Baumer
Passion for Sensors

Innovative Sensor Solutions

Product Overview – Edition 2016

Partnership.
Precise.
Pioneering.

Visibly better: Baumer sensors.

The Baumer Group is leading at international level in the development and production of sensors, shaft encoders, measuring instruments as well as components for automatic image processing. As an owner-managed family business, we employ about 2300 workers worldwide in 38 subsidiaries and 19 countries. With marked customer orientation, consistently high quality and vast innovation capability, Baumer develops specific solutions for many industries and applications worldwide.

Our standards – your benefits.

- Passion coupled with expertise – both have made us a sensor pioneer and technology leader
- Our range of services is hard to beat – we have the right product, developed by our own team, for every task
- Inspiring through innovation – a challenge Baumer employees take on every day
- Reliability, precision and quality – our customers' requirements are what drives us
- Partnership from the start – together with our customers we develop suitable solutions
- Always a step ahead – thanks to our production depth, our flexibility and our delivery reliability
- Available worldwide – Baumer is Baumer everywhere

Baumer sensors – precise, compacte, and reliable

- Broad sensor portfolio of sensors for object detection and distance measurement from a single source
- Competence in technology - inductive, photoelectic, ultrasonic, radar, capacitve, magnetic and mechanical
- Compact, calibrated measuring units with integrated measuring functions
- Customer-specific versions

Learn more.
Detailed technical information, data sheets, tutorials and the Baumer product finder can be found at:
www.baumer.com

Content.

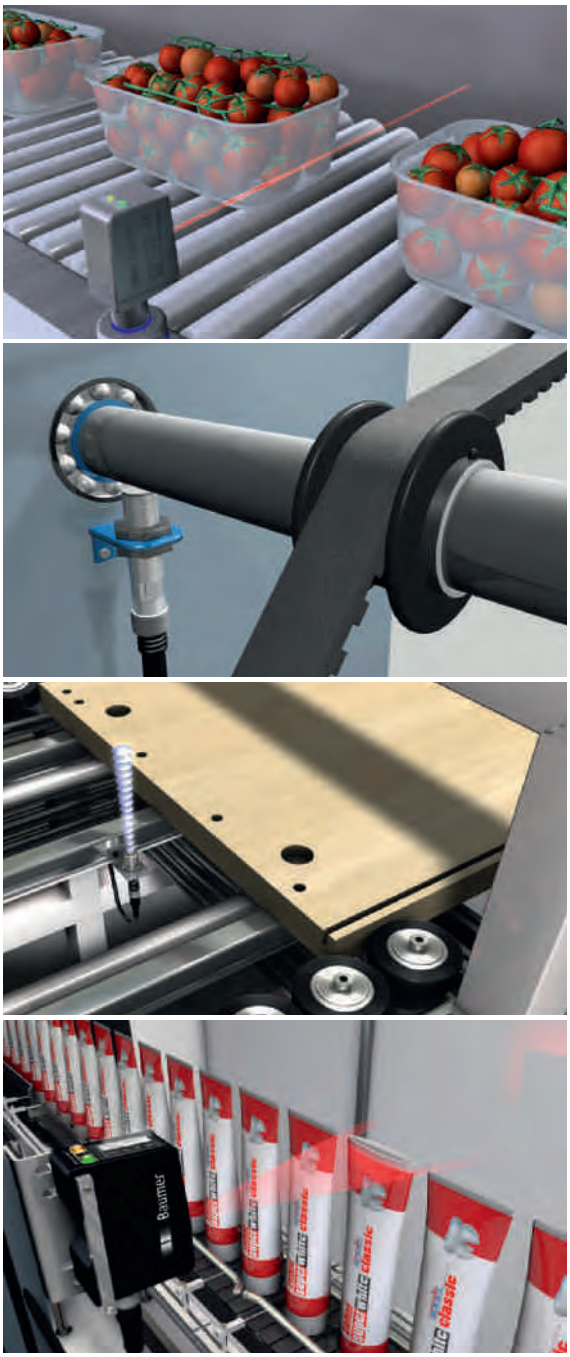
Innovative sensors from Baumer

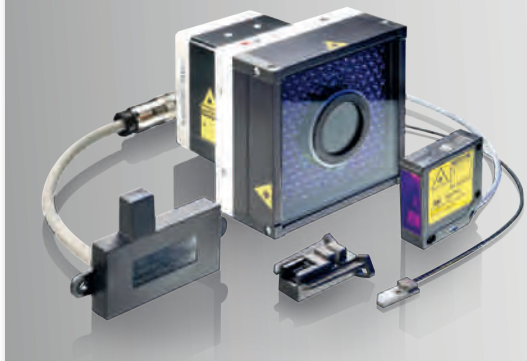
The success story of the Baumer Group is heavily marked by innovations. Recent highlights include:

- *MESAX multi-spot* laser distance-measurement sensors for extremely rough and shiny surfaces
- *PosCon HM*, an innovative and compact light section sensor for clever height measurement
- *SmartReflect Transparent*, the first light barrier without reflector with a range of 1 meter and a short response time of 0,25 ms
- *AlphaProx* inductive distance measuring sensors: with high sensitivity sensors, linearized characteristics, short designs

The perfect sensor for every application

- The appropriate sensor technology: ultrasonic, inductive, photoelectric, magnetic and capacitive object detection and distance measurement.
- Comprehensive evaluation functions already integrated in a compact housing design.
- Application-specific sensors for quality assurance and control tasks.
- Extensive industry know-how for optimum support in selecting and integrating the right sensors. e.g. for factory and process automation, food and beverage industry, graphical and textile industry as well as agricultural machinery and mobile equipment.





Customized solutions

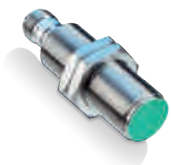
Customer requirements are often so specific that the features of standard market components are too limited, or the overall system does not provide the best solution in terms of cost and performance. Baumer particularly excels at producing custom OEM products – whether they are modifications to standard products or custom designs of complex multi-sensor systems.

Inductive sensors

Object detection – cylindrical

- Small deviation from sensor to sensor
- High switching frequency
- Enhanced distance
- Extremely temperature-stable
- Factor 1
- Miniature sensors
- Extended temperature ranges

	 IFRM 03	 IFRM 04	 IFRM 05	 IFRM 06 / IR06
characteristics	■ Robust stainless steel housing ■ Cable connection	■ Robust stainless steel housing ■ With M5 connector ■ High installation torque	■ Robust stainless steel housing ■ With M5 connector ■ High installation torque	■ Robust stainless steel housing ■ Short design
dimensions	ø 3 mm	ø 4 mm M4 x 0,5	M5 x 0,5	ø 6,5 mm
nominal sensing distance Sn	0,8 mm	0,8 ... 1,6 mm	1 ... 1,6 mm	1,5 ... 6 mm
switching frequency	< 3 kHz	< 5 kHz	< 5 kHz	< 5 kHz
output signal	PNP NPN	PNP NPN	PNP NPN	PNP NPN
connection types	connector M8 cable 2 m flylead connector M8 wires	connector M5 connector M8 cable 2 m flylead connector M8 wires	connector M5 connector M8 cable 2 m flylead connector M8 wires	connector M8 cable 2 m flylead connector M8
housing material	stainless steel	stainless steel	stainless steel	stainless steel
operating temperature	-25 ... +75 °C	-25 ... +75 °C	-25 ... +75 °C	-25 ... +75 °C 0 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features	■ Short sensor head with remote electronics	■ NAMUR sensors ■ Short housing with wire output	■ NAMUR sensors ■ Short housing with wire output	■ High temperature resistant sensors up to +100 °C ■ NAMUR/ATEX sensors ■ *GammaProx* for large sensing distances ■ Factor 1 IR sensors (same sensing distance one any metal)

 IFRM 08 / IR 08	 IFRM 12 / IR 12	 IFRM 12, IFRM 18	 IFRM 18 / IR 18	 IFRM 30
■ Robust stainless steel housing ■ Short design	■ 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 ... 15 mm	10 ... 15 mm
< 5 kHz	< 2 kHz	< 500 Hz < 1 kHz	< 500 Hz	< 500 Hz
PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP
connector M8 connector M12 cable 2 m flylead connector M8	connector M8 connector M12 cable 2 m	connector M8 connector M12 cable 2 m	connector M12 cable 2 m	connector M12
stainless steel	brass nickel plated	brass nickel plated	brass nickel plated	brass nickel plated
-25 ... +75 °C 0 ... +60 °C	-25 ... +75 °C 0 ... +60 °C	-40 ... +80 °C	-25 ... +75 °C	-25 ... +75 °C
IP 67	IP 67	IP 67	IP 67	IP 67
■ High temperature resistant sensors up to +180 °C ■ Hardened steel banking screw ■ NAMUR/ATEX sensors ■ *GammaProx* for large sensing distances ■ Factor 1 IR sensors (same sensing distance towards any metal)	■ High temperature resistant sensors up to +180 °C ■ High pressure sensors up to 500 bar ■ Immune to welding and magnet fields up to 90 mT ■ Hardened steel banking screw ■ NAMUR/ATEX sensors ■ Factor 1 IR sensors (same sensing distance towards any metal)		■ High temperature resistant sensors up to +180 °C ■ High pressure sensors up to 500 bar ■ Immune to welding and magnet fields up to 90 mT ■ *GammaProx* for large sensing distances ■ NAMUR/ATEX sensors ■ Factor 1 IR sensors (same sensing distance towards any metal)	

Object detection – *DuroProx* full metal housing

- Stainless steel housing 1.4404 (V4A)
- Compact and extremely robust versions
- Protection class IP 69K
- Expanded temperature ranges

	 IFRD 06 *DuroProx*	 IFRD 08 *DuroProx*	 IFRD 12 *DuroProx*	 IFRD 18 *DuroProx*
characteristics	■ Sealed stainless steel housing 1.4404 (V4A) ■ Expanded temperature range up to +100 °C	■ Sealed stainless steel housing 1.4404 (V4A) ■ Expanded temperature range up to +100 °C	■ Sealed stainless steel housing 1.4404 (V4A) ■ Expanded temperature range up to +100 °C	■ Sealed stainless steel housing 1.4404 (V4A) ■ Expanded temperature range up to +100 °C
dimensions	ø 6,5 mm	M8 x 1	M12 x 1	M18 x 1
nominal sensing distance Sn	2 mm	2 mm	4 mm	6 mm
response time	< 150 Hz	< 150 Hz	< 100 Hz	< 100 Hz
output signal	PNP NPN	PNP NPN	PNP NPN	PNP NPN
connection types	connector M8	connector M8	connector M12	connector M12
housing material	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)
operating temperature	-25 ... +75 °C -25 ... +100 °C	-25 ... +75 °C -25 ... +100 °C	-25 ... +75 °C -25 ... +100 °C	-25 ... +75 °C -25 ... +100 °C
protection class	IP 69K IP 68/67	IP 69K IP 68/67	IP 69K IP 68/67	IP 69K IP 68/67
specific features	■ 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

Object detection – rectangular

- High switching frequency
- Small deviation from sensor to sensor
- Extremely temperature-stable
- High switching point accuracy

