



W16, W26

THE HIGHFLIER IN OBJECT DETECTION

Photoelectric sensors

SICK
Sensor Intelligence.





ALL SET FOR ANY TYPE OF USE. IN ANY ENVIRONMENT.

We're ready for the challenges of the future

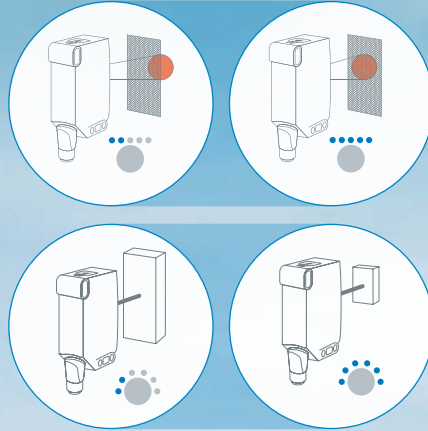
With the W16 and W26 product family, a new generation of photoelectric sensors is dawning which is equipped with everything that can make your work easier and your processes safer, and therefore more efficient. From the innovative BluePilot operating concept with feedback LED to a standardized service portfolio for all kinds of applications, all the way through to new technologies which detect shiny, uneven, perforated, and transparent objects in particular more reliably than ever before. All sensors are equipped with IO-Link as standard.

ALL CHALLENGES CAN BE OVERCOME WITH INTELLIGENT SYSTEMS

BLUEPILOT

Faster, convenient start-up

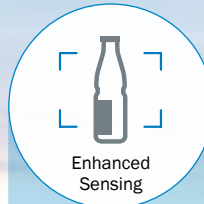
BluePilot is your assistant for easy, precise sensor set-up done in a matter of seconds.



SMART SENSORS

Switch to auto-pilot

Smart Sensors provide the essential input for every process chain: Information for the intelligent factory in Industry 4.0.



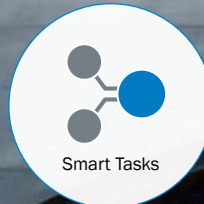
Enhanced Sensing



Efficient Communication



Diagnostics

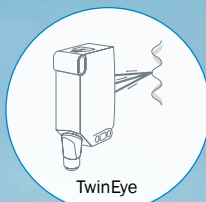


Smart Tasks

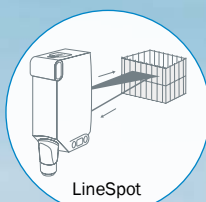
APPLICATION SPECIALISTS

Always on the right track

Whether the objects are shiny, uneven, contrast-rich, perforated or transparent – there are no problems, only solutions. With the new TwinEye, LineSpot, and ClearSens technologies, you can achieve unrivaled detection reliability.



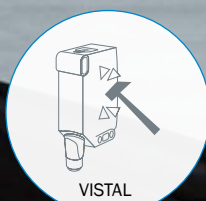
TwinEye



LineSpot



ClearSens



VISTAL

OPTOFILTER

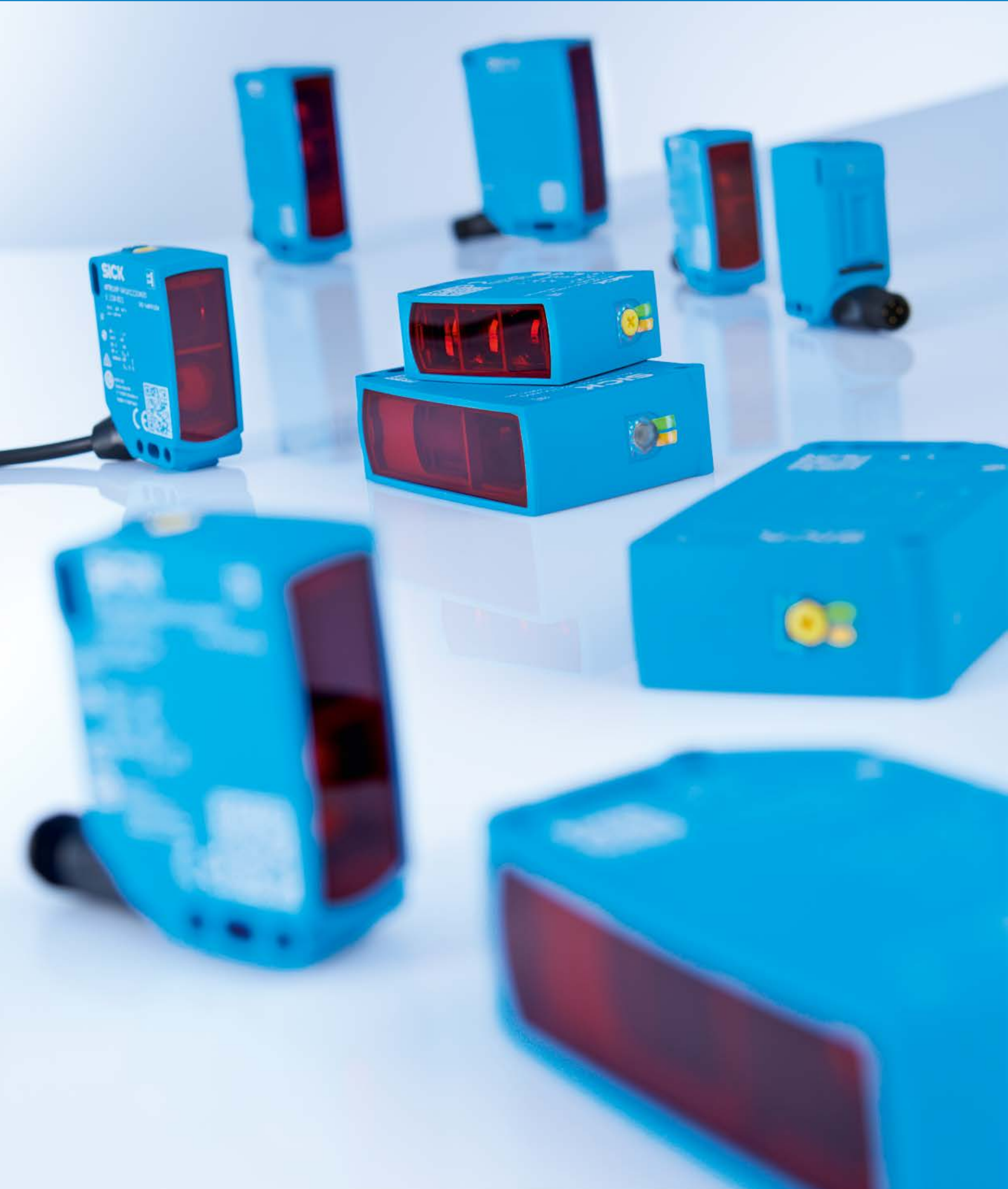
Exceptional ambient light immunity

The new sensors with OptoFilter only see what they have to see: They are optically immune to LED lights, reflections from safety vests, and the influence of depolarizing objects.

VISTAL

Extreme loads? No problem

Is all plastic the same? Not in this case. Thanks to the extremely rugged VISTAL housing, the sensors withstand a wide range of chemical, thermal, and mechanical environmental conditions.





GET UP TO SPEED IN AN INSTANT – AND STAY THERE



BLUEPILOT

Faster, convenient start-up

Through-beam and photoelectric retro-reflective sensors:

- The blue LED alignment aid accelerates the optimum alignment of the sensor and reflector or the sender and receiver
- Changes in the operational safety due to contamination or vibrations can be detected at a glance

Photoelectric proximity sensors:

- 2 in 1: The combination of teach-in button and potentiometer in one operating element enables intuitive fine-tuning in a matter of seconds
- The optical representation of the sensing range enables you to maintain an overview at all times

Photoelectric retro-reflective sensor for detecting transparent objects:

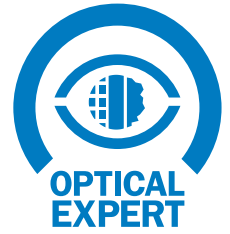
- Select the right mode for the object type in question by simply rotating the operating element

BLUETOOTH®

Everything at a glance

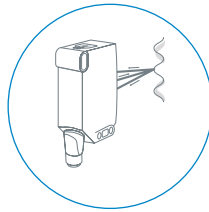
Sensor data made extremely simple and visible on your mobile end device. Regardless of how your sensor is installed, the smart Bluetooth® interface means that you will always know the status of your machine and can set the ideal sensor settings for your application with just a few clicks.





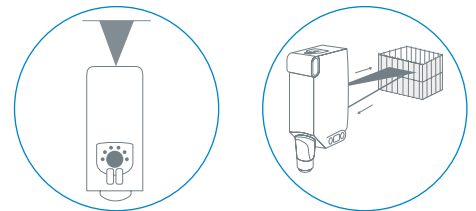
TWINEYE

Having two receivers in one system significantly increases the detection reliability. The sensor only changes the output state if both receivers produce the same assessment. In this way, even high-gloss, contrast-rich, and uneven surfaces can be reliably detected.

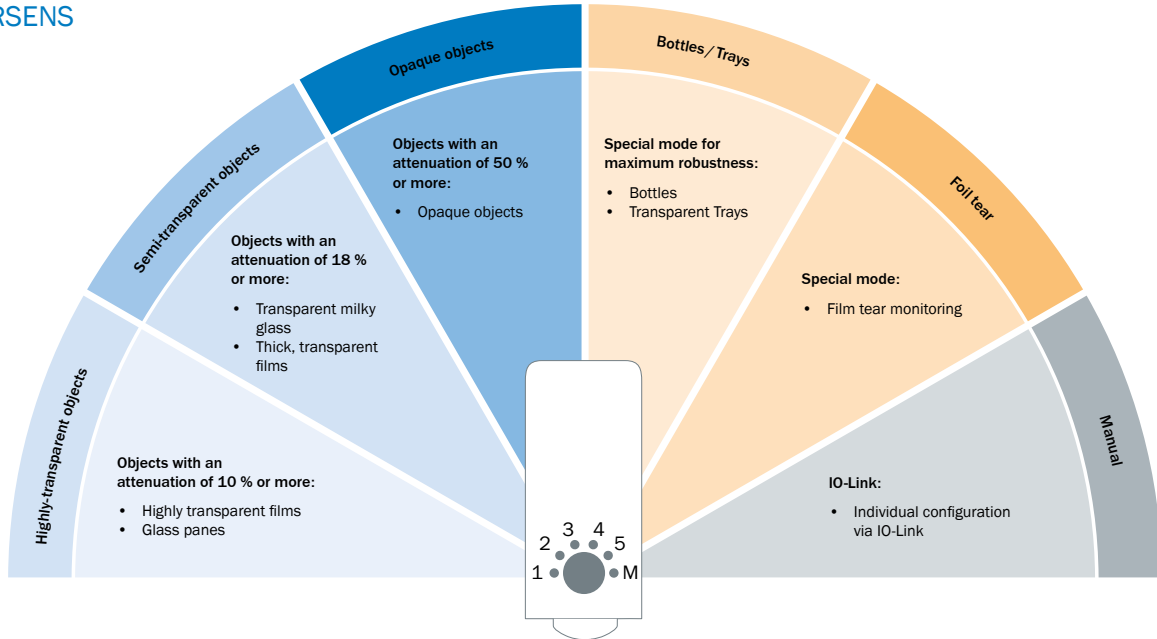


LINESPOT

The linear light spot provides a continuous sensor signal even in the case of perforated or textured objects. This ensures continuous object detection.



CLEARSENS



Mode selection on the device

You can intuitively set the right mode for the object characteristics and attenuation in question by rotating the potentiometer on the device. This enables you to combine maximum detection certainty with maximum accuracy.

AutoAdapt

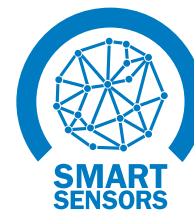
If the reflector or the front screen of the sensor is contaminated and following cleaning, the photoelectric sensor automatically adjusts its switching thresholds in order to retain its field of view.



DEPOLARIZING OBJECTS

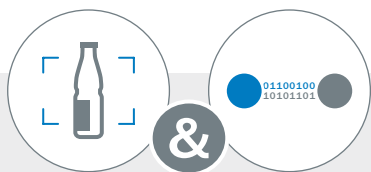
The signals received from depolarizing objects, such as containers wrapped in film or adhesive tape on packages, are similar to those from the reflector. In the past, this could result in switching errors.

The new photoelectric retro-reflective sensors from SICK filter the received signal geometrically and can therefore reliably differentiate reflectors from the depolarizing objects.



SMART SENSORS FOR EFFICIENT MACHINE COMMUNICATION

Networked production and control processes in complex machine environments determine the industrial future and make Industry 4.0 possible in the first place. Smart Sensors already support dynamic, real-time-optimized, and self-organized industry processes. They record real operational statuses, turn these into digital data, and share them automatically with the process controller.



Enhanced Sensing and Efficient Communication

The best sensor performance, flexibility, and transparency

The highest possible level of stability during object detection and recording of measured values is the basis for every Smart Sensor. Benefit from our experience spanning over 70 years in the development and application of groundbreaking sensor technology. With superordinate control systems, our Smart Sensors communicate via IO-Link: This stable communication channel which is used across the globe for sensors and actuators at field level offers many practical advantages in day-to-day industrial operation.

Find out more: www.sick.com/smart-sensors



Diagnostics

Highest availability levels thanks to predictive maintenance

With the diagnostics functions, you always know the condition of your process and every single sensor. They comprise automated sensor self-monitoring or process parameter monitoring for preventative device and system maintenance. Smart Sensors will even send a notification independently if safe operation is at risk. Thanks to predictive maintenance, flexible, needs-based maintenance schedules can be created, helping reduce service costs. If problems should arise, however, the cause can be easily determined thanks to comprehensive visualization options, avoiding system downtimes.

Find out more: www.sick.com/smart-sensors



Smart Tasks

From raw signals to customized information

In these times of “big data”, it is important not to lose sight of the big picture. For that reason, Smart Tasks processes the diverse Smart Sensor signals for detection and measurement, linking them to signals from an external sensor if necessary. Only the process information that is actually necessary is generated. Coordinated with the corresponding task in the system. This saves time during data evaluation in the control, accelerates machine processes, and makes high-performance, cost-intensive additional hardware unnecessary.

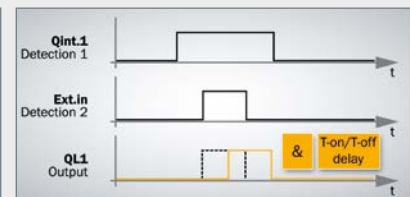
Find out more: www.sick.com/smart-sensors

SMART TASKS



Basic logic:

- Logic functions can be freely configured with a trigger sensor
- Delays for switching signals can be freely configured
- Signal inversion

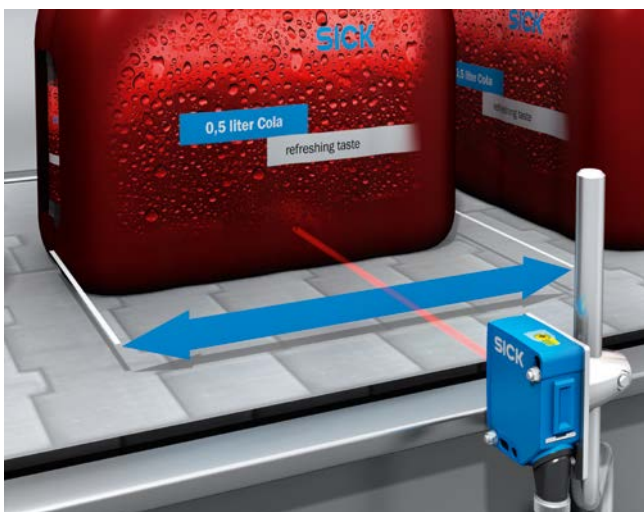


Time measurement and debouncing:

- Time measurement between the detection edges
- Switching signals are output when freely configured timing values are reached, e.g., if objects that are too short or too long have been detected
- Delays for switching signals can be freely configured
- Signal inversion
- Available on request

Counter and debouncing:

- Counting and evaluation of detection signals
- Switching signals are output when freely configured counter values are reached
- Switching signal generated every x counter pulses
- Manual and automated counter reset
- Delays for switching signals can be freely configured
- Signal inversion
- Available on request

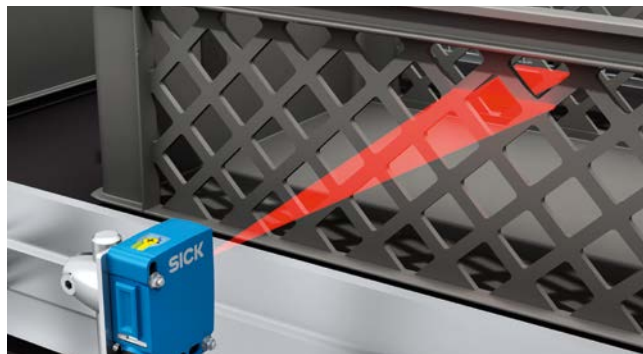


APPLICATIONS



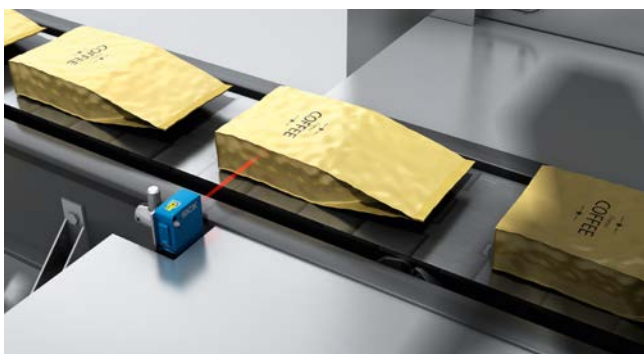
Detection of transparent trays

Thanks to the new glass and tray mode, products in the food and beverage industry are detected even more reliably.



Continuous detection even if there are gaps in the object

Gap-free detection of objects with grid structures or inhomogeneity thanks to the new LineSpot technology.



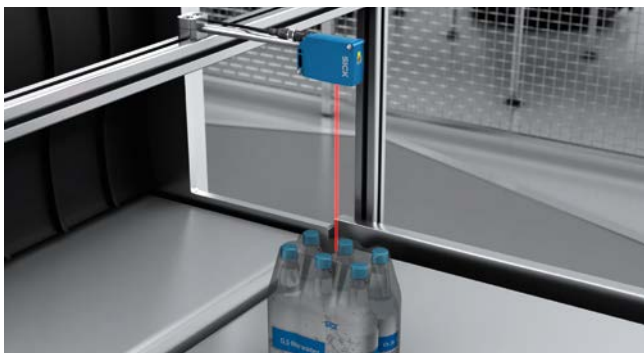
High performance for high-gloss products

The new TwinEye technology offers the highest level of operational safety when detecting shiny and reflective surfaces such as coffee packaging.



