Baumer
Passion for Sensors

Innovative Sensor Solutions

Product overview

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 2400 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

Object detection

Sensors, proximity switches and light barriers for object and position detection.

Inductive proximity switches

The proven solution for safe, non-contact detection of metal objects

Capacitive sensors

Proximity switch for non-contact detection of liquid as well as solid objects and bulk solids

Light barriers and light sensors

Unique reliable object detection and positioning with Baumer optical sensors

Fiber optic sensors and fiber optic cables

Always close to the action – detecting tiny objects in cramped or inaccessible places

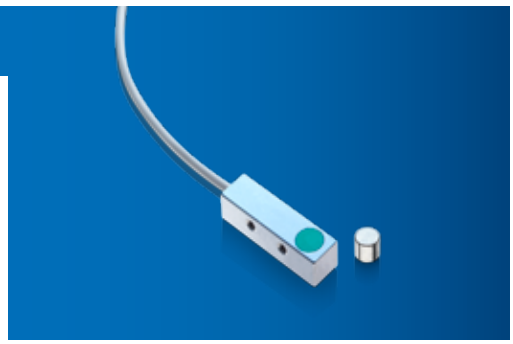
Content

Ultrasonic sensors – the most versatile object detection

Undisturbed by difficult environmental conditions and varying object properties

Magnetic and cylinder sensors

Long-distance detection of magnetic fields



Copy counters – *SCATEC*®

Number 1 in flawless edge detection

Precison mechanical switches *My-Com*®

Micrometer precision – 70 times more accurate than a hair is thick

Distance measurement

Sensors for detecting distances and distance information from the µm range to over 40 m.

Optical distance sensors

Precise distance, spacing and position measurements even on challenging surfaces

Ultrasonic distance sensors

Accurate distance measurement regardless of material, surface, color or transparency

Inductive distance sensors – *AlphaProx*®

Measure distances on metal objects accurate to a micrometer

Linear magnetic encoders

Non-contact length measuring operations, cost-efficient and precise.

Content

Measuring wheel encoders

The efficient and reliable solution to measure length

Cable transducers

Linear travel measurement made easy. Easy installation, reliable results

Accessories

An easy and quick way to optimal functionality

Inductive proximity switches

Cylindrical inductive proximity switches for factory automation

The proven solution for safe, non-contact detection of metal objects

- Very small sensors with all integrated evaluation electronics and large sensing distance
- Sturdy, maintenance-free and durable
- Always the right sensor thanks to a wide variety of variants
- Millions of them in use - highest precision and guaranteed reliability thanks to over 40 years of experience

	IFRM 03 external electronics	IFRM 03	IFRM 04 Thread	IFRM 04	IFRM 05
category	Subminiatur	Subminiatur	Subminiatur	Subminiatur	Subminiatur
dimensions	ø 3 mm	ø 3 mm	M4	ø 4 mm	M5
housing length	12 mm	from 12 mm	from 22 mm	from 15 mm	from 15 mm
nominal sensing distance Sn	0,8 mm	0,8 ... 1 mm	0,8 mm	1 ... 1,6 mm	1 ... 1,6 mm
switching frequency	3 kHz	to 4 kHz	3 kHz	to 5 kHz	to 5 kHz
output signal	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN
connection types	flylead connector M8 (electronics in connector)	cable 2 m flylead connector M8 wires	cable 2 m flylead connector M8	connector M5 connector M8 cable 2 m flylead connector M8 wires	connector M5 connector M8 cable 2 m flylead connector M8 wires
housing material	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel
operating temperature	–25 ... +75 °C	–25 ... +75 °C –10 ... +70 °C	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C
protection class	IP 67	IP 67	IP 67	IP 67	IP 67
specific features					

Learn more:
www.baumer.com/inductive





IFRM 06 IR06.PxxS	IFRM 08 IR08.PxxS	IFRM 12 IR12.PxxS	IFRM 18 IR18.PxxS	IFRM 30 IR30.PxxS
Sub-/Miniatur	Sub-/Miniatur	Compact	Compact	Compact
ø 6,5 mm	M8	M12	M18	M30
from 22 mm	from 18 mm	from 30 mm	from 35 mm	from 35 mm
2 ... 6 mm	2 ... 6 mm	4 ... 10 mm	8 ... 15 mm	10 ... 24 mm
to 5 kHz	to 5 kHz	to 2 kHz	to 500 Hz	to 500 Hz
PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN
connector M8 cable 2 m flylead connector M8	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
stainless steel	stainless steel	brass nickel plated	brass nickel plated	brass nickel plated
–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C 0 ... +65 °C	–25 ... +75 °C
IP 67	IP 67	IP 67	IP 67	IP 67
		■ variants with antivalent output (NO & NC)	■ variants with antivalent output (NO & NC)	■ variants with antivalent output (NO & NC)

Inductive proximity switches

Rectangular inductive proximity switches for factory automation

The proven solution for safe, non-contact detection of metal objects

- Very small sensors with all integrated evaluation electronics and large sensing distance
- Sturdy, maintenance-free and durable
- Millions of them in use - highest precision and guaranteed reliability thanks to over 40 years of experience

	IFFM 08	IFFM 04	IFFM 06	IFFM 08
category	Subminiatur	Subminiatur	Miniatur	Miniatur
dimensions (B × T × L)	8 × 4,7 × 16 mm	4 × 4 × 22 mm	6 × 6 × 20 ... 30 mm	8 × 8 × 20 ... 60 mm
nominal sensing distance Sn	2 mm	0,8 mm	1 mm	2 mm
switching frequency	5 kHz	3 kHz	5 kHz	5 kHz
output signal	PNP NPN	PNP NPN	PNP NPN	PNP NPN
connection types	cable 2 m flylead connector M8	cable 2 m	connector M5 cable 2 m	connector M8 cable 2 m flylead connector M8
housing material	die-cast zinc nickel plated	stainless steel	brass nickel plated	brass nickel plated die-cast zinc nickel plated
operating temperature	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features	■ extra flat design (4.7 mm)			

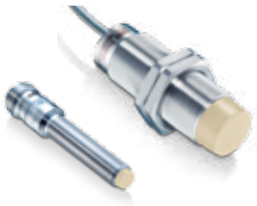
Learn more:
www.baumer.com/inductive

IFFM 12	IFFM 20
Compact	Compact
12 × 8 × 28 mm	20 × 10 × 41 mm
4 mm	5 ... 8 mm
2 kHz	to 1 kHz
PNP NPN	PNP NPN
connector M5	connector M8
brass nickel plated	brass nickel plated
–25 ... +75 °C	–25 ... +75 °C
IP 67	IP 67

Inductive proximity switches

Application-specific inductive sensors – Outdoor / high temperature

- Rugged Outdoor and Washdown sensors
- High shock and vibration resistance
- Sensors with extended temperature range up to 180 °C



Outdoor / Washdown	**IFRM 12 / 18** **Outdoor**	**IFRR 08 / 12 / 18** **Washdown**
features	■ Rugged stainless steel (V4A) or all-metal housing ■ IP 69K long-term seal – *proTect+* ■ High signal quality in an extended temperature range	
dimensions	M12 / M18	M8 / M12 / M18
nominal sensing distance Sn	6 ... 12 mm	3 ... 12 mm
switching frequency	0,4 ... 2 kHz	0,5 ... 3 kHz
housing material	brass nickel plated	stainless steel 1.4404 (V4A)
operating temperature	–40 ... +80 °C	–40 ... +80 °C
protection class	IP 67	IP 68/69K & *proTect+*
specific features		■ Ecolab-tested ■ FDA-compliant ■ Vibration resistance EN 61373: 2010 (category 3) ■ Shock resistance EN 61373: 2010 (category 3)

High temperature up to +180 °C	**IFRM 06 / 08 / 12** **High temperature up to +100 °C**	**IFRD 06 / 08 / 12 / 18** **High temperature up to +100 °C** **Full metal housing (*DuroProx*)**	**IFRH 06 / 08 / 12** **High temperature up to +180 °C** **with separated electronics**
features	■ Sensors with extended temperature range up to 180 °C ■ Versions with integrated and separate evaluation electronics ■ High switching frequencies		
dimensions	ø 6,5 mm / M8 / M12	ø 6,5 mm / M8 / M12 / M18	M8 / M12 / M18
nominal sensing distance Sn	2 ... 4 mm	2 ... 6 mm	1,5 ... 5 mm
switching frequency	2 ... 5 KHz	100 ... 150 Hz	1 ... 4 kHz
housing material	stainless steel brass nickel plated	stainless steel 1.4404 (V4A)	stainless steel brass nickel plated
operating temperature	–25 ... +100 °C	–25 ... +100 °C	–25 ... +180 °C
protection class	IP 67	IP 68 / IP 69K	IP 67

Application-specific inductive sensors – High pressure / magnetic field

- Pressure resistant up to 500 bar
- Immune to welding and magnetic fields up to 90 mT

Learn more:
www.baumer.com/inductive

High pressure resistant sensors	IFRP 12	IFRP 16	IFRP 18
features	■ Pressure resistant up to 500 bar ■ Sensor surface made of zirconium oxide (ZrO2/ceramics) ■ High switching frequencies		
dimensions	M12	M16	M18
nominal sensing distance Sn	2 mm	2 mm	2 mm
switching frequency	5 kHz	3 kHz	3 kHz
housing material	stainless steel	stainless steel	stainless steel
sensing face	ZrO2 / ceramic	ZrO2 / ceramic	ZrO2 / ceramic
operating temperature	–25 ... +80 °C	–25 ... +80 °C	–25 ... +80 °C
protection class	IP 68/67	IP 68/67	IP 68/67

Sensors immune to welding and magnetic fields	IFRW 12	IFRW 18
features	■ For magnetic fields up to 90 mT ■ PTFE-coated front ■ Chrome-plated brass housing ■ Resistant to welding sparks	
dimensions	M12	M18
nominal sensing distance Sn	2 mm	5 mm
switching frequency	1 kHz	500 Hz
housing material	brass chromium plated	brass chromium plated
sensing face	PTFE-coated	PTFE-coated
operating temperature	–25 ... +75 °C	–25 ... +75 °C
protection class	IP 67	IP 67

Inductive proximity switches

Application-specific inductive sensors - Large sensing distance / Factor 1

- Sensors with extended switching distance up to 24 mm
- Factor 1 sensors with the same switching distance on all metals

Large sensing distance	**IR06.P03S IR06.P06S**	**IR08.P03S IR08.P06S**	**IR12.P06S IR12.P10S**	**IR18.P12S IR18.P15S**	**IR30.P18S IR30.P24S**
category	**Miniatur**	**Miniatur**	**Compact**	**Compact**	**Compact**
features	■ Large installation tolerances ■ Enhanced protection against mechanical damage ■ Cylindrical designs from Ø6.5 mm to M30 ■ Flush and non-flush variants				
dimensions	ø 6,5 mm	M8	M12	M18	M30
nominal sensing distance Sn	3 / 6 mm	3 / 6 mm	6 / 10 mm	15 / 18 mm	18 / 24 mm
switching frequency	2 kHz	2 kHz	1 kHz	400 Hz	500 Hz
housing material	stainless steel	stainless steel	brass nickel plated	brass nickel plated	brass nickel plated
operating temperature	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C 0 ... +65 °C	–25 ... +75 °C
protection class	IP 67	IP 67	IP 67	IP 67	IP 67

Factor 1	**IR06.P02F**	**IR08.P02F**	**IR12.P04F**	**IR18.P06F IR18.P08F**
category	**Miniatur**	**Miniatur**	**Compact**	**Compact**
features	■ Detection of stainless steel, aluminum and non-ferrous metals with the same sensing distance ■ High switching frequencies up to 3 kHz			
dimensions	ø 6,5 mm	M8	M12	M18
nominal sensing distance Sn	40 / 46 mm	40 / 46 mm	40 / 50 mm	50 / 60 mm
switching frequency	2 mm	2 mm	4 mm	6 / 8 mm
housing material	3 kHz	3 kHz	2 kHz	500 Hz
operating temperature	stainless steel	stainless steel	brass nickel plated	brass nickel plated
protection class	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C
protection class	IP 67	IP 67	IP 67	IP 67

Application-specific inductive sensors - ATEX / Hygienic

- Sensors for the Ex-area (ATEX-certified)
- Stainless steel sensors in hygienic design, EHEDG-certified

Learn more:
www.baumer.com/inductive




ATEX	IFR10.82	IFRM 06X IFRM 08X	IFRM 12	IFRM 12X IFRM 18X
category	Sub-Miniatur Circuit board mountable	Miniatur	Compact	Compact
features	■ For environments with flammable gas or dust ■ ATEX certified ■ High repeat accuracy < 0.01 mm ■ Compact design			
dimensions	10 mm	ø 6,5 mm / M8	M12	M12 / M18
nominal sensing distance Sn	2 mm	1,5 mm	4 mm	2 ... 8 mm
switching frequency	2 kHz	5 kHz	2 kHz	to 2 kHz
output circuit	NAMUR	NAMUR	PNP / NPN	NAMUR
operating temperature	–25 ... +75 °C	–20 ... +60 °C	–25 ... +65 °C	–20 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67
approvals/certificates	ATEX 3G	ATEX 1G	ATEX 3D	ATEX 1G