	IFFM 04	IFFM 06	IFFM 08	IFFM 12	IFFM 20
					
	■ Robust stainless steel housing ■ Cable connection ■ Smallest rectangular type	■ Metal housing brass nickel plated ■ With M5 connector ■ Smallest rectangular type in connector version	■ 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 ■ Flat version	■ Metal housing brass nickel plated ■ With M8 connector ■ Voltage supply range 10 ... 50 VDC
	4 x 22 x 4 mm	6 x 20 (30) x 6 mm	8 x 20 (30/40/60) 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
	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN
	cable 2 m	connector M5 cable 2 m	connector M8 cable 2 m flylead connector M8	connector M5	connector M8
	stainless steel	brass nickel plated	brass nickel plated die-cast zinc nickel plated	brass nickel plated	brass nickel plated
	-25 ... +75 °C	-25 ... +75 °C	-25 ... +75 °C	-25 ... +75 °C	-25 ... +75 °C
	IP 67	IP 67	IP 67	IP 67	IP 67
			■ NAMUR sensors	■ Inductive code readers, versions with 3 or 6 readers (ILFK 12)	

Inductive sensors

Object detection – hygienic and washdown design

- EHEDG-certified / Ecolab tested / FDA compliant
- Robust stainless steel housing 1.4404 (V4A)
- *proTect+* sealing concept
- Protection class IP 68 / IP 69K
- Expanded temperature ranges
- Enhanced sensing distance

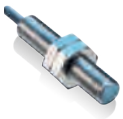
	 IFBR 06	 IFBR 11	 IFBR 17	 IFRR 08
characteristics	■ Robust stainless steel housing 1.4404 (V4A) ■ IP 68 / IP 69K ■ EHEDG-certified ■ Ecolab-tested ■ FDA-compliant ■ Extended operating temperature range -40 ... +100 °C	■ Robust stainless steel housing 1.4404 (V4A) ■ IP 68 / IP 69K ■ EHEDG-certified ■ Ecolab-tested ■ FDA-compliant ■ Extended operating temperature range -40 ... +100 °C	■ Robust stainless steel housing 1.4404 (V4A) ■ IP 68 / IP 69K ■ EHEDG-certified ■ Ecolab-tested ■ FDA-compliant ■ Extended operating temperature range -40 ... +100 °C	■ Robust stainless steel housing 1.4404 (V4A) ■ IP 68 / IP 69K ■ Ecolab-tested ■ FDA-compliant ■ Extended operating temperature range -40 ... +100 °C
dimensions	ø 6,5 mm	ø 11 mm	ø 17 mm	M8 x 1
nominal sensing distance Sn / measuring distance Sd	3 mm	4 ... 6 mm	8 ... 12 mm	3 mm
switching frequency / response time	< 3 kHz	< 1 kHz	< 0,5 kHz	< 3 kHz
output signal	PNP NPN	PNP NPN	PNP NPN	PNP NPN
connection types	connector M12	connector M12 cable 2 m	connector M12 cable 2 m	connector M12
housing material	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)
operating temperature	-40 ... +80 °C	-40 ... +80 °C	-40 ... +80 °C	-40 ... +80 °C
protection class	IP 68/69K & proTect+	IP 68/69K & proTect+	IP 68/69K & proTect+	IP 68/69K & proTect+
versions	■ plug connection	■ cable and plug connection	■ cable and plug connection	■ plug connection

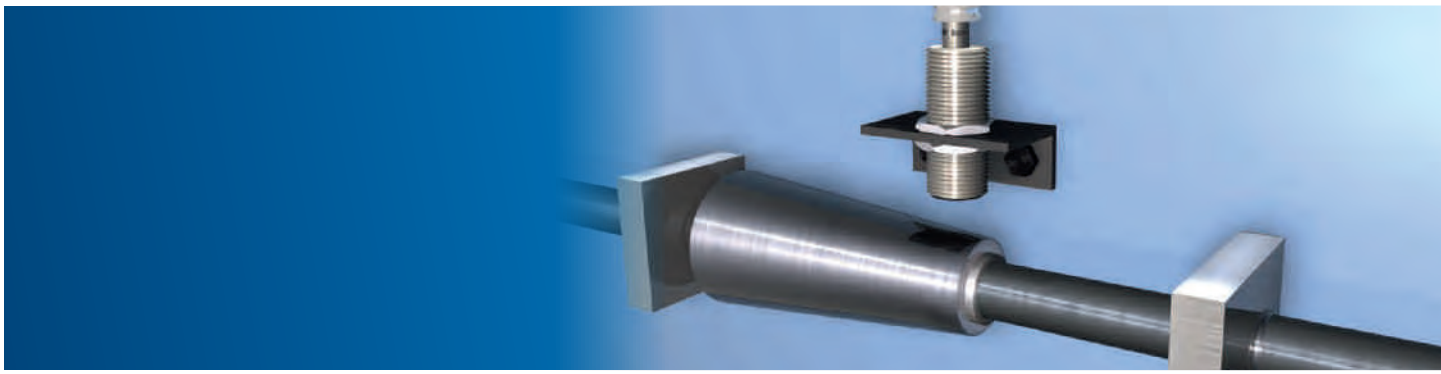
IFRR 12	IFRR 18	IWRR 18 *AlphaProx*
■ Robust stainless steel housing 1.4404 (V4A) ■ IP 68 / IP 69K ■ Ecolab-tested ■ FDA-compliant ■ Extended operating temperature range -40 ... +100 °C	■ Robust stainless steel housing 1.4404 (V4A) ■ IP 68 / IP 69K ■ Ecolab-tested ■ FDA-compliant ■ Extended operating temperature range -40 ... +100 °C	■ Robust stainless steel housing 1.4404 (V4A) ■ IP 68 / IP 69K ■ Ecolab-tested ■ FDA-compliant ■ Extended operating temperature range -40 ... +70 °C
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
PNP NPN	PNP NPN	0 ... 10 VDC
connector M12 cable 2 m	connector M12 cable 2 m	connector M12
stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)
-40 ... +80 °C	-40 ... +80 °C	-40 ... +70 °C
IP 68/69K & proTect+	IP 68/69K & proTect+	IP 68/69K & proTect+
■ cable and plug connection	■ cable and plug connection	

Inductive sensors

AlphaProx Distance measuring – cylindrical

- High repeat accuracy
- Low temperature drift
- Teach-in functions
- High-resolution up to 4 nm
- Absolute distance measuring up to 16 mm
- Quick response time up to 0,5 ms
- Linearized output signals

				
	IWRM 04 *AlphaProx*	**IWRM 06 / IR 06** *AlphaProx*	**IWRM 08 / IR 08** *AlphaProx*	**IWRM 12 / IR 12** *AlphaProx*
characteristics	■ Very high resolution ■ Quick response time ■ Fully integrated electronics ■ With M5 connector	■ Large measuring distance ■ Very high resolution ■ Quick response time ■ Fully integrated electronics ■ Short design	■ Large measuring distance ■ Very high resolution ■ Quick response time ■ Fully integrated electronics ■ Linearized output signal ■ Short design	■ Adjustable measuring range ■ Linearized output signal ■ External Teach-in ■ Fully integrated electro-nics
dimensions	ø 4 mm	ø 6,5 mm	M8	M12 x 1
measuring distance Sd	0 ... 1 mm	0 ... 3 mm	0 ... 3 mm	0 ... 6 mm
resolution	< 1 µm	< 1 µm	< 1 µm	< 1 µm
response time	< 0,5 ms	< 0,5 ms	< 0,5 ms	< 2 ms
output signal	0 ... 10 VDC	0 ... 10 mA 0 ... 10 VDC	0 ... 10 mA 0 ... 10 VDC	4 ... 20 mA 0 ... 10 VDC
connection types	connector M5	connector M8 cable	connector M8 cable	connector M12 cable
housing material	stainless steel	stainless steel	stainless steel	brass nickel plated
operating temperature	10 ... +60 °C	-10 ... +70 °C 10 ... +60 °C	-10 ... +70 °C 10 ... +60 °C	-25 ... +75 °C 10 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features				■ ATEX sensors ■ Additional digital PNP output with programma-ble window function ■ External Teach-in adapter as an accessory ■ High sensitivity sensors



IPRM 12 *AlphaProx*	IWRM 18 / IR 18 *AlphaProx*	IWRR 18 *AlphaProx*	IWRM 30 *AlphaProx*
■ Very high resolution ■ Very small temperature drift ■ Fully integrated electronics	■ Adjustable measuring range ■ Linearized output signal ■ External Teach-in ■ Fully integrated electronics	■ Robust stainless steel housing 1.4404 (V4A) ■ IP 68 / IP 69K ■ Ecolab-tested ■ FDA-compliant ■ Extended operating temperature range -40 ... +70 °C	■ Adjustable measuring range ■ Linearized output signal ■ External Teach-in ■ Fully integrated electronics
M12 x 1	M18 x 1	M18 x 1	M30 x 1,5
0 ... 3 mm	0 ... 8 mm	0 ... 7 mm	0 ... 16 mm
< 4 nm	< 5 µm	< 5 µm (stat.) < 10 µm (dynam.)	< 5 µm
< 2 ms	< 2 ms	< 2 ms	< 2 ms
0 ... 20 mA	4 ... 20 mA 0 ... 10 VDC	4 ... 20 mA	4 ... 20 mA 0 ... 10 VDC
connector M12	connector M12 cable	connector M12	connector M12
steel 9 SMn (Pb) 28/36	brass nickel plated	stainless steel 1.4404 (V4A)	brass nickel plated
0 ... +60 °C	-25 ... +70 °C	-40 ... +70 °C	-10 ... +70 °C
IP 67	IP 67	IP 68/69K & proTect+	IP 67
	■ Additional digital PNP output with programmable window function ■ External Teach-in adapter as an accessory ■ Faktor 1 on aluminum ■ High sensitivity sensors		■ Additional digital PNP output with programmable window function ■ External Teach-in adapter as an accessory

Inductive sensors

AlphaProx Distance measuring – rectangular

- High repeat accuracy
- Low temperature drift
- Teach-in functions
- Quick response time up to 0,5 ms
- Linearized output signals
- No external signal processing required

				
	IWFM 05 *AlphaProx*	**IWFM 08** *AlphaProx*	**IWFM 12** *AlphaProx*	**IWFM 18 / 20** *AlphaProx*
characteristics	■ Very high resolution ■ Quick response time ■ Fully integrated electronics ■ With M5 connector	■ Very high resolution ■ Compact model ■ Fully integrated electronics	■ Integrated current and voltage output ■ Fully integrated electronics ■ Robust housing	■ Integrated current and voltage output ■ Fully integrated electro-nics ■ Small linearity deviation ■ Quick response time
dimensions	5 x 5 x 32 mm	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
measuring distance Sd	0 ... 1 mm	0 ... 2 mm	0 ... 4 mm	0 ... 4 mm
resolution	< 1 µm	< 1 µm	< 1 µm	< 1 µm
response time	< 0,5 ms	< 1 ms	< 2 ms	< 2 ms
output signal	0 ... 10 VDC	0 ... 10 VDC 0 ... 5 VDC	0 ... 10 VDC / 4 ... 20 mA	0 ... 10 VDC / 4 ... 20 mA
connection types	connector M5	cable	connector M8	connector M8 flylead connector
housing material	brass nickel plated	die-cast zinc nickel plated	brass nickel plated	brass nickel plated
operating temperature	10 ... +60 °C	10 ... +60 °C	-10 ... +70 °C	-10 ... +70 °C 0 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features	■ Smallest inductive sensor with analog output	■ Extremely low-profile version with front-side single-hole installation		

IWFK 20
AlphaProx

- Adjustable measuring range
- Teach-in button housing-integrated
- Large measuring range
- Plastic housing
- Fully integrated electronics

20 x 42 x 15 mm
0 ... 10 mm
< 5 µm
< 2 ms
0 ... 10 VDC
connector M8
polyester
-10 ... +70 °C
IP 67