Object and gap monitor

Monitoring of object lengths and distances for rapid detection of defects, e.g. broken cookies.



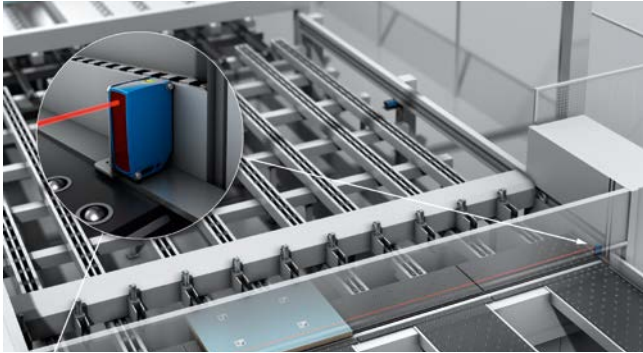
When unevenness is no problem

Uneven objects such as six-packs are monitored constantly by the photoelectric proximity sensor thanks to TwinEye technology and with the help of its two receivers.



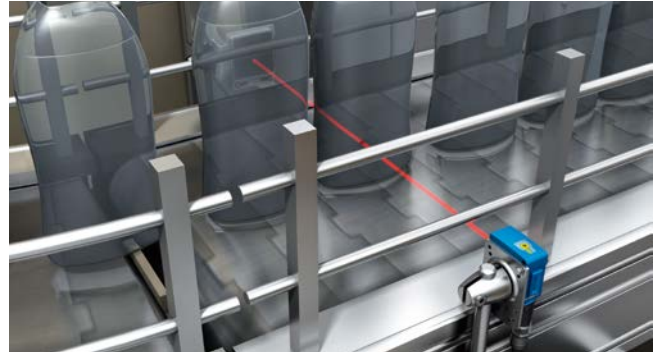
Detection regardless of color or shine

Reliable detection of shiny metal parts, even in an angled detection position.



Precise alignment over large distances

BluePilot facilitates alignment and monitors performance during operation.



Flexible sensor application

The WLG with ClearSens technology detects all transparent objects reliably. Thanks to the simple mode selection, one sensor can cover a range of different requirements.



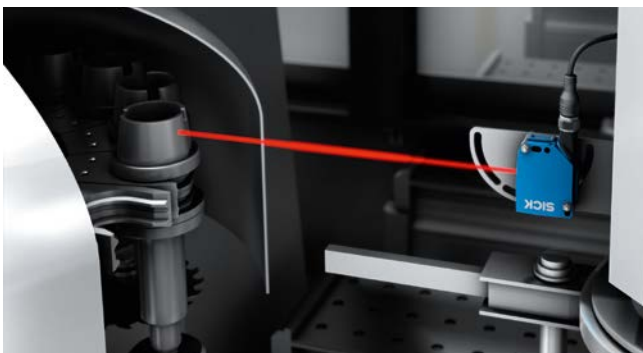
No collision in the transfer area

The PinPoint LED and BluePilot alignment aid ensure precise alignment of the sensor and enable its performance to be utilized to its full extent.



Precise shelf positioning

A small, homogeneous light spot facilitates alignment – even on jet-black objects – and ensures maximum detection accuracy.



Tool detection made easy

With the new TwinEye technology, surface color and properties of objects no longer affect detection.



Object gap suppression and stable sensor signal

The linear light spot reliably suppresses gaps such as cutouts in objects and provides a stable sensor signal even in the case of shiny object surfaces.

ACCESSORIES

The right accessories to get started with any application

Whether it is electrical connectivity, reflectors, mechanical mounting solutions, or individual extras – with a range of accessories perfectly tailored to the new W16 and W26 device generation, everything can be quickly integrated so your machine is ready to go.



SiLink2 Master

With the SiLink2 Master and SOPAS ET configuration software, IO-Link devices can be configured on the PC with ease.



Memory stick from SICK

The SICK memory stick enables:

- Error-free storage of parameters for IO-Link devices (V1.1, upload)
- Configuration of IO-Link devices (V1.1, download)



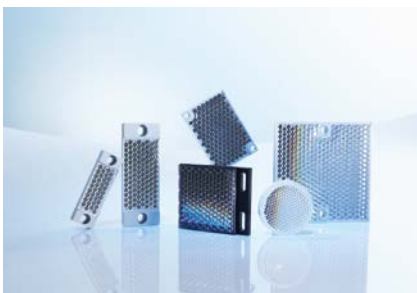
IO-Link master

To enable IO-Link devices to be integrated into the existing control environment with ease, IO-Link masters are available in PROFINET, EtherCAT, and EtherNet/IP™ variants.



Adapter

The adapter for the new W16 provides you with one-to-one assembly compatibility with the existing W14-2 and W18-3 photoelectric sensor product families.



Reflectors and optics

The large selection of standard and fine triple reflectors as well as reflective tapes guarantees optimal sensor operation at all times and perfect integration into systems.



Mounting systems

SICK is able to provide the right concepts and products for sensor mounting, alignment, and protection.





Plug connectors and cables

A wide range of connection cables for the many requirements of industrial automation are available.

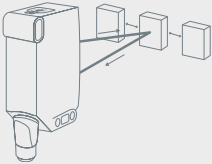
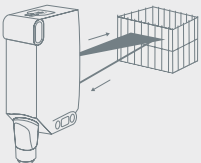
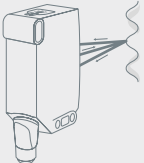


DETAILED TECHNICAL DATA

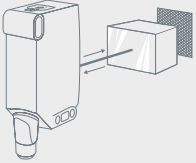
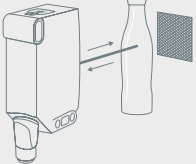
Features	Photoelectric proximity sensor with background suppression						Photoelectric retro-reflective sensor				Through-beam photoelectric sensor	
	Photoelectric proximity sensor		Photoelectric proximity sensor with LineSpot technology		Photoelectric proximity sensor with TwinEye technology		Photoelectric retro-reflective sensor		Photoelectric retro-reflective sensor, transparent object detection with AutoAdapt and ClearSens technology		Through-beam photoelectric sensor	
	WTB16	WTB26	WTL16	WTL26	WTS16	WTS26	WLA16	WLA26	WLG16	WLG26	WSE16	WSE26
Max. sensing range	10 mm ... 1,500 mm	10 mm ... 2,000 mm	10 mm ... 500 mm	On request	10 mm ... 750 mm	10 mm ... 1,000 mm	0 mm ... 10 m	0 mm ... 18 m	0 mm ... 5 m	On request	0 mm ... 45 m	0 mm ... 60 m
Type of light	Visible red light (universal), infrared light (depending on type)											
Light sender	PinPoint LED											
Wavelength	635 nm (red light), 825 nm (infrared light)											
Setting	BluePilot											
Smart Tasks	Logic function/timer function/inverter											
Fieldbus integration	IO-Link V1.1											
Supply voltage	10 V DC ... 30 V DC											
Current consumption	≤ 30 mA											
Switching output	Push-pull, PNP, NPN											
Connection type	Cable M12 male connector Cable with M12 male connector, 4-pin, 270 mm, PVC											
Protection class	III											
Housing material	VISTAL®											
Optics material	PMMA											
Enclosure rating	IP66, IP67, IP69K (depending on type)											
Ambient temperature, operation	-40 °C ... +60 °C											
Ambient temperature, storage	-40 °C ... +75 °C											

<h1>PORTFOLIO: SELECTION TABLE</h1>	Object properties				
	Matt	High-gloss/ contrast-rich/ uneven	Perforated	(Semi-) transparent	Wrapped in film
					

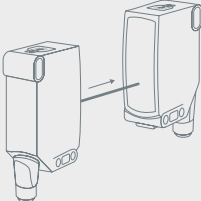
Photoelectric proximity sensor with background suppression

<p>Photoelectric proximity sensor</p> 						
<p>Photoelectric proximity sensor, LineSpot technology</p> 						
<p>Photoelectric proximity sensor, TwinEye technology</p> 						

Photoelectric retro-reflective sensor (reflector required)

<p>Photoelectric retro-reflective sensor</p> 						
<p>Photoelectric retro-reflective sensor, ClearSens technology</p> 						

Through-beam photoelectric sensor

<p>Through-beam photoelectric sensor</p> 						
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Selection of product properties			Product	Page
Type of light	Typical light spot size	Max. sensing range		

Red light (PinPoint LED)	Ø 6 mm at a distance of 500 mm	10 mm ... 1,000 mm	WTB16P	→ page 18
	Ø 7 mm at a distance of 700 mm	10 mm ... 1,600 mm	WTB26P	→ page 60
Infrared light	Ø 12 mm at a distance of 800 mm	10 mm ... 1,500 mm	WTB16I	→ page 18
	Ø 14 mm at a distance of 1,000 mm	10 mm ... 2,000 mm	WTB26I	→ page 60
Red light (PinPoint LED)	Ø 3 mm at a distance of 200 mm	10 mm ... 500 mm	WTB16P	→ page 18
Red light (PinPoint LED)	3 x 30 mm at a distance of 200 mm	10 mm ... 500 mm	WTL16P	→ page 26
Red light (PinPoint LED)	Ø 8 mm at a distance of 300 mm	10 mm ... 750 mm	WTS16P	→ page 32
Red light (PinPoint LED)	Ø 10 mm at a distance of 550 mm	10 mm ... 1,000 mm	WTS26P	→ page 68

Red light (PinPoint LED)	Ø 80 mm at a distance of 5 m	0 mm ... 10,000 mm	WLA16P	→ page 38
Red light (PinPoint LED)	Ø 100 mm at a distance of 10 m	0 mm ... 18,000 mm	WLA26P	→ page 74
Red light (PinPoint LED)	Ø 80 mm at a distance of 5 m	0 mm ... 5,000 mm	WLG16P	→ page 46

Red light (PinPoint LED)	Ø 90 mm at a distance of 8 m	0 mm ... 45,000 mm	WSE16P	→ page 52
	Ø 115 mm at a distance of 15 m	0 mm ... 60,000 mm	WSE26P	→ page 82
Infrared light	Ø 110 mm at a distance of 8 m	0 mm ... 45,000 mm	WSE16I	→ page 52
	Ø 140 mm at a distance of 15 m	0 mm ... 60,000 mm	WSE26I	→ page 82

RELIABLE DETECTION WITH BLUEPILOT EASE OF USE



Product description

The basic function of the WTB16 has been improved, it has been expanded with the OptoFilter and can be quickly and conveniently adjusted via the BluePilot operating and indicator concept. Since every WTB16 is designed as a Smart Sensor, it can be configured via IO-Link and offers additional Smart Tasks. The WTB16 is therefore a

trailblazer on the path to Industry 4.0. The highly-visible PinPoint LED and the infrared LED are available as the light source. The durable laser inscription ensures device identification in the long run. The extremely rugged VISTAL® housing reduces device failure and its follow-up costs.

At a glance

- Sensor with precise background suppression
- OptoFilter: Protection against optical influences
- BluePilot: Adjustment of the sensing range via Teach-Turn adjustment indicator with optical sensing range indicator via IO-Link
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Smart Tasks

Your benefits

- Reliable detection and very precise leading edge detection thanks to the small and homogeneous light spot of the PinPoint LED
- OptoFilter protects from operational interruptions caused by LED illumination or background reflections, e.g. from safety vests
- Free choice of sensor adjustment: Intuitively, quickly and precisely on the housing via the Teach-Turn adjustment or via IO-Link with pushbutton lock for preventing manipulation
- Enormous simplification when aligning the light beam to the object thanks to the PinPoint LED
- The Smart Sensor makes machine processes quicker, more efficient and transparent and is thereby a trailblazer for Industry 4.0 applications

Additional information

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Bar diagrams	24
Light spot diameter	24
Accessories	90

→ www.sick.com/W16

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

	Visible red light	Infrared light
Sensor principle	Photoelectric proximity sensor	
Detection principle	Background suppression	
Dimensions (W x H x D)	20 mm x 55.7 mm x 42 mm	
Housing design (light emission)	Rectangular	
Sensing range max.	10 mm ... 1,000 mm ¹⁾ (depending on type)	10 mm ... 1,500 mm ¹⁾
Type of light	Visible red light	Infrared light
Light source ²⁾	PinPoint LED	LED
Light spot size (distance)	Ø 6 mm (500 mm) Ø 3 mm (200 mm) (depending on type)	Ø 12 mm (800 mm)
Wave length	635 nm	850 nm
Adjustment	BluePilot: Teach-Turn adjustment with sensing range indicator, IO-Link	
Pin 2 configuration	External input, Teach-in, switching signal	

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

²⁾ Average service life: 100,000 h at T_u = +25 °C.

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 1000 Hz ¹⁾ SIO Logic: 800 Hz ²⁾ IOL: 650 Hz ³⁾
Response time	SIO Direct: 500 µs ¹⁾ SIO Logic: 600 µs ²⁾ IOL: 750 µs ³⁾
Repeat accuracy	SIO Direct: 150 µs ¹⁾ SIO Logic: 300 µs ²⁾ IOL: 400 µs ³⁾
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

¹⁾ SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Mechanics/electronics

	Visible red light	Infrared light
Supply voltage ¹⁾	10 V DC ... 30 V DC	
Ripple	≤ 5 V _{pp}	
Power consumption	≤ 30 mA ²⁾ < 50 mA ³⁾	
Output type	PUSH/PULL, PNP, NPN	
Output function	Complementary, Pin 2: NPN normally open (light switching), PNP normally closed (dark switching), Pin 4: NPN normally closed (dark switching), PNP normally open (light switching), IO-Link	
Switching mode	Light/dark switching	
Signal voltage PNP HIGH/LOW	Approx. V _s - 2.5 V / 0 V	
Signal voltage NPN HIGH/LOW	Approx. V _S / < 2.5 V	
Output current I_{max.}	≤ 100 mA	
Response time ⁴⁾	≤ 500 μs	
Switching frequency ⁵⁾	1,000 Hz	
Connection type	Cable, 2 m ⁶⁾ Male connector, M12 Cable with male connector, M12, 270 mm ⁶⁾ (depending on type)	
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾ , D ¹⁰⁾	
Protection class	III	
Weight		
	Cable	100 g
	Male connector M12, 4-pin	50 g
	Cable with M12 male connector, 4-pin	70 g
Housing material	Plastic, VISTAL®	
Optics material	Plastic, PMMA	
Enclosure rating	IP66, IP67	
Ambient operating temperature	-40 °C ... +60 °C	
Ambient storage temperature	-40 °C ... +75 °C	

¹⁾ Limit values.

²⁾ 16 V DC ... 30 V DC, without load.

³⁾ 10 V DC ... 16 V DC, without load.

⁴⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁵⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Communication interface

	Visible red light	Infrared light
Communication interface	IO-Link V1.1	
Mode	COM2 (38,4 kBaud)	
Cycle time	2.3 ms	
Process data length	16 Bit	
Process data structure	Bit 0 = switching signal Q _{L1} Bit 1 = switching signal Q _{L2} Bit 2 ... 15 = empty	
VendorID	26	

Ordering information

Visible red light

- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: Teach-Turn adjustment with sensing range indicator, IO-Link

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
10 mm ... 1,000 mm	Ø 6 mm (500 mm)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388956 dez / 0x80015C	cd-389	WTB16P- 1H161120A00	1218816
			Male connector M12, 4-pin	8388956 dez / 0x80015C	cd-390	WTB16P- 24161120A00	1218626
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388956 dez / 0x80015C	cd-390	WTB16P- 34161120A00	1218817
10 mm ... 500 mm	Ø 3 mm (200 mm)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388957 dez / 0x80015D	cd-389	WTB16P- 1H161220A00	1218820
			Male connector M12, 4-pin	8388957 dez / 0x80015D	cd-390	WTB16P- 24161220A00	1218698
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388957 dez / 0x80015D	cd-390	WTB16P- 34161220A00	1218821

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

Infrared light

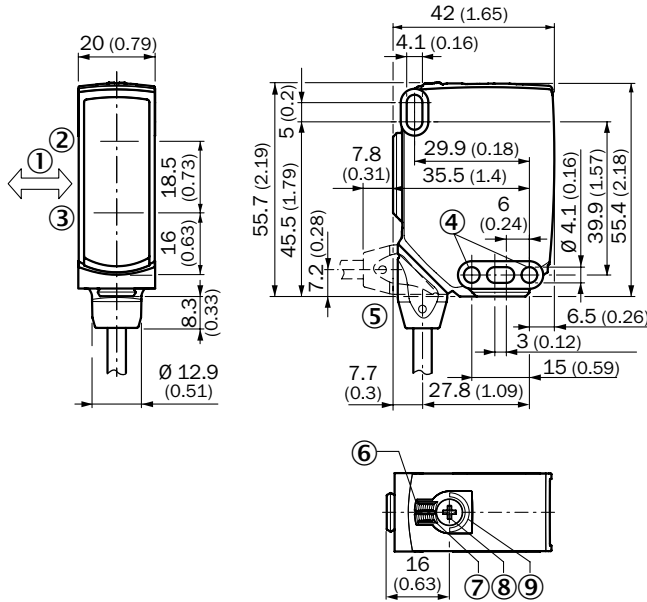
- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: Teach-Turn adjustment with sensing range indicator, IO-Link

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
10 mm ... 1,500 mm	Ø 12 mm (800 mm)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8389011 dez / 0x800193	cd-389	WTB16I- 1H161120A00	1218818
			Male connector M12, 4-pin	8389011 dez / 0x800193	cd-390	WTB16I- 24161120A00	1218669
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8389011 dez / 0x800193	cd-390	WTB16I- 34161120A00	1218819

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

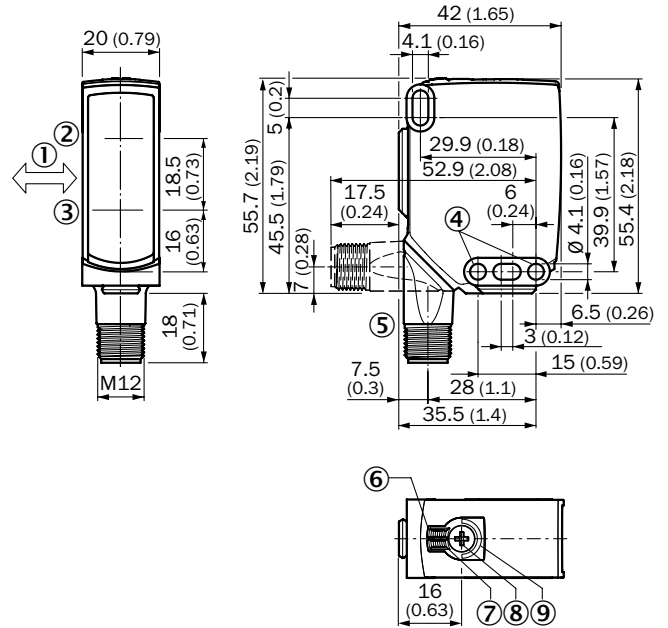
Dimensional drawings (Dimensions in mm (inch))