Hygienic design	IFBR 06	IFBR 11	IFBR 17
category	Miniatur	Compact	Compact
features	■ FDA compliant materials – EHEDG certified ■ High chemical resistance – Ecolab tested and LCP front cap ■ IP 68K long-term seal – *proTect+* ■ Flush and non-flush housings		
dimensions	ø 6,5 mm	ø 11 mm	ø 17 mm
nominal sensing distance Sn	3 mm	4 mm (flush) 6 mm (non-flush)	8 mm (flush) 12 mm (non-flush)
switching frequency	3 kHz	1 kHz	500 Hz
housing material	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)	stainless steel 1.4404 (V4A)
operating temperature	–40 ... +80 °C, cleaning temperature to +100 °C	–40 ... +80 °C, cleaning temperature to +100 °C	–40 ... +80 °C, cleaning temperature to +100 °C
protection class	IP 68/69K & proTect+	IP 68/69K & proTect+	IP 68/69K & proTect+

Capacitive sensors

Capacitive proximity sensors in metal housing

Proximity switch for non-contact detection of liquid as well as solid objects and bulk solids

- High switching distance up to 30 mm even through non-metallic walls
- Absolutely reliable even when interfered by ambient conditions, e.g. ambient light or dirt
- Absolutely reliable detection of objects such as wafers, PCBs, paper stacks or hot adhesives up to 200 °C

	CFAM 12	CFAM 18	CFAM 30	CFBM 20
category	cylindrical	cylindrical	cylindrical	cylindrical
function				
detection of non-conductive media	■	■	■	■
liquids in direct contact				
fill level detection through container	■	■	■	■
object detection / buld goods	■	■	■	■
dimensions / height	M12	M18	M30	M20
housing length	60 mm	64 mm	71 mm	79,5 mm
nominal sensing distance Sn	4 mm	8 mm	15 mm	10 mm
switching frequency	50 Hz	50 Hz	50 Hz	50 Hz
output signal	PNP NPN	PNP NPN	PNP NPN	PNP NPN
connection types	cable 2 m connector M12	cable 2 m connector M12	cable 2 m connector M12	cable 2 m
housing material	brass nickel plated	brass nickel plated	brass nickel plated	brass nickel plated
operating temperature	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C
protection class	IP 65	IP 65	IP 65	IP 65
specific features	■ potentiometer	■ potentiometer	■ potentiometer	■ potentiometer

Learn more:
www.baumer.com/capacitive

CFAH 30	CFDM 12
cylindrical high temperature to +200 °C	rectangular
■	■
■	
	■
	■
M30	M12
65 mm	60 mm
15 mm	4 mm
50 Hz	50 Hz
PNP NPN	PNP NPN
cable 2 m connector M12	cable 2 m connector M12
brass nickel plated	brass nickel plated
–40 ... +200 °C	–25 ... +75 °C
IP 65	IP 65
■ potentiometer	■ potentiometer

Capacitive sensors

Capacitive proximity sensors in plastic housings

Proximity switch for non-contact detection of liquid as well as solid objects and bulk solids

- High switching distance up to 30 mm even through non-metallic walls
- Absolutely reliable even when interfered by ambient conditions, e.g. ambient light or dirt
- Absolutely reliable detection of objects such as wafers, PCBs, paper stacks or hot adhesives up to 200 °C

	CFAK 12 with cap	CFAK 12	CFAK 18	CFAK 22 Oil Level Switch
category	cylindrical	cylindrical	cylindrical	cylindrical
function				
detection of non-conducti-ve media			■	
fill level detection through container	■	■	■	■
object detection / buld goods			■	
dimensions	M12	M12	M18	22 mm
housing length	39,5 mm	39 mm	63,5 mm	87 mm
nominal sensing distance Sn	0,1 mm	0,5 mm	5 / 15 mm	
switching frequency	15 Hz	15 Hz	50 Hz	
output signal	PNP NPN	PNP NPN	PNP NPN	voltage output
connection types	cable 2 m connector M8	cable 2 m connector M8	cable 2 m	connector AMPSEAL 16 3-Pol
housing material	POM EPDM50	PBT	PBT	PA 10T/X
operating temperature	0 ... +50 °C	0 ... +70 °C	–25 ... +75 °C	–40 ... +85 °C
protection class	IP 67	IP 67	IP 67/65	IP 67/65
specific features	■ liquid level sensor for wastewater		■ potentiometer	■ liquid level sensor for oil ■ media temperature +100 °C

Learn more:
www.baumer.com/capacitive

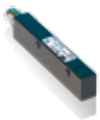
CFAK 30	CFDK 25	CFDK 30
cylindrical	rectangular extremely flat	rectangular
■	■	■
■		
■	■	■
M30	25 × 52,4 × 6 mm	30 × 65 × 18,5 mm
72 mm		
8 / 30 mm	2 ... 15 mm	4 ... 15 mm
50 Hz	35 Hz	50 Hz
PNP NPN	push-pull	PNP NPN
cable 2 m	cable 2 m flylead connector M12	cable 2 m connector M12
PBT	PA 12	PBT
–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C
IP 67/65	IP 65	IP 65
■ versions with fixed switching point ■ adjustable versions ■ potentiometer	■ fixed sensing distance ■ flexible mounting options thanks to innovative mounting frame	■ potentiometer

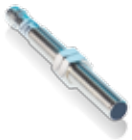
Light barriers and light sensors

Subminiature and miniature sensors

Unique reliable object detection and positioning with optical sensors

- Smart & Small – top performance in smallest designs
- Find the optimum solution quickly through large portfolio
- Easy to set up with clever teach-in function
- Laser sensors for detection tasks in the 0.01 mm range





x = function principle y = light source	FHDK 04	FxDK 07 FxCK 07	FxDM 08	FxAM 08
features	■ Mounting in rails ■ Fix sensing distance	■ World's smallest adjustable sensor family	■ Fix sensing distance ■ Robust metal housing	■ Fix sensing distance
dimensions (B × H × T)	4 × 44,8 × 6,2 mm	8 × 16,2 × 10,8 mm	8 × 58 × 12 mm	M8 × 56 mm
function principle (x) / ranges				
diffuse sensors with background suppression	**30 mm / 50 mm** (FHDK 14)	**10 ... 60 mm** (FHDK 07 / FHCK 07)		
diffuse sensor with background suppression		**20 ... 150 mm** (FZDK 07 / FZCK 07)	**40 mm / 80 mm** (FZDM 08)	**40 mm / 80 mm** (FZAM 08)
SmartReflect® light barriers without reflector		**17 ... 45 mm** (FNCK 07)		
SmartReflect® transparent				
retro-reflective sensors		**800 mm** (FPDK 07 / FPCK 07)		
transparent detection without reflector				
through beam sensors		**2,5 m** (FSDK 07 / FSCK 07) (FEDK 07 / FECK 07)	**1 m / 3 m** (FSDM 08 / FEDM 08)	**3 m** (FSAM 08 / FEAM 08)
light source (y)				
standard LED (R)	■	■		
pinPoint LED (P)				
infrarot (I)			■	■
laser (L)				
response time	< 0,5 ms	< 0,5 ms	< 1 ms	< 2,5 ms
output	push-pull	PNP NPN	PNP	PNP
connection types	cable 2 m flylead connector M8	cable 2 m flylead connector M8	cable 2 m connector M8	cable 2 m connector M8
housing material	plastic	plastic	aluminium	brass nickel plated
operating temperature	–10 ... +50 °C	–20 ... +50 °C	–25 ... +65 °C	–25 ... +65 °C
protection class	IP 65	IP 65	IP 65	IP 65

Learn more:
www.baumer.com/opto

FxDK 10 OxDK 10 (Laser)	FxDM 12 OxDM 12 (Laser)	FxAM 12	O300.xy	OHDM 13 (Laser)
■ Different beam cones optimized for the application	■ Sensing distance adjustable ■ Sensors with single lens optics	■ Sensitivity adjustable with potentiometer	■ Setting via wear-free *qTeach*® or IO-Link	■ Sensing distance adjustable
10,4 × 27 × 14 mm	12,4 × 35 × 35 mm	M12 × 70,5 mm	12,9 × 32,3 × 23 mm	13,4 × 48,2 × 40 mm
10 ... 130 mm (FHDK 10 / OHDK 10)	**15 ... 300 mm** (FHDM 12 / OHDM 12)		**30 ... 300 mm** (O300.Gy)	**50 ... 550 mm** (OHDM 13)
3 ... 200 mm (FZDK 10 / OZDK 10)		**30 ... 200 mm** (FZAM 12)	**10 ... 400 mm** (O300.Zy)	
			30 ... 300 mm (O300.Sy)	
			30 ... 300 mm (O300.SP.T)	
4 m (FPDK 10)	**8 m** (FPDM 12 / OPDM 12)		**6 m** (O300.Ry)	
			4 m (O300.RP.T)	
10 m (FSDK 10 / FEDK 10) (OSDK 10 / OEDK 10)	**7,5 m** (FSDM 12 / FEDM 12)		**15 m** (O300.Ty / O300.Ey)	
■	■		■	
			■	
		■	■	
■	■		■	■
< 0,5 ms < 0,05 ms (laser)	< 1 ms < 0,05 ms (laser)	< 1 ms	< 0,25 ms < 0,1 ms (laser)	< 5 ms
push-pull PNP NPN	PNP NPN	PNP	push-pull PNP NPN	PNP NPN
cable 2 m connector M8 flylead connector	cable 2 m connector M8	cable 2 m connector M12	cable 2 m connector M8 flylead connector	connector M8
plastic	die-cast zinc	brass nickel plated	plastic	aluminum
–25 ... +65 °C –10 ... +50 °C (laser)	–25 ... +65 °C –20 ... +50 °C (laser)	–25 ... +65 °C	–25 ... +60 °C –10 ... +60 °C (laser)	0 ... +50 °C
IP 65 / IP 67	IP 67	IP 65	IP 67	IP 67

Light barriers and light sensors

Standard sensors – rectangular and cylindrical

Unique reliable object detection and positioning with optical sensors

- Find the optimum solution quickly through large portfolio
- Easy to set up with clever teach-in function
- Laser sensors for detection tasks in the 0.01 mm range

x = function principle y = light source	FxDK 14 OxDK 14 (laser)	FxDM 16 OxDM 16 (laser)	OR18.xy	OR18.GR.F
features	■ Sensors for transparent objects	■ Laser sensors for wafer detection	■ Setting via potentiometer, teach-in or *qTeach*	■ Fixed Focus
dimensions (B × H × T)	14,8 × 43 × 31 mm	15,4 × 50 × 50 mm	M18	M18 × 48,3 mm
function principle (x) / ranges				
diffuse sensors with background suppression	**20 ... 500 mm** (FHDK 14 / OHDK 14)	**20 ... 600 mm** (FHDM 16 / OHDM 16)	**40 ... 200 mm** (OR18.Gy)	**50 mm** (OR18.GR.F)
diffuse sensors with intensity difference	**5 ... 600 mm** (FZDK 14 / OZDK 14)	**0 ... 400 mm** (FZDM 16 / OZDM 16)	**0 ... 800 mm** (OR18.ZI)	
SmartReflect® light barriers without reflector	**50 ... 800 mm** (FNDK 14)		**55 ... 300 mm** (OR18.SP)	
SmartReflect® transparent				
retro-reflective sensors	**11 m** (FRDK / FPDK / OPDK 14)	**12 m** (FPDM 16 / OPDM 16)	**16 m** (OR18.RR)	
transparent detection without reflector			**800 mm** (OR18.RR.T)	
through beam sensors	**15 m** (FSDK 14 / FEDK 14) (OSDK 14 / OEDK 14)		**60 m** (OR18.TI / OR18.EI)	
light source (y)				
standard LED (R)	■	■	■	■
pinPoint LED (P)			■	
infrarot (I)			■	
laser (L)	■	■	■	
response time	< 0,5 ms < 0,25 ms (laser)	< 1 ms < 0,05 ms (laser)	< 0,5 ms < 0,1 ms (laser)	< 0,5 ms
output	push-pull PNP NPN	PNP NPN 4 ... 20 mA	PNP NPN	PNP NPN
connection types	cable 2 m connector M8 flylead connector M12	cable 2 m connector M12	cable 2 m connector M12 flylead connector M12	cable 2 m connector M12
housing material	plastic	die-cast zinc	plastic brass nickel plated	plastic
operating temperature	–25 ... +65 °C –10 ... +50 °C (laser)	–25 ... +65 °C –10 ... +50 °C (laser)	–25 ... +55 °C –10 ... +55 °C (laser)	–25 ... +55 °C
protection class	IP 67	IP 67	IP 67	IP 65 / IP 67

Learn more:
www.baumer.com/opto

FxAM 18	O500.xy	OHDM 20 (Laser)	OxDK 25 (Laser)
■ Compatible with glass fibre optics	■ Setting via wear-free *qTeach*® or IO-Link	■ Light / dark operate switchable	■ Sensors with 2 output ■ *qTeach*®
M18	18 × 45 × 32 mm	20,6 × 65 × 50 mm	23,4 × 63 × 45 mm
	60 ... 550 mm (O500.Gy)	**210 ... 1500 mm** (OHDM 20)	**100 ... 1750 mm** (OHDK 25)
60 ... 430 mm (FZAM 18)	**20 ... 600 mm** (O500.Zy)		
	60 ... 600 mm (O500.SP)		**1900 mm** (ONDK 25)
	60 ... 1000 mm (O500.Sy.T)		
4 m (FPAM 18)	**8 m** (O500.Ry)		
	6 m (O500.RP.T)		
	40 m (O500.TR / O500.ER)		
■	■		
	■		
■	■		
		■	■
< 1 ms	< 0,25 ms	< 6 ms	10 ms
PNP NPN	push-pull PNP NPN	PNP	push-pull
cable 2 m connector M12	cable 2 m connector M12	connector M12	cable 2 m connector M12
brass nickel plated	plastic	die-cast zinc	plastic
–25 ... +55 °C	–25 ... +60 °C	0 ... +50 °C	0 ... +50 °C
IP 67	IP 67	IP 67	IP 67