Capacitive sensors

Object detection – cylindrical & rectangular

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

CFAK 12

CFAK 12/18/30

CFAK 18/30

CFAM 12/18/30

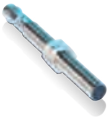
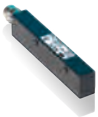
	CFAK 12	CFAK 12/18/30	CFAK 18/30	CFAM 12/18/30
characteristics	■ For applications in contaminated, water-based media ■ Level control, in contact with medium ■ Sealed housing ■ Compact, smooth surface ■ Suppression of dirt and cleaning agents	■ Unshielded ■ Fix sensing distance ■ Sealed housing ■ Level control, in contact with medium ■ Reliable detection via suppression of mist and contamination	■ Unshielded ■ Sensing distance adjustable ■ Sealed housing ■ Level control, in contact with medium ■ Reliable detection via suppression of mist and contamination	■ Shielded ■ Housing material brass nickel plated ■ Sensitivity adjustment using potentiometer ■ Cable and connector versions
dimensions	M12 x 1	M12 x 1 M18 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	0,1 mm	0,5 ... 8 mm	2 ... 30 mm	0,5 ... 15 mm
switching frequency	< 15 Hz	< 15 Hz	< 50 Hz	< 50 Hz
output signal	PNP NPN	PNP NPN	PNP NPN	PNP NPN
connection types	cable 2 m flylead connector M8	cable 2 m	cable 2 m	cable 2 m connector M12
housing material	POM EPDM50	PBT	PBT	brass nickel plated
operating temperature	0 ... +50 °C	-25 ... +75 °C 0 ... +70 °C	-25 ... +75 °C	-25 ... +75 °C
protection class	IP 67	IP 67/65	IP 67/65	IP 65
specific features			■ Sensitivity adjustment using potentiometer	

	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 +200 °C ■ Anti-stick sensor head made of PTFE and V2A stainless steel ■ Highly resistant to aggressive media	■ Shielded ■ Fix sensing distance ■ Robust and compact metal housing ■ M8 connector	■ Shielded ■ Fix 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
	2 ... 10 mm	4 ... 15 mm	5 mm	2 / 3 / 4 / 8 / 12 / 15 mm	4 ... 15 mm
	< 50 Hz	< 50 Hz	< 50 Hz	< 35 Hz	< 50 Hz
	PNP NPN	PNP	PNP NPN	push-pull	PNP NPN
	cable 2 m	cable M12	connector M8	cable 2 m flylead connector M8	cable 2 m connector M12
	brass nickel plated	V2A/PTFE	brass nickel plated	PA 12	PBT
	-25 ... +75 °C	-40 ... +200 °C	-25 ... +75 °C	-25 ... +75 °C	-25 ... +75 °C
	IP 65	IP 67	IP 65	IP 65	IP 65

Photoelectric sensors

Object detection – cylindrical & rectangular

- Extremely small housings
- *SmartReflect*® – the first light barrier without a reflector
- Precise background suppression
- Response time up to 0,5 ms
- Sensing distance up to 20 m
- Laser beams with diameters up to 0,1 mm
- Sensors for transparent objects

	 FHDK 04 IO-Link	 FxxK 07 *MINOS*	 FxAM 08	 FxDM 08
characteristics	■ Diffuse sensor with background suppression ■ Can be integrated in rails ■ Fix sensing distance	■ World's smallest adjustable sensor family ■ *SmartReflect*® light barriers without a reflector	■ Fix sensing distance	■ Robust metal housing ■ Fix sensing distance
dimensions	4 x 44,8 x 6,2 mm	8 x 16,2 x 10,8 mm	8 x 58 x 12 mm	M8 x 56 mm
function principle / ranges				
diffuse sensors background suppression	30 mm / 50 mm	10 ... 60 mm		
SmartReflect™ light barriers without a reflector		17 ... 45 mm		
diffuse sensors		20 ... 150 mm	40 mm / 80 mm	
retro-reflective sensors		0,6 m		
through beam sensors		2,5 m		1 m / 3 m
response time	< 0,5 ms	< 0,5 ms	< 1 ms	< 1 ms
output	push-pull	push-pull PNP NPN	PNP	PNP
connection types	cable	connector M8 flylead connector	cable 2 m connector M8	cable 2 m connector M8
housing material	plastic (ASA)	plastic (PMMA, MABS, PA)	brass nickel plated	aluminum
operating temperature	-10 ... +50 °C	-20 ... +50 °C	-25 ... +65 °C	-25 ... +65 °C
protection class	IP 65	IP 65	IP 65	IP 65
specific features				

FxDK 10, OxDK 10

FxDM 12, OxDM 12

characteristics	■ Different beam cones optimized for the application ■ Compact and high-performance sensor family ■ Red light and laser versions	■ Robust metal housing ■ Diffuse laser sensors with negligible black/white shift
dimensions	10,4 x 27 x 14 mm	12,4 x 35 x 35 mm
function principle / ranges		
diffuse sensors background suppression	20 ... 130 mm	15 ... 300 mm
diffuse sensors	3 ... 200 mm	30 ... 250 mm
retro-reflective sensors	4,5 m	5,5 m
through beam sensors	10 m	7,5 m
response time	< 1 ms	< 1 ms
output	push-pull PNP NPN	push-pull
connection types	cable 2 m connector M8 flylead connector	cable 2 m connector M8
housing material	plastic (ASA)	die-cast zinc
operating temperature	-10 ... +50 °C	-25 ... +65 °C -20 ... +50 °C
protection class	IP 67	IP 67
specific features	■ Sensors with laser light source ■ Sensors for transparent objects	■ Sensors with single lens optics

Photoelectric sensors

Object detection – cylindrical & rectangular

- *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
- Sensors in robust metal housing
- Sensors for transparent objects

	 FxDK 14, OxDK 14 IO-Link	 FxDM 16, OxDM 16	 OxDK 25
characteristics	■ The sensor family for a wide range of applications ■ *SmartReflect*® light barrier without a reflector	■ Robust metal housing ■ Red light and laser versions	■ qTeach ■ *SmartReflect*® light barrier without a reflector
dimensions	14,8 x 43 x 31 mm	15,4 x 50 x 50 mm	23,4 x 63 x 45 mm
function principle / ranges			
diffuse sensors background suppression	20 ... 500 mm	20 ... 600 mm	100 ... 2000 mm
SmartReflect™ light barriers without a reflector	50 ... 800 mm		2000 mm
diffuse sensors	5 ... 600 mm	0 ... 400 mm	
retro-reflective sensors	8 m	9 m	
through beam sensors	15 m	10 m	
response time	< 1 ms	< 1 ms	< 10 ms
output	push-pull PNP NPN	PNP NPN	push-pull
connection types	cable 2 m connector M12	cable 2 m connector M8	cable 2 m connector M12
housing material	plastic (ASA, MABS)	die-cast zinc	plastic (SAN LURAN 378P)
operating temperature	-25 ... +65 °C -10 ... +50 °C	-25 ... +65 °C -10 ... +50 °C	0 ... +50 °C
protection class	IP 67	IP 67	IP 67
specific features	■ Sensors for transparent objects ■ Laser sensors in laser class 1	■ Sensors with laser light source ■ Laser sensors for wafer detection	■ Laser sensors in laser class 1 ■ Sensors with two outputs

FxAM 18

OR18

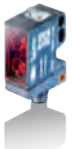
characteristics	■ Robust metal housing ■ Doubling lenses to double the range	■ Robust metal housing ■ qTeach ■ *SmartReflect*® light barrier or background suppression ■ Baumer PinPoint LED
dimensions	M18 x 50 mm	M18 x 65 mm
function principle / ranges		
diffuse sensors background suppression		45 ... 200 mm
SmartReflect™ light barriers without a reflector		55 ... 300 mm
diffuse sensors	60 ... 430 mm	
retro-reflective sensors	4 m	
through beam sensors	20 m	
response time	< 1 ms	< 0,5 ms
output	push-pull PNP NPN	push-pull PNP NPN
connection types	cable 2 m connector M12 flylead connector	connector M12
housing material	plastic (ASA)	brass nickel plated plastic (ASA)
operating temperature	-10 ... +50 °C	-25 ... +60 °C
protection class	IP 67	IP 67
specific features	■ Sensor can be used with glass fiber optics	

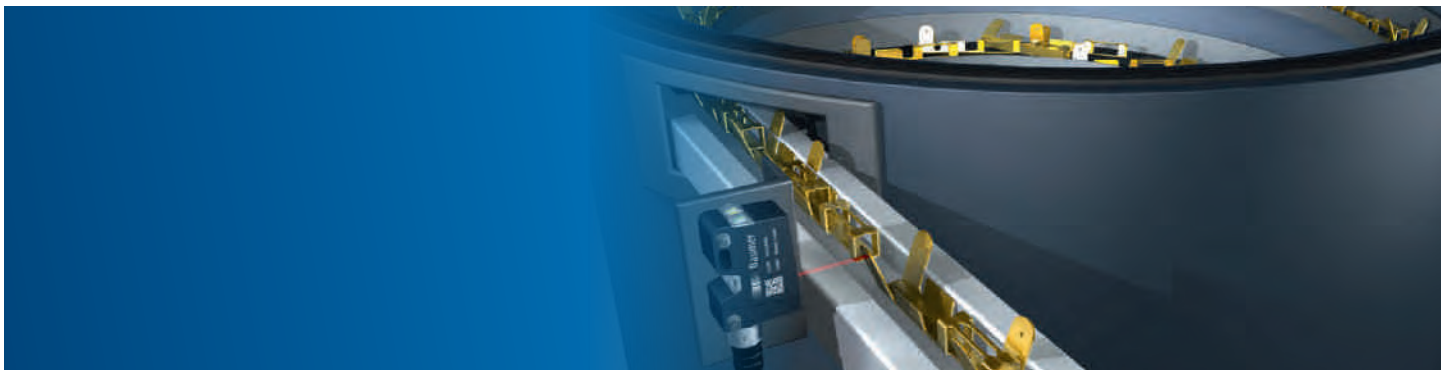
Photoelectric sensors

Object detection – O300 Series

- One inch design for tight spots
- Easy to operate, reliable and wear-free thanks to *qTeach*®
- Time savings during installation thanks to *qTarget*®
- Long service life and high reliability (excellent MTTF values)

Another Baumer INNOVATION

	 O300.GP, O300.GI, O300.GR IO-Link	 O300.RP, O300.RR IO-Link	 O300.SP IO-Link	 O300.ZR
characteristics	■ Standard LED, Baumer PinPoint LED or Infrared LED ■ small beam diameter	■ Standard LED or PinPoint LED ■ Polarization filter for detection of reflective objects ■ small beam diameter	■ PinPoint LED ■ *SmartReflect*® Light barriers without reflectors	■ Standard LED
dimensions	12,9 x 32,3 x 23 mm	12,9 x 32,3 x 23 mm	12,9 x 32,3 x 23 mm	12,9 x 32,3 x 23 mm
ranges				
diffuse sensors with background suppression	30 ... 200 mm / 30 ... 300 mm			
diffuse sensors with intensity difference				10 ... 400 mm
SmartReflect® Light barriers wihout reflectors			30 ... 300 mm	
Retro-reflective sensors		4 m / 5 m		
response time	< 0,49 ms	< 0,49 ms	< 0,49 ms	< 1 ms
output	push-pull PNP NPN	push-pull PNP NPN	push-pull PNP NPN	push-pull
connection types	cable 2 m connector M8	cable 2 m connector M8	cable 2 m connector M8	cable 2 m connector M8
housing material	plastic (ASA, PMMA)	plastic (ASA, PMMA)	plastic (ASA, PMMA)	plastic (ASA, PMMA)
operating temperature	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features				



O300.RP.T, O300.SP.T

IO-Link

- PinPoint LED
- short response time
- *SmartReflect*®
  Light barriers without reflectors