WTB16, cable



- ① Standard direction of the material being detected
- ② Center of optical axis, sender
- ③ Center of optical axis, receiver
- ④ Mounting hole, Ø 4.1 mm
- ⑤ Connection
- ⑥ LED indicator green: power
- ⑦ LED indicator yellow: Status of received light beam
- ⑧ Teach-Turn adjustment of sensing range
- ⑨ BluePilot blue: sensing range indicator

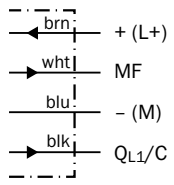
WTB16, connector



- ① Standard direction of the material being detected
- ② Center of optical axis, sender
- ③ Center of optical axis, receiver
- ④ Mounting hole, Ø 4.1 mm
- ⑤ Connection
- ⑥ LED indicator green: power
- ⑦ LED indicator yellow: Status of received light beam
- ⑧ Teach-Turn adjustment of sensing range
- ⑨ BluePilot blue: sensing range indicator

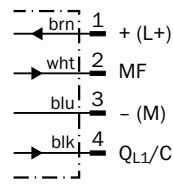
Connection diagram

Cd-389



Default: MF = \bar{Q}
QL1/C = Q

Cd-390

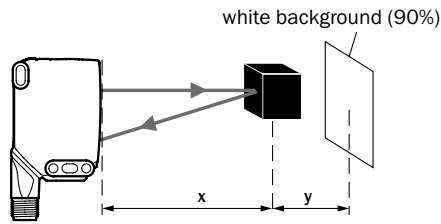
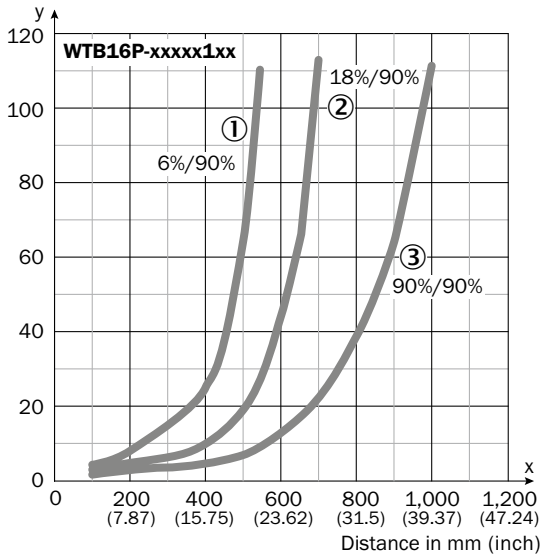


Default: MF = \bar{Q}
QL1/C = Q

Characteristic curves

WTB16P-xxxxx1xx

Minimum distance in mm (y) between the set sensing range and background (white, 90%)

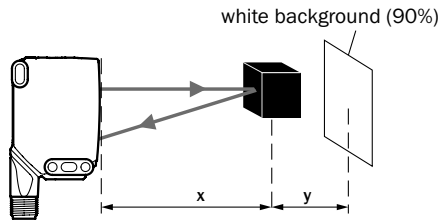
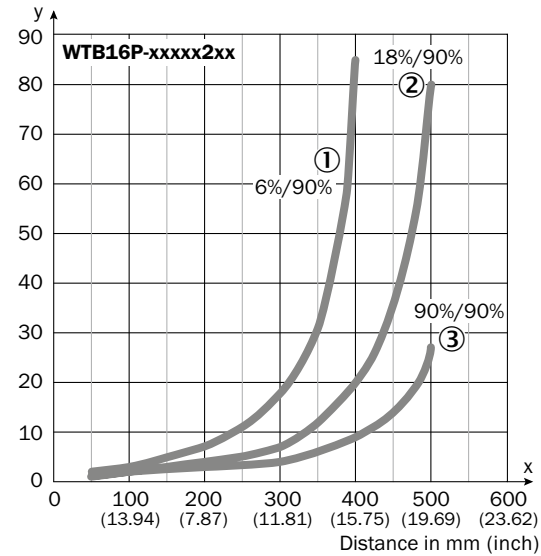


Example:
Sensing range on black, 6%,
x = 400 mm, y = 25 mm

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18% remission
- ③ Sensing range on white, 90% remission

WTB16P-xxxxx2xx

Minimum distance in mm (y) between the set sensing range and background (white, 90%)

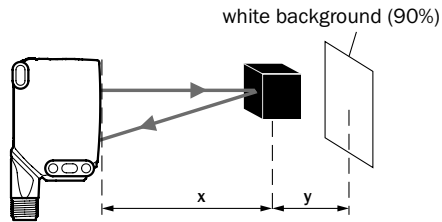
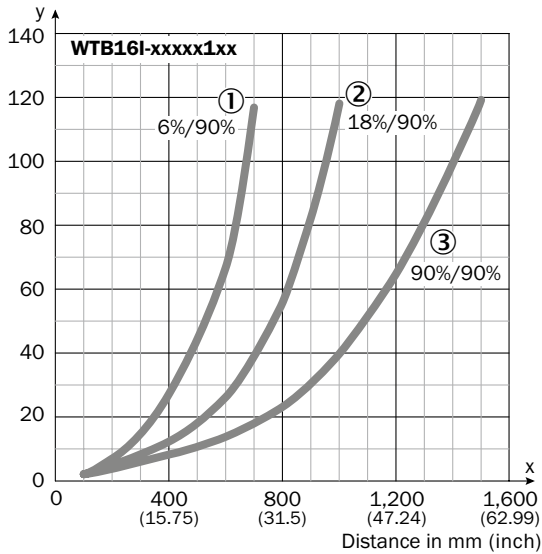


Example:
Sensing range on black, 6%,
x = 250 mm, y = 11 mm

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18% remission
- ③ Sensing range on white, 90% remission

WTB16I-xxxxx1xx

Minimum distance in mm (y) between the set sensing range and background (white, 90%)

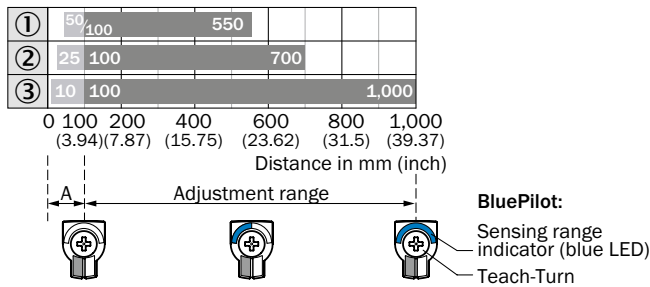


Example:
Sensing range on black, 6%,
x = 600 mm, y = 70 mm

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

Bar diagrams

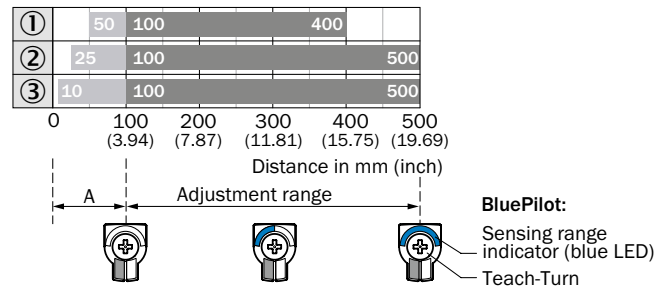
WTB16P-xxxxx1xx



A = Detection distance (depending on object remission)

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

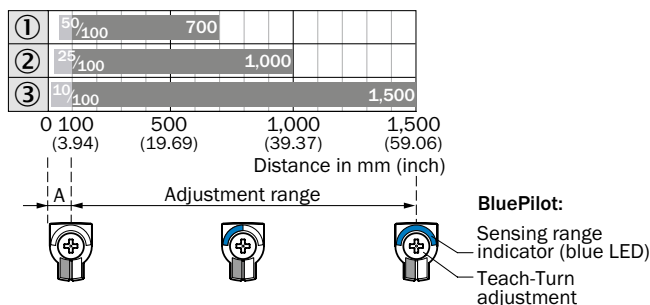
WTB16P-xxxxx2xx



A = Detection distance (depending on object remission)

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

WTB16I-xxxxx1xx

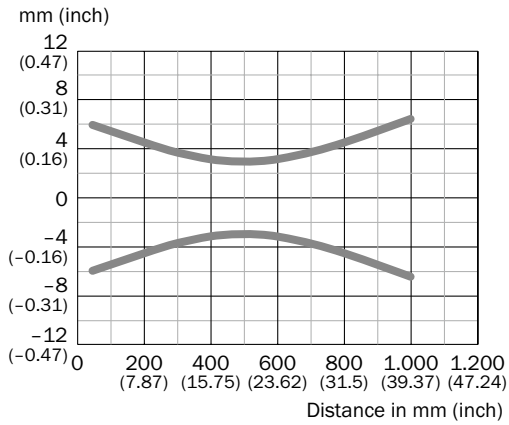


A = Detection distance (depending on object remission)

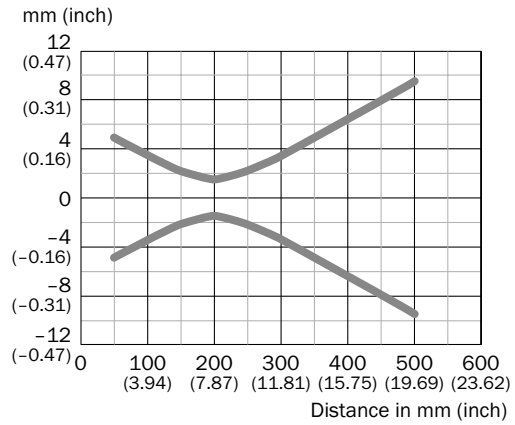
- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

Light spot diameter

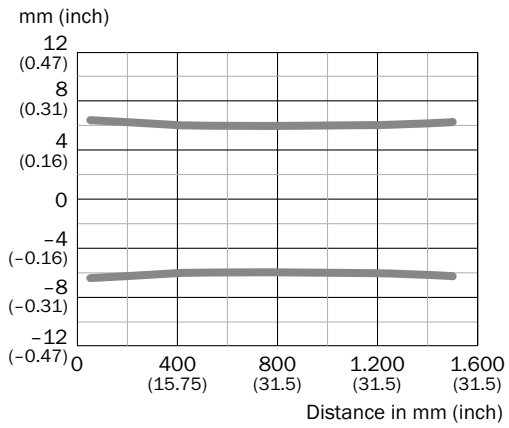
WTB16P-xxxxx1xx



WTB16P-xxxxx2xx



WTB16I-xxxxx1xx



RELIABLE DETECTION OF PERFORATED AND STRUCTURED OBJECTS



Product description

The WTL16 with LineSpot technology is designed for the reliable detection of perforated, structured and non-homogeneous objects and has been expanded with the OptoFilter. The WTL16 can be quickly and conveniently adjusted via the BluePilot operating and display concept. Since every WTL16 is designed as a Smart Sensor, it can be configured

via IO-Link and offers additional Smart Tasks. The WTL16 is therefore a trailblazer on the path to Industry 4.0. The highly-visible PinPoint LED serves as the light source. The durable laser inscription ensures device identification in the long run. The extremely rugged VISTAL® housing reduces device failure and its follow-up costs.

At a glance

- Sensor with LineSpot technology
- OptoFilter: Protection against optical influences
- BluePilot: Adjustment of the sensing range via Teach-Turn adjustment with optical sensing range indicator via IO-Link
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Smart Tasks

Your benefits

- Reliable detection of perforated, structured and uneven objects
- OptoFilter protects from operational interruptions caused by LED illumination or background reflections, e.g. from safety vests
- Free choice of sensor adjustment: Intuitively on the housing or via IO-Link with pushbutton lock for preventing manipulation and other functions
- Enormous simplification when aligning the light beam to the object thanks to the PinPoint LED
- The Smart Sensor makes machine processes quicker, more efficient and transparent and is thereby a trailblazer for Industry 4.0 applications

Additional information

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→ www.sick.com/W16

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

Sensor principle	Photoelectric proximity sensor, LineSpot technology
Detection principle	Background suppression
Dimensions (W x H x D)	20 mm x 55.7 mm x 42 mm
Housing design (light emission)	Rectangular
Sensing range max. ¹⁾	10 mm ... 500 mm
Type of light	Visible red light
Light source ²⁾	PinPoint LED
Light spot size (distance)	3 mm x 30 mm (200 mm)
Wave length	635 nm
Adjustment	BluePilot: Teach-Turn adjustment with sensing range indicator, IO-Link
Pin 2 configuration	External input, Teach-in, switching signal
Special features	Line-shaped light spot

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

²⁾ Average service life: 100,000 h at T₀ = +25 °C.

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 1000 Hz ¹⁾ SIO Logic: 800 Hz ²⁾ IOL: 650 Hz ³⁾
Response time	SIO Direct: 500 µs ¹⁾ SIO Logic: 600 µs ²⁾ IOL: 750 µs ³⁾
Repeat accuracy	SIO Direct: 150 µs ¹⁾ SIO Logic: 300 µs ²⁾ IOL: 400 µs ³⁾
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

¹⁾ SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Mechanics/electronics

Supply voltage ¹⁾	10 V DC ... 30 V DC
Ripple	≤ 5 V _{pp}
Power consumption	≤ 30 mA ²⁾ < 50 mA ³⁾
Output type	PUSH/PULL, PNP, NPN
Output function	Complementary, Pin 2: NPN normally open (light switching), PNP normally closed (dark switching), Pin 4: NPN normally closed (dark switching), PNP normally open (light switching), IO-Link
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. V _s - 2.5 V / 0 V
Signal voltage NPN HIGH/LOW	Approx. V _S / < 2.5 V
Output current I_{max}	≤ 100 mA
Response time ⁴⁾	≤ 500 μs
Switching frequency ⁵⁾	1,000 Hz
Connection type	Cable, 2 m ⁶⁾ Male connector, M12 Cable with male connector, M12, 270 mm ⁶⁾ (depending on type)
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾ , D ¹⁰⁾
Protection class	III
Weight	
Cable	100 g
Male connector M12, 4-pin	50 g
Cable with M12 male connector, 4-pin	70 g
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	IP66, IP67
Ambient operating temperature	-40 °C ... +60 °C
Ambient storage temperature	-40 °C ... +75 °C

¹⁾ Limit values.

²⁾ 16 V DC ... 30 V DC, without load.

³⁾ 10 V DC ... 16 V DC, without load.

⁴⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁵⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Communication interface

Communication interface	IO-Link V1.1
Mode	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q _{L1} Bit 1 = switching signal Q _{L2} Bit 2 ... 15 = empty
VendorID	26

Ordering information

Visible red light

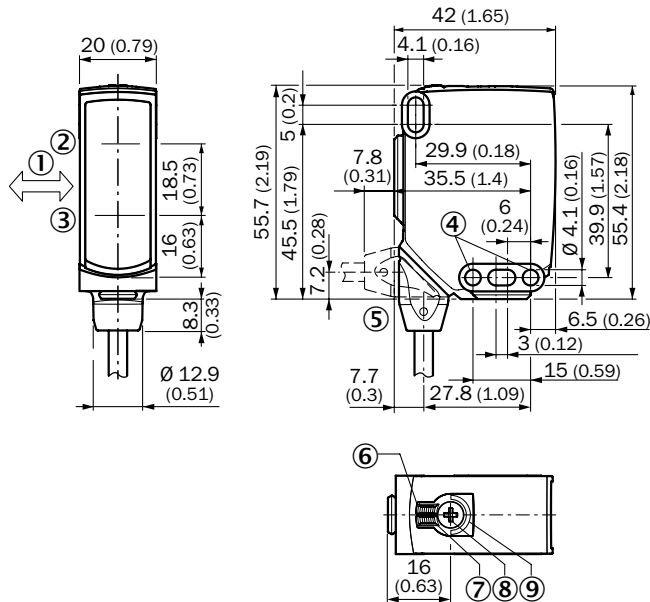
- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: Teach-Turn adjustment with sensing range indicator, IO-Link

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
10 mm ... 500 mm	3 mm x 30 mm (200 mm)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388968 dez / 0x800168	cd-389	WTL16P-1H161120A00	1218946
			Male connector M12, 4-pin	8388968 dez / 0x800168	cd-390	WTL16P-24161120A00	1218670
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388968 dez / 0x800168	cd-390	WTL16P-34161120A00	1218945

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

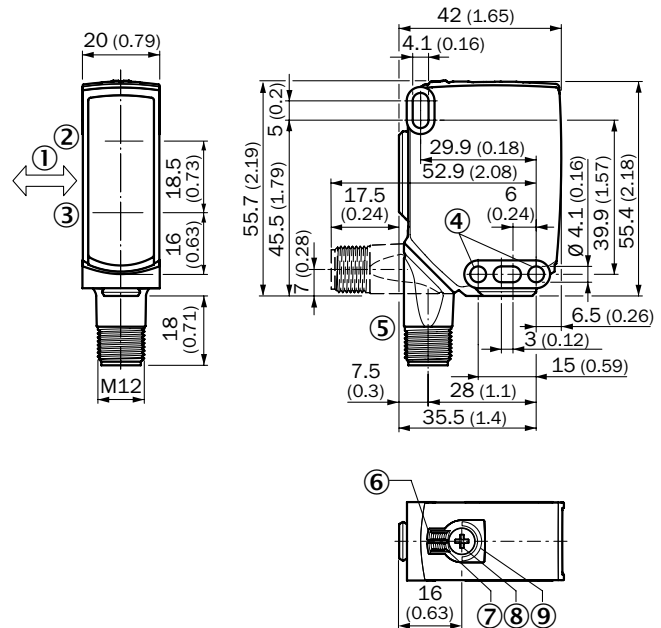
Dimensional drawings (Dimensions in mm (inch))

WTL16, cable



- ① Standard direction of the material being detected
- ② Center of optical axis, sender
- ③ Center of optical axis, receiver
- ④ Mounting hole, Ø 4.1 mm
- ⑤ Connection
- ⑥ LED indicator green: power
- ⑦ LED indicator yellow: Status of received light beam
- ⑧ Teach-Turn adjustment of sensing range
- ⑨ BluePilot blue: sensing range indicator