Light barriers and light sensors

Standard with extra power – O300/O500

Unique portfolio with extra performance for your application

- Enhanced processor performance for reliable detection
- 2500 variants with seven sensor principles and four light sources
- Easy implementation and operation
- IO-Link – Industry 4.0 and IIoT-ready

IO-Link

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O300.xy x = function principle y = light source	O300.xy	O300W.xy	O300H.xy
features	■ Setting via wear-free *qTeach*® or IO-Link	■ Setting via wear-free *qTeach*® or IO-Link	■ Setting via wear-free magnetic *qTeach*® or IO-Link
dimensions (B × H × T)	12,9 × 32,3 × 23 mm	16,5 × 34,7 × 28,2 mm	16,5 × 34,6 × 28,7 mm
function principle (x) / ranges			
diffuse sensors background suppression (G)	**30 ... 300 mm** (O300.Gy)	**30 ... 250 mm** (O300W.Gy)	**30 ... 250 mm** (O300H.Gy)
diffuse sensors with intensity difference (Z)	**10 ... 400 mm** (O300.Zy)		
SmartReflect® light barriers without a reflector (S)	**30 ... 300 mm** (O300.Sy)	**30 ... 300 mm** (O300W.Sy)	**30 ... 300 mm** (O300H.Sy)
SmartReflect® transparent (Sy.T)	**30 ... 300 mm** (O300.SP.T)	**30 ... 300 mm** (O300W.SP.T)	**30 ... 300 mm** (O300H.SP.T)
diffuse sensors (R)	**6 m** (O300.Ry)	**6 m** (O300W.Ry)	**6 m** (O300H.Ry)
retro-reflective sensors (Ry. T)	**4 m** (O300.RP.T)	**4 m** (O300W.RP.T)	**4 m** (O300H.Ry.T)
through beam sensors (T / E)	**15 m** (O300.Ty / O300.Ey)	**15 m** (O300W.Ty / O300W.Ey)	**15 m** (O300H.Ty / O300H.Ey)
light source (y)			
standard LED (R)	■	■	■
pinPoint LED (P)	■	■	■
infrarot (I)	■		
laser (L)	■	■	■
response time	< 0,25 ms < 0,1 ms (laser)	< 0,25 ms < 0,1 ms (laser)	< 0,25 ms < 0,1 ms (laser)
output	push-pull PNP NPN	push-pull	push-pull
connection types	cable 2 m connector M8 flylead connector M8	connector M8	connector 2 m flylead connector M8
housing material	plastic	stainless steel, Ecolab-certified, FDA-compliant	stainless steel, Ecolab-certified, EHEDG-compliant, FDA-compliant
operating temperature	–25 ... +60 °C –10 ... +60 °C (laser)	–25 ... +60 °C –10 ... +60 °C (laser)	–25 ... +60 °C –10 ... +60 °C (laser)
protection class	IP 67	IP 68 / IP 69K *proTect+*	IP 68 / IP 69K *proTect+*

Learn more:
www.baumer.com/opto

O500.xy x = function principle y = light source	O500.xy	O500W.xy	O500H.xy
Features	■ Setting via wear-free *qTeach*® or IO-Link	■ Setting via wear-free *qTeach*® or IO-Link	■ Setting via wear-free magnetic *qTeach*® or IO-Link
dimensions (B × H × T)	18 × 45 × 32 mm	20,2 × 47,2 × 37,2 mm	20,2 × 47,7 × 36,4 mm
function principle (x) / ranges			
diffuse sensors background suppression (G)	**60 ... 550 mm** (O500.Gy)	**60 ... 400 mm** (O500W.Gy)	**60 ... 400 mm** (O500H.Gy)
diffuse sensors with intensity difference (Z)	**20 ... 600 mm** (O500.Zy)		
SmartReflect® light barriers without a reflector (S)	**60 ... 600 mm** (O500.SP)	**60 ... 600 mm** (O500W.SP)	**60 ... 600 mm** (O500H.SP)
SmartReflect® transparent (Sy.T)	**60 ... 1000 mm** (O500.SP.T)	**60 ... 1000 mm** (O500W.SP.T)	**60 ... 1000 mm** (O500H.SP.T)
diffuse sensors (R)	**8 m** (O500.Ry)	**8 m** (O500W.Ry)	**8 m** (O500H.Ry)
retro-reflective sensors (Ry. T)	**6 m** (O500.RP.T)	**6 m** (O500W.RP.T)	**6 m** (O500H.RP.T)
through beam sensors (T / E)	**40 m** (O500.TR / O500.ER)	**40 m** (O500W.TR / O500W.ER)	**40 m** (O500H.TR / O500H.ER)
light source (y)			
standard LED (R)	■	■	■
pinPoint LED (P)	■	■	■
infrarot (I)	■		
laser (L)			
response time	< 0,25 ms	< 0,25 ms	< 0,25 ms
output	push-pull PNP NPN	push-pull	push-pull
connection types	cable 2 m connector M12	connector M12	cable 2 m connector M12
housing material	plastic	stainless steel, Ecolab-certified, FDA-compliant	stainless steel, Ecolab-certified, EHEDG-compliant, FDA-compliant
operating temperature	–25 ... +60 °C	–25 ... +60 °C	–25 ... +60 °C
protection class	IP 67	IP 68 / IP 69K *proTect+*	IP 68 / IP 69K *proTect+*

Light barriers and light sensors

Laser sensors

Precise control of fast processes and detection of very small objects

- Very precise object positioning to within 0.01 mm
- Detection of very small objects thanks to focused 0.1 mm laser spot
- Detection of fast objects thanks to short response times of < 0.1 ms
- The right shapes, sizes and sensor principles for your application

x = function principle	OxDK 10	OxDM 12	OBDM 12 Difference sensors	OHDM 13
features	■ Different application-optimized beam shapes	■ Adjustable ranges ■ Sensors with single lens optics	■ 5 functions (e.g. window teach)	■ Adjustable ranges
dimensions (B × H × T)	10,4 × 27 × 14 mm	12,4 × 35 × 35 mm	12,4 × 37 × 34,5 mm	13,4 × 48,2 × 40 mm
function principle (x) / ranges				
diffuse sensors background suppression	**20 .. 130 mm** (OHDK 10)	**17 ... 120 mm** (OHDM 12)		**50 ... 550 mm** (OHDM 13)
diffuse sensors with intensity difference	**3 ... 150 mm** (OZDK 10)			
SmartReflect® light barriers without a reflector				
retro-reflective sensors		**8 m** (OPDM 12)		
retro-reflective sensors for transparent detection				
through beam sensors	**10 m** (OSDK / OEDK 10)			
differential sensors			**16 ... 120 mm** (OBDM 12)	
laser class	1 & 2	2	2	2
response time up	< 0,05 ms	< 0,05 ms	< 1 ms	< 5 ms
output	PNP NPN	PNP NPN	PNP NPN	PNP NPN
housing material	plastic	die-cast zinc	die-cast zinc	aluminum
operating temperature	–10 ... +50 °C	0 ... +50 °C	0 ... +50 °C	0 ... +50 °C
protection class	IP 65 / IP 67	IP 67	IP 67	IP 67

Learn more:
www.baumer.com/laser

OxDK 14	O300.xL	O300W.xL	O300H.xL
■ Mechanical sensing distance adjustment	■ Setting via wear-free magnetic *qTeach*® or IO-Link	■ Setting via wear-free *qTeach*® or IO-Link	■ Setting via wear-free magnetic *qTeach*® or IO-Link
14,8 × 43 × 31 mm	12,9 × 32,3 × 23 mm	16,5 × 34,7 × 28,2 mm	16,5 × 34,6 × 28,7 mm
20 ... 350 mm (OHDK 14)	**30 ... 300 mm** (O300.GL)	**30 ... 250 mm** (O300W.GL)	**30 ... 250 mm** (O300H.GL)
	10 ... 400 mm (O300.ZL)		
	30 ... 300 mm (O300.SL)	**30 ... 300 mm** (O300W.SL)	**30 ... 300 mm** (O300H.SL)
11 m (OPDK 14)	**6 m** (O300.RL)	**6 m** (O300W.RL)	**6 m** (O300H.RL)
5,2 m (OPDK 14)			
	75 m (O300.TL / O300.EL)	**75 m** (O300W.TL / O300W.EL)	**75 m** (O300H.TL / O300H.EL)
2	1	1	1
< 0,15 ms	< 0,1 ms	< 0,1 ms	< 0,1 ms
PNP NPN	PNP NPN push-pull	push-pull	push-pull
plastic	plastic	stainless steel	stainless steel
–10 ... +50 °C	–25 ... +60 °C	–25 ... +60 °C	–25 ... +60 °C
IP 67	IP 67 IP 68 / IP 69K *proTect+*	IP 67 IP 68 / IP 69K *proTect+*	IP 67 IP 68 / IP 69K *proTect+*

Light barriers and light sensors

Laser sensors

Precise control of fast processes and detection of very small objects

- Very precise object positioning to within 0.01 mm
- Detection of very small objects thanks to focused 0.1 mm laser spot
- Detection of fast objects thanks to short response times of < 0.1 ms
- The right shapes, sizes and sensor principles for your application

x = function principle	OxDM 16	OHDM 20	OxDK 25	OR18.EL/TL
features	■ Sensors for wafer detection	■ Large range	■ Sensors with two outputs	■ Short response time ■ Large range
dimensions (B × H × T)	15,4 × 50 × 50 mm	20,6 × 65 × 50 mm	23,4 × 63 × 45 mm	M18
function principle (x) / ranges				
diffuse sensors background suppression	**25 ... 300 mm** (OHDM 16)	**210 ... 1500 mm**	**100 ... 1750 mm** (OHDK 25)	
diffuse sensors with intensity difference	**0 ... 250 mm** (OZDM 16)			
SmartReflect® light barriers without a reflector			**100 ... 1900 mm** (ONDK 25)	
retro-reflective sensors	**12 m** (OPDM 16)			
retro-reflective sensors for transparent detection				
through beam sensors				**60 m**
differential sensors				
laser class	2	2	1	1
response time up	< 0,1 ms	< 6 ms	< 10 ms	< 0,34 ms
output	PNP NPN	PNP	push-pull	PNP NPN
housing material	die-cast zinc	die-cast zinc	plastic	brass nickel plated
operating temperature	–10 ... +50 °C	–10 ... +50 °C	–10 ... +50 °C	–10 ... +55 °C
protection class	IP 67	IP 67	IP 67	IP 67

Learn more:
www.baumer.com/laser

Light barriers and light sensors

Light barriers without reflector – *SmartReflect®*

Less is more – reduced operating costs with increased functional reliability

- Reliable barrier principle between the sensor and the machine part
- Suitable for objects of different color, surface or transparency
- Robust with dirt deposit in plastic, stainless steel or hygiene design
- Powerful with < 0.25 ms response time and up to 1.9 m range
- Simple and cost-effective in installation and operation without reflector

y = light source	FNDK 07 FNCK 07	O300.Sy O300.Sy.T	O500.Sy O500.Sy.T	FNDK 14
features	■ Miniature sensor	■ Miniature sensor ■ Transparent detection versions	■ Transparent detection versions	■ Transparent detection versions
dimensions (B × H × T)	8 × 16,2 × 10,8 mm	12,9 × 32,2 × 23 mm	18 × 45 × 32 mm	14,8 × 43 × 31 mm
light source (y)				
standard LED (R)	**17 ... 45 mm**			**50 ... 800 mm**
pinPoint LED (P)		**30 ... 300 mm** (O300.SP / O300.SP.T)	**60 ... 600 mm** (O500.SP) **30 ... 1000 mm** (O500.SP.T)	
infrarot (I)				
laser (L)		**30 ... 250 mm** (O300.SL)		
response time	< 0,5 ms	< 0,25 ms	< 0,25 ms	< 1,8 ms
output	PNP NPN	push-pull PNP NPN	push-pull PNP NPN	push-pull
connection types	cable 2 m flylead connector M8	cable 2 m connector M8 flylead connector M8	cable 2 m connector M12	cable 2 m connector M8 flylead connector M12
housing material	plastic	plastic	plastic	plastic
operating temperature	–20 ... +50 °C	–25 ... +60 °C	–25 ... +60 °C	–30 ... +65 °C
protection class	IP 65	IP 67	IP 67	IP 67

Learn more:
www.baumer.com/smartreflect

ONDK 25	OR18.SP	O300W.Sy O300W.Sy.T	O500W.Sy O500W.Sy.T
■ Standard	■ Standard sensor M18	■ Washdown design ■ Transparent detection versions	■ Washdown design ■ Transparent detection versions
23,4 × 63 × 45 mm	M18 × 65 mm	16,5 × 34,7 × 28,2 mm	20,2 × 47,2 × 37,7 mm
	55 ... 300 mm	**30 ... 300 mm** (O300W.SP / O300W.SP.T)	**60 ... 600 mm** (O500W.SP) **30 ... 1000 mm** (O500W.SP.T)
1900 mm		**30 ... 250 mm** (O300W.SL)	
< 10 ms	< 0,49 ms	< 0,25 ms	< 0,25 ms
push-pull	push-pull PNP NPN	push-pull	push-pull
cable 2 m connector M12	connector M12	connector M8	connector M12
plastic	brass nickel plated	stainless steel, Ecolab-certified, FDA-compliant	stainless steel, Ecolab-certified, FDA-compliant
0 ... +50 °C	–25 ... +60 °C	–25 ... +60 °C	–25 ... +60 °C
IP 67	IP 67	IP 68 / IP 69K *proTect+*	IP 68 / IP 69K *proTect+*

