mm 80 mm 120 mm	60 mm 100 mm 158 mm	30 mm 50 mm 80 mm 120 mm	
object size	> 0,3 mm	> 0,5 mm	> 0,05 mm	
repeat accuracy	< 0,02 mm	< 0,06 mm	< 0,01 mm	
response / release time	< 0,125 ms	< 0,125 ms	< 0,166 ms	

Contrast sensor / Color sensors *LOGIPAL*



Contrast sensor

- Basic print mark recognition
- Compact size

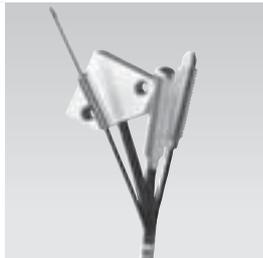
Color sensors *LOGIPAL*

- 4 color channels
- Adjustable color tolerance
- Quick response time of 0,34 ms
- Different spot sizes
- Output PNP/NPN

				
product family	FKDK 14	product family	FKDM 22 <i>LOGIPAL</i>	
characteristics	- Contrast sensor - White light - Small differences in contrast recognizable - Adjustable during process	characteristics	- Can differentiate 4 finely nuanced colors - Robust metal housing - Adjustable color tolerance	
dimension	14,8 x 43 x 31 mm	dimension	22,9 x 50 x 50 mm	
sensing distance Tw	12,5 mm	sensing distance Tw	40 mm	
response time	50 µs	response / release time	< 0,34 ms	
size of measuring spot	1 x 2,2 mm	size of measuring spot	3 mm x 5 mm	
		specific characteristics	- Version with spot size 0,7 x 1,3 mm, Tw = 25 mm	

Fiber optics and fiber optic sensors



					
product family	Plastic fiber optic	FVDK 10	FVDK 8x	FVDK 66 FVDK 12	
version		Plastic fiber optic	Plastic fiber optic	Plastic fiber optic	
characteristics	<ul style="list-style-type: none"> -Extremely varied beam geometries: spot, coaxial, focused, line -Fiber optics resistant to chemicals -High temperature fiber -Lateral beam emission 	<ul style="list-style-type: none"> -Smallest fiber optic sensor -Sensitivity adjustable with potentiometer 	<ul style="list-style-type: none"> -Sensitivity adjustable with potentiometer 	<ul style="list-style-type: none"> -Sensitivity adjustable with Teach-in -Minimized installation procedures (master slave) -Logical output linking available (Duplex version) -Timer functions 	
dimension		10,4 x 27 x 19,5 mm	10 x 29,7 x 60 mm	10 x 33,8 x 70,2 mm	
ranges					
with through beam		160 mm	440 mm	340 mm	
reflective		45 mm	120 mm	130 mm	
response time		< 1 ms	< 0,05 ms	< 0,05 ms	
additional functions			- Off delay	- Alarm output - External Teach-in	
specific characteristics			- Version with analog output	- FVDK 22 (Duplex)	

Fiber optics and fiber optic sensors

Fiber optics and fiber optic sensors

- Plastic and glass fiber optics
- Extremely varied fiber optic heads
- Very compact housings
- Sensitivity adjustment with Teach-in or potentiometer
- Quick response times up to 0,05 ms
- Adjustable on / off delay
- Master-Slave systems (minimized wiring expense)
- Output PNP/NPN, analog

				
FVDK 67	Glass fiber optic	FZAM 18	FZAM 30	FVDM 15
Plastic fiber optic		Glass fiber optic	Glass fiber optic	Glass fiber optic
<ul style="list-style-type: none"> - Multi-functional device - Sensitivity adjustable with Teach-in - Minimized installation procedures (master slave) - Timer functions 	<ul style="list-style-type: none"> - Different beam geometries: spot, line - Fiber optics with robust metal sheath - High temperature fiber - Lateral beam emission 	<ul style="list-style-type: none"> - Sensitivity adjustable with Teach-in or potentiometer - Robust metal housing 	<ul style="list-style-type: none"> - Sensitivity adjustable with potentiometer - Robust metal housing - For large ranges 	<ul style="list-style-type: none"> - Sensitivity adjustable with potentiometer - Robust metal housing - Quick response and release times
10 x 33,8 x 70,2 mm		M18 x 50 mm	M30 x 50 mm	15 x 60 x 45 mm
1400 mm		800 mm	1400 mm	1200 mm
340 mm		150 mm	230 mm	240 mm
< 0,05 ms		< 0,5 ms	< 0,25 ms	< 0,1 ms
<ul style="list-style-type: none"> - Response / release time adjustable - On / off delay - Adjustable minimum pulse length 				
<ul style="list-style-type: none"> - Version with 2 switching points 			<ul style="list-style-type: none"> - Fast version - Versions with high sensitivity 	<ul style="list-style-type: none"> - Fast version