	12,9 x 32,3 x 23 mm
	30 ... 300 mm
	3 m
	< 0,25 ms
	push-pull
	cable 2 m connector M12
	plastic (ASA, PMMA)
	-25 ... +60 °C
	IP 67

- Sensors for transparent objects
- Adjustable signal attenuation

Photoelectric sensors

Object detection – O500 Series

- Ranges up to 1000 mm
- Easy to operate, reliable and wear-free thanks to *qTeach*®
- Time savings during installation thanks to *qTarget*®
- Long service life and high reliability (excellent MTTF values)

Another Baumer INNOVATION

	 O500.GP, O500.GI, O500.GR IO-Link	 O500.RP, O500.RR IO-Link	 O500.SP IO-Link	 O500.ZR
characteristics	■ Standard LED, Baumer PinPoint LED or Infrared LED ■ small beam diameter	■ Standard LED or PinPoint LED ■ Polarization filter for detection of reflective objects ■ small beam diameter	■ PinPoint LED ■ *SmartReflect*® Light barriers without reflectors	■ Standard LED ■ range 600 mm
dimensions	18 x 45 x 32 mm	18 x 45 x 32 mm	18 x 45 x 32 mm	18 x 45 x 32 mm
ranges				
diffuse sensors with background suppression	60 ... 400 mm / 60 ... 550 mm			
diffuse sensors with intensity difference				20 ... 600 mm
SmartReflect® Light barriers without reflectors			60 ... 600 mm	
Retro-reflective sensors		7,5 m		
response time	< 0,49 ms	< 0,49 ms	< 0,49 ms	< 1 ms
output	push-pull PNP NPN	push-pull PNP NPN	push-pull PNP NPN	push-pull
connection types	cable 2 m connector M12	cable 2 m connector M12	cable 2 m connector M12	cable 2 m connector M12
housing material	plastic (ASA, PMMA)	plastic (ASA, PMMA)	plastic (ASA, PMMA)	plastic (ASA, PMMA)
operating temperature	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features				

O500.RP.T, O500.SP.T

IO-Link

- PinPoint LED
- range
- short response time
- *SmartReflect*®
  Light barriers without reflectors

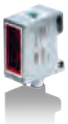
	18 x 45 x 32 mm
	60 ... 1000 mm
	4 m
	< 0,25 ms
	push-pull
	cable 2 m connector M12
	plastic (ASA, PMMA)
	-25 ... +60 °C
	IP 67

- Sensors for transparent objects
- Adjustable signal attenuation

Photoelectric sensors

Object detection – hygienic and washdown design

- Stainless steel housing V4A
- *proTect+* sealing concept
- Ecolab-tested and -certified
- FDA and EHEDG-compliant hygienic design
- Washdown design for challenging environments

	 O300W IO-Link	 O300H IO-Link	 O300W.RP.T, O300W.SP.T IO-Link	 O300H.RP.T, O300H.SP.T IO-Link
characteristics	■ robust washdown design ■ PinPoint LED ■ qTeach ■ small beam diameter	■ Hygienic design ■ PinPoint LED ■ magnetic qteach ■ small beam diameter	■ robust washdown design ■ PinPoint LED ■ qTeach ■ short response time ■ *SmartReflect*® Light barriers without reflectors	■ Hygienic design ■ PinPoint LED ■ magnetic qteach ■ short response time ■ *SmartReflect*® Light barriers without reflectors
dimensions	16,5 x 34,7 x 28,2 mm	16,5 x 34,6 x 28,7 mm	16,5 x 34,7 x 28,2 mm	16,5 x 34,6 x 28,7 mm
ranges				
diffuse sensors with background suppression	30 ... 200 mm	30 ... 200 mm		
SmartReflect® Light barriers without reflectors	30 ... 300 mm	30 ... 300 mm	30 ... 300 mm	30 ... 300 mm
Retro-reflective sensors	5 m	5 m	3 m	3 m
response time	< 0,49 ms	< 0,49 ms	< 0,25 ms	< 0,25 ms
output	push-pull	push-pull	push-pull	push-pull
connection types	connector M12	cable 2 m flylead connector M12	connector M12	cable 2 m flylead connector M12
housing material	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)
operating temperature	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C
protection class	IP 68 / IP 69K & proTect+	IP 68 / IP 69K & proTect+	IP 68 / IP 69K & proTect+	IP 68 / IP 69K & proTect+
specific features	■ Level of sensitivity adjustable by external teach or qTeach input	■ Level of sensitivity adjustable by external teach or magnetic qTeach input	■ Sensors for transparent objects ■ Adjustable signal attenuation via Teach-in or qTeach	■ Sensors for transparent objects ■ Adjustable signal attenuation via Teach-in or magnetic qTeach

	O500W	O500H	O500W.RP.T, O500W.SP.T	O500H.RP.T, O500H.SP.T
				
	IO-Link	IO-Link	IO-Link	IO-Link
	■ robust washdown design ■ PinPoint LED ■ qTeach ■ small beam diameter	■ Hygienic design ■ PinPoint LED ■ magnetic qteach ■ small beam diameter	■ robust washdown design ■ PinPoint LED ■ qTeach ■ range 1000 mm ■ small beam diameter ■ *SmartReflect*® Light barriers	■ Hygienic design ■ PinPoint LED ■ magnetic qteach ■ range 1000 mm ■ short response time ■ *SmartReflect*® Light barriers
	20,2 x 57 x 37,7 mm	20,2 x 124 x 36,4 mm	20,2 x 57 x 37,7 mm	20,2 x 124 x 36,4 mm
	60 ... 400 mm	60 ... 400 mm		
	60 ... 600 mm	60 ... 600 mm	60 ... 1000 mm	60 ... 1000 mm
	7,5 m	7,5 m	5 m	5 m
	< 0,49 ms	< 0,49 ms	< 0,25 ms	< 0,25 ms
	push-pull	push-pull	push-pull	push-pull
	connector M12	cable 2 m flylead connector M12	connector M12	cable 2 m flylead connector M12
	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)
	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C
	IP 68 / IP 69K & proTect+	IP 68 / IP 69K & proTect+	IP 68 / IP 69K & proTect+	IP 68 / IP 69K & proTect+
	■ Adjustable sensitivity using external teach-in input or qTeach™	■ Level of sensitivity adjustable by external teach input or magnetic qteach-in	■ Sensors for transparent objects ■ Adjustable signal attenuation via Teach-in or qTeach	■ Sensors for transparent objects ■ Adjustable signal attenuation via Teach-in or qTeach

Photoelectric sensors

Object detection – hygienic and washdown design

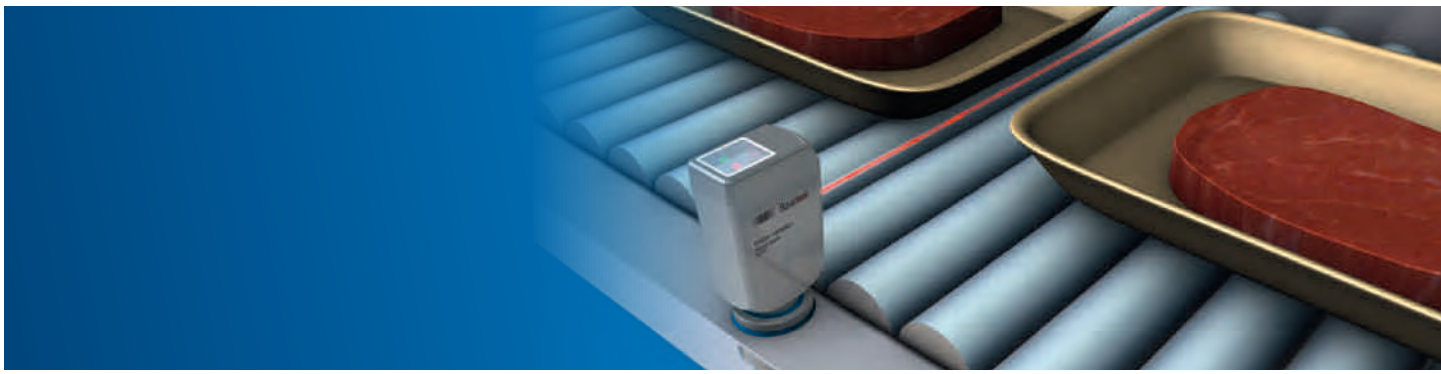
- Stainless steel housing V4A
- *proTect+* sealing concept
- Ecolab-tested and -certified
- FDA and EHEDG-compliant hygienic design
- Washdown design for challenging environments

Another Baumer INNOVATION

FxDR 14
IO-Link

FxDH 14
IO-Link

characteristics	■ Washdown-design ■ PinPoint Source LED	■ Hygienic design ■ PinPoint Source LED
dimensions	19,6 x 62,4 x 33,8 mm	19,6 x 99,5 x 33,6 mm
function principle / ranges		
diffuse sensors with background suppression	50 ... 400 mm	50 ... 400 mm
SmartReflect® Light barriers	50 ... 800 mm	50 ... 800 mm
Retro-reflective sensors	3,5 m	3,5 m
response time	< 1,8 ms	< 1,8 ms
output	push-pull	push-pull
connection types	connector M12	cable 2 m flylead connector M12
housing material	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)
operating temperature	-30 ... +60 °C	-30 ... +60 °C
protection class	IP 68 / IP 69K & proTect+	IP 68 / IP 69K & proTect+
specific features	■ Level of sensitivity adjustable by external teach input	■ Level of sensitivity adjustable by external teach input



FKDR 14, FKDH 14

characteristics	■ Contrast sensor ■ Washdown / hygienic design ■ short response time ■ White light
dimensions	19,6 x 62,4 x 33,8 mm
sensing distance Tw	12,5 mm
response time	50 µs
output	push-pull
connection types	cable 2 m connector M12 flylead connector M12
housing material	stainless steel 1.4404 (V4A)
operating temperature	-25 ... +60 °C
protection class	IP 68 / IP 69K & proTect+
specific features	■ Level of sensitivity adjustable by external teach input

Photoelectric sensors

Fork and angle sensors

- Quick response times up to 0,125 ms
- High repeat accuracy
- Robust metal housing
- Narrow parallel light beam
- Smallest detectable object 0,05 mm
- Different gap widths 20 ... 158 mm
- Output PNP/NPN