Light barriers and light sensors

Light barriers without reflector – *SmartReflect®*

Less is more – reduced operating costs with increased functional reliability

- Reliable barrier principle between the sensor and the machine part
- Suitable for objects of different color, surface or transparency
- Robust with dirt deposit in plastic, stainless steel or hygiene design
- Powerful with < 0.25 ms response time and up to 1.9 m range
- Simple and cost-effective in installation and operation without reflector

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y = light source	FNDR 14	O300H.Sy O300H.Sy.T	O500H.Sy O500H.Sy.T	FNDH 14
features	■ Washdown design	■ Hygiene design ■ Versions pour détection de transparence	■ Hygiene design ■ Versions pour détection de transparence	■ Hygiene design ■ Versions pour détection de transparence
dimensions (B × H × T)	19,6 × 51 × 34,3 mm	16,5 × 34,6 × 28,7 mm	20,2 × 47,7 × 36,4 mm	19,6 × 52,2 × 34,3 mm
light source (y)				
standard LED (R)				
pinPoint LED (P)	**50 ... 800 mm**	**30 ... 300 mm** (O300H.SP / O300H.SP.T)	**60 ... 600 mm** (O500H.SP) **60 ... 1000 mm** (O500H.SP.T)	**50 ... 800 mm**
infrarot (I)				
laser (L)	**30 ... 250 mm**	**30 ... 250 mm** (O300H.SL)		**1900 mm**
response time	< 1,8 ms	< 0,25 ms	< 0,25 ms	< 1,8 ms
output	push-pull	push-pull	push-pull	push-pull
connection types	connector M12	connector M8	connector M12	cable 2 m connector M12
housing material	stainless steel, Ecolab-certified, EHEDG-compliant, FDA-compliant	stainless steel, Ecolab-certified, EHEDG-compliant, FDA-compliant	stainless steel, Ecolab-certified, EHEDG-compliant, FDA-compliant	stainless steel, Ecolab-certified, EHEDG-compliant, FDA-compliant
operating temperature	–30 ... +60 °C	–25 ... +60 °C	–25 ... +60 °C	–30 ... +60 °C
protection class	IP 68 / IP 69K *proTect+*	IP 68 / IP 69K *proTect+*	IP 68 / IP 69K *proTect+*	IP 68 / IP 69K *proTect+*

Learn more:
www.baumer.com/smartreflect

Light barriers and light sensors

Transparent detection

The sensor solutions for the detection of bowls, bottles and foils

- Extremely safe and fast with a response time < 0.25 ms
- Unique range without reflector up to 1 m
- Up to 7 m range with retro-reflective light barriers
- In plastic, hygiene or washdown design, depending on the surroundings

y = light source	O300.SP.T	O300.RP.T	FNDK 14	FRDK 14
features	■ *SmartReflect*®	■ retro-reflective sensors	■ *SmartReflect*®	■ retro-reflective sensors
dimensions (B × H × T)	12,9 × 32,3 × 23 mm	12,9 × 32,3 × 23 mm	14,8 × 43 × 31 mm	14,8 × 43 × 31 mm
light source (y)				
standard LED (R)				
pinPoint LED (P)	**30 ... 300 mm**	**4 m**	**200 ... 800 mm**	**8 m**
infrarot (I)				
laser (L)				
response time	< 0,25 ms	< 0,25 ms	< 1,8 ms	< 0,25 ms
output	push-pull	push-pull	push-pull	push-pull
connection types	cable 2 m connector M8	cable 2 m connector M8	cable 2 m connector M8 connector M12	cable 2 m connector M8
housing material	plastic	plastic	plastic	plastic
operating temperature	–25 ... +60 °C	–25 ... +60 °C	–30 ... +60 °C	–25 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 68 / IP 69K *proTect+*

Learn more:
www.baumer.com/transparent

OPDK 14	FPDM 16	O500.SP.T	O500.RP.T
■ retro-reflective laser sensor	■ retro-reflective sensors	■ *SmartReflect*®	■ retro-reflective sensors
14,8 × 43 × 31 mm	15,4 × 50 × 50 mm	18 × 45 × 32 mm	18 × 45 × 32 mm
	7,2 m		
		60 ... 1000 mm	6 m
5,2 m			
< 0,25 ms	< 2,5 ms	< 0,25 ms	< 0,25 ms
PNP NPN	PNP	push-pull	push-pull
cable 2 m connector M8 connector M12	connector M12	cable 2 m connector M12	cable 2 m connector M12
plastic	die-cast zinc	plastic	plastic
–10 ... +50 °C	–25 ... +65 °C	–25 ... +60 °C	–25 ... +60 °C
IP 67	IP 67	IP 67	IP 67

Light barriers and light sensors

Transparent detection – Stainless steel

The sensor solutions for the detection of bowls, bottles and foils

- Extremely safe and fast with a response time < 0.25 ms
- Unique range without reflector up to 1 m
- Up to 7 m range with retro-reflective light barriers
- In plastic, hygiene or washdown design, depending on the surroundings

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y = light source	O300W.SP.T Washdown O300H.SP.T Hygiene	O300W.RP.T Washdown O300W.RP.T Hygiene	FNDR 14 Washdown FNDH 14 Hygiene	O500W.SP.T Washdown O500H.SP.T Hygiene
features	■ *SmartReflect*®	■ retro-reflective sensors	■ *SmartReflect*®	■ *SmartReflect*®
dimensions (B × H × T)	16,5 × 34,7 × 28,2 mm	16,5 × 34,7 × 28,2 mm	16,5 × 51 × 34,3 mm	20,2 × 124 × 36,4 mm
light source (y)				
standard LED (R)				
pinPoint LED (P)	**30 ... 300 mm**	**4 m**	**20 ... 800 mm**	**60 ... 1000 mm**
infrarot (I)				
laser (L)				
response time	< 0,25 ms	< 0,25 ms	< 0,25 ms	< 0,25 ms
output	push-pull	push-pull	push-pull	push-pull
connection types	cable 2 m connector M8	cable 2 m connector M8	cable 2 m connector M8 connector M12	cable 2 m connector M12
housing material	stainless steel, Ecolab-certified, EHEDG-compliant (hygienic), FDA-compliant	stainless steel, Ecolab-certified, EHEDG-compliant (hygienic), FDA-compliant	stainless steel, Ecolab-certified, EHEDG-compliant (hygienic), FDA-compliant	stainless steel, Ecolab-certified, EHEDG-compliant (hygienic), FDA-compliant
operating temperature	–25 ... +60 °C	–25 ... +60 °C	–30 ... +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+*

Learn more:
www.baumer.com/transparent

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O500W.RP.T Washdown O500H.RP.T Hygiene	OR18.W.RR.T Washdown
■ retro-reflective sensors	■ retro-reflective sensors
20,2 × 124 × 36,4 mm	M18 × 67,2 mm
	800 mm
6 m	
< 0,25 ms	< 1 ms
push-pull	PNP NPN
cable 2 m connector M12	connector M12
stainless steel, Ecolab-certified, EHEDG-compliant (hygienic), FDA-compliant	stainless steel
–25 ... +60 °C	–25 ... +55 °C
IP 68 / IP 69K *proTect+*	IP 67/69K

Light barriers and light sensors

Washdown design

- Robust stainless steel housing
- Long-term sealing thanks to *proTect+*
- IP 69K and Ecolab tested
- Different sizes and sensor principles
- Benefits by *SmartReflect*® light barrier without reflector

IO-Link

IO-Link

IO-Link

IO-Link

x = function principle y = light source	FxDR 14	O300W.xy	O500W.xy	OR18W.xy
dimensions (B × H × T)	19,6 × 62,4 × 34,3 mm	16,5 × 34,7 × 28,2 mm	20,2 × 47,2 × 37,7 mm	M18
function principle (x) / ranges				
diffuse sensors with background suppression	**50 ... 400 mm** (FHDR 14)	**30 ... 250 mm** (O300W.GP / O300W.GL)	**60 ... 400 mm** (O500W.GP)	**40 ... 120 mm** (OR18W.GR)
diffuse sensors with intensity difference				**0 ... 800 mm** (OR18W.ZI)
SmartReflect® light barriers without reflector	**50 ... 800 mm** (FNDR 14)	**30 ... 300 mm** (O300W.SP / O300W.SL)	**60 ... 600 mm** (O500W.SP)	
SmartReflect® transparent	**200 ... 800 mm** (FNDR 14)	**30 ... 300 mm** (O300W.SP.T)	**60 ... 1000 mm** (O500W.SP.T)	
retro-reflective sensors	**3 m** (FPDR 14)	**6 m** (O300W.RP / O300W.RL)	**8 m** (O500W.RP)	**4,5 m** (OR18W.RR)
transparent detection without reflector		**4 m** (O300W.RP.T)	**6 m** (O500W.RP.T)	**800 mm** (OR18W.RR.T)
through beam sensors		**15 m** (O300W.TR / .TL) (O300W.ER / .EL)	**40 m** (O500W.TR / .TL) (O500W.ER / .EL)	**20 m** (OR18W.TI) (OR18W.EI)
contrast sensor	**12,5 mm ±2 mm** (FKDR 14)			
light source (y)				
standard LED (R)	■	■	■	■
pinPoint LED (P)	■	■	■	
infrarot (I)				■
laser (L)		■		
response time	< 1 ms <0,05 ms (contrast)	< 0,25 ms < 0,1 ms (laser)	< 0,25 ms	< 1 ms
output	push-pull	push-pull	push-pull	PNP NPN
connection types	connector M12	connector M8	connector M12	connector M12
housing material	stainless steel, Ecolab-certified, FDA-compliant	stainless steel, Ecolab-certified, FDA-compliant	stainless steel, Ecolab-certified, FDA-compliant	stainless steel, Ecolab-certified, FDA-compliant
operating temperature	–25 ... +60 °C	–25 ... +60 °C	–25 ... +60 °C	–25 ... +55 °C
protection class	IP 68 / IP 69K *proTect+*	IP 68 / IP 69K *proTect+*	IP 68 / IP 69K *proTect+*	IP 67 / IP 69K

Hygiene Design

- EHEDG certified, FDA-compliant, Ecolab tested
- Long-term sealing thanks to *proTect+*
- Different sizes and sensor principles
- Benefits through *SmartReflect*® light barrier without reflector

Learn more:
www.baumer.com/opto

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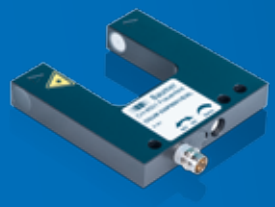
x = function principle y = light source	FxDH 14	O300H.xy	O500H.xy
dimensions (B × H × T)	19,6 × 52,2 × 34,3 mm	16,5 × 34,6 × 28,7 mm	20,2 × 47,7 × 36,4 mm
function principle (x) / ranges			
diffuse sensors with background suppression	**50 ... 400 mm** (FHDH 14)	**30 ... 250 mm** (O300H.Gy)	**60 ... 400 mm** (O500H.Gy)
diffuse sensors with intensity difference			
SmartReflect® light barriers without reflector	**50 ... 800 mm** (FNDH 14)	**30 ... 300 mm** (O300H.Sy)	**60 ... 600 mm** (O500H.Sy)
SmartReflect® transparent	**200 ... 800 mm** (FNDH 14)	**30 ... 300 mm** (O300H.SPT)	**60 ... 1000 mm** (O500H.SPT)
retro-reflective sensors	**3,5 m** (FPDH 14)	**6 m** (O300H.Ry)	**8 m** (O500H.Ry)
transparent detection without reflector		**4 m** (O300H.RPT)	**6 m** (O500H.RPT)
through beam sensors		**15 m** (O300H.Ty) (O300H.Ey)	**40 m** (O500H.Ty) (O500H.Ey)
contrast sensor	**12,5 m ±2 mm** (FKDH 14)		
light source (y)			
standard LED (R)	■	■	■
pinPoint LED (P)	■	■	■
infrarot (I)			
laser (L)		■	
response time	< 1 ms <0,05 ms (contrast)	< 0,25 ms <0,1 ms (laser)	< 0,25 ms
output	push-pull	push-pull	push-pull
connection types	connector 2 m flylead connector M12	connector 2 m flylead connector M8	connector 2 m flylead connector M12
housing material	stainless steel, Ecolab-certified, EHEDG-compliant, FDA-compliant	stainless steel, Ecolab-certified, EHEDG-compliant, FDA-compliant	stainless steel, Ecolab-certified, EHEDG-compliant, FDA-compliant
operating temperature	–30 ... +60 °C	–25 ... +60 °C –10 ... +60 °C (Laser)	–25 ... +60 °C
protection class	IP 68 / IP 69K *proTect+*	IP 68 / IP 69K *proTect+*	IP 68 / IP 69K *proTect+*