Photoelectric level monitoring and leak detecting sensors



Photoelectric level monitoring and leak detecting sensors

- Liquid level sensors up to 40 bar nominal pressure
- Liquid level sensors for installation on risers
- Chemically resistant
- Sensors to monitor for leaks
- Fiber optic versions
- Output PNP/NPN

				
product family	FFAK	FFAM	FODK	FFDK
functions	- Liquid level sensor	- Liquid level sensor	- Leakage sensor	- Liquid level sensor
characteristics	- Sensitivity adjustable - Chemically resistant - Up to 10 bar nominal pressure	- Sensitivity adjustable - Stainless steel housing - Chemically resistant - Up to 40 bar nominal pressure	- Holder for quick installation and simple cleaning - Detects liquid amounts of typ. 1 ml	- Level monitoring sensor for installation in riser/close - For pipe diameters of 3 ... 7 mm / 8 ... 13 mm
dimension	Thread: G3/8" or M16 x 1 mm	Thread: G3/8" or M16 x 1 mm	23 x 40 x 10,5 mm	26 x 28 x 16 mm
material (sensing device)	Polysulphone	Glass (borosilicate)	PFA	
housing material	Polysulphone	Stainless steel DIN 1.4305/ AISI 303	PFA / PVC	PC
specific characteristics	- Fiber optic version		- Fiber optic version	- Fiber optic version

Laser copy counters *SCATEC*



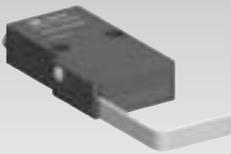
Laser copy counters *SCATEC*

- Counting rate up to 3 million copies/h
- Large operating range 0 ... 120 mm
- Detects single sheets up to 0,1 mm
- False pulse suppression
- Trailing edge suppression and direct gap detection
- Synchronized input
- Diagnostic software available
- Output push-pull

				
product family	<i>SCATEC-J</i>	<i>SCATEC-2</i>	<i>SCATEC-10</i>	<i>SCATEC-15</i>
characteristics	- Compact type - Plug & Play	- ScaDiag diagnostic and programming software available - Compact type - Adjustable output pulse length	- Integrated copy counters - ScaDiag diagnostic and programming software available - Trailing edge suppression - Adjustable output pulse length	- Integrated copy counters - CAN interface - ScaDiag diagnostic and programming software available - Trailing edge suppression - Adjustable output pulse length
dimension	30 x 110 x 50 mm	30 x 110 x 50 mm	30 x 170 x 70 mm	30 x 170 x 70 mm
measuring distance	0 ... 55 mm	0 ... 120 mm	0 ... 90 mm	0 ... 120 mm
sensibility	Single sheet/edge thickness 1,5 mm	Single sheet/edge thickness 0,2 mm	Single sheet/edge thickness 0,1 mm	Single sheet/edge thickness 0,15 mm
counting rate	280'000 copies/h	600'000 copies/h	3'000'000 copies/h	3'000'000 copies/h
false pulse suppression		On/off switchable	4 program options	4 program options
specific characteristics		- Opto isolated output - Version for copy counting on conveying chains	- Opto isolated output	- Opto isolated output