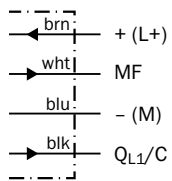
WTL16, connector



- ① Standard direction of the material being detected
- ② Center of optical axis, sender
- ③ Center of optical axis, receiver
- ④ Mounting hole, Ø 4.1 mm
- ⑤ Connection
- ⑥ LED indicator green: power
- ⑦ LED indicator yellow: Status of received light beam
- ⑧ Teach-Turn adjustment of sensing range
- ⑨ BluePilot blue: sensing range indicator

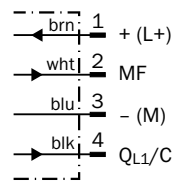
Connection diagram

Cd-389



Default: MF = \bar{Q}
QL1/C = Q

Cd-390

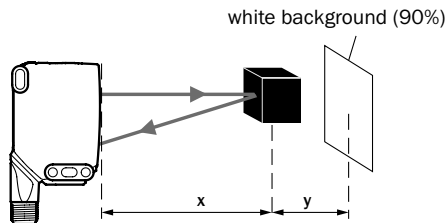
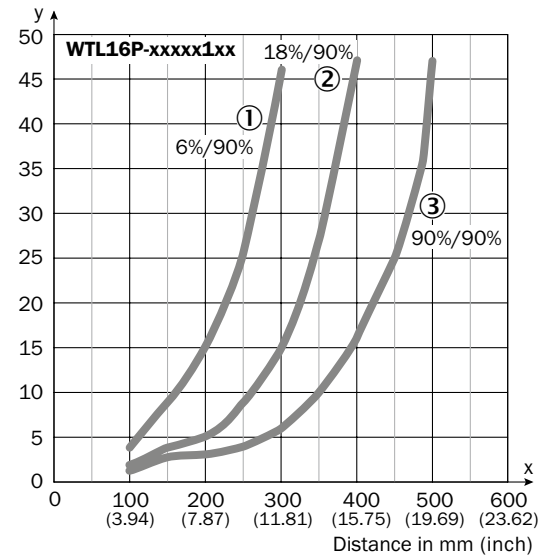


Default: MF = \bar{Q}
QL1/C = Q

Characteristic curves

WTL16P-xxxxx1xx

Minimum distance in mm (y) between the set sensing range and background (white, 90%)

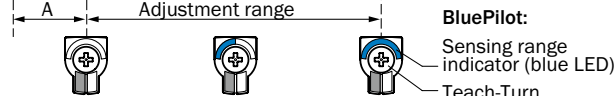
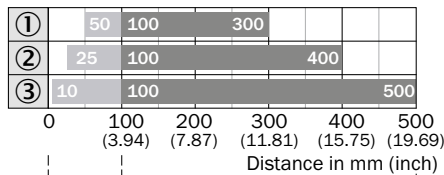


Example:
Sensing range on black, 6%,
x = 200 mm, y = 15 mm

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

Bar diagrams

WTL16P-xxxxx1xx

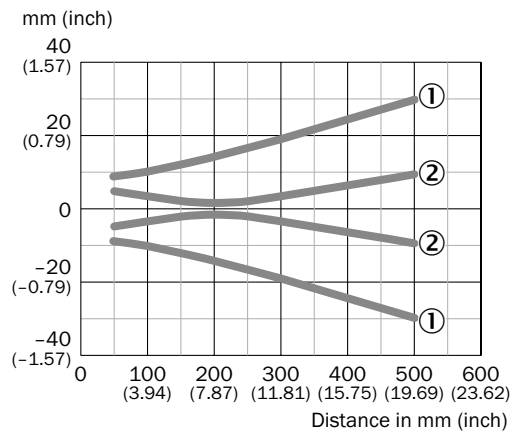


A = Detection distance (depending on object remission)

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

Light spot diameter

WTL16P-xxxxx1xx



- ① Horizontal
- ② Vertical

RELIABLE DETECTION OF GLOSSY, UNEVEN AND CONTRAST-RICH OBJECTS



Product description

The WTS16 with TwinEye technology is designed for the reliable detection of glossy, flat, contrast-rich and uneven objects and has been expanded with the OptoFilter. The WTS16 can be quickly and conveniently adjusted via the BluePilot operating and display concept. Since every WTS16 is designed as a Smart Sensor, it can be configured via IO-Link and offers additional

Smart Tasks. The WTS16 is therefore a trailblazer on the path to Industry 4.0. The highly-visible PinPoint LED serves as the light source. The durable laser inscription ensures device identification in the long run. Thanks to the extremely rugged VISTAL® housing, the TwinEye technology and the OptoFilter, the WTS16 offers previously unattainable reliability.

At a glance

- Sensor with TwinEye technology
- OptoFilter: Protection against optical influences
- BluePilot: Adjustment of the sensing range via Teach-Turn adjustment with optical sensing range indicator via IO-Link
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Smart Tasks

Your benefits

- Reliable detection of glossy, flat, contrast-rich, wavy and jet black objects, even when these properties are combined
- OptoFilter protects from operational interruptions caused by LED illumination or background reflections, e.g. from safety vests
- Free choice of sensor adjustment: Intuitively on the housing or via IO-Link with pushbutton lock for preventing manipulation and other functions
- Enormous simplification when aligning the light beam to the object thanks to the PinPoint LED
- The Smart Sensor makes machine processes quicker, more efficient and more transparent and is thereby a trailblazer for Industry 4.0 applications

Additional information

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→ www.sick.com/W16

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

Sensor principle	Photoelectric proximity sensor, TwinEye technology
Detection principle	Background suppression
Dimensions (W x H x D)	20 mm x 55.7 mm x 42 mm
Housing design (light emission)	Rectangular
Sensing range max. ¹⁾	10 mm ... 750 mm
Type of light	Visible red light
Light source ²⁾	PinPoint LED
Light spot size (distance)	Ø 8 mm (300 mm)
Wave length	635 nm
Adjustment	BluePilot: Teach-Turn adjustment with sensing range indicator, IO-Link
Pin 2 configuration	External input, Teach-in, switching signal

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

²⁾ Average service life: 100,000 h at $T_U = +25 \text{ °C}$.

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 350 Hz ¹⁾ SIO Logic: 300 Hz ²⁾ IOL: 280 Hz ³⁾
Response time	SIO Direct: 1.4 ms ¹⁾ SIO Logic: 1.65 ms ²⁾ IOL: 1.75 ms ³⁾
Repeat accuracy	SIO Direct: 750 µs ¹⁾ SIO Logic: 800 µs ²⁾ IOL: 900 µs ³⁾
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

¹⁾ SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Mechanics/electronics

Supply voltage ¹⁾	10 V DC ... 30 V DC
Ripple	$\leq 5 V_{pp}$
Power consumption	$\leq 30 \text{ mA}$ ²⁾ $< 50 \text{ mA}$ ³⁾
Output type	PUSH/PULL, PNP, NPN
Output function	Complementary, Pin 2: NPN normally open (light switching), PNP normally closed (dark switching), Pin 4: NPN normally closed (dark switching), PNP normally open (light switching), IO-Link
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. $V_s - 2.5 \text{ V} / 0 \text{ V}$
Signal voltage NPN HIGH/LOW	Approx. $V_S / < 2.5 \text{ V}$
Output current I_{max}	$\leq 100 \text{ mA}$
Response time ⁴⁾	$\leq 1.25 \text{ ms}$
Switching frequency ⁵⁾	400 Hz
Connection type	Cable, 2 m ⁶⁾ Male connector, M12 Cable with male connector, M12, 270 mm ⁶⁾ (depending on type)
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾ , D ¹⁰⁾
Protection class	III
Weight	
	Cable 100 g
	Male connector M12, 4-pin 50 g
	Cable with M12 male connector, 4-pin 70 g
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	IP66, IP67
Ambient operating temperature	-40 °C ... +60 °C
Ambient storage temperature	-40 °C ... +75 °C

¹⁾ Limit values.

²⁾ 16 V DC ... 30 V DC, without load.

³⁾ 10 V DC ... 16 V DC, without load.

⁴⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁵⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Communication interface

Communication interface	IO-Link V1.1
Mode	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q_{L1} Bit 1 = switching signal Q_{L2} Bit 2 ... 15 = empty
VendorID	26

Ordering information

Visible red light

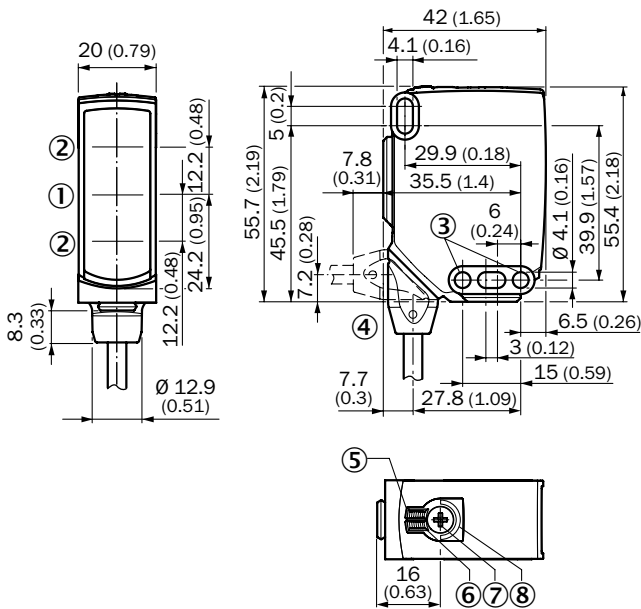
- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: Teach-Turn adjustment with sensing range indicator, O-Link

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
10 mm ... 750 mm	Ø 8 mm (300 mm)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388964 dez / 0x800164	cd-389	WTS16P-1H161120A00	1218944
			Male connector M12, 4-pin	8388964 dez / 0x800164	cd-390	WTS16P-24161120A00	1218663
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388964 dez / 0x800164	cd-390	WTS16P-34161120A00	1218943

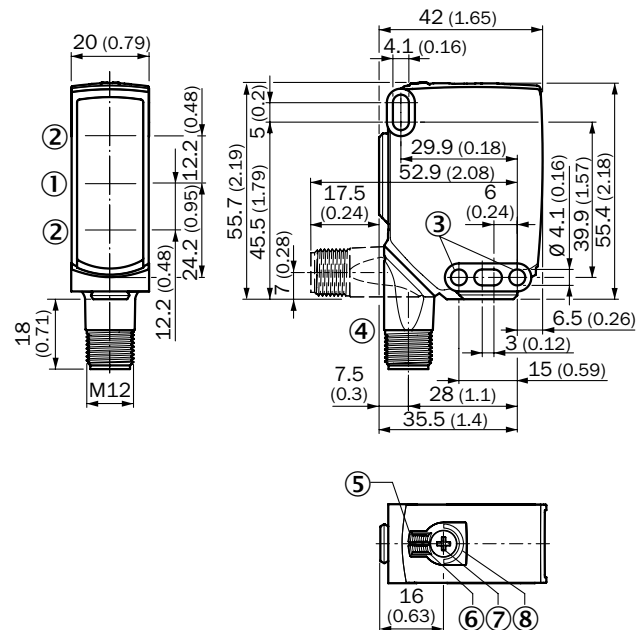
¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

Dimensional drawings (Dimensions in mm (inch))

WTS16, cable



WTS16, connector

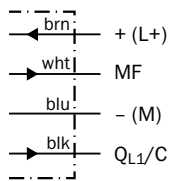


- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole, Ø 4.1 mm
- ④ Connection
- ⑤ LED indicator green: power
- ⑥ LED indicator yellow: Status of received light beam
- ⑦ Teach-Turn adjustment of sensing range
- ⑧ BluePilot blue: sensing range indicator

- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole, Ø 4.1 mm
- ④ Connection
- ⑤ LED indicator green: power
- ⑥ LED indicator yellow: Status of received light beam
- ⑦ Teach-Turn adjustment of sensing range
- ⑧ BluePilot blue: sensing range indicator

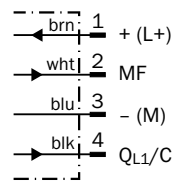
Connection diagram

Cd-389



Default: MF = \bar{Q}
QL1/C = Q

Cd-390

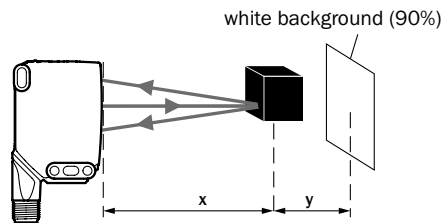
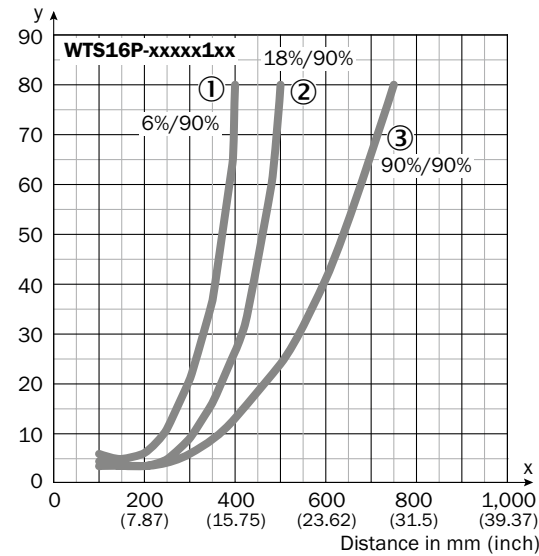


Default: MF = \bar{Q}
QL1/C = Q

Characteristic curves

WTS16P-xxxxx1xx

Minimum distance in mm (y) between the set sensing range and background (white, 90%)

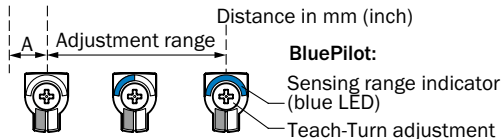
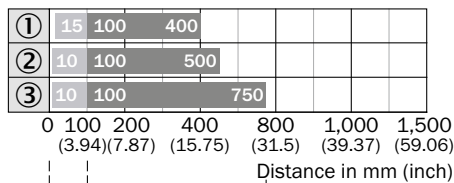


Example:
Sensing range on black, 6%,
x = 300 mm, y = 20 mm

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

Bar diagrams

WTS16P-xxxxx1xx

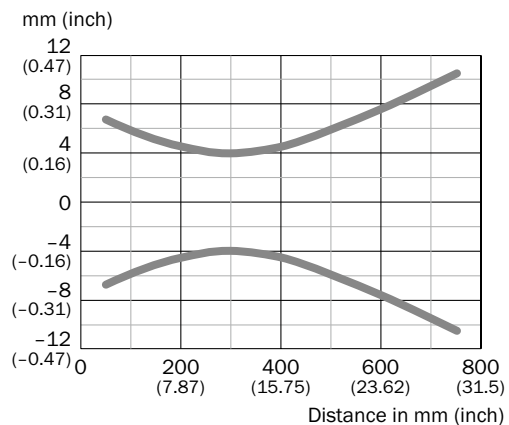


A = Detection distance (depending on object remission)

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

Light spot diameter

WTS16P-xxxxx1xx



QUICK AND PRECISE ALIGNMENT WITH PINPOINT LED AND BLUEPILOT



Product description

The WLA16 makes it possible to satisfy three requirements at one time: Large sensing range, high insensitivity to depolarizing object surfaces and the abdication of operating elements. The new BluePilot indicator concept facilitates the alignment of the PinPoint LED to the reflector and monitors the sensor performance even during operation. Since every WLA16 is designed as a Smart Sen-

sor, it can be configured via IO-Link and offers additional diagnostic functions and Smart Tasks. It is therefore a trailblazer on the path to Industry 4.0. The durable laser inscription ensures device identification in the long run. Thanks to the very rugged VISTAL® housing and the predictive maintenance, the WLA16 offers unique reliability and prevents unplanned machine downtimes.

At a glance

- BluePilot: Optical alignment aid
- OptoFilter: Protection against depolarizing object surfaces
- Autocollimation: Sender and receiver lie on the same optical axis
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Diagnostics, Smart Tasks

Your benefits

- Reliable detection and very precise leading edge detection thanks to the small and homogeneous light spot of the PinPoint LED
- OptoFilter protects from operational interruptions caused, for example, by depolarizing surfaces
- Simplification when aligning the light beam to the reflector thanks to the PinPoint LED and BluePilot
- BluePilot offers the certainty that you are actually taking advantage of the maximum performance
- Continuous display of the operating reserve with BluePilot or via IO-Link
- The Smart Sensor makes machine processes quicker, more efficient and transparent, enables predictive maintenance and is thereby a trailblazer for Industry 4.0 applications

Additional information

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→ www.sick.com/W16

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

Sensor principle	Photoelectric retro-reflective sensor
Detection principle	Autocollimation
Dimensions (W x H x D)	20 mm x 55.7 mm x 42 mm
Housing design (light emission)	Rectangular
Sensing range max. ¹⁾	0 m ... 10 m
Type of light	Visible red light
Light source ²⁾	PinPoint LED
Light spot size (distance)	Ø 80 mm (5 m)
Wave length	635 nm
Adjustment	BluePilot: With alignment aid, IO-Link
Pin 2 configuration	External input, Teach-in, switching signal

¹⁾ Reflector PL80A.

²⁾ Average service life: 100,000 h at T_u = +25 °C.

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 1000 Hz ¹⁾ SIO Logic: 800 Hz ²⁾ IOL: 650 Hz ³⁾
Response time	SIO Direct: 500 µs ¹⁾ SIO Logic: 600 µs ²⁾ IOL: 750 µs ³⁾
Repeat accuracy	SIO Direct: 150 µs ¹⁾ SIO Logic: 300 µs ²⁾ IOL: 750 µs ³⁾
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

¹⁾ SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Mechanics/electronics

Supply voltage ¹⁾	10 V DC ... 30 V DC
Ripple	≤ 5 V _{pp}
Power consumption	≤ 30 mA ²⁾ < 50 mA ³⁾
Output type	PUSH/PULL, PNP, NPN
Output function	Complementary, Pin 2: NPN normally closed (light switching), PNP normally open (dark switching), Pin 4: NPN normally open (dark switching), PNP normally closed (light switching), IO-Link
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. V _s - 2.5 V / 0 V
Signal voltage NPN HIGH/LOW	Approx. V _S / < 2.5 V
Output current I_{max}	≤ 100 mA
Response time ⁴⁾	≤ 500 μs
Switching frequency ⁵⁾	1,000 Hz
Connection type	Cable, 2 m ⁶⁾ Male connector, M12 Cable with male connector, M12, 270 mm ⁶⁾ (depending on type)
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾ , D ¹⁰⁾
Protection class	III
Weight	
Cable	100 g
Male connector M12, 4-pin	50 g
Cable with M12 male connector, 4-pin	70 g
Polarisation filter	✓
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	
Cable	IP66, IP67
Male connector M12, 4-pin	IP66, IP67, IP69K
Cable with M12 male connector, 4-pin	IP66, IP67
Ambient operating temperature	-40 °C ... +60 °C
Ambient storage temperature	-40 °C ... +75 °C

¹⁾ Limit values.