Light barriers and light 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 with	OGUM basic	OGUM	FGLM
category	**Pulsed red LED Fork sensors**	**Laser Fork sensors**	**Laser Fork sensors**	**Angle sensors L profile**
features	■ Potentiometer or Teach-in version ■ Narrow, virtually parallel light beam ■ Sensors can be mounted side-by-side	■ High resolution ■ Short response time ■ Sensors can be mounted side-by-side	■ Very high resolution ■ Extremely narrow laser light beam ■ Sensors can be mounted side-by-side ■ High repeat accuracy	■ Special L-type ■ Narrow, virtually parallel light beam ■ Sensors can be mounted side-by-side
type	U profile	U profile	U profile	L profile
fork widths	20 mm 30 mm 50 mm 80 mm 120 mm 170 mm	30 mm 50 mm 80 mm 120 mm	30 mm 50 mm 80 mm 120 mm	60 mm 100 mm 158 mm
object size	> 0,4 mm	> 0,1 mm	> 0,05 mm	> 0,5 mm
repeat accuracy	< 0,02 mm	< 0,02 mm	< 0,01 mm	< 0,06 mm
response / release time	< 0,125 ms	< 0,166 ms	< 0,166 ms	< 0,125 ms
connection types	connector M8	connector M12	connector M8	connector M8
housing material	die-cast zinc	aluminum	aluminum	die-cast zinc
operating temperature	–10 ... +60 °C	+5 ... +45 °C	+5 ... +45 °C	–10 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features		■ laser class 1	■ laser class 1	

Learn more:
www.baumer.com/fork-angle

Light barriers and light sensors

Differential, contrast and color sensors

- Fast print mark detection
- Small sizes from 10 mm
- Reliable detection of very low contrasts or very fine color nuances
- Monitoring of position tolerances using differential sensors

	OBDM 12	OZDK 10	OZDM 16
features	■ Difference sensors	■ Diffuse sensors with intensity difference - miniature	■ Diffuse sensors with intensity difference with analog output - standard
dimensions (B × H × T)	12,4 × 37 × 34,5 mm	10,4 × 27 × 16,3 mm	15,4 × 50 × 50 mm
light source	laser	laser	laser
sensing distance Tw	16 ... 120 mm	3 ... 150 mm	0 ... 250 mm
response time	< 1 ms	< 0,05 ms	< 0,1 ms
output	PNP NPN	PNP NPN	PNP 4 ... 20 mA
connection types	connector M8	cable 2 m connector M8	cable 2 m connector M8
housing material	die-cast zinc	plastic	die-cast zinc
operating temperature	0 ... +50 °C	0 ... +50 °C	–10 ... +50 °C
protection class	IP 67	IP 67	IP 67
function	■ monitoring of position tolerances ■ object detection on fluctuating conveyor belts ■ detection of minimum and maximum deviations in the process ■ variant for step / edge detection	■ detection of gradual changes, e. g. when polishing surfaces ■ fast and economical print mark recognition	■ detection of gradual changes, e. g. when polishing surfaces ■ fast and economical print mark recognition

Learn more:
www.baumer.com/contrast

FKDK 14	FKDR 14	FKDH 14	FKDM 22
■ White LED diffuse contrast sensors	■ White LED diffuse contrast sensors ■ Washdown design	■ White LED diffuse contrast sensors ■ Hygienic design	■ Color sensors
14,8 × 43 × 31 mm	19,6 × 51 × 34,3 mm	19,6 × 52,2 × 34,3 mm	22,9 × 50 × 68,7 mm
white LED	white LED	white LED	RGB
12,5 mm ±2 mm	12,5 mm ±2 mm	12,5 mm ±2 mm	25 mm / 40 mm
< 0,05 ms	< 0,05 ms	< 0,05 ms	< 0,34 ms
push-pull	push-pull	push-pull	PNP NPN
cable 2 m connector M8 connector M12	connector M12	cable 2 m flylead connector M12	connector M12
plastic	stainless steel	stainless steel	aluminum
–25 ... +65 °C	–25 ... +65 °C	–25 ... +60 °C	–10 ... +55 °C
IP 67	IP 68 / IP 69K *proTect+*	IP 68 / IP 69K *proTect+*	IP 67
■ detection of gradual changes, e. g. when polishing surfaces ■ fast and economical print mark recognition	■ detection of gradual changes, e. g. when polishing surfaces ■ fast and economical print mark recognition	■ detection of gradual changes, e. g. when polishing surfaces ■ fast and economical print mark recognition	■ 4 color channels ■ Adjustable color tolerance ■ Quick response time of 0,34 ms

Fiber optic sensors

Plastic fiber optic sensors and fiber optic cables

Always close to the action – detecting tiny objects in cramped or inaccessible places

- Large selection of sensing heads with plastic and glass fiber optic cables
- Very small and light sensors for tasks in robotics
- Detection of filling levels or leaks, also in aggressive liquids
- Large sensing range of up to 4 m

	Plastic fiber optic	FVDK 10	FWDK 84	FVDK 66
features	■ 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 × 27 × 19,5 mm	10 × 29,7 × 60 mm	10 × 33,8 × 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	1 ... 5 VDC	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

Learn more:
www.baumer.com/fibre-optic

FVDK 67

- Multi-functional device
- Sensitivity adjustable with Teach-in
- Minimized installation effort (master slave)
- Timer functions

10 × 33,8 × 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

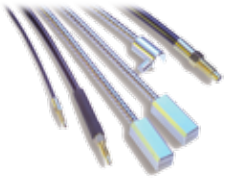
- version with 2 switching points
- master slave

Fiber optic sensors

Glass fiber optic sensors and fiber optic cables

Always close to the action – detecting tiny objects in cramped or inaccessible places

- Large selection of sensing heads with plastic and glass fiber optic cables
- Very small and light sensors for tasks in robotics
- Detection of filling levels or leaks, also in aggressive liquids
- Large sensing range of up to 4 m



	Glass fiber optic	FZAM 18	FZAM 30	FVDM 15
features	■ 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 × 50 mm	M30 × 50 mm	15 × 60 × 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

Learn more:
www.baumer.com/fibre-optic

Ultrasonic sensors

Miniaturized ultrasonic sensors

Small and light sensors for very cramped spaces

- Wide range of round and rectangular designs
- Sensing distances up to 400mm
- Narrow sonic beam for object detection even in the smallest openings
- Lightweight with only 4 grams for gripper applications

	UNAM 12 URAM 12	UNCK / UNDK 09 URCK / URDK 09	UNDK 10 / URDK 10
features	■ Narrow and wide sonic beam angles ■ Highspeed versions ■ Versions with beam columnator	■ Versions with beam columnator ■ Very flat housing ■ Lateral approach accuracy <1, 5 mm	■ The world's smallest sensor ■ Weights only 4 grams ■ Narrow sonic beam angles
dimensions	M12	8,6 × 82 × 24,5 mm	10,4 × 27 × 14 mm
sensing range Sd / sensor principle			
proximity switch (UNxx / xx.PAO)	5 ... 400 mm	3 ... 200 mm	10 ... 200 mm
2 point proximity switch (UZxx)			
retro-reflective sensors (URxx / xx.RAO)	0 ... 70 mm	0 ... 200 mm	0 ... 200 mm
through beam sensors (UExx)			
response time	< 1,5 mm	< 0,5 mm < 1,5 mm	< 0,5 mm < 1,5 mm
output	NPN PNP	Gegentakt NPN PNP	NPN PNP
connection types	connector M12	cable 2 m connector M8	cable 2 m connector M8
housing material	brass nickel plated	plastic	plastic
operating temperature	–10 ... +60 °C	0 ... +60 °C	–10 ... +60 °C
protection class	IP 67	IP 67	IP 67

UNxx / xx.PAO = proximity switch
URxx / xx.RAO = retro-reflective sensors
UZxx = 2 point proximity switch
UExx = through beam sensors

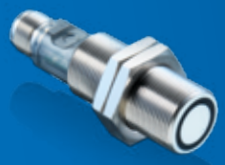
Learn more:
www.baumer.com/ultrasonic

Ultrasonic sensors

Cylindrical standard sensors

Undisturbed by difficult environmental conditions and varying object properties

- Outstanding fast, small and sturdy in one
- Unaffected by object's brilliance, color or transparency
- Impervious to dust, moisture or ambient light



	UNAM 18 UNAR 18	UR18.PAO UR18.RAO	UNAM 30 UZAM 30
features	■ Stainless steel housing V4A ■ Chemically resistant sensor front ■ FDA-compliant materials ■ Internal and external Teach-in	■ *qTeach*® – easy to operate, safe and wear-free ■ Short design	■ Internal and external Teach-in ■ Cable and connector versions ■ Potentiometer versions
dimensions	M18	M18	M30
sensing range Sd / sensor principle			
proximity switch (UNxx / xx.PAO)	60 ... 1000 mm	100 ... 1000 mm	200 ... 1500 mm
2 point proximity switch (UZxx)			100 ... 1000 mm
retro-reflective sensors (URxx / xx.RAO)	0 ... 400 mm	0 ... 1000 mm	
response time	< 0,5 mm	< 0,5 mm	< 0,5 mm
output	NPN PNP	push-pull	NPN PNP
connection types	connector M12	connector M12	cable 2 m connector M12
housing material	brass nickel plated stainless steel	brass nickel plated	brass nickel plated
operating temperature	–10 ... +60 °C	–25 ... +70 °C	–25 ... +60 °C –10 ... +60 °C
protection class	IP 67	IP 67	IP 67

UNxx / xx.PAO = proximity switch
URxx / xx.RAO = retro-reflective sensors
UZxx = 2 point proximity switch
UExx = through beam sensors

Learn more:
www.baumer.com/ultrasonic

UNAM 50 URAM 50 UZAM 50	UZAM 70
■ Large sensing range ■ Internal and external Teach-in ■ Potentiometer versions	■ Large sensing range ■ Internal and external Teach-in
M30	M30
350 ... 2500 mm	
350 ... 2500 mm	600 ... 6000 mm
0 ... 3000 mm	
< 1 mm < 3 mm	< 3 mm
NPN PNP	NPN PNP
cable 2 m connector M12	connector M12
brass nickel plated	brass nickel plated
–25 ... +60 °C	–25 ... +60 °C
IP 67	IP 67

Ultrasonic sensors

Rectangular standard sensors

Undisturbed by difficult environmental conditions and varying object properties

- Sensing distances up to 2000 mm
- Reliable detection of high-reflective and transparent objects
- Tolerant of dust and dirt
- Versions with two separate switching outputs
- Adjustable response times ton/toff for throughbeam barriers

	UNCK / UNDK 09 URCK / URDK 09	UNDK 10 / URDK 10	UNDK 20 URDK 20 UEDK 20
features	■ 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
dimensions	8,6 × 82 × 24,5 mm	10,4 × 27 × 14 mm	20 × 42 × 15 mm
sensing range Sd / sensor principle			
proximity switch (UNxx / xx.PAO)	3 ... 200 mm	10 ... 200 mm	10 ... 1000 mm
2 point proximity switch (UZxx)			
retro-reflective sensors (URxx / xx.RAO)	0 ... 200 mm	0 ... 200 mm	0 ... 1000 mm
through beam sensors (UExx)			0 ... 1000 mm
response time	< 0,5 mm	< 0,5 mm	< 0,5 mm
output	push-pull RS 232	NPN PNP	NPN PNP
connection types	cable 2 m connector M8	cable 2 m connector M8 flylead connector M8	connector M8
housing material	plastic	plastic	plastic
operating temperature	0 ... +60 °C	–10 ... +60 °C	–10 ... +60 °C

UNxx / xx.PAO = proximity switch
URxx / xx.RAO = retro-reflective sensors
UZxx = 2 point proximity switch
UExx = through beam sensors

Learn more:
www.baumer.com/ultrasonic

UNDK 30 / URDK 30 UZDK 30 / UEDK 30	U500.PAO / U500.RAO
■ Compact type ■ Large sensing range ■ Teach-in on the sensor ■ Potentiometer version ■ Narrow and wide sonic beam angles	■ *OneBoxDesign* – flexibility in planning ■ *qTarget*® – time savings during installation ■ *qTeach*® – Easy to operate, safe and wear-free
30 × 65 × 31 mm	18 × 45,1 × 32,2 mm
30 ... 1000 mm	100 ... 1000 mm
30 ... 2000 mm	
0 ... 2000 mm	0 ... 1000 mm
0 ... 700 mm	
< 0,5 mm	< 0,5 mm
NPN PNP	push-pull
cable 2 m connector M12	cable 2 m connector M12
plastic / die-cast zinc	plastic
–10 ... +60 °C	–25 ... +65 °C

Ultrasonic sensors

Application-specific ultrasonic sensors - High-speed / robust

- High-speed sensors
- Robust stainless steel sensors

	UNAM 12 High-speed	URAM 12 High-speed	UxAR 12 mit Parylenebeschichtung	UNAR 18 URAR 18
category	**High-speed sensors**		**Robust stainless steel sensors, high chemical resistance**	
features	■ Fastest ultrasonic sensor ■ External Teach-in	■ Fastest ultrasonic sensor ■ External Teach-in ■ Sensors with sonic nozzle for small openings	■ Miniature sensor for narrow designs ■ Patented all-round protection ■ FDA-compliant materials ■ Very short response time	■ M18 standard housing ■ FDA-compliant materials ■ Internal and external Teach-in
dimensions	M12	M12	M12	M18
sensing range Sd / sensor principle				
proximity switch (UNxx / xx.PAO)	0 ... 40 mm 10 ... 70 mm		30 ... 200 mm	60 ... 1000 mm
2 point proximity switch (UZxx)				
retro-reflective sensors (URxx / xx.RAO)		0 ... 40 mm 0 ... 70 mm	0 ... 200 mm	0 ... 400 mm
repeat accuracy	< 0,5 mm	< 1,5 mm	< 0,5 mm	< 0,5 mm
output	NPN PNP	NPN PNP	NPN PNP	NPN PNP
connection types	connector M12	connector M12	connector M12	connector M12
housing material	brass nickel plated	brass nickel plated	stainless steel	brass nickel plated stainless steel
operating temperature	–10 ... +60 °C	–10 ... +60 °C	0 ... +60 °C	–10 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67