Line sensors *ParCon* and *PosCon*



					
product family	ZADM 023 <i>PosCon</i>	ZADM 034I <i>ParCon</i>	ZADM 034P <i>ParCon</i>		
characteristics	<ul style="list-style-type: none"> - Measurement of edge positions, object widths and object center positions - Integrated filter for detecting transparent objects - Interface: RS 485 	<ul style="list-style-type: none"> - Measurement of edge positions and object widths - Quick response time - Parallel light beams 	<ul style="list-style-type: none"> - Detecting small parts - Quick response time - Parallel light beams 		
dimension	22,9 x 50 x 50 mm	34 x 67 x 16,5 mm	34 x 67 x 16,5 mm		
measuring distance to object	50 ... 1400 mm	0 ... 200 mm	0 ... 40 mm		
measuring field size	30 ... 875 mm	24 mm	24 mm		
resolution	< 30 µm	< 50 µm	< 0,1 mm		
smallest object recognizable	0,3 mm	1 mm	0,5 mm		
response time	< 2 ms	< 1 ms	< 0,25 ms		
functions	<ul style="list-style-type: none"> - Alarm output - Up to 2 adjustable thresholds 		<ul style="list-style-type: none"> - Minimum detectable object size can be set using Teach-in 		
output	4 ... 20 mA	4 ... 20 mA	PNP		
specific characteristics		- Lateral or front optics	- Lateral or front optics		

Line sensors *ParCon* and *PosCon*

Line sensors *ParCon* and *PosCon*

- High resolution up to 0,03 mm
- Measuring frequency up to 1 kHz
- Measuring range of 24 mm to 875 mm
- Robust metal housing
- Simple operation at the sensor
- Integrated evaluation electronics
- Measuring or digital version

Vision sensors *VeriSens*®



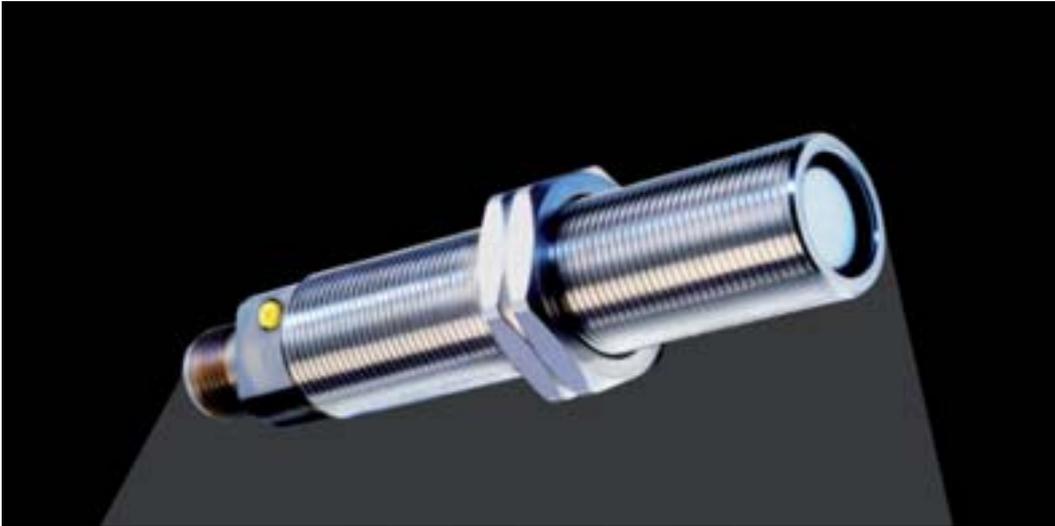
				
product family	<i>VeriSens</i> ® ID-100	<i>VeriSens</i> ® ID-110	<i>VeriSens</i> ® CS-100	<i>VeriSens</i> ® XF-100
characteristics	<ul style="list-style-type: none"> - Multi-code reader for 1D and 2D codes - Determines quality according to ISO / AIM 	<ul style="list-style-type: none"> - Multi reader for text and 1D/2D codes (incl. GS1) - Reads different fonts without font training - Verifies text (OCR/OCV), quality control of codes 	<ul style="list-style-type: none"> - Presence and completeness check - Part recognition and part sorting - Checking part geometries 	<ul style="list-style-type: none"> - Presence and completeness check - Acquisition of part location and correct position - Process interface
dimension	53 x 99,5 x 38 mm	53 x 99,5 x 38 mm	53 x 99,5 x 38 mm	53 x 99,5 x 38 mm
resolution lens	752 x 480 pixels 10 mm / 16 mm	752 x 480 pixels 10 mm	752 x 480 pixels 10 mm / 16 mm	752 x 480 pixels 10 mm / 16 mm
field of view (min.)	17,7 x 11,3 mm	26,4 x 16,9 mm	17,7 x 11,3 mm	17,7 x 11,3 mm
speed	max. 50 inspections / sec.	max. 50 inspections / sec.	max. 50 inspections / sec.	max. 100 inspections / sec.
communicaton	5 inputs / 3 outputs digital Ethernet (setup) TCP/IP, RS485 (process data transmission)	5 inputs / 5 outputs digital Ethernet (setup) TCP/IP (process data transmission)	5 inputs / 5 outputs digital Ethernet (setup)	5 inputs / 5 outputs digital Ethernet (setup) TCP/IP (process data transmission)
functions	<ul style="list-style-type: none"> - Barcode: e.g. Code 128, EAN 13, UPC, 2/5, GS1 128 - Matrix code: DataMatrix (GS1), QR, PDF 417 - Password protection 	<ul style="list-style-type: none"> - Any font style, even Dot Matrix - Barcode: e.g. Code 128, EAN 13, UPC, 2/5, GS1 128 - Matrix code: DataMatrix (GS1), QR, PDF 417 - Password protection 	<ul style="list-style-type: none"> - 360° part location - Geometry: distance, circle - Feature comparison: count contour points, contour comparison, brightness 	<ul style="list-style-type: none"> - 360° part location - Geometry: 5 functions - Feature comparison: 7 functions - Coordinate conversion - Password protection