²⁾ 16 V DC ... 30 V DC, without load.

³⁾ 10 V DC ... 16 V DC, without load.

⁴⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁵⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Communication interface

Communication interface	IO-Link V1.1
Mode	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q _{L1} Bit 1 = switching signal Q _{L2} Bit 2 ... 15 = empty
VendorID	26

Ordering information

Visible red light

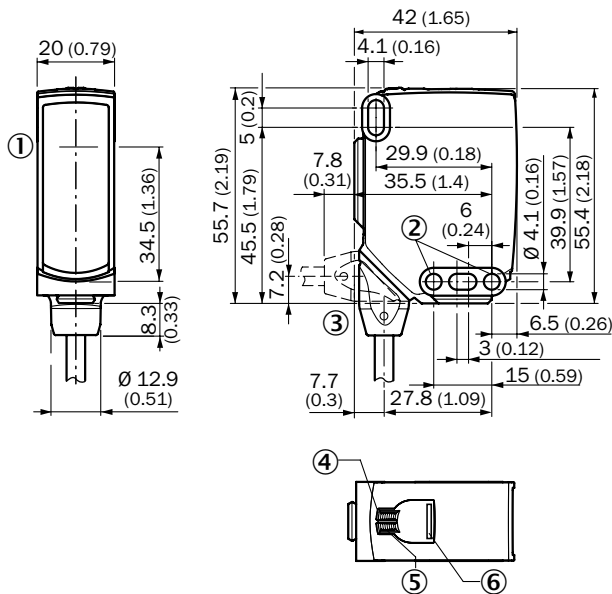
- **Detection principle:** autocollimation
- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: With alignment aid, IO-Link

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
0 m ... 10 m	Ø 80 mm (5 m)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388972 dez / 0x80016C	cd-389	WLA16P-1H162100A00	1218826
			Male connector M12, 4-pin	8388972 dez / 0x80016C	cd-390	WLA16P-24162100A00	1218660
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388972 dez / 0x80016C	cd-390	WLA16P-34162100A00	1218815

¹⁾ Reflector PL80A.

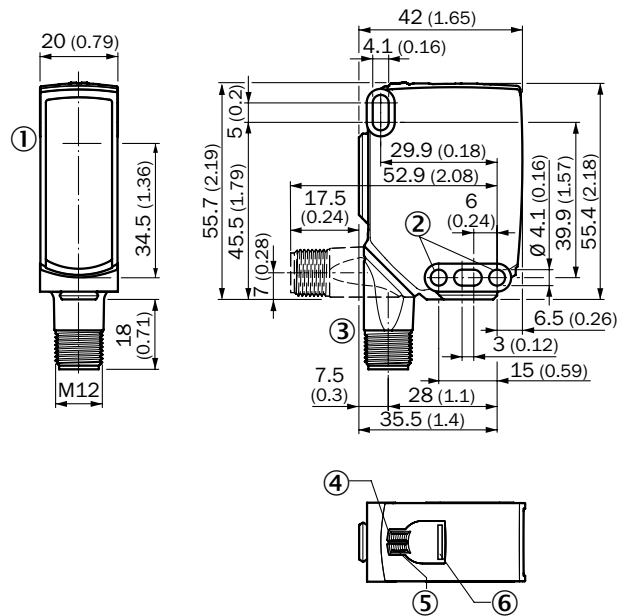
Dimensional drawings (Dimensions in mm (inch))

WLA16,cable



- ① Center of optical axis
- ② Mounting hole, Ø 4.1 mm
- ③ Connection
- ④ LED indicator green: power
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ BluePilot blue: Alignment aid

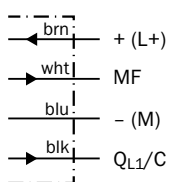
WLA16, connector



- ① Center of optical axis
- ② Mounting hole, Ø 4.1 mm
- ③ Connection
- ④ LED indicator green: power
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ BluePilot blue: Alignment aid

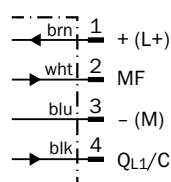
Connection diagram

Cd-389



Default: MF = \bar{Q}
Q_{L1}/C = Q

Cd-390



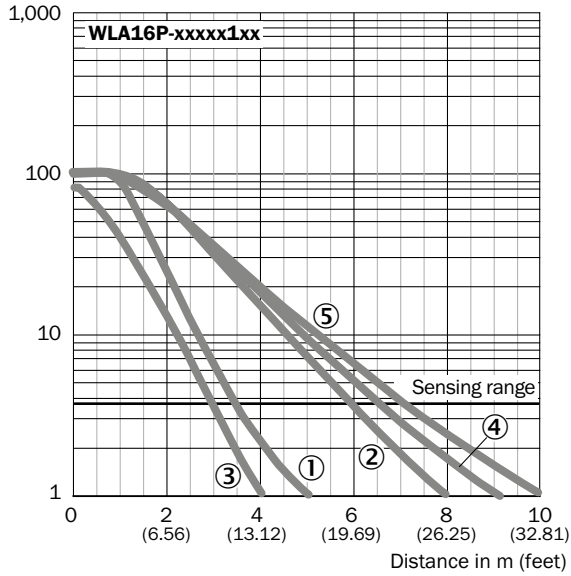
Default: MF = \bar{Q}
Q_{L1}/C = Q

Characteristic curves

WLA16P-xxxxx1xx

Standard reflectors

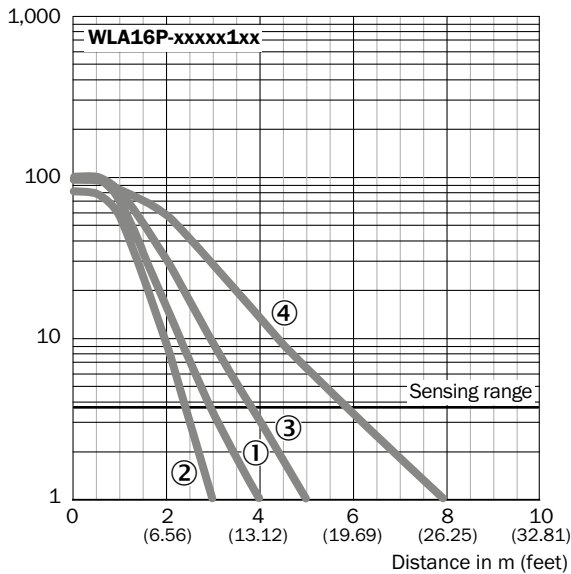
Function reserve



- ① Reflector PL22
- ② Reflector P250, PL30A
- ③ Reflector PL20A
- ④ Reflector PL40A
- ⑤ Reflector PL80A, C110A

Fine triple reflectors

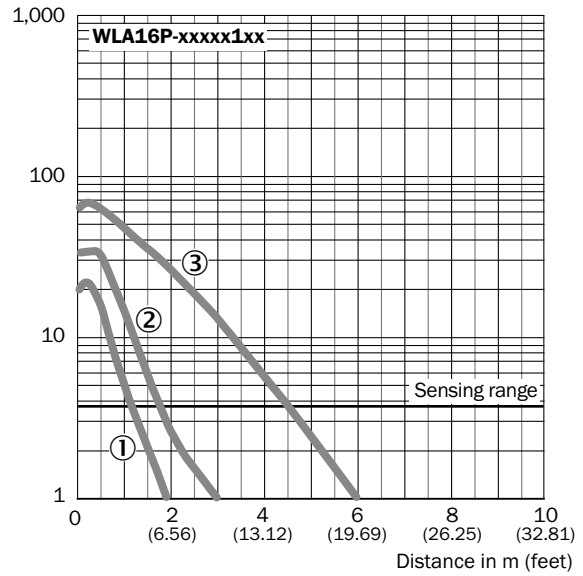
Function reserve



- ① PL10FH-1 reflector
- ② PL10F reflector
- ③ Reflector PL20F
- ④ Reflector P250F

Reflective tape

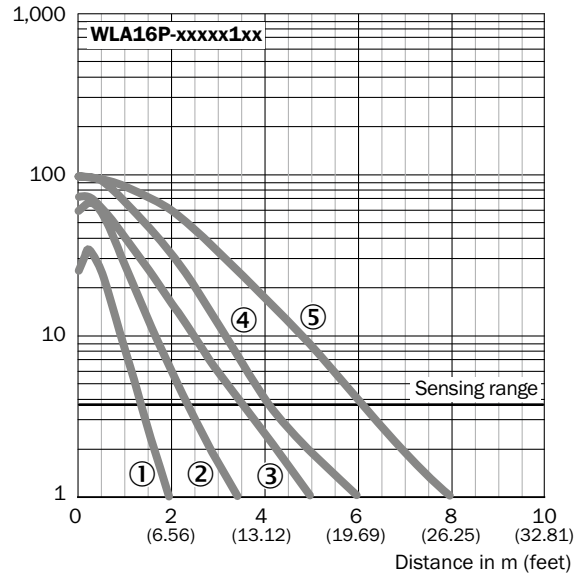
Function reserve



- ① Reflective tape REF-DG (50 x 50 mm)
- ② Reflective tape REF-IRF-56 (50 x 50 mm)
- ③ Reflective tape REF-AC1000 (50 x 50 mm)

Chemical-resistant reflectors

Function reserve

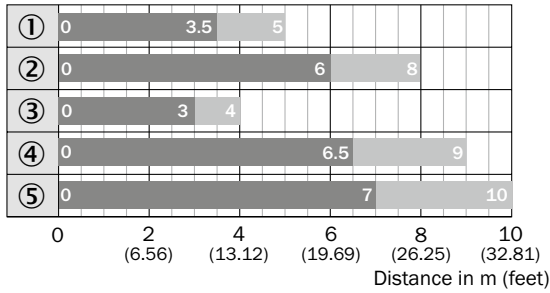


- ① PL10F CHEM reflector
- ② Reflector PL20 CHEM
- ③ Reflector P250 CHEM
- ④ Reflector P250H
- ⑤ Reflector PL40A Antifog

Bar diagrams

WLA16P-xxxxx1xx

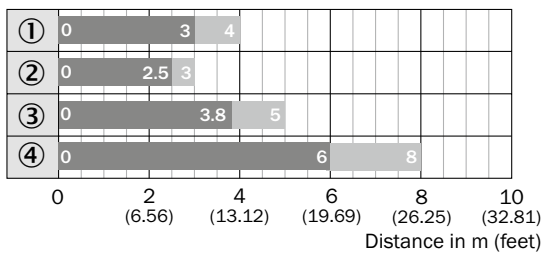
Standard reflectors



■ Sensing range ■ Sensing range typ. max.

- ① Reflector PL22
- ② Reflector P250, PL30A
- ③ Reflector PL20A
- ④ Reflector PL40A
- ⑤ Reflector PL80A, C110A

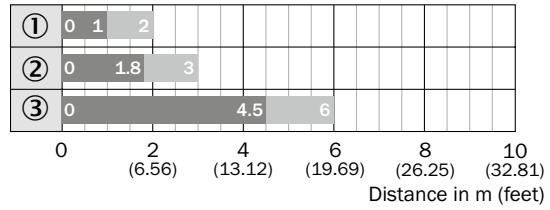
Fine triple reflectors



■ Sensing range ■ Sensing range typ. max.

- ① PL10FH-1 reflector
- ② PL10F reflector
- ③ Reflector PL20F
- ④ Reflector P250F

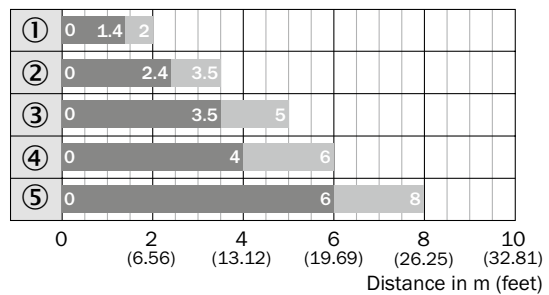
Reflective tape



■ Sensing range ■ Sensing range typ. max.

- ① Reflective tape REF-DG (50 x 50 mm)
- ② Reflective tape REF-IRF-56 (50 x 50 mm)
- ③ Reflective tape REF-AC1000 (50 x 50 mm)

Chemical-resistant reflectors



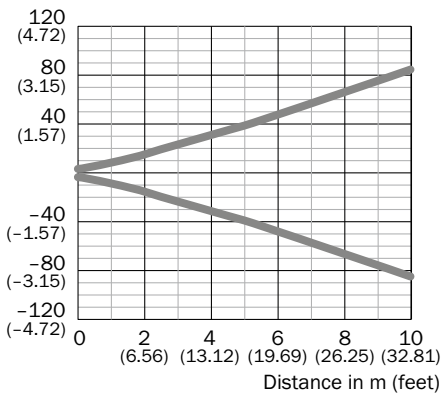
■ Sensing range ■ Sensing range typ. max.

- ① PL10F CHEM reflector
- ② Reflector PL20 CHEM
- ③ Reflector P250 CHEM
- ④ Reflector P250H
- ⑤ Reflector PL40A Antifog

Light spot diameter

WLA16P-xxxxx1xx

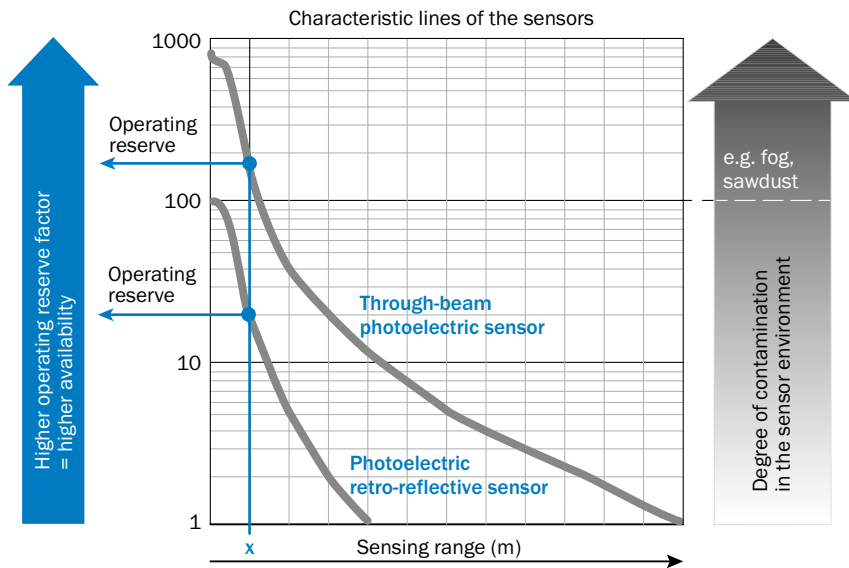
Radius in mm (inch)



Operation note

BluePilot: Blue indicator LEDs with double benefits

<p>Easy and quick sensor alignment with the help of the LED indicator</p> <p>All blue LEDs illuminate</p> <ul style="list-style-type: none"> - optimum alignment - highest possible operating reserve 	<p>WLA photoelectric retro-reflection sensor alignment</p>
<p>Service note</p> <p>A reduction in sensor availability is displayed by a decrease of the blue LEDs.</p> <p>Possible causes:</p> <ul style="list-style-type: none"> a) insufficient alignment b) contamination of the optical surfaces c) particles in the light beam 	



At a sensing range of „x“ the photoelectric retro-reflective and through-beam photoelectric sensors have different operating reserves (see blue arrow). The higher the operating reserve factor, the better the sensor can compensate the contamination in the air or in the light beam and on the optical surfaces (front screen, reflector), i.e. the sensor has the maximum availability, otherwise the sensor switches due to pollution although there is no object in the path of the light beam.

RELIABLE DETECTION OF TRANSPARENT OBJECTS



Product description

The WL16 is used for the reliable detection of transparent objects. The AutoAdapt technology automatically adjusts the switching threshold in the event of contamination or after cleaning. The WL16 can be conveniently adjusted to the application via the BluePilot operating and indicator concept. Since every WL16 is designed as a Smart Sensor, it can also be configured via IO-Link and

offers additional diagnostic functions and Smart Tasks. It is therefore a trailblazer on the path to Industry 4.0. The durable laser inscription ensures device identification in the long run. Thanks to the extremely rugged VISTAL® housing and the predictive maintenance, the WL16 offers previously unattainable reliability and prevents unplanned machine downtimes.

At a glance

- ClearSens technology
- AutoAdapt: Automatic adjustment of the switching threshold in the event of contamination
- Autocollimation: Sender and receiver lie on the same optical axis
- BluePilot: Teach-in and selection of the object mode depending on the objects or via IO-Link
- Smart Sensor: Enhanced Sensing, IO-Link, Diagnostics, Smart Tasks

Your benefits

- Reliable detection of transparent objects in the pharmaceutical, food and beverage industries
- AutoAdapt and continuous monitoring of the operating reserve via IO-Link protects from operational interruptions
- Free choice of sensor adjustment: Intuitively on the housing with selection of the object mode or conveniently via IO-Link with pushbutton lock for preventing manipulation
- Simplification when aligning the light beam to the reflector thanks to the PinPoint LED
- The Smart Sensor makes machine processes quicker, more efficient and transparent, enables predictive maintenance and is thereby a trailblazer for Industry 4.0 applications

Additional information

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→ www.sick.com/W16

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

Sensor principle	Photoelectric retro-reflective sensor
Detection principle	Autocollimation
Dimensions (W x H x D)	20 mm x 55.7 mm x 42 mm
Housing design (light emission)	Rectangular
Sensing range max. ¹⁾	0 m ... 5 m
Type of light	Visible red light
Light source ²⁾	PinPoint LED
Light spot size (distance)	Ø 80 mm (5 m)
Wave length	635 nm
Adjustment	BluePilot: Teach-in plus user mode selector, IO-Link
Pin 2 configuration	External input, Teach-in, switching signal
Special features	Detecting transparent objects

¹⁾ Reflector P250F.

²⁾ Average service life: 100,000 h at T₀ = +25 °C.