UNxx / xx.PAO = proximity switch
URxx / xx.RAO = retro-reflective sensors
UZxx = 2 point proximity switch
UExx = through beam sensors

Application-specific ultrasonic sensors - Sonic nozzles / Sensing distances

- Sensors with sonic nozzles
- Sensors with large sensing distances

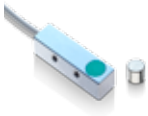
Learn more:
www.baumer.com/ultrasonic

	UNDK 09	UNAM / URAM 12	UNAM 50 URAM 50 UZAM 50	UZAM 70
category	**with sonic nozzles**		**with large sensing distances**	
features	■ 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	■ Sonic nozzle for very narrow sonic beams ■ External Teach-in ■ Connector M12	■ Internal and external Teach-in ■ Cable and connector versions ■ Potentiometer versions ■	■ Internal and external Teach-in ■ Connector M12
dimensions	8,6 × 82 × 24,5 mm	M12	M30	M30
sensing range Sd / sensor principle				
proximity switch (UNxx / xx.PAO)	3 ... 200 mm	5 ... 400 mm	350 ... 2500 mm	
2 point proximity switch (UZxx)			350 ... 2500 mm	60 ... 600 mm
retro-reflective sensors (URxx / xx.RAO)	0 ... 200 mm	0 ... 70 mm	0 ... 3000 mm	
response time	< 0,5 mm	< 0,5 mm	< 1 mm < 3 mm	< 3 mm
output	push-pull RS 232	NPN PNP	NPN PNP	NPN PNP
connection types	cable 2 m flylead connector M8	connector M12	cable 2 m connector M12	connector M12
housing material	plastic	brass nickel plated	brass nickel plated	brass nickel plated
operating temperature	0 ... +60 °C	–10 ... +60 °C	–25 ... +60 °C	–25 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67

Magnetic and cylinder sensors

Magnetic proximity sensors

- Reliable and wear-free object detection
- Large sensing distances up to 60 mm
- Cylindrical and rectangular versions

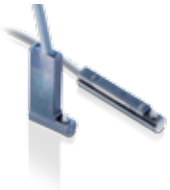


	MFFM 08	MFRM 08	MFVM 08
features	■ Acquisition of magnet location ■ Large sensing range ■ Object detection through container walls possible	■ Acquisition of magnet location ■ Large sensing range ■ Object detection through container walls possible	■ Full metall sensor ■ Sensing distance to 60 mm
dimensions	8 × 30 × 8 mm	M8	8 × 12 × 30 mm
assured sensing distance Sa max.	to 60 mm	2,5 mT	2,5 mT
switching frequency	5 kHz	5 kHz	5 kHz
voltage supply range +Vs	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC
output circuit	PNP NPN	PNP NPN	PNP NPN
connection types	cable 2 m	cable 2 m	cable 2 m
housing material	brass nickel plated	stainless steel	aluminum
operating temperature	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C
protection class	IP 67	IP 67	IP 67

Cylinder sensors

- Detecting stop positions of pistons in every standard cylinder with C- or T-slots
- Different versions and versatile installation accessories for maximum flexibility
- Non-contact sensing and absolutely wear-free

Learn more:
www.baumer.com/magnetic



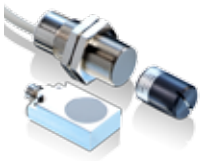
	MZCK 03x1011 MZCK 03x1012	MZTK 06x1011 MZTK 06x1012 MZTK 06x1013
features	■ For C slot cylinders ■ Oil- and salt water climate resistant	■ For T slot cylinders ■ Oil- and salt water climate resistant
dimensions	3,7 × 23 × 4,6 mm 3,7 × 11 × 19,5 mm	6,2 × 31 × 4,3 mm 6,5 × 21 × 9,4 mm 6,2 × 31,5 × 4,5 mm
nominal operation point / assured sensing distance Sa max.	4 mT	4 mT 2 mT (MZTK 06x1012)
switching frequency	200 kHz	200 kHz
voltage supply range +Vs	6 ... 30 VDC	6 ... 30 VDC
output circuit	PNP NPN	PNP NPN
connection types	cable 2,5 m flylead connector M8	cable 2,5 m flylead connector M8
housing material	PA 66	PA 66
operating temperature	–40 ... +70 °C	–40 ... +70 °C
protection class	IP 67	IP 67

Hall and magnetic rotary sensors

- Detection of speed and rotation direction at gear wheels
- Absolute acquisition of part location up to 360° rotary angle
- Wear-free and thus extremely low-maintenance
- Particular robust variants available
- High resolution

	MHRM 12 / 18	MTRM 16 / MTR
function	**hall sensors**	**hall sensors**
features	■ Detects gears and racks ■ Sealed metal housing ■ Operating temperature range –40 ... +120 °C	■ Detection of rpm speed and rotational direction of gear wheels ■ Completely sealed metal housing ■ Operating temperature range –40 ... +120 °C
dimensions	M12 × 1 M18 × 1	ø 16 mm
working distance max.	2 mm	2,5 mm
switching frequency / response time	20 kHz	20 kHz
resolution	starting from module 1	module 1 to 3
output	push-pull	push-pull
connection types	cable 2 m connector M12	cable 2 m
housing material	brass nickel plated stainless steel	brass nickel plated stainless steel 1.4404
operating temperature	–40 ... +120 °C	–40 ... +120 °C
protection class	IP 67 (sensor) IP 68 (sensing face)	IP 68 / IP 69K
specific features	■ single and dual channel versions	■ compliant to stringent railway standards: EN 501555 EN 61373 (Kat. 3) EN 45545

Learn more:
www.baumer.com/hall



	MDRM 18 MDFM 20
function	**magnetic angle sensors**
features	■ Can be used as an electronic potentiometer ■ Absolute position feedback to 360° of rotation ■ Cylindrical and rectangular designs
dimensions	M18 × 1 20 × 30 × 8 mm
working distance max.	2 mm
switching frequency / response time	4 ms
resolution	0,09°
output	analog current or voltage output
connection types	cable 2 m connector M12 flylead connector M8
housing material	brass nickel plated
operating temperature	–40 ... +85 °C
protection class	IP 67
specific features	■ suitable magnets available as an accessory

Edge detection / copy counters

Copy counters *SCATEC*®

Number one in flawless edge detection

- Reliable lap stream copy counting – up to 3 million copies per hour
- Detection of individual packages with seamless product conveyance
- Single sheet detection from an edge thickness of 0.1 mm

	SCATEC-J	*SCATEC-2*	*SCATEC-10*	*SCATEC-15*
category	entry-level model edge thickness up 1,5 mm	standard edge thickness up 0,2 mm	precision class edge thickness up 0,1 mm	precision class edge thickness up 0,15 mm
dimensions	33 × 110 × 50 mm	33 × 110 × 50 mm	30 × 170 × 70 mm	30 × 170 × 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		■ *SCATEC-2* Box for counting of individual packages (in transport clamps)		

Learn more:
www.baumer.com/opto

Precision mechanical switches

Precision mechanical switches *MY-COM*®

Micrometer precision – 70 times more accurate than a hair is thick

- Repeat accuracy of 1 micrometer – the most accurate mechanical limit switch in the world
- Compact design for very confined installation environment
- Mechanical (NC) and electrical (NO) output circuit

	MY-COM A	MY-COM B	MY-COM C	MY-COM D
features	■ 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°
all mechanical	■	■	■	
with amplifier				
for lateral approach				■
rugged IP 67				■
dimensions	M8 × 0,5	M8 × 0,5	8 × 12 × 30 mm	M16 × 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

Learn more:
www.baumer.com/my-com




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
■	■	H	■
	G	L	■
■			
		■	■
M6 × 0,5	M8 × 0,5	M8 × 0,5	M8 × 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

Distance measurement

Sensors for detecting distances and distance information from the µm range to over 40 m.

Content.

Photoelectric sensors

Optical distance sensors

Precise distance, spacing and position measurements even on challenging surfaces

- Fast, accuracy in the submicrometer range and distances of up to 13 meters
- Reliably even on very rough, shiny or dark surfaces
- Very high ambient light immunity
- Large selection of performance classes, sizes and beam shapes

	OADM 12	OADM 13	OADM 20	OADM 20	OADR 20
category	miniature sensors		performance sensors		
features	■ Smallest laser distance sensor ■ Adjustable measuring range ■ Highest resolution ■ Also as laser class 1	■ Large measuring distance in a small housing ■ Adjustable measuring range ■ Also as laser class 1 & 2 ■ Point and Line	■ The allrounder ■ High vibration resistance ■ Different measuring ranges teachable ■ High measuring rates	■ Increased vibration immunity ■ Increased ambient light immunity 100K lux ■ Suitable for outdoor applica-tions	■ Washdown design ■ Adjustable measuring range ■ Laser Point / Laser line
dimensions	12,4 × 37 × 34,5 mm	13,4 × 48,2 × 40 mm	20,6 × 65 × 50 mm	20,6 × 65 × 50 mm	20,3 × 65 × 50 mm
measuring distance	16 ... 120 mm	50 ... 550 mm	30 ... 1000 mm	50 ... 1000 mm	30 ... 600 mm
resolution	2 µm	10 µm	4 µm	10 µm	5 µm
response time	< 0,9 ms	< 0,9 ms	< 0,9 ms	< 2,5 ms	< 0,9 ms
output	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V RS 485 / RS 232	4 ... 20 mA 0 ... 10 V RS 485	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V
connection types	connector M8	connector M8	connector M12	connector 2 m	connector M12
housing material	die-cast zinc	aluminum	die-cast zinc	die-cast zinc	stainless steel 1.4404 (V4A)
operating tempe-rature	0 ... +50 °C	0 ... +50 °C	0 ... +50 °C	0 ... +50 °C	0 ... +50 °C
protection class	IP 67	IP 67	IP 67	IP 67	IP 68 / IP 69K & proTect+
specific features	■ suppression of incorrect measuring operations, the last measured value is retained at the output for up to 30 ms	■ suppression of incorrect measur-ing 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 synchro-nizing measure-ments ■ laser diode can be switched on/off	■ missing measure-ment signals or incorrect measurements are suppressed	■ alarm output to signalize any incorrect measur-ing operation or out-of-range object ■ input for synchronizing measurements ■ laser diode can be switched on/off

Learn more:
www.baumer.com/opto-distance




OADM 21	OM 70 multi-spot	OM 70 laser point	OM 70 laser line
	high performance sensors		
■ 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	■ Very small spot size ■ Measurements on very dark objects ■ Function Distance and Tolerance	■ Very fine laser line ■ Measurements on very dark objects ■ Function Distance and Tolerance
20,4 × 135 × 45 mm	26 × 74 × 55 mm	26 × 74 × 55 mm	26 × 74 × 55 mm
100 ... 1000 mm	100 ... 500 mm	50 ... 1500 mm	100 ... 1500 mm
10 µm	4 µm	2 µm	2 µm
< 5 ms	< 6 ms	< 0,7 ms	< 0,7 ms
4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V RS 485	4 ... 20 mA 0 ... 10 V RS 485	4 ... 20 mA 0 ... 10 V RS 485
connector M12	connector M12	connector M12	connector M12
aluminum	aluminum	aluminum	aluminum
0 ... +50 °C	–10 ... +50 °C	–10 ... +50 °C	–10 ... +50 °C
IP 67	IP 67	IP 67	IP 67
■ 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	■ sensor settings via touch display ■ compact measuring unit without external software ■ values displayed in mm	■ sensor settings via touch display ■ compact measuring unit without external software ■ values displayed in mm

Photoelectric sensors

Optical sensors with analog output

- Resolution up to 0.1 mm
- Measuring range up to 1000 mm
- Red LED or laser class 1
- Washdown and hygienic design
- IO-Link

IO-Link

	FADK 14 LED distanz sensor	OADK 25 Laser distanz sensor	OADM 250	OADM 260
category			long range sensors	
features	■ Compact housing ■ Measuring distance 50 ... 400 mm ■ Resolution up to 0,1 mm	■ *qTeach*® ■ Alarm output ■ Laser class 1	■ 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	14,8 x 43 x 31 mm	23,4 × 63 × 45 mm	25,4 × 66 × 51 mm	25,4 × 66 × 51 mm
measuring distance	50 ... 400 mm	100 ... 1000 mm	0,5 ... 4 m	0,5 ... 13 m
resolution	0,1 ... 1 mm	0,3 mm	1,2 mm	5 mm
response time	< 3 ms	< 12,8 ms	< 10 ms	< 10 ms
output signal	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V
connection types	cable 2 m connector M12	cable 2 m connector M12	connector M12	connector M12
housing material	plastic (ASA, MABS)	plastic (SAN LURAN 378P)	aluminum	aluminum
operating temperature	0 ... +50 °C	0 ... +50 °C	–25 ... +50 °C	–25 ... +50 °C
protection class	IP 67	IP 67	IP 67	IP 67
specific features	■ cost-effective solution for simpler measuring tasks	■ cost-effective solution for simpler measuring tasks	■ 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