Vision sensors *VeriSens*[®]

- User-friendly
 - Intuitive user interface – simplified setup within 4 steps
 - Fully integrated flash controller for external illumination (XC Series)
- Powerful
 - Reliable 360° recognition for part location powered by *FEX Loc*[®] technology
 - C-mount design with resolutions up to 2 MP
- Reliable
 - Protection class IP 67 and rugged metal housing
 - Secure operation with user levels and password protection

				
VeriSens[®] XF-200	VeriSens[®] XC-100	VeriSens[®] XC-200		
- Presence and completeness check - Acquisition of part location and correct position - Identification - Process interface	- Presence and completeness check - Acquisition of part location and correct position - Process interface	- Presence and completeness check - Acquisition of part location and correct position - Identification - Process interface		
53 x 99,5 x 38 mm	53 x 99,5 x 49,8 mm	53 x 99,5 x 49,8 mm		
752 x 480 pixels 10 mm / 16 mm	640 x 480 pixels (1/4") 1280 x 960 pixels (1/3") 1600 x 1200 pixels (1/1.8") C-mount support for lens	640 x 480 pixels (1/4") 1280 x 960 pixels (1/3") 1600 x 1200 pixels (1/1.8") C-mount support for lens		
17,7 x 11,3 mm	depending on the lens	depending on the lens		
max. 100 inspections / sec.	max. 100 inspections / sec.	max. 100 inspections / sec.		
5 inputs / 5 outputs digital Ethernet (setup) TCP/IP (process data transmission)	5 inputs / 5 outputs digital Ethernet (setup) TCP/IP (process data transmission)	5 inputs / 5 outputs digital Ethernet (setup) TCP/IP (process data transmission)		
- 360° part location - Geometry: 5 functions - Feature comparison: 7 functions - Identification: Barcode, Matrix code, Text - Coordinate conversion - Password protection	- Integrated flash controller - Free choice of lenses due to C-mount and modular tube system - CCD sensor with resolution of 0.3 MP / 1.2 MP / 2 MP - Functions like XF-100	- Integrated flash controller - Free choice of lenses due to C-mount and modular tube system - CCD sensor with resolution of 0.3 MP / 1.2 MP / 2 MP - Functions like XF-200		

Distance measuring ultrasonic sensors



					
product family	UNxK 09	UNDK 10 <i>SONUS</i>	UNDK 20	UNDK 30	
characteristics	<ul style="list-style-type: none"> - High resolution - Quick response time - Parametrization via RS 232 - Various mounting options - Flat housing - Sonic nozzle for detection in openings of up to 3 mm 	<ul style="list-style-type: none"> - Smallest ultrasonic sensor - Internal and external Teach-in - Very low weight: 4 g - Narrow sonic beam angle - Cable and flylead connector versions 	<ul style="list-style-type: none"> - Flat type - Internal and external Teach-in - Narrow and wide sonic beam angles - M8 connector 	<ul style="list-style-type: none"> - Compact type - Large sensing range - Teach-in on the sensor - Potentiometer version - Narrow and wide sonic beam angles - Cable and connector versions 	
dimension	8,6 x 48,8 x 57,7 mm	10 x 27 x 14 mm	20 x 42 x 15 mm	30 x 65 x 31 mm	
measuring distance	3 ... 200 mm	20 ... 200 mm	20 ... 1000 mm	30 ... 2000 mm	
resolution	< 0,1 mm	< 0,3 mm	< 0,3 mm	< 0,3 mm	
response time	< 7 ms	< 60 ms	< 30 ms	< 50 ms	
output	0 ... 10 V RS 232	0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V	
specific characteristics	- Version with and without beam columnator	<ul style="list-style-type: none"> - Wide range of accessories and installation options - Sonic deflection bracket can be mounted 	- Sonic deflection bracket can be mounted		