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 1000 Hz ¹⁾ SIO Logic: 800 Hz ²⁾ IOL: 650 Hz ³⁾
Response time	SIO Direct: 500 µs ¹⁾ SIO Logic: 600 µs ²⁾ IOL: 750 µs ³⁾
Repeat accuracy	SIO Direct: 150 µs ¹⁾ SIO Logic: 300 µs ²⁾ IOL: 400 µs ³⁾
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

¹⁾ SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Mechanics/electronics

Supply voltage ¹⁾	10 V DC ... 30 V DC
Ripple	$\leq 5 V_{pp}$
Power consumption	$\leq 30 \text{ mA}$ ²⁾ $< 50 \text{ mA}$ ³⁾
Output type	PUSH/PULL, PNP, NPN
Output function	Complementary, Pin 2: NPN normally closed (light switching), PNP normally open (dark switching), Pin 4: NPN normally open (dark switching), PNP normally closed (light switching), IO-Link
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. $V_s - 2.5 \text{ V} / 0 \text{ V}$
Signal voltage NPN HIGH/LOW	Approx. $V_S / < 2.5 \text{ V}$
Output current I_{max}	$\leq 100 \text{ mA}$
Response time ⁴⁾	$\leq 500 \mu\text{s}$
Switching frequency ⁵⁾	1,000 Hz
Connection type	Cable, 2 m ⁶⁾ Male connector, M12 Cable with male connector, M12, 270 mm ⁶⁾ (depending on type)
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾ , D ¹⁰⁾
Protection class	III
Weight	Cable 100 g Male connector M12, 4-pin 50 g Cable with M12 male connector, 4-pin 70 g
Polarisation filter	✓
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	IP66, IP67
Ambient operating temperature	-40 °C ... +60 °C
Ambient storage temperature	-40 °C ... +75 °C

¹⁾ Limit values.

²⁾ 16 V DC ... 30 V DC, without load.

³⁾ 10 V DC ... 16 V DC, without load.

⁴⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁵⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Communication interface

Communication interface	IO-Link V1.1
Mode	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q_{L1} Bit 1 = switching signal Q_{L2} Bit 2 ... 15 = empty
VendorID	26

Ordering information

Visible red light

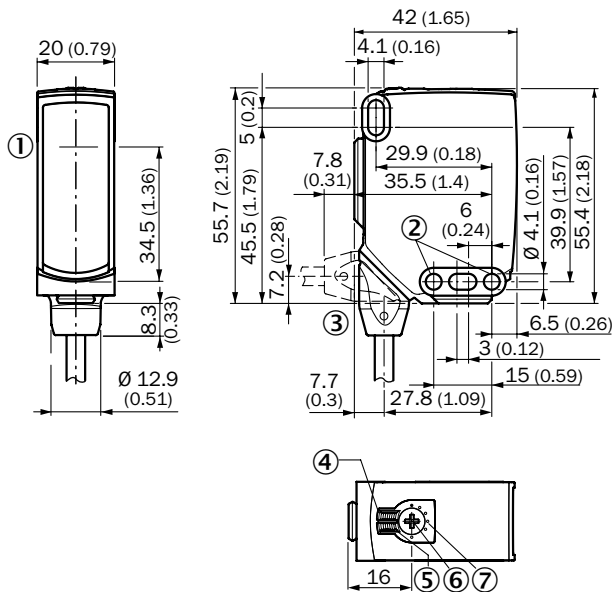
- **Detection principle:** autocollimation
- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: Teach-in plus user mode selector, IO-Link

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
0 m ... 5 m	Ø 80 mm (5 m)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388976 dez / 0x800170	cd-389	WLG16P-1H162120A00	1218948
			Male connector M12, 4-pin	8388976 dez / 0x800170	cd-390	WLG16P-24162120A00	1218661
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388976 dez / 0x800170	cd-390	WLG16P-34162120A00	1218947

¹⁾ Reflector P250F.

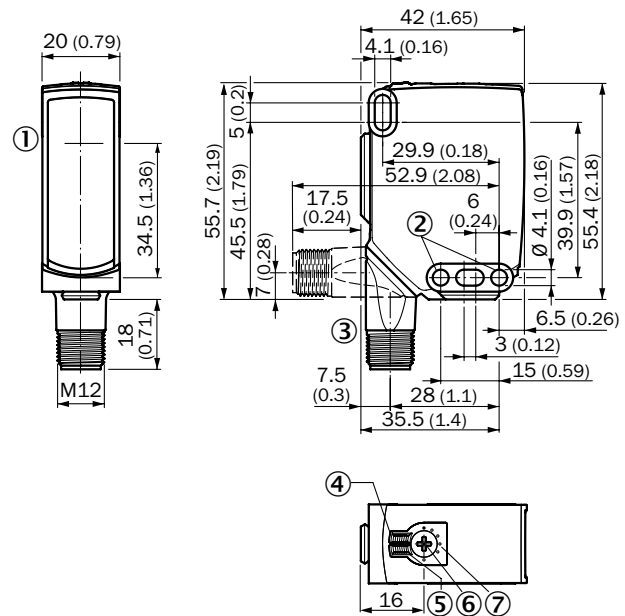
Dimensional drawings (Dimensions in mm (inch))

WLG16,cable



- ① Center of optical axis
- ② Mounting hole, Ø 4.1 mm
- ③ Connection
- ④ LED indicator green: power
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ Teach-Turn adjustment of mode and sensitivity
- ⑦ BluePilot blue: Mode selection

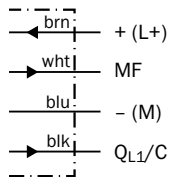
WLG16, connector



- ① Center of optical axis
- ② Mounting hole, Ø 4.1 mm
- ③ Connection
- ④ LED indicator green: power
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ Teach-Turn adjustment of mode and sensitivity
- ⑦ BluePilot blue: Mode selection

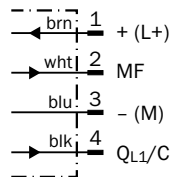
Connection diagram

Cd-389



Default: MF = \bar{Q}
QL1/C = Q

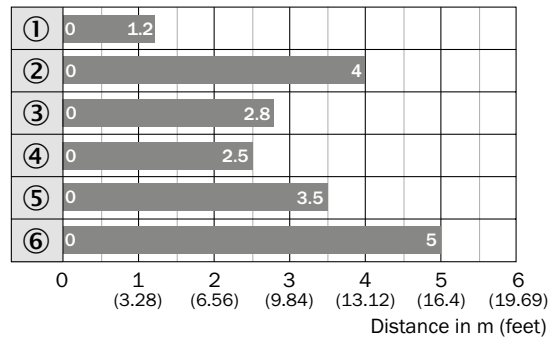
Cd-390



Default: MF = \bar{Q}
QL1/C = Q

Bar diagrams

WLG16P-xxxxx1xx

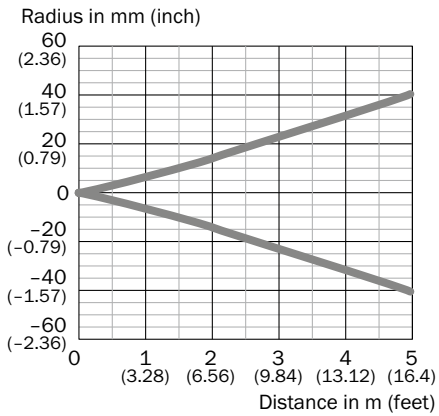


■ Sensing range





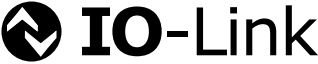


- ① PL10F CHEM reflector
- ② Reflective tape REF-AC1000 (50 x 50 mm)
- ③ PL10FH-1 reflector
- ④ PL10F reflector
- ⑤ Reflector PL20F
- ⑥ Reflector P250F

Light spot diameter

WLG16P-xxxxx1xx



PRECISE ALIGNMENT OVER LARGE DISTANCES WITH PINPOINT LED AND BLUEPILOT

Additional information

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Accessories 90

Product description

With the new BluePilot optical intensity display in the WSE16, alignment is more precise, particularly over large distances, and the sensor performance can be monitored during operation. The WSE16 through-beam photoelectric sensor gets by without the sensitivity adjustment necessary on other devices. Since every WSE16 is designed as a Smart Sensor, it can be configured via IO-Link and of-

fers additional diagnostic functions and Smart Tasks. It is therefore a trailblazer on the path to Industry 4.0. The durable laser inscription ensures device identification in the long run. Thanks to the extremely rugged VISTAL® housing and the predictive maintenance, the WSE16 offers previously unattainable reliability and prevents unplanned machine downtimes.

At a glance

- BluePilot: Optical alignment aid
- Very large sensing range
- Very high operating reserve at short distances
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Diagnostics, Smart Tasks

Your benefits

- Reliable detection and very precise leading edge detection thanks to the small and homogeneous light spot of the PinPoint LED
- Simplification when aligning the light beam to the receiver thanks to the PinPoint LED in combination with BluePilot
- BluePilot offers the certainty that you are actually taking advantage of the maximum performance
- Continuous display of the operating reserve with BluePilot or via IO-Link
- The Smart Sensor makes machine processes quicker, more efficient and transparent, enables predictive maintenance and is thereby a trailblazer for Industry 4.0 applications

→ www.sick.com/W16

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

	Visible red light	Infrared light
Sensor principle	Through-beam photoelectric sensor	
Dimensions (W x H x D)	20 mm x 55.7 mm x 42 mm	
Housing design (light emission)	Rectangular	
Sensing range max.	0 m ... 45 m	
Type of light	Visible red light	Infrared light
Light source ¹⁾	PinPoint LED	LED
Light spot size (distance)	Ø 90 mm (8 m)	Ø 110 mm (8 m)
Wave length	635 nm	850 nm
Adjustment	BluePilot: With alignment aid, IO-Link	
Pin 2 configuration	External input, Teach-in, switching signal	

¹⁾ Average service life: 100,000 h at T₀ = +25 °C.

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 1000 Hz ¹⁾ SIO Logic: 800 Hz ²⁾ IOL: 650 Hz ³⁾
Response time	SIO Direct: 500 µs ¹⁾ SIO Logic: 600 µs ²⁾ IOL: 750 µs ³⁾
Repeat accuracy	SIO Direct: 150 µs ¹⁾ SIO Logic: 300 µs ²⁾ IOL: 400 µs ³⁾
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

¹⁾ SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Mechanics/electronics

Supply voltage ¹⁾	10 V DC ... 30 V DC
Ripple	$\leq 5 V_{pp}$
Power consumption, sender	$\leq 30 \text{ mA}$ ²⁾ $< 50 \text{ mA}$ ³⁾
Power consumption, receiver	$\leq 30 \text{ mA}$ ²⁾ $< 50 \text{ mA}$ ³⁾
Output type	PUSH/PULL, PNP, NPN
Output function	Complementary, Pin 2: NPN normally closed (light switching), PNP normally open (dark switching), Pin 4: NPN normally open (dark switching), PNP normally closed (light switching), IO-Link
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. $V_s - 2.5 \text{ V} / 0 \text{ V}$
Signal voltage NPN HIGH/LOW	Approx. $V_S / < 2.5 \text{ V}$
Output current I_{max}	$\leq 100 \text{ mA}$
Response time ⁴⁾	$\leq 500 \mu\text{s}$
Switching frequency ⁵⁾	1,000 Hz
Connection type	Cable, 2 m ⁶⁾ Male connector, M12 Cable with male connector, M12, 270 mm ⁶⁾ (depending on type)
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾ , D ¹⁰⁾
Protection class	III
Weight	
	Cable 200 g
	Male connector M12, 4-pin 100 g
	Cable with M12 male connector, 4-pin 140 g
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	
	Cable IP66, IP67
	Male connector M12, 4-pin IP66, IP67, IP69K
	Cable with M12 male connector, 4-pin IP66, IP67
Test input sender off	Test at 0 V
Ambient operating temperature	-40 °C ... +60 °C
Ambient storage temperature	-40 °C ... +75 °C

¹⁾ Limit values.

²⁾ 16 V DC ... 30 V DC, without load.

³⁾ 10 V DC ... 16 V DC, without load.

⁴⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁵⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Communication interface

Communication interface	IO-Link V1.1
Mode	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q_{L1} Bit 1 = switching signal Q_{L2} Bit 2 ... 15 = empty
VendorID	26

Ordering information

Visible red light

- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: With alignment aid, IO-Link

Sensing range max.	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
0 m ... 45 m	Ø 90 mm (8 m)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388980 dez / 0x800174	cd-391	WSE16P-1H162100A00	1088331
			Male connector M12, 4-pin	8388980 dez / 0x800174	cd-392	WSE16P-24162100A00	1088329
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388980 dez / 0x800174	cd-392	WSE16P-34162100A00	1088330

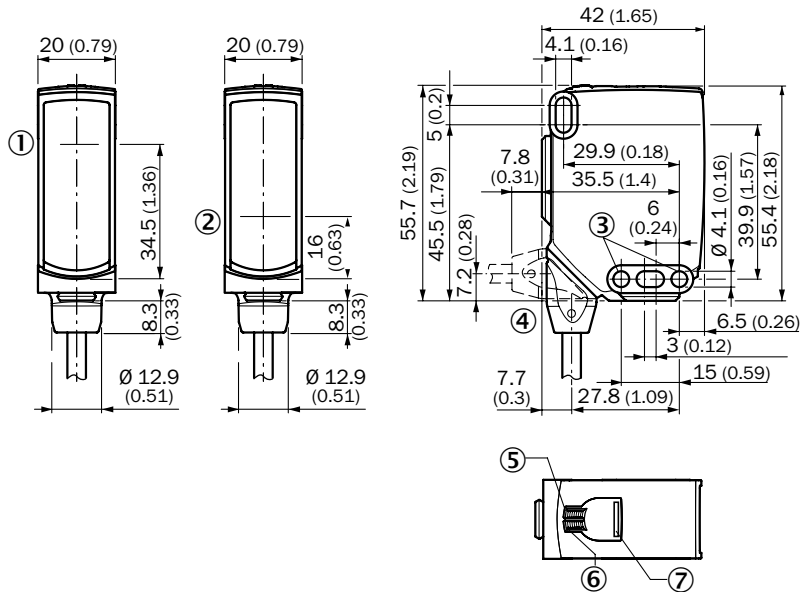
Infrared light

- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: With alignment aid, IO-Link

Sensing range max.	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
0 m ... 45 m	Ø 110 mm (8 m)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388980 dez / 0x800174	cd-391	WSE16I-1H162100A00	1088328
			Male connector M12, 4-pin	8388980 dez / 0x800174	cd-392	WSE16I-24162100A00	1088326
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388980 dez / 0x800174	cd-392	WSE16I-34162100A00	1088327

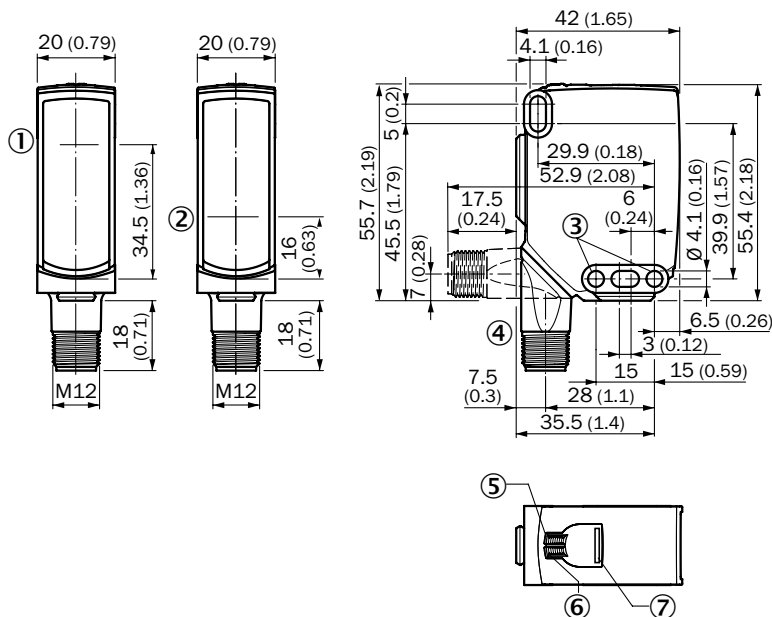
Dimensional drawings (Dimensions in mm (inch))

WSE16, cable



- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole, Ø 4.1 mm
- ④ Connection
- ⑤ LED indicator green: power
- ⑥ LED indicator yellow: Status of received light beam
- ⑦ BluePilot blue: Alignment aid

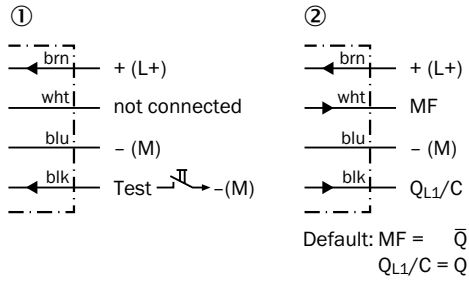
WSE16, connector



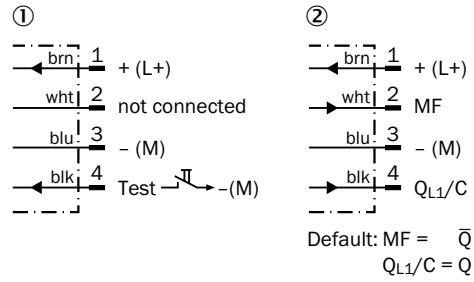
- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole, Ø 4.1 mm
- ④ Connection
- ⑤ LED indicator green: power
- ⑥ LED indicator yellow: Status of received light beam
- ⑦ BluePilot blue: Alignment aid