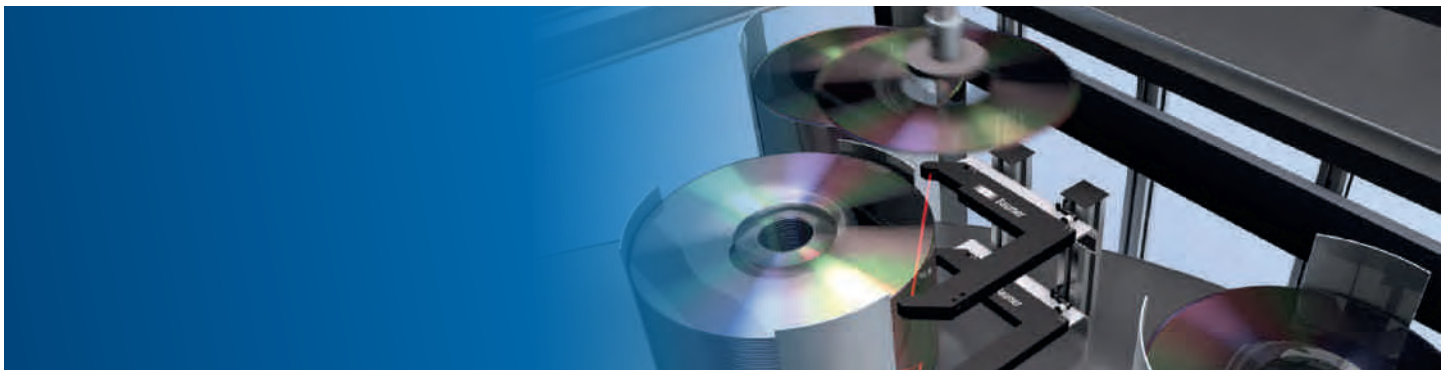
FGUM

FGLM

OGUM

OGUM

	FGUM	FGLM	OGUM	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 high resolution ■ Extremely narrow laser light beam ■ Sensors can be mounted side-by-side ■ Repeatability	■ High resolution ■ Short response time ■ Sensors can be mounted side-by-side
fork widths	20 mm 30 mm 50 mm 80 mm 120 mm	60 mm 100 mm 158 mm	30 mm 50 mm 80 mm 120 mm	30 mm 50 mm 80 mm 120 mm
object size	> 0,3 mm	> 0,5 mm	> 0,05 mm	> 0,1 mm
repeat accuracy	< 0,02 mm	< 0,06 mm	< 0,01 mm	< 0,02 mm
response / release time	< 0,125 ms	< 0,125 ms	< 0,166 ms	< 0,166 ms
connection types	connector M8	connector M8	connector M12	connector M8
housing material	die-cast zinc	die-cast zinc	anodized aluminum	anodized aluminum
operating temperature	-10 ... +60 °C	-10 ... +60 °C	+5 ... +45 °C	+5 ... +45 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features			■ Sensors in laser class 1	■ Sensors in laser class 1



Photoelectric sensors

Plastic fiber optics and fiber optic sensors

- Outstanding variety of fiber optic heads
- Very compact housings
- Level of sensitivity adjustable by Teach-in or potentiometer
- Quick response times up to 0,05 ms
- Adjustable on / off delay
- Master-Slave systems (minimized wiring effort)

Plastic fiber optic

FVDK 10

FWDK 84

FVDK 66

version		Plastic	Plastic	Plastic
characteristics	■ Extremely varied beam geometries: spot, coaxial, focused, line ■ Fiber optics resistant to chemicals ■ High temperature fiber ■ Lateral beam emission	■ Smallest fiber optic sensor ■ Sensitivity adjustable with potentiometer	■ Sensitivity adjustable with potentiometer ■ Analog output	■ Sensitivity adjustable with Teach-in ■ Minimized installation effort (master slave) ■ Logical output linking available (Duplex version) ■ Timer functions
dimensions		10,4 x 27 x 19,5 mm	10 x 29,7 x 60 mm	10 x 33,8 x 70,2 mm
ranges (optical fiber dependent)				
with through beam (max.)		600 mm	90 mm	1500 mm
with reflective (max.)		70 mm	45 mm	130 mm
response time		< 1 ms	1 ... 5 ms	0,25 ... 1 ms
output		NPN PNP	Analog	NPN PNP
connection types		cable 2 m flylead connector M8	cable 2 m	cable 2 m connector M8
housing material		plastic (ASA)	polycarbonate / ABS	polycarbonate / ABS
operating temperature		-25 ... +55 °C	-20 ... +60 °C	-20 ... +55 °C
protection class		IP 40	IP 40	IP 40
additional functions			■ Off delay	■ Alarm output ■ External Teach-in
specific features			■ Version with analog output	■ Master slave

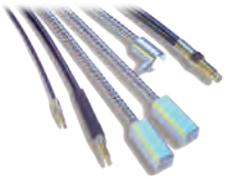
FVDK 67

Plastic fiber
■ Multi-functional device ■ Sensitivity adjustable with Teach-in ■ Minimized installation effort (master slave) ■ Timer functions
10 x 33,8 x 70,2 mm
4000 mm
550 mm
0,05 ... 5 ms
NPN PNP
cable 2 m connector M8
polycarbonate / ABS
-20 ... +55 °C
IP 40
■ Response / release time adjustable ■ Adjustable minimum pulse length
■ Version with 2 switching points ■ Master slave

Photoelectric sensors

Glass fiber optics and fiber optic sensors

- Outstanding variety of fiber optic heads
- Very compact housings
- Level of sensitivity adjustable by Teach-in or potentiometer
- Quick response times up to 0,05 ms
- Adjustable on / off delay
- Master-Slave systems (minimized wiring effort)



Glass fiber optic

FZAM 18

FZAM 30

FVDM 15

version		Glass	Glass	Glass
characteristics	■ Different beam geometries: spot, line ■ Fiber optics with robust metal sheath ■ High temperature fiber ■ Lateral beam emission	■ Sensitivity adjustable with Teach-in or potentiometer ■ Robust metal housing	■ Sensitivity adjustable with Teach-in or potentiometer ■ Robust metal housing ■ For large ranges	■ Sensitivity adjustable with potentiometer ■ Robust metal housing ■ Quick response and release times
dimensions		M18 x 50 mm	M30 x 50 mm	15 x 60 x 45 mm
ranges (optical fiber dependent)				
with through beam (max.)		800 mm	1400 mm	500 mm
with reflective (max.)		150 mm	230 mm	240 mm
response time		< 0,5 ms / < 1 ms	< 0,25 ms / <2,5 ms	< 0,1 ms / <1 ms
output		NPN PNP	NPN PNP	NPN PNP
connection types		cable 2 m connector M12	cable 2 m	cable 2 m connector M12
housing material		brass nickel plated / PC	brass nickel plated	die-cast aluminum
operating temperature		-25 ... +55 °C	0 ... +65 °C	-25 ... +55 °C
protection class		IP 67	IP 65	IP 65
specific features		■ Infrared	■ Fast version ■ Infrared	■ Fast version ■ Infrared

Photoelectric sensors

Laser distance sensors *MESAX*

- High ambient light immunity
- Maximum resolution up to 2 µm
- Suitable for high-speed processes
- Measuring range programmable by Teach-in
- Fully integrated evaluation electronics
- High temperature stability

	 OADM 12 Laser-Point	 OBDM 12 Laser-Point	 OADM 13 Laser-Point, Laser-Line	 OADM 20 Laser-Point, Laser-Line
characteristics	■ Smallest laser distance sensor ■ Adjustable measuring range ■ Highest resolution	■ Difference sensor for sensing steps, changes in distance, distance windows or tolerance ranges	■ Large measuring distance in a small housing ■ Adjustable measuring range	■ Adjustable measuring range
dimensions	12,4 x 37 x 34,5 mm	12,4 x 37 x 34,5 mm	13,4 x 48,2 x 40 mm	20,6 x 65 x 50 mm
measuring distance	16 ... 120 mm	16 ... 120 mm	50 ... 550 mm	30 ... 1000 mm
resolution	2 µm		10 µm	4 µm
response time	< 0,9 ms	< 1 ms	< 0,9 ms	< 0,9 ms
output signal	4 ... 20 mA 0 ... 10 V	PNP NPN	4 ... 20 mA 0 ... 10 V RS 485 / RS 232	4 ... 20 mA 0 ... 10 V RS 485
connection types	connector M8	connector M8	connector M8	connector M12
housing material	die-cast zinc	die-cast zinc	aluminum	die-cast zinc
operating temperature	0 ... +50 °C	0 ... +50 °C	0 ... +50 °C	0 ... +50 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features	■ Suppression of incorrect measuring operations, the last measured value is retained at the output for up to 30 ms	■ Step height, differences, ranges to be evaluated set using Teach-in ■ Teach-in using cabling or button	■ Suppression of incorrect measuring operations, the last measured value is retained at the output for up to 30 ms	■ Alarm output to signalize any incorrect measuring operation or out-of-range object ■ Input for synchronizing measurements ■ Laser diode can be switched on/off

OADM 20 Laser-Point	OADM 21 Laser-Point, Laser-Line	OM 70 multi-spot
■ Increased vibration immunity ■ Increased ambient light immunity 100K lux ■ Suitable for outdoor applications	■ High resolution at large measuring distance ■ Adjustable measuring range	■ Very high resolution ■ Stable measurements even on shiny and very rough surfaces ■ High ambient light immunity
20,6 x 65 x 50 mm	20,4 x 135 x 45 mm	26 x 74 x 55 mm
50 ... 1000 mm	100 ... 1000 mm	100 ... 150 mm
10 µm	10 µm	2 µm
< 2,5 ms	< 5 ms	< 11 ms
4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V RS 485
cable 2 m	connector M12	connector M12
die-cast zinc	aluminum	aluminum
0 ... +50 °C	0 ... +50 °C	-10 ... +50 °C
IP 67	IP 67	IP 67
■ Missing measurement signals or incorrect measurements are suppressed	■ Alarm output to signalize any incorrect measuring operation or out-of-range object ■ Input for synchronizing measurements ■ Laser diode can be switched on/off	■ Sensor settings via touch display ■ Compact measuring unit without external software ■ Values displayed in mm

Laser distance sensors *MESAX*

- Precise distance measuring up to 13 m
- Virtually independent of the object
- Maximum resolution up to 2 µm
- Suitable for high-speed processes
- Measuring range programmable by Teach-in
- Fully integrated evaluation electronics
- High temperature stability

	OADM 250 Time-of-Flight	OADM 260 Time-of-Flight
characteristics	■ High resolution ■ Measurement up to 4 m independent of colors ■ Alarm output ■ Adjustable measuring range	■ Large measuring range up to 13 m ■ Alarm output ■ Adjustable measuring range
dimensions	25,4 x 66 x 51 mm	25,4 x 66 x 51 mm
measuring distance	0,5 ... 4 m	0,5 ... 13 m
resolution	1,2 mm	5 mm
response time	< 10 ms	< 10 ms
output signal	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V
connection types	connector M12	connector M12
housing material	aluminum	aluminum
operating temperature	-25 ... +50 °C	-25 ... +50 °C
protection class	IP 67	IP 67
specific features	■ Alarm output to signalize any incorrect measuring operation or out-of-range object	■ Alarm output to signalize any incorrect measuring operation or out-of-range object

Distance measuring – hygienic and washdown design

- Stainless steel housing V4A
- *proTect+* sealing concept
- Ecolab-tested and -certified
- EHEDG-compliant
- FDA-compliant materials
- Washdown design for wet zone applications
- FDA and EHEDG-compliant hygienic design

Another Baumer INNOVATION

FADR 14
IO-Link

FADH 14
IO-Link

OADR 20
MESAX

	FADR 14 IO-Link	FADH 14 IO-Link	OADR 20 *MESAX*
characteristics	■ Washdown design ■ Adjustable measuring range ■ Point source LED	■ Hygienic design ■ Adjustable measuring range ■ Point source LED	■ Washdown design ■ Adjustable measuring range ■ Laser beam
dimensions	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
sensing 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
connection types	connector M12	cable 2 m flylead connector M12	connector M12
housing material	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)
operating temperature	0 ... +50 °C	0 ... +50 °C	0 ... +50 °C
protection class	IP 68 / IP 69K & proTect+	IP 68 / IP 69K & proTect+	IP 68 / IP 69K & proTect+
specific features	■ Alarm output to signalize any incorrect measuring operation or out-of-range object ■ Service status indicator when soiled	■ Alarm output to signalize any incorrect measuring operation or out-of-range object ■ Service status indicator when soiled	■ Alarm output to signalize any incorrect measuring operation or out-of-range object ■ Input for synchronizing measurements ■ Laser diode can be switched on/off

Photoelectric sensors

Light-section sensors *PosCon*

- Factory-calibrated
- Complex functions integrated in one compact sensor
- Uniform and simple operating principle
- Measured values displayed in millimeter
- No external software required