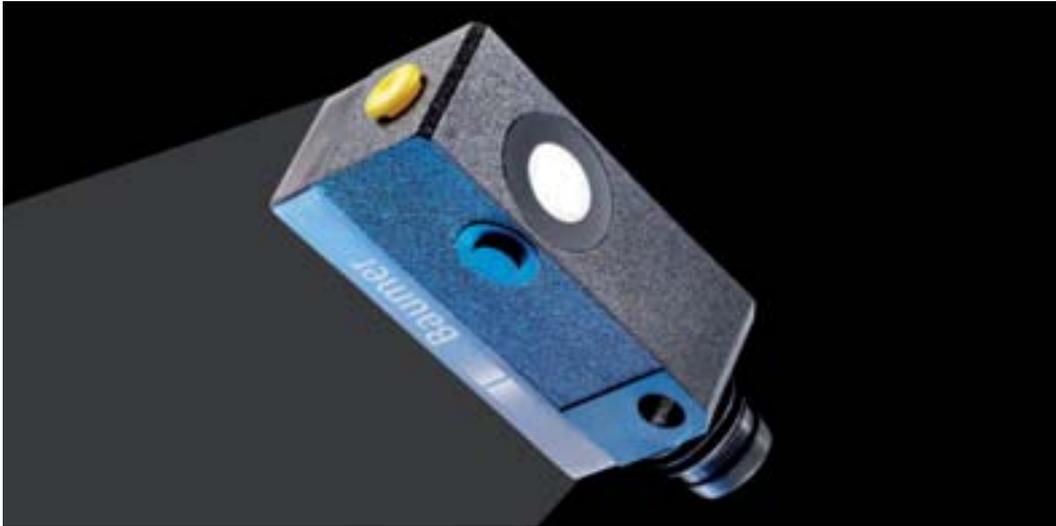
Distance measuring ultrasonic sensors

Distance measuring ultrasonic sensors

- Measuring range up to 2500 mm
- Individual measuring range adjustable
- Reliable sensing of highly reflective and transparent surfaces
- Tolerant of dust and dirt
- Suitable for level measurement of liquids, granulates and pastes
- Narrow and wide sonic beam angles
- Protection class IP 67

					
UNAM 12	UNAM 18	UNAM 18	UNAR 18	UNAM 30	UNAM 50
<ul style="list-style-type: none"> - Narrow and wide sonic beam angles - External Teach-in - M12 connector - Beam columnator for very narrow sonic cone profile 	<ul style="list-style-type: none"> - Internal and external Teach-in - M12 connector 	<ul style="list-style-type: none"> - Stainless steel housing V4A - Chemically resistant sensor front - FDA-compliant materials - Internal and external Teach-in - M12 connector 	<ul style="list-style-type: none"> - Internal and external Teach-in - Cable and connector versions - Potentiometer versions 	<ul style="list-style-type: none"> - Large sensing range - Internal and external Teach-in - Cable and connector versions - Potentiometer version 	
M12 x 1	M18 x 1	M18 x 1	M18 x 1	M30 x 15	M30 x 15
20 ... 400 mm	2 ... 82 mm	60 ... 1000 mm	100 ... 1000 mm	400 ... 2500 mm	
< 0,3 mm	< 0,3 mm	< 0,3 mm	< 0,3 mm	< 0,3 mm	< 0,3 mm
< 30 ms	< 30 ms	< 25 ms	< 80 ms	< 160 ms	
0 ... 10 mA 0 ... 10 V	0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V
<ul style="list-style-type: none"> - Wide range of accessories and installation options - Version with and without beam columnator 	<ul style="list-style-type: none"> - Sonic deflection bracket can be mounted 	<ul style="list-style-type: none"> - Sonic deflection bracket can be mounted 			