Robust stainless steel distance sensors

Sensors in Hygiene and Washdown design

- Stainless steel housing V4A
- *proTect+*® sealing concept
- Ecolab-tested and -certified
- EHEDG-compliant
- FDA-compliant materials

Learn more:
www.baumer.com/opto-distance

IO-Link

IO-Link

	FADR 14	FADH 14	OADR 20
features	■ Washdown design ■ Adjustable measuring range ■ Point source LED	■ Hygienic design ■ Adjustable measuring range ■ Point source LED	■ Washdown design ■ Adjustable measuring range ■ Laser beam ■ Laser Point / Laser line
dimensions	19,6 × 62,4 × 33,8 mm	19,6 × 99,5 × 33,6 mm	20,3 × 65 × 50 mm
measuring distance	50 ... 400 mm	50 ... 400 mm	30 ... 600 mm
resolution	0,1 mm	0,1 mm	5 µm
response time	< 3 ms	< 3 ms	< 0,9 ms
output signal	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

Ultrasonic sensors

Precise ultrasonic distance sensors – cylindrical

Accurate distance measurement regardless of material, surface, color or transparency

- Small and light miniature sensors, e.g. for robotics
- Measurements in very small containers or openings
- Large measuring ranges up to 6000 mm
- Sturdy sensors also for demanding environments

	UNAM 12 UNAR 12	UNAM 12 with sonic nozzles	UNAM 18 UNAR 18	UR18
category	miniature	miniature	standard	standard
features	■ 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	M12	M18	M18
measuring distance	20 ... 400 mm	2 ... 82 mm	60 ... 1000 mm	100 ... 1000 mm
response time	< 10 ms	< 1,3 ms	< 50 ms	< 50 ms
resolution	< 0,5 mm	< 0,3 mm	< 0,3 mm	< 0,3 mm
repeat accuracy	< 0,5 mm	< 0,5 mm	< 0,5 mm	< 0,5 mm
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	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 sonic nozzles		■ optional sonic deflection bracket mounting	

Learn more:
www.baumer.com/ultrasonic-distance

UNAM 30	UNAM 50	UNAM 70
standard	long ranges	long ranges
■ 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	M30	M30
100 ... 1000 mm	400 ... 2500 mm	600 ... 6000 mm
< 100 ms	< 160 ms	< 640 ms
< 0,3 mm	< 0,3 mm	< 2 mm
< 0,5 mm	< 1mm	< 1mm
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

Precise ultrasonic distance sensors – rectangular

Accurate distance measurement regardless of material, surface, color or transparency

- Small and light miniature sensors, e.g. for robotics
- Measurements in very small containers or openings

	UNxK 09 URDK 09	UNDK 10	UNDK 20	UNDK 30
category	miniature	miniature	standard	standard
features	■ 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 × 48,8 × 57,5 mm	10,4 × 27 × 14 mm	20 × 42 × 15 mm	30 × 65 × 31 mm
measuring distance	3 ... 200 mm	20 ... 200 mm	20 ... 1000 mm	30 ... 2000 mm
response time	< 7 ms	< 15 ms	< 10 ms	< 10 ms
resolution	< 0,1 mm	< 0,3 mm	< 0,3 mm	< 0,3 mm
repeat accuracy	< 0,5 mm	< 0,5 mm	< 0,5 mm	< 0,5 mm < 1 mm
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	cable 2 m connector M8 flylead connector M8	connector M8	cable 2 m connector M12
housing material	plastic	plastic	plastic	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 sonic nozzles ■ cascadable in 9 mm grid	■ wide range of accessories and installation options	■ optional sonic deflection bracket	

Learn more:
www.baumer.com/ultrasonic-distance

U500
standard
■ *OneBoxDesign* – flexibility in planning ■ *qTarget*® – time savings during installation ■ *qTeach*® – Easy to operate, safe and wear-free ■ Cable and connector versions
18 × 45,1 × 32,2 mm
100 ... 1000 mm
< 10 ms
< 0,3 mm
< 0,5 mm
4 ... 20 mA / 20 ... 4 mA 0 ... 10 V / 10 ... 0 V
cable 2 m connector M12
plastic
–25 ... +65 °C (+60 °C in current mode)
IP 67
■ wide range of accessories and installation options

Ultrasonic sensors

Precise ultrasonic distance sensors – application-specific

Not affected by difficult environmental conditions and varying object properties

- Sturdy stainless steel sensors
- Sensors with sensing ranges up to 6000 mm
- Sensors with sonic nozzles for very narrow sonic beam

	UNAR 18	UNAM 50	UNAM 70	UNDK 30
category	**sturdy sensors**	**sensors with long ranges**		
features	■ Stainless steel housing V4A ■ Chemically resistant sensor front ■ FDA-compliant materials ■ Internal and external Teach-in ■ M12 connector	■ Large sensing range ■ Internal and external Teach-in ■ Cable and connector versions ■ Potentiometer version	■ Large sensing range ■ Internal and external Teach-in ■ M12 connector	■ Compact design ■ Large sensing range ■ Internal Teach-in ■ Potentiometer version ■ Narrow and wide sonic beam angles ■ Cable and connector versions
dimensions	M18	M30	M30	30 × 65 × 31 mm
measuring distance	60 ... 1000 mm	400 ... 2500 mm	600 ... 6000 mm	30 ... 2000 mm
resolution	< 0,3 mm	< 0,3 mm	< 2 mm	< 0,3 mm
response time	< 0,5 mm	< 1mm	< 1mm	< 1 mm
output	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	4 ... 20 mA / 20 ... 4 mA 0 ... 10 V / 10 ... 0 V
connection types	connector M12	cable 2 m connector M12	connector M12	cable 2 m connector M12
housing material	stainless steel	brass nickel plated	brass nickel plated	plastic / die-cast zincs
operating temperature	–10 ... +60 °C	–10 ... +60 °C	–25 ... +60 °C	–10 ... +60 °C
protection class	IP 67	IP 67	IP 67	IP 67

Learn more:
www.baumer.com/ultrasonic-distance

	UNAM 12	UNCK 09 UNDK 09
category	**sensors with sonic nozzles**	
features	■ External Teach-in ■ Connector M12 ■ Sonic nozzle for very narrow sonic beams	■ High resolution ■ Minimal blind region ■ RS 232 ■ Various mounting options ■ Very flat housing ■ Beam columnator for detection in openings of up to 3 mm
dimensions	M12	8,6 × 48,8 × 57,5 mm
measuring distance	20 ... 400 mm	3 ... 200 mm
resolution	< 0,3 mm	< 0,1 mm
response time	< 0,5 mm	< 0,5 mm
output	0 ... 10 mA / 10 ... 0 mA 0 ... 10 V / 10 ... 0 V	0 ... 10 V / 10 ... 0 V RS 232
connection types	connector M12	cable 2 m connector M8
housing material	brass nickel plated	plastic
operating temperature	–10 ... +60 °C	0 ... +60 °C
protection class	IP 67	IP 67

Inductive distance sensors – *AlphaProx*®

Inductive distance sensors – cylindrical

- High resolution and repeatability
- Wide measuring ranges
- High measuring speed
- Extra-short designs

	IWRM 04	IR06.DxxS	IR08.DxxS	IR12.DxxS
category	**subminiature**	**sub-/miniature**	**sub-/miniature**	**compact**
features	■ 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 ■ Short design	■ Large measuring distance ■ Very high resolution ■ Quick response time ■ Linearized output calibration curves with Teach-in
dimensions	ø 4 mm	ø 6,5 mm	M8	M12
housing length	30 mm	up 22 mm	up 22 mm	up 40 mm
measuring distance Sd	0 ... 1 mm	0 ... 3 mm	0 ... 3 mm	0 ... 6 mm
resolution	1 µm	1 µm	1 µm	1 µm
repeat accuracy	5 µm	10 µm	10 µm	10 µm
response time	0,5 ms	0,5 ms	0,5 ms	1 ms
output signal	0 ... 10 V	0 ... 10 mA 0 ... 10 V	0 ... 10 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V
connection types	connector M5	cable 2 m connector M8	cable 2 m connector M8	cable 2 m connector M12
housing material	stainless steel	stainless steel	stainless steel	brass nickel plated
operating temperature	+10 ... +60 °C	–10 ... +70 °C	–10 ... +70 °C	–25 ... +75 °C
protection class	IP 67	IP 67	IP 67	IP 67

Learn more:
www.baumer.com/inductive-distance

IR18.DxxS	IR30.DxxS
compact	**compact**
■ Large measuring distance ■ Very high resolution ■ Linearized output calibration curves with Teach-in	■ Large measuring distance ■ Very high resolution ■ Linearized output calibration curves with Teach-in ■ Flush and non-flush designs
M18	M30
up 50 mm	60 mm
0 ... 8 mm	0 ... 24 mm
2 µm	5 µm
15 µm	20 µm
2 ms	2 ms
4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V
cable 2 m connector M12	connector M12
brass nickel plated	brass nickel plated
–10 ... +70 °C	–25 ... +75 °C
IP 67	IP 67

Inductive distance sensors – *AlphaProx*®

Inductive distance sensors – rectangular

- High repeat accuracy
- Large measuring range
- High measuring speed

	IWFM 05	IWFM 08	IWFM 12	IWFM 18
category	**subminiature**	**subminiature**	**compact**	**compact**
Features	■ Very high resolution ■ Quick response time ■ Fully integrated electronics ■ With M5 connector	■ Very high resolution ■ Compact model ■ Fully integrated electronics ■ Through-hole for M3 bolt	■ Integrated current and voltage output ■ Fully integrated electronics	■ Integrated current and voltage output ■ Fully integrated electronics
dimensions (B × T × L)	5 × 5 × 32 mm	8 × 4,7 × 16 mm	12 × 12 × 60 mm	18 × 10 × 30 mm
measuring distance Sd Sd	0 ... 1 mm	0 ... 2 mm	0 ... 4 mm	0 ... 4 mm
resolution	1 µm	1 µm	1 µm	1 µm
repeat accuracy	10 µm	20 µm	5 µm	5 µm
response time	0,5 ms	1 ms	2 ms	2 ms
output signal	0 ... 10 V	0 ... 10 V	0 ... 10 V 4 ... 20 mA	0 ... 10 V 4 ... 20 mA
connection types	connector M5	cable 2 m flylead connector M8	cable 2 m connector M8	connector M8
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
protection class	IP 67	IP 67	IP 67	IP 67
specific features	■ smallest inductive sensor with analog output	■ extremely low-profile version for front-side single-hole installation		

Learn more:
www.baumer.com/inductive-distance

IWFM 20
compact
■ Integrated current and voltage output ■ Fully integrated electronics
20 × 12 × 35 mm
2 ... 5 mm
1 µm
10 µm
2 ms
0 ... 10 V 1 ... 9 V 4 ... 20 mA
connector M8 flylead connector M8
brass nickel plated
–10 ... +70 °C 0 ... +60 °C
IP 67

Inductive distance sensors – *AlphaProx*®

Linearized characteristic curve

- Measuring range configurable by teach-in
- Negligible production lot variations
- Internal temperature compensation
- Easy integration into the controller
- Variants with an additional digital output

linearized characteristic curve	IR06.DxxL	IR08.DxxL	IR12.DxxL	IR18.DxxL	IR30.DxxL
category	miniatur	miniatur	compact	compact	compact
features	■ Adjustable measuring range ■ Linearized output calibration curves ■ External Teach-in	■ Adjustable measuring range ■ Linearized output calibration curves ■ External Teach-in	■ Adjustable measuring range ■ Linearized output calibration curves ■ External Teach-in	■ Adjustable measuring range ■ Linearized output calibration curves ■ External Teach-in	■ Adjustable measuring range ■ Linearized output calibration curves ■ External Teach-in
dimensions	ø 6,5 mm	M8	M12	M18	M30
housing length	up 40 mm	up 40 mm	60 mm	60 mm	60 mm
measuring distance Sd	0 ... 3 mm	0 ... 3 mm	0 ... 6 mm	0 ... 8 mm	0 ... 24 mm
resolution	3 µm	3 µm	3 µm	8 µm	5 µm
repeat accuracy	10 µm	10 µm	10 µm	15 µm	20 µm
response time	2 ms	2 ms	1 ms	1 ms	5 ms
output signal	0 ... 10 V	0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V	4 ... 20 mA 0 ... 10 V
connection types	cable 2 m connector M8	cable 2 m connector M8	connector M12	connector M12	connector M12
housing material	stainless steel	stainless steel	brass nickel plated	brass nickel plated	brass nickel plated
operating temperature	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C	–25 ... +75 °C
protection class	IP 67	IP 67	IP 67	IP 67	IP 67

Inductive sensors with reduction factor 1

- Two to four times larger measuring range for aluminum
- Adjustable measuring range limits (teach)
- Particularly suitable for measurements on non-ferromagnetic metals
- Great flexibility in construction and installation