Connection diagram

Cd-391

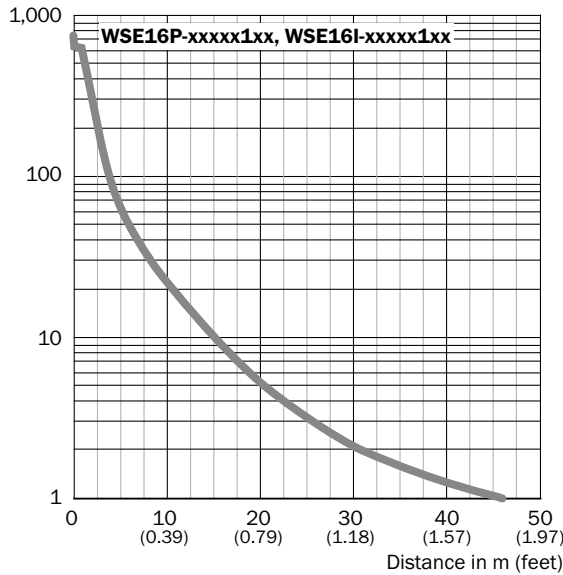


Cd-392



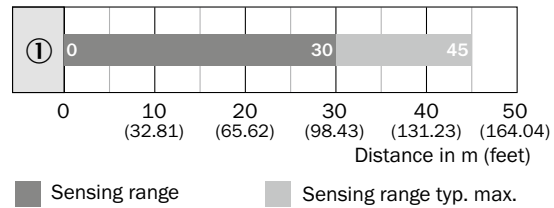
Characteristic curves

WSE16P-xxxxx1xx, WSE16I-xxxxx1xx
Function reserve



Bar diagrams

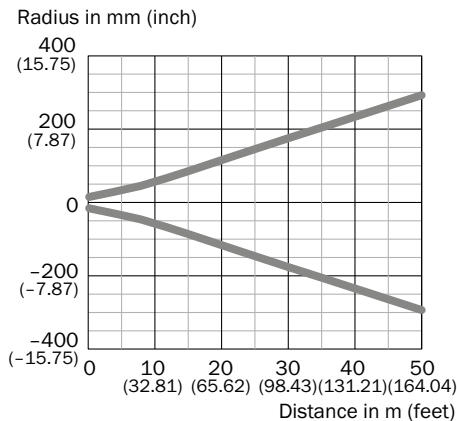
WSE16P-xxxxx1xx, WSE16I-xxxxx1xx



Light spot diameter

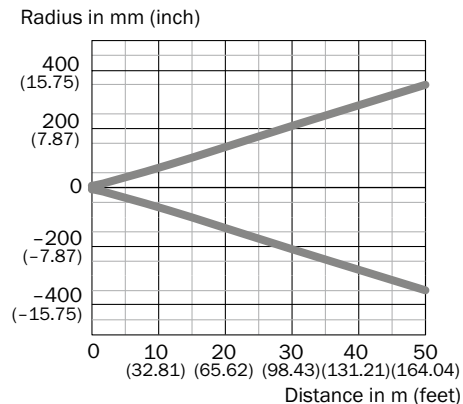
Visible red light

WSE16P-xxxxx1xx



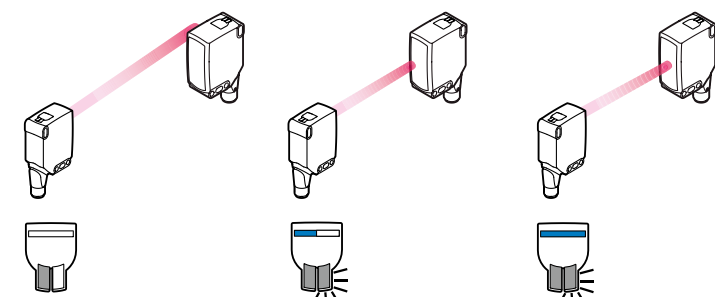
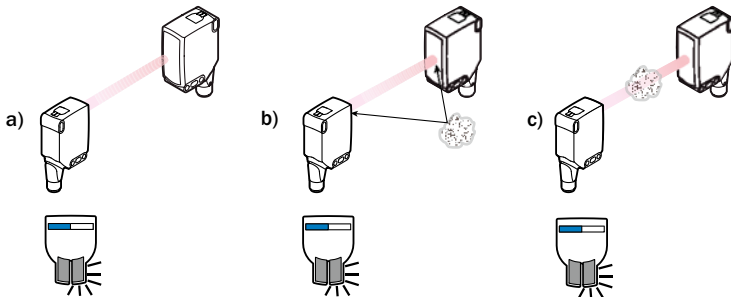
Infrared light

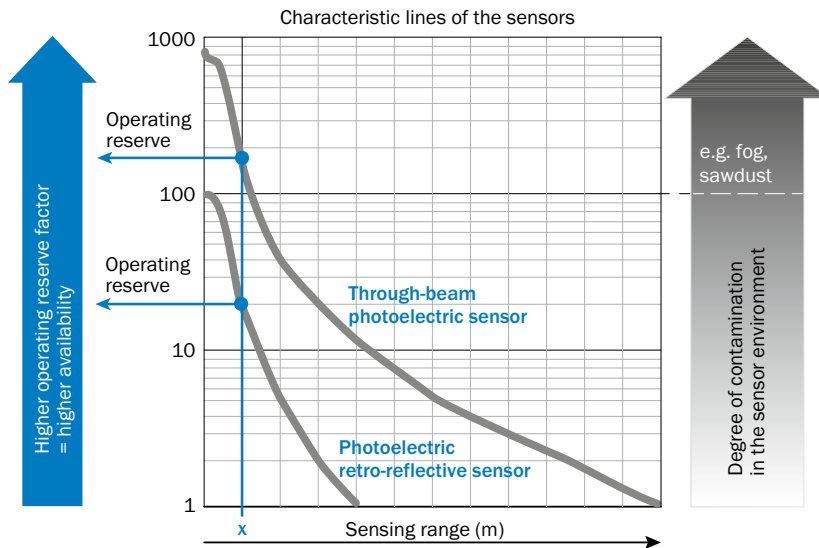
WSE16I-xxxxx1xx



Operation note

BluePilot: Blue indicator LEDs with double benefits

<p>Easy and quick sensor alignment with the help of the LED indicator</p> <p>All blue LEDs illuminate</p> <ul style="list-style-type: none"> - optimum alignment - highest possible operating reserve 	<p>WSE through-beam photoelectric sensor alignment</p> 
<p>Service note</p> <p>A reduction in sensor availability is displayed by a decrease of the blue LEDs.</p> <p>Possible causes:</p> <ul style="list-style-type: none"> a) insufficient alignment b) contamination of the optical surfaces c) particles in the light beam 	



At a sensing range of „x“ the photoelectric retro-reflective and through-beam photoelectric sensors have different operating reserves (see blue arrow). The higher the operating reserve factor, the better the sensor can compensate the contamination in the air or in the light beam and on the optical surfaces (front screen, reflector), i.e. the sensor has the maximum availability, otherwise the sensor switches due to pollution although there is no object in the path of the light beam.

RELIABLE DETECTION WITH BLUEPILOT EASE OF USE



Product description

The basic function of the WTB26 has been improved, it has been expanded with the OptoFilter and can be quickly and conveniently adjusted via the BluePilot operating and indicator concept. Since every WTB26 is designed as a Smart Sensor, it can be configured via IO-Link and offers additional Smart Tasks. The WTB26 is therefore a

trailblazer on the path to Industry 4.0. The highly-visible PinPoint LED and the infrared LED are available as the light source. The durable laser inscription ensures device identification in the long run. The extremely rugged VISTAL® housing reduces device failure and its follow-up costs.

At a glance

- Sensor with precise background suppression
- OptoFilter: Protection against optical influences
- BluePilot: Adjustment of the sensing range via Teach-Turn adjustment with optical sensing range indicator via IO-Link
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Smart Tasks

Your benefits

- Reliable detection and very precise leading edge detection thanks to the small and homogeneous light spot of the PinPoint LED
- OptoFilter protects from operational interruptions caused by LED illumination or background reflections, e.g. from safety vests
- Free choice of sensor adjustment: Intuitively, quickly and precisely on the housing via the Teach-Turn adjustment or via IO-Link with pushbutton lock for preventing manipulation
- Enormous simplification when aligning the light beam to the object thanks to the PinPoint LED
- The Smart Sensor makes machine processes quicker, more efficient and transparent and is thereby a trailblazer for Industry 4.0 applications

Additional information

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→ www.sick.com/W26

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

	Visible red light	Infrared light
Sensor principle	Photoelectric proximity sensor	
Detection principle	Background suppression	
Dimensions (W x H x D)	24.6 mm x 82.5 mm x 53.3 mm	
Housing design (light emission)	Rectangular	
Sensing range max. ¹⁾	10 mm ... 1,600 mm	10 mm ... 2,000 mm
Type of light	Visible red light	Infrared light
Light source ²⁾	PinPoint LED	LED
Light spot size (distance)	Ø 7 mm (700 mm)	Ø 14 mm (1,000 mm)
Wave length	635 nm	850 nm
Adjustment	BluePilot: Teach-Turn adjustment with sensing range indicator, IO-Link	
Pin 2 configuration	External Input (test), Teach-in, switching signal	

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

²⁾ Average service life: 100,000 h at T₀ = +25 °C.

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 1000 Hz ¹⁾ SIO Logic: 800 Hz ²⁾ IOL: 650 Hz ³⁾
Response time	SIO Direct: 500 µs ¹⁾ SIO Logic: 600 µs ²⁾ IOL: 750 µs ³⁾
Repeat accuracy	SIO Direct: 150 µs ¹⁾ SIO Logic: 300 µs ²⁾ IOL: 400 µs ³⁾
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

¹⁾ SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Mechanics/electronics

Supply voltage ¹⁾	10 V DC ... 30 V DC
Ripple	$\leq 5 V_{pp}$
Power consumption	$\leq 30 \text{ mA}$ ²⁾ $< 50 \text{ mA}$ ³⁾
Output type	PUSH/PULL, PNP, NPN
Output function	Complementary, Pin 2: NPN normally open (light switching), PNP normally closed (dark switching), Pin 4: NPN normally closed (dark switching), PNP normally open (light switching), IO-Link
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. $V_s - 2.5 \text{ V} / 0 \text{ V}$
Signal voltage NPN HIGH/LOW	Approx. $V_S / < 2.5 \text{ V}$
Output current I_{max}	$\leq 100 \text{ mA}$
Response time ⁴⁾	$\leq 500 \mu\text{s}$
Switching frequency ⁵⁾	1,000 Hz
Connection type	Cable, M12, 2 m ⁶⁾ Male connector, M12 Cable with male connector, M12, 270 mm ⁶⁾ (depending on type)
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾ , D ¹⁰⁾
Protection class	III
Weight	
Cable	130 g
Male connector M12, 4-pin	80 g
Cable with M12 male connector, 4-pin	100 g
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	IP66, IP67
Ambient operating temperature	-40 °C ... +60 °C
Ambient storage temperature	-40 °C ... +75 °C

¹⁾ Limit values.

²⁾ 16 V DC ... 30 V DC, without load.

³⁾ 10 V DC ... 16 V DC, without load.

⁴⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁵⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Communication interface

	Visible red light	Infrared light
Communication interface	IO-Link V1.1	
Mode	COM2 (38,4 kBaud)	
Cycle time	2.3 ms	
Process data length	16 Bit	
Process data structure	Bit 0 = switching signal Q_{L1} Bit 1 = switching signal Q_{L2} Bit 2 ... 15 = empty	
VendorID	26	

Ordering information

Visible red light

- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: Teach-Turn adjustment with sensing range indicator, IO-Link

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
10 mm ... 1,600 mm	Ø 7 mm (700 mm)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388984 dez / 0x800178	cd-389	WTB26P- 1H161120A00	1218824
			Male connector M12, 4-pin	8388984 dez / 0x800178	cd-390	WTB26P- 24161120A00	1218666
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388984 dez / 0x800178	cd-390	WTB26P- 34161120A00	1218806

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

Infrared light

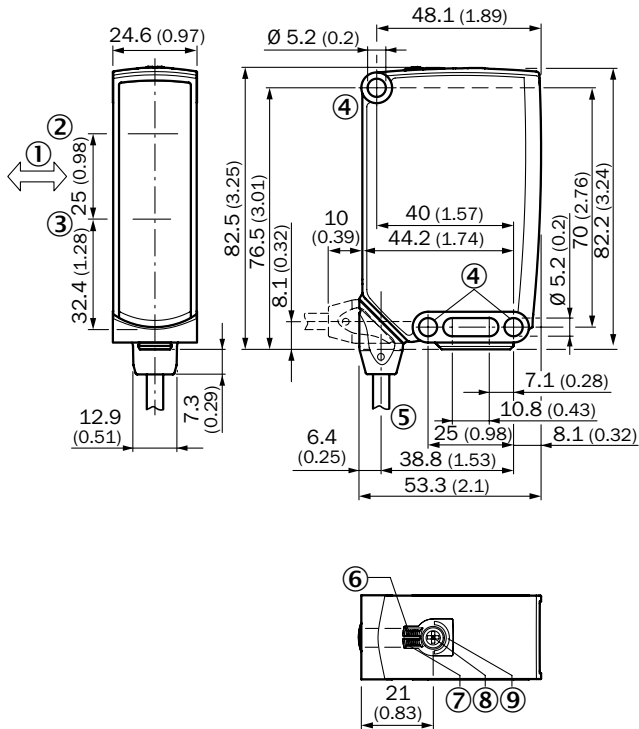
- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: Teach-Turn adjustment with sensing range indicator, IO-Link

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
10 mm ... 2,000 mm	Ø 14 mm (1,000 mm)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388996 dez / 0x800184	cd-389	WTB26I- 1H161120A00	1218825
			Male connector M12, 4-pin	8388996 dez / 0x800184	cd-390	WTB26I- 24161120A00	1218667
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388996 dez / 0x800184	cd-390	WTB26I- 34161120A00	1218827

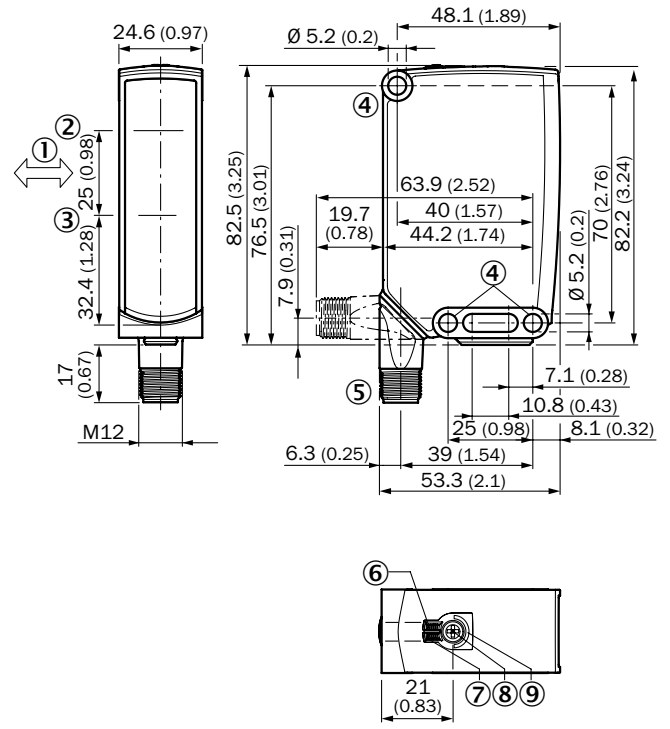
¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

Dimensional drawings (Dimensions in mm (inch))

WTB26, cable



WTB26, connector

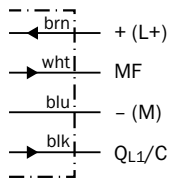


- ① Standard direction of the material being detected
- ② Center of optical axis, sender
- ③ Center of optical axis, receiver
- ④ Mounting hole, Ø 5.2 mm
- ⑤ Connection
- ⑥ LED indicator green: power
- ⑦ LED indicator yellow: Status of received light beam
- ⑧ Teach-Turn adjustment of sensing range
- ⑨ BluePilot blue: sensing range indicator

- ① Standard direction of the material being detected
- ② Center of optical axis, sender
- ③ Center of optical axis, receiver
- ④ Mounting hole, Ø 5.2 mm
- ⑤ Connection
- ⑥ LED indicator green: power
- ⑦ LED indicator yellow: Status of received light beam
- ⑧ Teach-Turn adjustment of sensing range
- ⑨ BluePilot blue: sensing range indicator

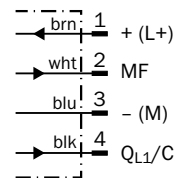
Connection diagram

Cd-389



Default: MF = \bar{Q}
 QL1/C = Q

Cd-390

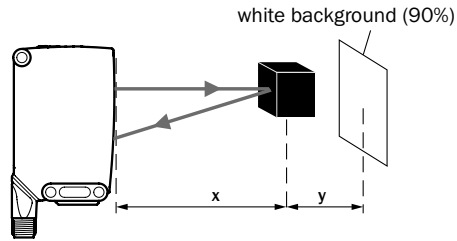
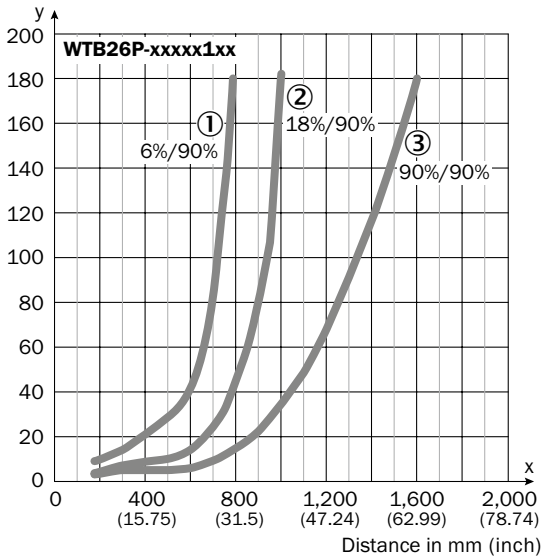


Default: MF = \bar{Q}
 QL1/C = Q

Characteristic curves

WTB26P-xxxxx1xx

Minimum distance in mm (y) between the set sensing range and background (white, 90%)

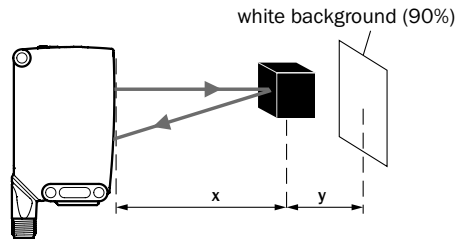
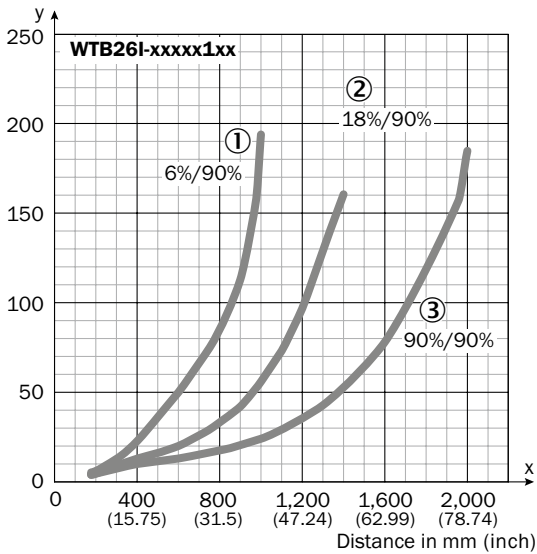


Example:
Sensing range on black, 6%,
x = 600 mm, y = 40 mm

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18% remission
- ③ Sensing range on white, 90% remission

WTB26I-xxxxx1xx

Minimum distance in mm (y) between the set sensing range and background (white, 90%)