Ultrasonic sensors



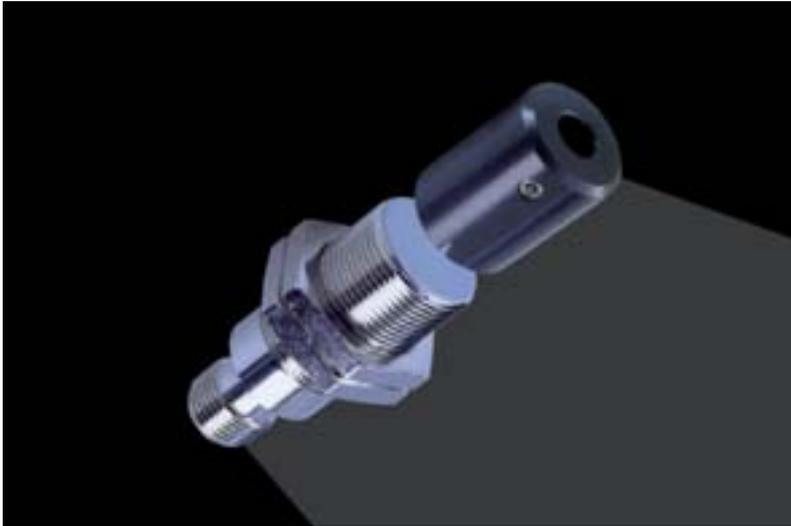
					
					
product family	UNxK 09	UxDK 10 <i>SONUS</i>	UxDK 20	UxDK 30	
characteristics	<ul style="list-style-type: none"> - Internal and external Teach-in - Various mounting options - Very flat housing - Beam columnator for very narrow sonic cone profile - IO-Link 	<ul style="list-style-type: none"> - Internal and external Teach-in - Compact type - Very low weight: 4 g - Narrow sonic beam angles 	<ul style="list-style-type: none"> - Internal and external Teach-in - Narrow and wide sonic beam angles 	<ul style="list-style-type: none"> - Internal and external Teach-in - Potentiometer version - Narrow and wide sonic beam angles 	
dimension	8,6 x 82 x 24,5 mm	10,4 x 27 x 14 mm	20 x 42 x 15 mm	30 x 65 x 31 mm	
sensing range Sd					
proximity switch	3 ... 200 mm	10 ... 200 mm	10 ... 1000 mm	30 ... 1000 mm	
2 point proximity switch				30 ... 2000 mm	
retro-reflective sensors	0 ... 200 mm	0 ... 200 mm	0 ... 1000 mm	0 ... 2000 mm	
through beam sensors			0 ... 1000 mm	0 ... 700 mm	
response / release time	< 7 ms	< 15 ms	< 10 ms	< 10 ms	
specific characteristics	<ul style="list-style-type: none"> - With changeable beam columnator - Version without beam columnator 	<ul style="list-style-type: none"> - Wide range of accessories and installation options - Sonic deflection bracket can be mounted 	<ul style="list-style-type: none"> - Small sonic beam angle - Sensor with adjustable ton/toff - Sonic deflection bracket can be mounted 	<ul style="list-style-type: none"> - Sensors with MUX and Sync input 	

Ultrasonic sensors

- Sensing range up to 3000 mm
- Reliable detection of highly reflective and transparent objects
- Tolerant of dust and dirt
- Versions with two separate switching outputs
- Also for sensing sound-absorbing materials
- Adjustable reaction times ton/toff for through beam sensors
- Protection class IP 67
- Output PNP/NPN, Push-Pull