Learn more:
www.baumer.com/inductive-distance

	IWFM 18	IWFK 20
	compact	compact
	■ Integrated current and voltage output ■ Fully integrated electronics	■ Adjustable measuring range ■ Teach-in button housing-integrated ■ Large measuring range ■ Plastic housing
	18 × 10 × 30 mm	20 × 15 × 42 mm
	0 ... 4 mm	0 ... 10 mm
	5 µm	10 µm
	10 µm	15 µm
	2,5 ms	3 ms
	0 ... 10 V	0 ... 10 VDC
	connector M8	connector M8
	brass nickel plated	plastic
	–10 ... +70 °C	–10 ... +70 °C
	IP 67	IP 67

factor 1	IR18.DxxF
category	compact
features	■ Very high measurement sensitivity ■ Linearized output calibration curves ■ External Teach-in
dimensions	M18
housing length	60 mm
measuring distance Sd	0 ... 8 mm
resolution	20 µm
repeat accuracy	30 µm
response time	15 ms
output signal	0 ... 10 V
connection types	connector M12
housing material	brass nickel plated
operating temperature	–25 ... +75 °C
protection class	IP 67

Inductive distance sensors – *AlphaProx*®

High-precision sensors

High-precision and high-sensitivity inductive sensors

- Large signal change for even the smallest position changes
- Solutions for high-end applications with a resolution of up to 4 nm
- Completely integrated in compact housing
- Easy teach option

high-precision and high-sensitivity inductive sensors	IPRM 12	IR12.DxxK IR18.DxxK
category	**High-precision sensors**	**High-sensitivity sensors**
dimensions	M12	M12 M18
housing length	90 mm	60 mm
measuring distance Sd	0 ... 3 mm	0,25 mm (Teach-in between 0 ... 3 mm)
resolution	0,004 µm	0,25 µm
sensitivity		40 V/mm 64 mA/mm
repeat accuracy	1 µm	1 µm
response time	2 ms	3 ms
output signal	4 ... 20 mA	4 ... 20 mA 0 ... 10 V
connection types	connector M12	cable 2 m connector M12
housing material	steel nickel plated	steel nickel plated
operating temperature	0 ... +60 °C	–10 ... +60 °C
protection class	IP 67	IP 67

Sturdy sensors / ATEX

Rugged stainless steel housing

- Rugged stainless steel sensors
- Outdoor and Washdown design
- Sensors for potentially explosive areas

Learn more:
www.baumer.com/inductive-distance

sturdy sensors	IWRM 18	IWRR 18
category	**Outdoor design**	**Outdoor design Washdown design**
dimensions	M18	M18
housing length	60 mm	60 mm
measuring distance Sd	0 ... 8 mm	0 ... 7 mm
resolution	5 µm	5 µm
repeat accuracy	15 µm	15 µm
response time	2 ms	2 ms
output signal	4 ... 20 mA	4 ... 20 mA
connection types	connector M12	connector M12
housing material	brass nickel plated	stainless steel 1.4404 (V4A)
operating temperature	–40 ... +70 °C	–40 ... +70 °C
protection class	IP 67	IP 68/69K & *proTect+*
specific features		Ecolab-tested FDA-compliant

ATEX sensors	IWRM 12
category	**ATEX**
dimensions	M12
housing length	50 mm
measuring distance Sd	0 ... 4 mm
resolution	1 µm
repeat accuracy	10 µm
response time	2 ms
output signal	4 ... 20 mA
connection types	connector M12
housing material	brass nickel plated
operating temperature	–10 ... +50 °C
protection class	IP 67
approvals	ATEX 2D

Linear bearingless encoders

Size 10 mm. Unlimited measuring range.

- Non-contact, wearfree magnetic sensing technology
- Impervious to soiling and resistant against vibration
- Extended life span thanks to robustness and durability in extreme conditions
- Maximized machine and system uptime

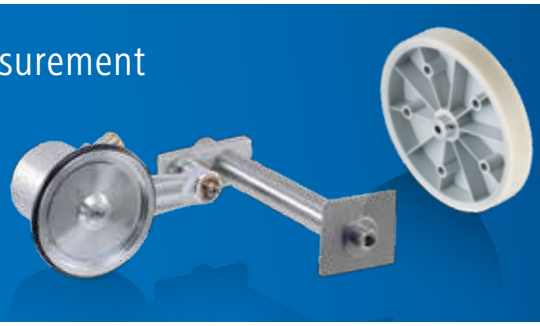
	MIL 10
catory	Linear bearingless Encoder
features	■ Linear measuring system ■ Output signals A 90° B with index pulse ■ Output circuit push-pull or RS422
size (sensing head)	rectangular
dimensions (sensing head)	10 x 15 x 45,5 mm
sensing distance	0,1 ... 0,6 mm
interpolation	factor 20, 50, 100
movement speed	<5 m/s (resolution 5 µm) <10 m/s (resolution 10 µm) <25 m/s (resolution 25 µm)
output circuit	HTL/Push-pull TTL/RS422
output signal	A 90° B
total resolution	5 µm (factor 4 evaluation) 10 µm (factor 4 evaluation) 25 µm (factor 4 evaluation)
system-accuracy	±(0.02 mm +0.04 mm x magnetic belt length)
connection	cable 2 m cable 0.3 m with connector M12
voltage supply	10 ... 30 VDC, 5 VDC ±5 %
operating temperature	–40 ... +85 °C
Protection class	IP 66, IP 67

Learn more:
www.baumer.com/linear-encoders

Measuring wheel encoders

The efficient and reliable solution to length measurement

- Programmable incremental encoders used in conjunction with measuring wheels
- Particularly easy acquisition of position and speed with high flexibility
- Perfect for ink jet and laser printing applications thanks to precise optical sensing



	MA 20
category	Compact, high-resolution measuring wheel system
features	■ Measuring wheel encoder comprising encoder, tether arm and measuring wheel ■ Contact pressure fully adjustable
configurable parameters	16 pre-defined resolutions
configuration	HEX switch
sensing method	optical
dimensions (housing)	ø 40 mm (encoder)
voltage supply	4,75 ... 30 VDC
output stage	HTL/push-pull
output signals	A 90° B
shaft type	solid shaft ø 6 mm
connection types	flange connector M12, cable radial
pulses per revolution	100 ... 25 000
operating temperature	–20 ... +85 °C
protection class	IP 64
operating speed	≤ 3000 U/min
options	measuring wheels available with different rubber surface

	MR series
category	Measuring wheels
features	■ The perfect grip at any surface ■ Different surface profiles to match the application best ■ Circumference 200, 300 or 500 mm ■ For shaft dia. 4 ... 12 mm

Maximum flexibility through versatile configuration options.

Learn more:
www.baumer.com/measuring-wheel

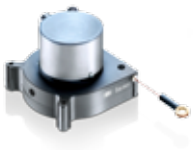
	EIL 580P-SC
category	Incremental encoders – programmable resolution and signals
features	■ Solid shaft with clamping flange max. ø10 mm or synchro flange max. ø6 mm
configurable parameters	Pulses per revolution, output stage HTL or TTL, zero pulse, signal sequence
configuration	Programming software, programming tool
sensing method	optical
dimensions (housing)	ø 58 mm
voltage supply	4,75 ... 30 VDC
output stage	TTL/RS422 HTL/push-pull
output signals	A 90° B, R + inverted
shaft type	Solid shaft ø 10 mm
connection types	flange connector M23, radial / axial cable, radial / axial / tangential
pulses per revolution	1 ... 65536
operating temperature	–40 ... +100 °C
protection class	IP 65, IP 67
operating speed	≤ 12 000 U/min (IP 65) ≤ 6000 U/min (IP 67)
max. shaft load	≤ 40 N axial, ≤ 80 N radial
options	isolated hollow shaft, flange variant, connector variant

	Z-PA-EI-H
category	Handheld programming tool
features	■ Simple and quick configuration ■ 4 user-assignable buttons ■ Intuitive menu navigation ■ Standard AA battery supply

Cable transducers

Linear travel measurement to 50 meters

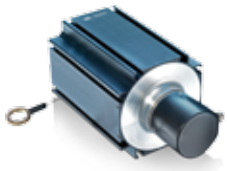
- High linearity throughout the entire measuring range
- Measuring length up to 50 m
- High quality and extremely durable designs
- OEM and retrofit



	BMMS K34	BMMS K50	BMMS M75	GCA5	GCA8	GCA12
features	■ Measuring length up to 5 m ■ Non-contact magnetic sensing		■ Measuring length up to 7.5 m ■ Non-contact magnetic sensing	■ Measuring length up to 4.7 m ■ Non-contact magnetic sensing ■ Dirt skimmer ■ Three-chamber structure	■ Measuring length up to 12 m ■ Absolute potentiometer sensing ■ Dirt skimmer ■ Three-chamber structure	
interface						
- SSI	■		■	–	–	
- Analog / redundant	■ / ■		■ / ■	■ / ■	■ / ■	
- CANopen® / redundant	■ / ■		■ / ■	– / ■	– / ■	
sensing method	magnetic				potentiometric	
dimension	88 × 88 × 66 mm		120 × 120 × 70 mm	104 × 104 × 65 mm	104 × 110 × 80 mm	126 × 124 × 92 mm
voltage supply	8 ... 30 VDC			8 ... 30 VDC (Analog) 10 ... 30 VDC (CANopen®)	10 ... 30 VDC	
connection						
- flange connector M12	radial					
- cable	radial					
measuring length	3400 mm	5000 mm	7500 mm	4700 mm	8000 mm	12 000 mm
resolution						
- SSI, CANopen®	0,1 mm/step					
- Analog	12 Bit					
linearity	±0,6 %	±0,5 %	±0,2 %	±1 %	±1 %	
operating temperature	–40 ... +85 °C					
protection class	IP 65 (encoder, except cable outlet)			IP 67 (housing) IP 54 (cable outlet)	IP 67 (housing) IP 54 (cable outlet)	
materials	cable-pull housing: plastic encoder: Aluminium cable: Stainless steel with coating			housing: plastic cable: Stainless steel with coating	housing: plastic cable: Stainless steel with coating	

Learn more:
www.baumer.com/cabletransducer

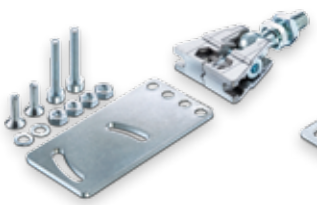
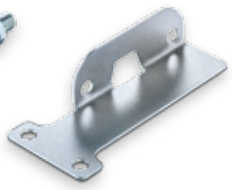


	GCI2	GCA2	GCI4	GCA4	GCI15	GCA15	GCI50	GCA50
features	■ Measuring length 2.1 m ■ Absolute or incremental encoder		■ Measuring length 3 m ■ Absolute or incremental encoder		■ Measuring length 5...15 m ■ Absolute or incremental encoder		■ Measuring length 30...50 m ■ Absolute or incremental encoder	
interface								
- SSI	–	■	–	■	–	■	–	■
- BiSS-C	–	■	–	■	–	■	–	■
- CANopen® / SAE J1939	–	■ / ■	–	■ / ■	–	■ / ■	–	■ / ■
- DeviceNet	–	■	–	■	–	■	–	■
- Profibus-DP	–	■	–	■	–	■	–	■
- EtherCAT	–	■	–	■	–	■	–	■
- EtherNet/IP	–	■	–	■	–	■	–	■
- Powerlink	–	■	–	■	–	■	–	■
- Profinet	–	■	–	■	–	■	–	■
function principle	Inkremental	Absolute	Inkremental	Absolut	Inkremental	Absolut	Inkremental	Absolut
sensing method	Optical							
dimension	60 × 60 mm		96 × 96 × 56 mm		115 × 115 × 82,5 - 180,5 mm		200 × 200 × 268 - 333,5 mm	
voltage supply	5 VDC 4,75 ... 30 VDC	10 ... 30 VDC	5 VDC 4,75 ... 30 VDC	10 ... 30 VDC	5 VDC 4,75 ... 30 VDC	10 ... 30 VDC	5 VDC 4,75 ... 30 VDC	10 ... 30 VDC
output stage								
- TTL/RS422	■	–	■	–	■	–	■	–
- HTL/push-pull	■	–	■	–	■	–	■	–
connection								
- Flange connector M12, M23	Radial, axial							
- Cable	Radial, axial							
- Bus cover	Radial							
measuring length	2100 mm		3000 mm		5000 ... 15 000 mm		30 000 ... 50 000 mm	
pulses per revolution	≤ 80 000	–	≤ 80 000	–	≤ 80 000	–	≤ 80 000	–
total resolution	–	≤ 36 Bit	–	≤ 36 Bit	–	≤ 36 Bit	–	≤3 6 Bit
linearity	±0,01 %		±0,02 % (3...7,5 m), ±0,01 % (10...50 m)					
operating temperature	–20 ... +85 °C							
protection (encoder)	IP 65							
materials	Cable-pull housing: plastic Encoder: Aluminium Cable: Stainless steel with coating		Cable-pull housing: Aluminium Encoder: Aluminium Cable: Stainless steel with coating					
options	Operating temperature -40...+85 °C							




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.

Learn more:
www.baumer.com/accessories

IO-Link

Testing and parameterization	Sensor test equipment	Teach-in Adapter	USB-IO-Link Master
characteristics	■ 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

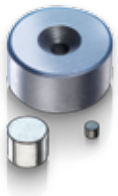
Network components	AS-i
characteristics	■ Input/output modules ■ Models for control cabinet installation ■ Extra-compact miniature modules ■ Various numbers of inputs and outputs ■ S-slave or A/B slave types ■ Various AS interface accessories such as cables, masters or branches




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°

Learn more:
www.baumer.com/accessories



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

Baumer – the strong partner.

We at Baumer are close to our customers, understand their needs and 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.

We are close to you across the globe.

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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