OXE7.E25T
PosCon 3D

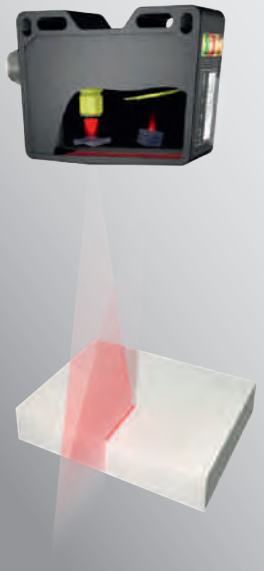
OXH7
PosCon HM

characteristics	■ Measurement of edge position, object width, gap width and object center positions ■ Flexible installation ■ Operation without reflector ■ Visible Class 1 laser line	■ Measures maximum, minimum and average height of objects ■ Measures delta height and standard deviation for all height information
dimensions	26 x 74 x 55 mm	26 x 74 x 55 mm
measuring distance to object	150 ... 250 mm	100 ... 150 mm
measuring field size	75 ... 125 mm	48 ... 72 mm
resolution	30 ... 50 µm	2 µm
smallest object recognizable	1,5 mm	0,7 ... 1,1 mm
response time	< 6,5 ms measurement with reduced field of view	< 11 ms measurement with reduced field of view
output	4 ... 20 mA 0 ... 10 VDC RS 485	4 ... 20 mA 0 ... 10 VDC RS 485
connection types	connector M12	connector M12
housing material	aluminum	aluminum
operating temperature	-20 ... +50 °C	-10 ... +50 °C
protection class	IP 67	IP 67
functions	■ alarm output ■ up to 2 adjustable thresholds	■ alarm output ■ adjustable measuring field ■ adjustable thresholds
specific features	■ Distance-independent measurement of edge positions ■ Touch display ■ Measurement result display in mm	■ Touch display ■ Measurement result display in mm ■ Clever height measurement by linking the key data

The operating principle

The *PosCon HM* is based on the 3D light section principle. According to this, the projected laser line is reflected by the surface and projected onto a two-dimensional optical receiver in a triangulation process. The specially developed multiple lens system ensures the required optical mapping quality.

Different height figures are thus reliably obtained with the help of clever algorithms and powerful coordinate transformation functions. In the measurement mode in question, the measured result can be compared with configurable limit values, and is available in binary form at the switching output. Or the measured value can be output directly in mm on the display or at the interface.



Photoelectric sensors

Edge sensors

- 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

ZADM 034P

ZADM 034I

ZADM 034I

ZADM 023

	ZADM 034P	ZADM 034I	ZADM 034I	ZADM 023
characteristics	■ Detecting small parts ■ Quick response time ■ Parallel light beams	■ Measurement of edgs positions and object widths ■ Quick response time ■ Parallel light beams	■ Measurement of edgs positions and object widths ■ Quick response time ■ Parallel light beams ■ For large distances	■ Measurement of edge positions, object widths and object center positions ■ Integrated filter for detecting transparent objects ■ Interface: RS 485
dimensions	34 x 67 x 16,5 mm	34 x 67 x 16,5 mm	34 x 67 x 16,5 mm	22,9 x 50 x 50 mm
measuring distance to object	0 ... 40 mm	0 ... 40 mm	0 ... 200 mm	50 ... 1400 mm
measuring field size	24 mm	24 mm	22 mm	30 ... 875 mm
resolution	< 0,1 mm	< 0,05 mm	< 0,2 mm	< 0,03 mm
smallest object recognizable	0,5 mm	1 mm	3 mm	0,3 mm
response time	< 0,25 ms	< 0,6 ms	< 0,9 ms	< 2 ms
output	PNP	4 ... 20 mA	4 ... 20 mA	4 ... 20 mA
connection types	connector M8	connector M8	connector M8	connector M12
housing material	aluminum	aluminum	aluminum	die-cast zinc
operating temperature	0 ... +55 °C	0 ... +55 °C	0 ... +55 °C	0 ... +55 °C
protection class	IP 67	IP 67	IP 67	IP 67
functions	■ minimum detectable object size can be set using Teach-in			■ alarm output ■ up to 2 adjustable thresholds
specific features	■ lateral or front optics	■ lateral or front optics	■ lateral or front optics	

Copy counters *SCATEC*

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

	SCATEC-J	*SCATEC-2*	*SCATEC-10*	*SCATEC-15*
				
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 suppress-ion ■ Adjustable output pulse length	■ Integrated copy counters ■ CAN interface ■ *ScaDiag* diagnostic and programming software available ■ Trailing edge suppres-sion ■ Adjustable output pulse length
dimensions	33 x 110 x 50 mm	33 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
connection types	connector M12	connector M12	DIN 45322 (main connector) DIN 45326 (interface)	DIN 45322 (main connector) DIN 45326 (interface)
housing material	PA 6	PA 6	die-cast zinc	die-cast zinc
operating temperature	0 ... +50 °C	0 ... +50 °C	0 ... +50 °C	0 ... +50 °C
protection class	IP 54	IP 54	IP 54	IP 54
specific features		■ Opto isolated output ■ Version for copy counting on conveying chains	■ Opto isolated output	■ Opto isolated output

Photoelectric sensors

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 for leak monitoring
- Fiber optic versions (FOC / FSL)
- Output PNP/NPN

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/ hose ■ For pipe diameters of 3 ... 7 mm / 8 ... 13 mm
dimensions	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
connection types	cable 2 m	cable 2 m	cable 2 m	cable 2 m
material (sensing device)	polysulphone	glass (borosilicate)	PFA	
housing material	polysulphone	stainless steel DIN 1.4305/ AISI 303	PFA / PVC	PC
operating temperature	0 ... +65 °C	0 ... +65 °C	-25 ... +50 °C	-10 ... +50 °C
protection class	IP 67	IP 67	IP 67	IP 50
specific features				

FUL

functions	Liquid level sensor
characteristics	■ Fiber optic level sensor ■ Special sensor tip prevents drop formation ■ High chemical resistance
dimensions (fiber optic cable)	2 / 5 m
min. bending radius	15 mm
tensile strength	5 N
material (head)	PFA
material (cable jacket)	PFA (chemically resistant)
operating temperature	-30 ... +105 °C
specific features	

Photoelectric sensors

Contrast sensor

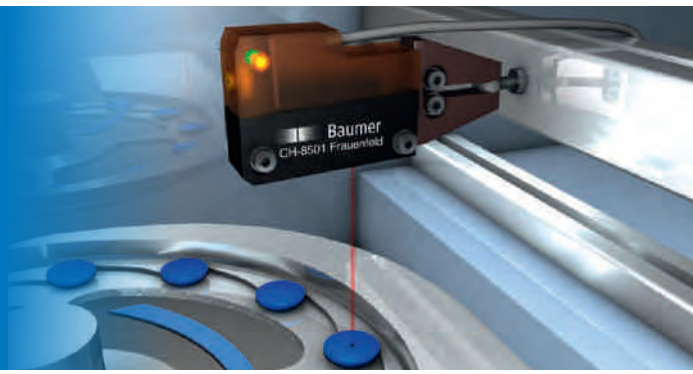
- Basic print mark recognition
- Compact size

FKDK 14

characteristics	■ Contrast sensor ■ White light ■ Small differences in contrast detectable ■ Adjustable during process
dimension	14,8 x 43 x 31 mm
sensing distance Tw	12,5 mm
response time	50 µs
size of measuring spot	1 mm x 2,2 mm
output	push-pull
connection types	cable 2 m connector M12 connector M8
housing material	plastic (ASA, MABS)
operating temperature	-25 ... +65 °C
protection class	IP 67
specific features	

Color sensor *LOGIPAL*

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



	FKDM 22 *LOGIPAL*
characteristics	■ Can differentiate 4 finely nuanced colors ■ Robust metal housing ■ Adjustable color tolerance
dimension	22,9 x 50 x 50 mm / 22,9 x 50 x 68,7 mm
sensing distance Tw	40 mm / 25 mm
response / release time	< 0,34 ms
size of measuring spot	3 mm x 5 mm / 0,7 mm x 1,3 mm
output	PNP NPN
connection types	connector M12 connector M8
housing material	die-cast zinc
operating temperature	-10 ... +55 °C
protection class	IP 67
specific features	

Photoelectric sensors

Vision sensors *VeriSens*®

- **User-friendly**
  - Intuitive user interface – simplified setup within 4 steps
  - Fully integrated flash controller *VeriFlash*® for external illumination and *Color FEX*® 3D color assistant (XC series)
- **Powerful**
  - Reliable 360° recognition for part location powered by *FEXLoc*® technology
  - C-mount design with resolutions up to 2 MP
- **Reliable**
  - Protection class IP 67 / IP 69K and rugged metal housing
  - Secure operation with user levels and password protection

VeriSens® **ID-100**

VeriSens® **ID-110**

VeriSens® **CS-100**

VeriSens® **XF-100**

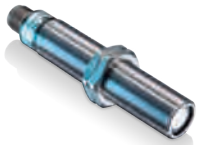
characteristics	■ Multi-code reader for 1D and 2D codes ■ Determines quality according to ISO / AIM	■ Multi reader for text and 1D/2D codes (incl. GS1) ■ Reads different fonts without font training ■ Verifies text (OCR/OCV), quality control of codes	■ Presence and completeness check ■ Part recognition and part sorting ■ Checking part geometries	■ Presence and completeness check ■ Acquisition of part location and correct position ■ Process interface
dimensions	53 × 99,5 × 38 mm	53 × 99,5 × 38 mm	53 × 99,5 × 38 mm	53 × 99,5 × 38 mm
protection class	IP 67	IP 67	IP 67	IP 67
resolution	752 × 480 pixel	752 × 480 pixel	752 × 480 pixel	752 × 480 pixel
objectif	10 mm / 16 mm	10 mm	10 mm / 16 mm	10 mm / 16 mm
illumination	white	white / infrared	white / infrared	white / infrared
field of view (min.)	17,7 × 11,3 mm	26,4 × 16,9 mm	17,7 × 11,3 mm	17,7 × 11,3 mm
speed	max. 50 inspections / sec.	max. 50 inspections / sec.	max. 50 inspections / sec.	max. 100 inspections / sec.
communication: digital inputs digital outputs setup process interface	 5 3 - 5 Ethernet TCP/UDP (Ethernet), RS485, PROFINET/EtherNet/IP™ (via gateway)	 5 3 - 5 Ethernet TCP/UDP (Ethernet), RS485, PROFINET/EtherNet/IP™ (via gateway)	 5 5 Ethernet	 5 3 - 5 Ethernet TCP/UDP (Ethernet), RS485, PROFINET/EtherNet/IP™ (via gateway)
functions	■ Barcode: e.g. Code 128, EAN 13, UPC, 2/5, GS1 128 ■ Matrix code: DataMatrix (GS1), QR, PDF 417 ■ Password protection	■ Any font style, even Dot Matrix ■ Barcode: e.g. Code 128, EAN 13, UPC, 2/5, GS1 128 ■ Matrix code: DataMatrix (GS 1), QR, PDF 417 ■ Password protection	■ 360° part location ■ Geometry: distance, circle ■ Feature comparison: count contour points, contour comparison, brightness	■ 360° part location ■ Geometry: 6 functions ■ Feature comparison: 7 functions ■ Coordinate conversion ■ Password protection

	VeriSens® XF-200	*VeriSens*® XC-100, also color*	*VeriSens*® XC-200, also color*	*VeriSens*® XC-105	*VeriSens*® XC-205
					