				
UxAM 12 Highspeed	UNAM 12	UNAM 18 UxAR 18	UxAM 30	UxAM 50
<ul style="list-style-type: none"> - Fastest ultrasonic sensor - Lateral positioning accuracy of 0.5 mm - Sonic nozzle for detection in openings of up to 3 mm - External Teach-in 	<ul style="list-style-type: none"> - External Teach-in - Teach-in adapter - Beam columnator for very narrow sonic cone profile 	<ul style="list-style-type: none"> - Internal and external Teach-in - Potentiometer version - FDA-compliant materials 	<ul style="list-style-type: none"> - Internal and external Teach-in - Potentiometer version - Increased sensing range 	<ul style="list-style-type: none"> - Internal and external Teach-in - Potentiometer version - Large sensing range
M12 x 1	M12 x 1	M18 x 1	M30 x 15	M30 x 15
0 ... 70 mm	5 ... 400 mm	60 ... 1000 mm	200 ... 1500 mm	350 ... 2500 mm
			100 ... 1000 mm	350 ... 2500 mm
0 ... 70 mm		0 ... 400 mm		0 ... 3000 mm
< 1,3 ms	< 10 ms	< 50 ms	< 100 ms	< 160 ms
<ul style="list-style-type: none"> - External Teach-in adapter as an accessory - Wide range of accessories and installation options - Version with and without beam columnator 	<ul style="list-style-type: none"> - Wide range of accessories and installation options - Version with and without beam columnator 	<ul style="list-style-type: none"> - Sensors with stainless steel housing 1.4435 - Sensor front protected against aggressive media - Sensors with MUX and Sync input - Sonic deflection bracket can be mounted 	<ul style="list-style-type: none"> - Sensors with MUX and Sync input 	<ul style="list-style-type: none"> - Sensors with MUX and Sync input

Magnetic sensors

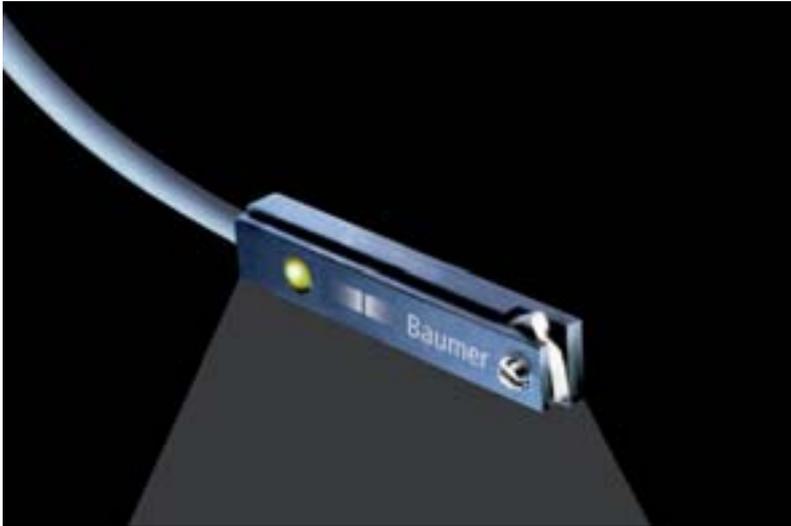


Magnetic sensors

- Non-wearing systems
- Tolerant of dust and dirt
- One-channel and two-channel version
- High resolution
- Absolute position measurement up to 360° of rotation
- Protection class IP 68
- Scanning of gears and racks starting with module 1
- Acquisition of magnet location

				
product family	MHRM 12	MTRM 16	MFRM 08	MDRM 18 MDFM 20
characteristics	<ul style="list-style-type: none"> - Detects gears and racks - Single and dual channel versions - Locked full metal housing stainless steel - High temperature range -40 ... +120 °C 	<ul style="list-style-type: none"> - Detection of rpm speed and rotational direction of gear wheels - Completely sealed full metal housing - Complies with strict rail standards - Operating temperature range -40 ... +120 °C 	<ul style="list-style-type: none"> - Acquisition of magnet location - Large sensing range - Object detection through container walls possible 	<ul style="list-style-type: none"> - Can be used as an electronic potentiometer - Absolute position feedback to 360° of rotation - Cylindrical and rectangular designs
dimension	M12 x 1	ø 16 mm	M8 x 1	M18 x 1 / 20 x 30 x 8 mm
working distance max.	2 mm	3,6 mm	60 mm	2 mm
switching frequency / response time	< 20 kHz	< 20 kHz	< 5 kHz	4 ms
resolution	Starting from Module 1	Module 1 to 3	< 0,5 mm	0,09°
output	Push-pull	Push-pull	PNP NPN	Analog current or voltage output
specific characteristics			<ul style="list-style-type: none"> - Suitable magnets available as an accessory - Available in V-groove or rectangular design 	<ul style="list-style-type: none"> - M12 connector, M8 mating connector or cable

Magnetic cylinder sensors



Magnetic cylinder sensors

- For detecting piston positions of pneumatic cylinders
- Exactly defined switching points
- Distinctly higher life expectancy than sensors with reed contacts
- Accessories for mounting on all available cylinders
- Sensors for T and C slot cylinders
- Angled version for short stroke cylinder
- Version for insertion in T slot

product family	MZCK 03x1011 MZCK 03x1012	MZTK 06x1011 MZTK 06x1012	MZTK 06x1013	
characteristics	- For C slot cylinders - Detecting piston positions	- For T slot cylinders - Detecting piston positions	- For T slot cylinders - Detecting piston positions	
dimension	3,7 x 4,6 x 23 mm 3,7 x 19,5 x 9 mm	6,2 x 4,3 x 31 mm 6,5 x 9,4 x 21 mm	6,2 x 4,5 x 31,5 mm	
nominal operation point	4 mT	4 mT 2 mT	4 mT	
switching frequency	200 kHz	200 kHz	200 kHz	
voltage supply range +Vs	5 ... 30 VDC	5 ... 30 VDC	5 ... 30 VDC	
output	PNP NPN	PNP NPN	PNP NPN	
specific characteristics	- Short housing version - Accessories for mounting on all available cylinders	- Short housing version - Accessories for mounting on all available cylinders	- Can be installed from above in the slot - Accessories for mounting on all available cylinders	

My-Com precision switches $\pm 1 \mu\text{m}$



					
product family	MY-COM A	MY-COM B	MY-COM C	MY-COM D	
characteristics	<ul style="list-style-type: none"> - Conical brass housing front - M8 fine pitch thread 	<ul style="list-style-type: none"> - Brass housing - Flat housing front - M8 fine pitch thread 	<ul style="list-style-type: none"> - Flat brass housing - 2-hole mounting 	<ul style="list-style-type: none"> - Robust browned brass housing - Spherical metal tip - Protection class IP 67 - Lateral approach possible to 30° 	
dimension	M8 x 0,5	M8 x 0,5	8 x 12 x 30 mm	M16 x 0,5	
repeat accuracy	< 1 μm	< 1 μm	< 1 μm	< 1 μm	
output	NC (mechanical)	NC (mechanical)	NC (mechanical)	NC (mechanical) NO (PNP/NPN)	
specific characteristics					

My-Com precision switches $\pm 1 \mu\text{m}$

My-Com precision switches $\pm 1 \mu\text{m}$

- $\pm 1 \mu\text{m}$ repeat accuracy
- Activating pin made of unbreakable zirconium oxide
- 30 cN minimum activating force
- Pointed activating pins
- 2-wire normally closed contact (NC) and 3-wire normally open contact (NO)
- Lateral approach also possible to 30° (spherical activating pins)
- Also in protection class IP 67

				
MY-COM E	MY-COM F MY-COM G	MY-COM H MY-COM L	MY-COM M	
- Brass housing - M6 fine pitch thread - Spherical hard metal tip - Lateral approach possible to 30°	- Brass housing - Long M8 fine pitch thread	- Brass housing - M8 fine pitch thread - Spherical ruby tip - Protection class IP 67	- Brass housing - M8 fine pitch thread - Protection class IP 67	
M6 x 0,5	M8 x 0,5	M8 x 0,5	M8 x 0,5	
< $1 \mu\text{m}$	< $1 \mu\text{m}$	< $1 \mu\text{m}$	< $1 \mu\text{m}$	
NC (mechanical) NO (PNP/NPN)	NC (mechanical) NO (PNP/NPN)	NC (mechanical) NO (PNP/NPN)	NC (mechanical) NO (PNP/NPN)	

Worldwide presence

We at Baumer like to be close to customers; we listen to them and, understanding their needs, provide the best solution. Worldwide customer service for Baumer starts with on-the-spot personal discussions and qualified consultation. Our application engineers speak your language and strive from the start, through an interactive problem analysis, to offer comprehensive and user-compatible solutions. The worldwide Baumer sales organizations guarantee short delivery times and readiness to supply. Many of our customers are directly linked via our electronic order system with the JIT logistics process.

A worldwide network coupled with the most modern communication techniques enable us to deliver information quickly and transparently to decision makers in all Baumer locations.

Closeness to the customer for Baumer means being available for your needs anywhere and at any time.



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- Photoelectric sensors
- Precision switches My-Com
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- Process displays
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- Vision sensors

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