	■ 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 ■ Special color functions	■ Presence and completeness check ■ Acquisition of part location and correct position ■ Identification ■ Process interface ■ Special color functions	■ 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 × 99,5 × 38 mm	53 × 99,5 × 49,8 mm	53 × 99,5 × 49,8 mm	53 × 107,5 × 38 mm	53 × 107,5 × 38 mm
	IP 67	IP 67	IP 67	IP 69K	IP 69K
	752 × 480 pixel	640 × 480 pixel (1/4″)* 1280 × 960 pixel (1/3″)* 1600 × 1200 pixel (1/1.8″)	640 × 480 pixel (1/4″)* 1280 × 960 pixel (1/3″)* 1600 × 1200 pixel (1/1.8″)	752 × 480 pixel	752 × 480 pixel
	10 mm / 16 mm	changeable lens (C-mount)	changeable lens (C-mount)	10 mm / 16 mm	10 mm / 16 mm
	white / infrared	flash controller	flash controller	white / infrared	white / infrared
	17,7 × 11,3 mm	depending on the lens	depending on the lens	17,7 × 11,3 mm	17,7 × 11,3 mm
	max. 100 inspections / sec.	max. 100 inspections / sec.	max. 100 inspections / sec.	max. 100 inspections / sec.	max. 100 inspections / sec.
	5 3 - 5 Ethernet TCP/UDP (Ethernet), RS485, PROFINET/EtherNet/IP™ (via gateway)	5 3 - 5 Ethernet TCP/UDP (Ethernet), RS485, PROFINET/EtherNet/IP™ (via gateway)	5 3 - 5 Ethernet TCP/UDP (Ethernet), RS485, PROFINET/EtherNet/IP™ (via gateway)	5 3 - 5 Ethernet TCP/UDP (Ethernet)	5 3 - 5 Ethernet TCP/UDP (Ethernet)
	■ 360° part location ■ Geometry: 6 functions ■ Feature comparison: 7 functions ■ Identification: Barcode, Matrix code, Text ■ Coordinate conversion ■ Password protection	■ Integrated flash controller for external illuminaton ■ 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 ■ Same functionality as XF-100 or color feature checks	■ Integrated flash controller for external illuminaton ■ 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 ■ Same functionality as XF-200 or color feature checks	■ 360° part location ■ Geometry: 6 functions ■ Feature comparison: 7 functions ■ Coordinate conversion ■ Password protection	■ 360° part location ■ Geometry: 6 functions ■ Feature comparison: 7 functions ■ Identification: Barcode, Matrix code, Text ■ Coordinate conversion ■ Password protection

Ultrasonic sensors

Object detection – cylindrical

- Sensing range up to 6000 mm
- Reliable detection of high-reflective and transparent objects
- Tolerant of dust and dirt
- Versions with two separate switching outputs
- Adjustable reaction times ton/toff for through beam sensors

	 UNAM 12 with columnator	 UxAM 12 Highspeed	 UNAM 18, UxAR 18	 UR18
characteristics	■ Beam columnator (2 II) for very narrow sonic cone profile ■ Narrow and wide sonic beam angles ■ External Teach-in ■ M12 connector	■ Fastest ultrasonic sensor ■ External Teach-in	■ Stainless steel housing V4A ■ Chemically resistant sensor front ■ FDA-compliant materials ■ Internal and external Teach-in ■ M12 connector	■ *qTeach* – easy to operate, safe and wear-free ■ Short design
dimensions	M12 x 1	M12 x 1	M18 x 1	M18 x 1
sensing range Sd / sensor principle				
proximity switch	5 ... 400 mm	0 ... 70 mm	60 ... 1000 mm	100 ... 1000 mm
2 point proximity switch				
retro-reflective sensors		0 ... 70 mm	0 ... 400 mm	0 ... 1000 mm
through beam sensors				
response time	< 10 ms	< 1,3 ms	< 50 ms	< 50 ms
output	NPN PNP	NPN PNP	NPN PNP	push-pull
connection types	connector M12	connector M12	connector M12	connector M12
housing material	brass nickel plated	brass nickel plated	brass nickel plated stainless steel 1.4435 (V4A)	brass nickel plated
operating temperature	-10 ... +60 °C	-10 ... +60 °C	-10 ... +60 °C	-25 ... +70 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features		■ version with and without beam columnator	■ sensors with MUX and Sync input	■ window teach function ■ reflector position tolerance selectable from ±2,5% to ±10%

UxAM 30	UxAM 50	UZAM 70
■ Internal and external Teach-in ■ Cable and connector versions ■ Potentiometer versions	■ Large sensing range ■ Internal and external Teach-in ■ Cable and connector versions ■ Potentiometer version	■ Large sensing range ■ Internal and external Teach-in ■ M12 connector
M30 x 1,5	M30 x 1,5	M30 x 1,5
200 ... 1500 mm	350 ... 2500 mm	
100 ... 1000 mm	350 ... 2500 mm	600 ... 6000 mm
	0 ... 3000 mm	
< 100 ms	< 160 ms	< 640 ms
NPN PNP	NPN PNP	NPN PNP
connector M12 cable 2 m	connector M12 cable 2 m	connector M12
brass nickel plated	brass nickel plated	brass nickel plated
-10 ... +60 °C	-10 ... +60 °C	-25 ... +60 °C
IP 67	IP 67	IP 67
■ sensors with two separate outputs	■ sensors with MUX and Sync input ■ sensors with two separate outputs	■ sensors with two separate outputs

Ultrasonic sensors

Object detection – rectangular

- Sensing range up to 2000 mm
- Reliable detection of high-reflective and transparent objects
- Tolerant of dust and dirt
- Versions with two separate switching outputs
- Adjustable reaction times ton/toff for through beam sensors

UNxK 09
IO-Link

UNDK 10
SONUS

UNDK 20

UNDK 30

	UNxK 09	UNDK 10	UNDK 20	UNDK 30
characteristics	■ High resolution ■ Minimal blind region ■ RS 232 ■ Various mounting options ■ Very flat housing ■ Beam columnator for detection in openings of up to 3 mm	■ Smallst ultrasonic sensor ■ Internal and external Teach-in ■ Very low weight: 4 g ■ Narrow sonic beam angles ■ Cable and connector versions	■ Flat housing ■ Internal and external Teach-in ■ Narrow and wide sonic beam angles ■ M8 connector	■ Compact design ■ Large sensing range ■ Internal Teach-in ■ Potentiometer version ■ Narrow and wide sonic beam angles ■ Cable and connector versions
dimensions	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 / sensor principle				
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 time	< 7 ms	< 15 ms	< 10 ms	< 10 ms
output	push-pull RS 232	NPN PNP	NPN PNP	NPN PNP
connection types	cable 2 m flylead connector M8	connector M8 cable 2 m flylead connector M8	connector M8	connector M12 cable 2 m
housing material	PA 12	plastic (ASA)	polyester	polyester / die-cast zinc
operating temperature	0 ... +60 °C	-10 ... +60 °C	-10 ... +60 °C	-10 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features	■ with or w/o beam columnator ■ cascadable in 9 mm grid	■ wide range of accessories and installation options	■ sensor with adjustable ton/toff ■ optional sonic deflection bracket	■ sensors with MUX and Sync input ■ sensors with two separate outputs

U500

- *OneBoxDesign* – flexibility in planning
- *qTarget* – time savings during installation
- *qTeach* – easy to operate, safe and wear-free
- Cable and connector versions

18 x 45,1 x 32,2 mm

100 ... 1000 mm

0 ... 1000 mm

< 50 ms

push-pull

connector M12
cable 2 m

plastic (ASA, PMMA)

-25 ... +65 °C

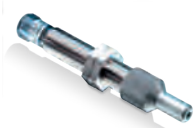
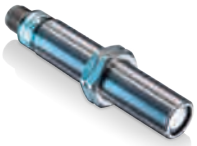
IP 67

- window teach function
- reflector position tolerance selectable from ±2,5% to ±10%

Ultrasonic sensors

Distance measuring – cylindrical

- Measuring range up to 6000 mm
- Individual measuring range adjustable
- Reliable detection of high-reflective and high-transparent objects
- Tolerant of dust and dirt
- For level measurement in liquids, granulates and pasty media
- Narrow and wide sonic beam angles

	 UNAM 12	 UNAM 12 with beam columnator	 UNAM 18, UNAR 18	 UR18
characteristics	■ Narrow and wide sonic beam angles ■ External Teach-in ■ M12 connector	■ External Teach-in ■ M12 connector ■ Beam columnator for very narrow sonic cone profile	■ Stainless steel housing V4A ■ Chemically resistant sensor front ■ FDA-compliant materials ■ Internal and external Teach-in ■ M12 connector	■ *qTeach* – easy to operate, safe and wear-free ■ Short design
dimensions	M12 x 1	M12 x 1	M18 x 1	M18 x 1
measuring distance	20 ... 400 mm	2 ... 82 mm	60 ... 1000 mm	100 ... 1000 mm
resolution	< 0,3 mm	< 0,3 mm	< 0,3 mm	< 0,3 mm
response time	< 30 ms	< 30 ms	< 60 ms	< 80 ms
output	0 ... 10 mA / 10 ... 0 mA 0 ... 10 V / 10 ... 0 V	0 ... 10 mA / 10 ... 0 mA 0 ... 10 V / 10 ... 0 V	4 ... 20 mA / 20 ... 4 mA 0 ... 10 V / 10 ... 0 V	4 ... 20 mA / 20 ... 4 mA 0 ... 10 V / 10 ... 0 V
connection types	connector M12	connector M12	connector M12	connector M12
housing material	brass nickel plated	brass nickel plated	brass nickel plated stainless steel 1.4435 (V4A)	brass nickel plated
operating temperature	-10 ... +60 °C	-10 ... +60 °C	-10 ... +60 °C	-25 ... +70 °C (+60 °C in current mode)
protection class	IP 67	IP 67	IP 67	IP 67
specific features	■ with or w/o beam columnator		■ optional sonic deflection bracket	

UNAM 30

UNAM 50

UNAM 70

■ Internal and external Teach-in ■ Cable and connector versions ■ Potentiometer versions	■ Large sensing range ■ Internal and external Teach-in ■ Cable and connector versions ■ Potentiometer versions	■ Large sensing range ■ Internal and external Teach-in ■ M12 connector
M30 x 1,5	M30 x 1,5	M30 x 1,5
100 ... 1000 mm	400 ... 2500 mm	600 ... 6000 mm
< 0,3 mm	< 0,3 mm	< 2 mm
< 80 ms	< 160 ms	< 640 ms
4 ... 20 mA / 20 ... 4 mA 0 ... 10 V / 10 ... 0 V	4 ... 20 mA / 20 ... 4 mA 0 ... 10 V / 10 ... 0 V	4 ... 20 mA / 20 ... 4 mA 0 ... 10 V / 10 ... 0 V
connector M12 cable 2 m	connector M12 cable 2 m	connector M12
brass nickel plated	brass nickel plated	brass nickel plated
-10 ... +60 °C	-10 ... +60 °C	-25 ... +60 °C
IP 67	IP 67	IP 67

Ultrasonic sensors

Distance measuring – rectangular

- Measuring range up to 2000 mm
- Individual measuring range adjustable
- Reliable detection of high-reflective and transparent objects
- Tolerant of dust and dirt
- For level measurement in liquids, granulates and pasty media
- Narrow and wide sonic beam angles

UNxK 09
IO-Link

UNDK 10
SONUS

UNDK 20

UNDK 30

	UNxK 09	UNDK 10	UNDK 20	UNDK 30
characteristics	■ High resolution ■ Minimal blind region ■ RS 232 ■ Various mounting options ■ Flat housing ■ Narrow sonic beam angle for detection in openings of up to 3 mm	■ Smallest ultrasonic sensor ■ Internal and external Teach-in ■ Very low weight: 4 g ■ Narrow sonic beam angle ■ Cable and flylead connector versions	■ Flat type ■ Internal and external Teach-in ■ Narrow and wide sonic beam angles ■ M8 connector	■ Compact type ■ Large sensing range ■ Teach-in on the sensor ■ Potentiometer version ■ Narrow and wide sonic beam angles ■ Cable and connector versions
dimensions	8,6 x 48,8 x 57,5 mm	10,4 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 / 10 ... 0 V RS 232	0 ... 10 V / 10 ... 0 V	4 ... 20 mA / 20 ... 4 mA 0 ... 10 V / 10 ... 0 V	4 ... 20 mA / 20 ... 4 mA 0 ... 10 V / 10 ... 0 V
connection types	cable 2 m flylead connector M8	connector M8 cable 2 m flylead connector M8	connector M8	connector M12 cable 2 m
housing material	PA 12	plastic (ASA)	polyester	polyester / die-cast zinc
operating temperature	0 ... +60 °C	-10 ... +60 °C	-10 ... +60 °C	-10 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features	■ with or w/o beam columnator ■ cascadable in 9 mm grid	■ wide range of accessories and installation options	■ optional sonic deflection bracket	

U500

- *OneBoxDesign* – flexibility in planning
- *qTarget* – time savings during installation
- *qTeach* – Easy to operate, safe and wear-free
- Cable and connector versions

18 x 45,1 x 32,2 mm

100 ... 1000 mm

< 0,3 mm

< 80 ms

4 ... 20 mA / 20 ... 4 mA
0 ... 10 V / 10 ... 0 V

connector M12
cable 2 m

plastic (ASA, PMMA)

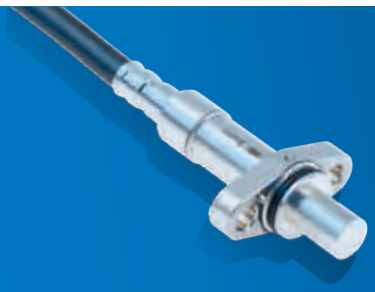
-25 ... +65 °C
(+60 °C in current mode)

IP 67

- wide range of accessories and installation options

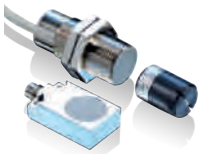
Speed, angle and position sensors

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



MHRM 12 / 18

MTRM 16 / MTR



MDRM 18, MDFM 20

MFRM 08, MFFM 08

function	hall sensors	hall sensors	magnetic angle sensors	magnetic proximity switches
characteristics	■ Detects gears and racks ■ Single and dual channel versions ■ Sealed metal housing ■ Operating temperature range -40 ... +120 °C	■ Detection of rpm speed and rotational direction of gear wheels ■ Completely sealed metal housing ■ Compliant to stringent railway standards ■ Operating temperature range -40 ... +120 °C	■ Can be used as an electronic potentiometer ■ Absolute position feedback to 360° of rotation ■ Cylindrical and rectangular designs	■ Acquisition of magnet location ■ Large sensing range ■ Object detection through container walls possible
dimensions	M12 x 1 M18 x 1	ø 16 mm	M18 x 1 20 x 30 x 8 mm	M8 x 1 8 x 30 x 8 mm
working distance max.	2 mm	2,5 mm	2 mm	60 mm
switching frequency / response time	< 20 kHz	< 20 kHz	4 ms	< 5 kHz
resolution	starting from module 1	module 1 to 3	0,09°	< 0,5 mm
output	push-pull	push-pull	analog current or voltage output	PNP NPN
connection types	cable 2 m connector M12	cable 2 m	cable 2 m connector M12 flylead connector M8	cable 2 m
housing material	brass nickel plated stainless steel	brass nickel plated stainless steel 1.4404	brass nickel plated	brass nickel plated stainless steel
operating temperature	-40 ... +120 °C	-40 ... +120 °C	-40 ... +85 °C	-25 ... +75 °C
protection class	IP 67 (sensor) IP 68 (sensing face)	IP 68 / IP 69K	IP 67	IP 67
specific features		■ Standard compliance: EN 501555 EN 61373 (cat. 3) EN 45545	■ suitable magnets available as an accessory	■ suitable magnets available as an accessory

Cylinder position sensors

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

	 MZCK 03x1011 MZCK 03x1012	 MZTK 06x1011 MZTK 06x1012	 MZTK 06x1013
function	magnetic proximity switches	magnetic proximity switches	magnetic proximity switches
characteristics	■ For C slot cylinders ■ Detecting piston positions ■ Acquisition of magnet location	■ For T slot cylinders ■ Detecting piston positions ■ Acquisition of magnet location	■ For T slot cylinders ■ Detecting piston positions ■ Acquisition of magnet location
dimensions	3,7 x 23 x 4,6 mm 3,7 x 19,5 x 9 mm	6,2 x 31 x 4,3 mm 6,5 x 21 x 9,4 mm	6,2 x 31,5 x 4,5 mm
nominal operation point	4 mT	4 mT 2 mT	4 mT
switching frequency	200 kHz	200 kHz	200 kHz
voltage supply range +Vs	6 ... 30 VDC	6 ... 30 VDC	6 ... 30 VDC
output	PNP NPN	PNP NPN	PNP NPN
connection types	cable 2,5 m flylead connector M8	cable 2,5 m flylead connector M8	cable 2,5 m flylead connector M8
housing material	PA 66	PA 66	PA 66
operating temperature	-10 ... +70 °C	-10 ... +70 °C	-10 ... +70 °C
protection class	IP 67	IP 67	IP 67
specific features	■ short housing version ■ accessories for mounting on all available cylinders ■ Oil and marine environment resistant	■ short housing version ■ accessories for mounting on all available cylinders ■ Oil and marine environment resistant	■ can be installed from above in the slot ■ accessories for mounting on all available cylinders ■ Oil and marine environment resistant

Mechanical precision switches

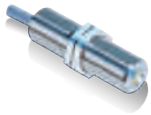
My-Com precision switches

- ±1 µm 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 A	 MY-COM B	 MY-COM C	 MY-COM D
characteristics	■ Brass housing ■ Conical housing front ■ M8 fine pitch thread	■ Brass housing ■ Flat housing front ■ M8 fine pitch thread	■ Flat brass housing ■ 2-hole mounting	■ Robust burnished brass housing ■ Spherical metal tip ■ Protection class IP 67 ■ Lateral approach possible to 30°
dimensions	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)
connection types	cable 0,8 m connector M8	cable 0,8 m connector S30	cable 0,8 m connector M8	cable 0,8 m connector M8
activating pin	zirconium oxide ZrO2	zirconium oxide ZrO2	zirconium oxide ZrO2	hardened steel
housing material	brass nickel plated	brass nickel plated	brass nickel plated	burnished brass
operating temperature	-20 ... +75 °C	-20 ... +75 °C	-20 ... +75 °C	-20 ... +75 °C
protection class	IP 50	IP 50	IP 50	IP 67

MY-COM E

- Brass housing
- M6 fine pitch thread
- Spherical hard metal tip
- Lateral approach possible to 30°



MY-COM F
MY-COM G

- Brass housing
- Long M8 fine pitch thread

MY-COM H
MY-COM L

- Brass housing
- M8 fine pitch thread
- Spherical ruby tip
- Protection class IP 67

MY-COM M

- 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 µm	< 1 µm	< 1 µm	< 1 µm
NC (mechanical) NO (PNP/NPN)	NC (mechanical) NO (PNP/NPN)	NC (mechanical) NO (PNP/NPN)	NC (mechanical) NO (PNP/NPN)
cable 0,8 m	cable 0,8 m connector M8	cable 0,8 m connector M8	cable 0,8 m connector M8
hardened steel	zirconium oxide ZrO2	ruby	zirconium oxide ZrO2
brass nickel plated	brass nickel plated	brass nickel plated	brass nickel plated
-20 ... +75 °C	-20 ... +75 °C	-20 ... +75 °C	-20 ... +75 °C
IP 50	IP 50	IP 67	IP 67

Complete accessories under: www.baumer.com




Cables & adapters

	Cable socket unassembled	Cable socket	Male connector	Connecting cables
characteristics	■ M8 and M12 ■ Straight or angled ■ 3-, 4- and 5-pole versions	■ M5, M8, M9, M12 or 8 mm snap-in ■ 3- or 12-pole versions ■ Straight or angled ■ Screened or unscreened ■ Various sheath materials ■ Various lengths available up to 25 m	■ M8 ■ 3-pole versions ■ Straight ■ PUR sheath ■ Various lengths available up to 3 m	■ M8 or M12 ■ 3- or 4-pole versions ■ Straight or angled ■ PUR sheath ■ Various lengths available up to 10 m




Mounting accessories

	Mounting kits	Mounting bracket	Mounting bracket	Bracket for profiles
characteristics	■ Sensofix Mounting sets ■ Robust metal version ■ Mounting sets for various sensor types ■ Easy, flexible alignment	■ Matching mounting brackets available for various sensor types ■ High quality metal ■ Compatible with flexible Sensofix	■ Easy, fast mounting of smooth and cylindrical sensors ■ Available from ø 6,5 mm to ø 20 mm	■ Mounting adapter for diverse sensor types ■ e.g. for mounting in profiles, slots, cylinders, etc.

Complete accessories under: www.baumer.com

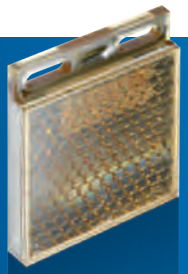
Testing and parameterization

characteristics	Sensor test equipment	Teach-in Adapter	USB-IO-Link Master IO-Link
	■ Display (V or mA) or. LED (PNP/NPN) reading ■ Sensor programming using integrated teach key ■ Connection option for plug-in power supply (available as accessory)	■ Sensor programming with teach-in pin ■ Teach-in using key ■ For sensors with M12 connection	■ Teach-in, parameterization and operation of IO-Link capable sensors

Network components

characteristics	AS-i	Converter/ Signal converter
	■ Input/output modules ■ Models for control cabinet installation ■ Extra-compact miniature modules ■ Various numbers of inputs and outputs ■ S-slave or A/B slave types ■ Various AS interface accessories such as cables, masters or branches	■ Analog-digital converter with 3 teachable digital outputs ■ PNP/NPN signal converter

Accessories



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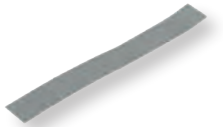
Reflectors
Lenses
Apertures
Glass

Reflectors



Reflective tapes

Apertures

Glass covers
Filter
Lens

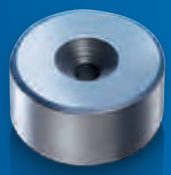
characteristics	■ Self-adhesive or screw-mount reflectors ■ Circular or rectangular ■ All-metal reflectors ■ Ecolab certified types, resistant to cleaning agents	■ Self-adhesive tapes ■ Various widths and lengths	■ Apertures for various sensor types	■ For various sensor types

Beam columnators and deflector (Ultrasonic)

Beam columnators

Beam deflectors

characteristics	■ Replacement nozzles for sensors with sonic nozzles	■ Ideal for cramped spaces ■ Bends the sound 90°



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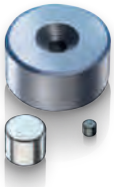

Magnets	Cylindrical magnets	Rectangular magnets and rotors
characteristics	■ For all magnetic proximity switches ■ Magnets in various sizes and strengths ■ Magnetization along the cylinder axis ■ For ambient temperatures up to +180 °C	■ For magnetic rotary encoders ■ Magnets available individually or integrated in the rotor ■ Magnetization throughout the depth ■ For ambient temperatures up to +180 °C

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