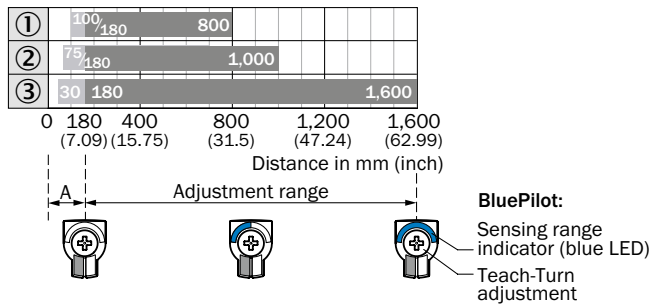


Example:
Sensing range on black, 6%,
x = 800 mm, y = 85 mm

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18% remission
- ③ Sensing range on white, 90% remission

Bar diagrams

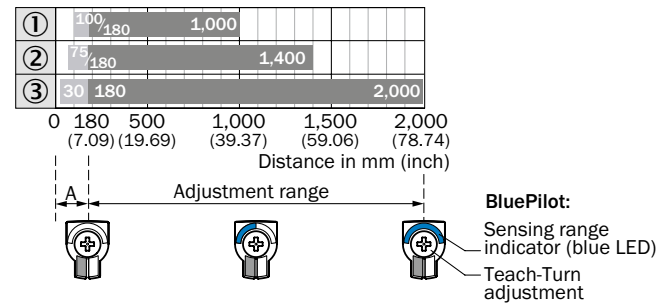
WTB26P-xxxxx1xx



A = Detection distance (depending on object remission)

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

WTB26I-xxxxx1xx

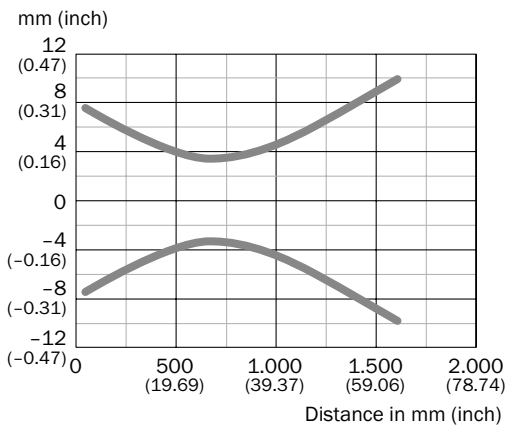


A = Detection distance (depending on object remission)

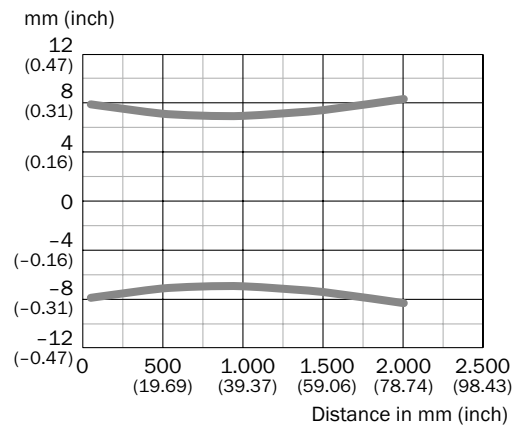
- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

Light spot diameter

WTB26P-xxxxx1xx



WTB26I-xxxxx1xx



RELIABLE DETECTION OF GLOSSY, UNEVEN AND CONTRAST-RICH OBJECTS



Additional information

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Product description

The WTS26 with TwinEye technology is designed for the reliable detection of glossy, flat, contrast-rich and uneven objects and has been expanded with the OptoFilter. The WTS26 can be quickly and conveniently adjusted via the BluePilot operating and indicator concept. Since every WTS26 is designed as a Smart Sensor, it can be configured via IO-Link and offers additional

Smart Tasks. The WTS26 is therefore a trailblazer on the path to Industry 4.0. The highly-visible PinPoint LED serves as the light source. The durable laser inscription ensures device identification in the long run. Thanks to the extremely rugged VISTAL® housing, the TwinEye technology and the OptoFilter, the WTS26 offers previously unattainable reliability.

At a glance

- Sensor with TwinEye technology
- OptoFilter: Protection against optical influences
- BluePilot: Adjustment of the sensing range via Teach-Turn adjustment with optical sensing range indicator via IO-Link
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Smart Tasks

Your benefits

- Reliable detection of glossy, flat, contrast-rich, wavy and jet black objects, even when these properties are combined
- OptoFilter protects from operational interruptions caused by LED illumination or background reflections, e.g. from safety vests
- Free choice of sensor adjustment: Intuitively on the housing or via IO-Link with pushbutton lock for preventing manipulation and other functions
- Enormous simplification when aligning the light beam to the object thanks to the PinPoint LED
- The Smart Sensor makes machine processes quicker, more efficient and transparent and is thereby a trailblazer for Industry 4.0 applications

→ www.sick.com/W26

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

Sensor principle	Photoelectric proximity sensor, TwinEye technology
Detection principle	Background suppression
Dimensions (W x H x D)	24.6 mm x 82.5 mm x 53.3 mm
Housing design (light emission)	Rectangular
Sensing range max. ¹⁾	10 mm ... 1,000 mm
Type of light	Visible red light
Light source ²⁾	PinPoint LED
Light spot size (distance)	Ø 10 mm (550 mm)
Wave length	635 nm
Adjustment	BluePilot: Teach-Turn adjustment with sensing range indicator, IO-Link
Pin 2 configuration	External Input (test), Teach-in, switching signal

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

²⁾ Average service life: 100,000 h at $T_U = +25\text{ °C}$.

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 350 Hz ¹⁾ SIO Logic: 300 Hz ²⁾ IOL: 280 Hz ³⁾
Response time	SIO Direct: 1.4 ms ¹⁾ SIO Logic: 1.65 ms ²⁾ IOL: 1.75 ms ³⁾
Repeat accuracy	SIO Direct: 750 µs ¹⁾ SIO Logic: 800 µs ²⁾ IOL: 900 µs ³⁾
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

¹⁾ SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Mechanics/electronics

Supply voltage ¹⁾	10 V DC ... 30 V DC
Ripple	≤ 5 V _{pp}
Power consumption	≤ 30 mA ²⁾ < 50 mA ³⁾
Output type	PUSH/PULL, PNP, NPN
Output function	Complementary, Pin 2: NPN normally open (light switching), PNP normally closed (dark switching), Pin 4: NPN normally closed (dark switching), PNP normally open (light switching), IO-Link
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. V _s - 2.5 V / 0 V
Signal voltage NPN HIGH/LOW	Approx. V _S / < 2.5 V
Output current I_{max}	≤ 100 mA
Response time ⁴⁾	≤ 1.25 ms
Switching frequency ⁵⁾	400 Hz
Connection type	Cable, 2 m ⁶⁾ Male connector, M12 Cable with male connector, M12, 270 mm ⁶⁾ (depending on type)
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾ , D ¹⁰⁾
Protection class	III
Weight	
Cable	130 g
Male connector M12, 4-pin	80 g
Cable with M12 male connector, 4-pin	100 g
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	IP66, IP67
Ambient operating temperature	-40 °C ... +60 °C
Ambient storage temperature	-40 °C ... +75 °C

¹⁾ Limit values.

²⁾ 16 V DC ... 30 V DC, without load.

³⁾ 10 V DC ... 16 V DC, without load.

⁴⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁵⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Communication interface

Communication interface	IO-Link V1.1
Mode	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q _{L1} Bit 1 = switching signal Q _{L2} Bit 2 ... 15 = empty
VendorID	26

Ordering information

Visible red light

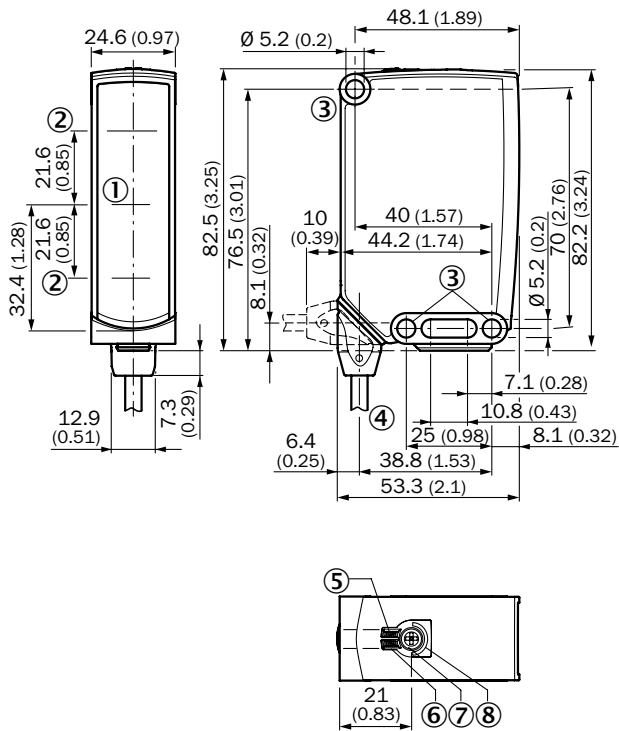
- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: Teach-Turn adjustment with sensing range indicator, IO-Link

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
10 mm ... 1,000 mm	Ø 10 mm (550 mm)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388988 dez / 0x80017C	cd-389	WTS26P-1H161120A00	1218950
			Male connector M12, 4-pin	8388988 dez / 0x80017C	cd-390	WTS26P-24161120A00	1218668
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388988 dez / 0x80017C	cd-390	WTS26P-34161120A00	1218949

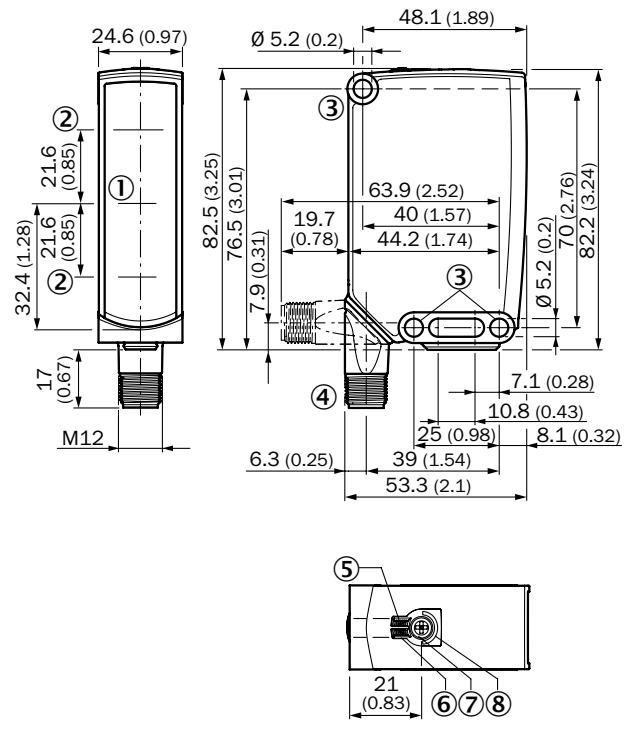
¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

Dimensional drawings (Dimensions in mm (inch))

WTS26, cable



WTS26, connector

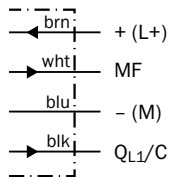


- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole, Ø 5.2 mm
- ④ Connection
- ⑤ LED indicator green: power
- ⑥ LED indicator yellow: Status of received light beam
- ⑦ Teach-Turn adjustment of sensing range
- ⑧ BluePilot blue: sensing range indicator

- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole, Ø 5.2 mm
- ④ Connection
- ⑤ LED indicator green: power
- ⑥ LED indicator yellow: Status of received light beam
- ⑦ Teach-Turn adjustment of sensing range
- ⑧ BluePilot blue: sensing range indicator

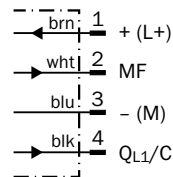
Connection diagram

Cd-389



Default: MF = \bar{Q}
QL1/C = Q

Cd-390

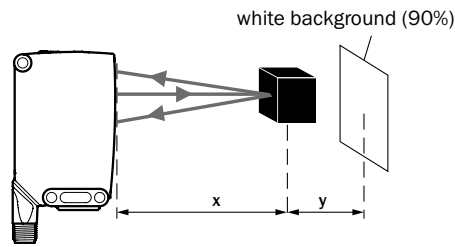
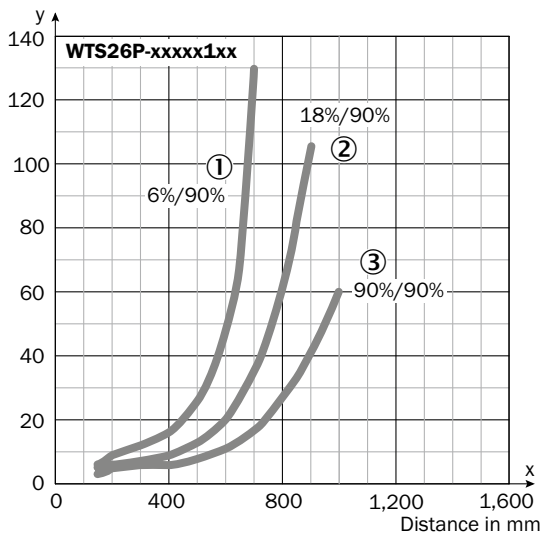


Default: MF = \bar{Q}
QL1/C = Q

Characteristic curves

WTS26P-xxxxx1xx

Minimum distance in mm (y) between the set sensing range and background (white, 90%)

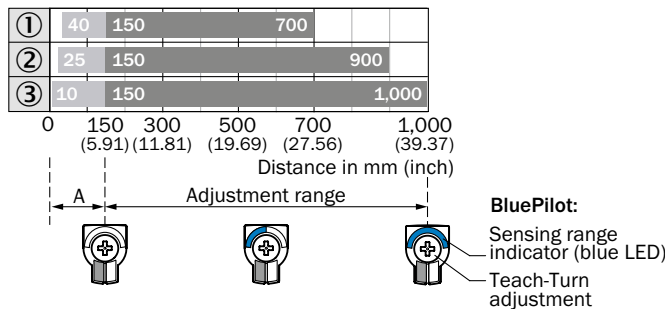


Example:
Sensing range on black, 6%,
x = 500 mm, y = 25 mm

- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

Bar diagrams

WTS26P-xxxxx1xx

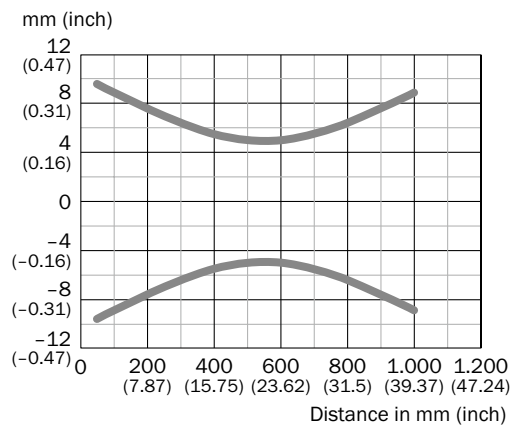


A = Detection distance (depending on object remission)

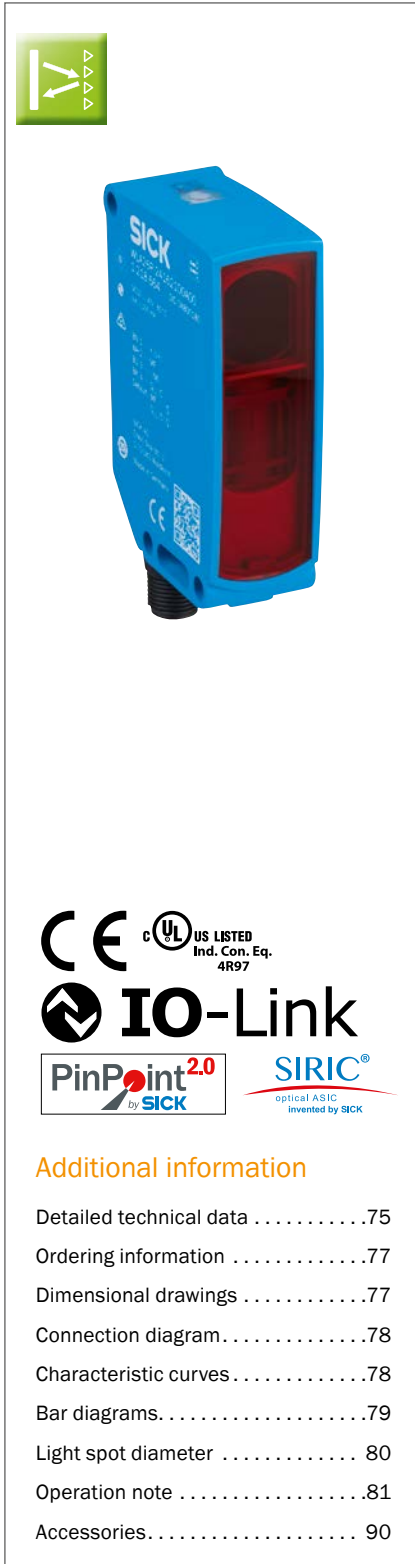
- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

Light spot diameter

WTS26P-xxxxx1xx



QUICK AND PRECISE ALIGNMENT WITH PINPOINT LED AND BLUEPILOT



Product description

The WLA26 makes it possible to satisfy three requirements at one time: Large sensing range, high insensitivity to depolarizing object surfaces and the abdication of operating elements. The new BluePilot indicator concept facilitates the alignment of the PinPoint LED to the reflector and monitors the sensor performance even during operation. Since every WLA26 is designed as a Smart Sen-

sor, it can be configured via IO-Link and offers additional diagnostic functions and Smart Tasks. It is therefore a trailblazer on the path to Industry 4.0. The durable laser inscription ensures device identification in the long run. Thanks to the very rugged VISTAL® housing and the predictive maintenance, the WLA26 offers unique reliability and prevents unplanned machine downtimes.

At a glance

- BluePilot: Optical alignment aid
- OptoFilter: Protection against depolarizing object surfaces
- Autocollimation: Sender and receiver lie on the same optical axis
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Diagnostics, Smart Tasks

Your benefits

- Reliable detection and very precise leading edge detection thanks to the small and homogeneous light spot of the PinPoint LED
- OptoFilter protects from operational interruptions caused, for example, by depolarizing surfaces
- Simplification when aligning the light beam to the reflector thanks to the PinPoint LED and BluePilot
- BluePilot offers the certainty that you are actually taking advantage of the maximum performance
- Continuous display of the operating reserve with BluePilot or via IO-Link
- The Smart Sensor makes machine processes quicker, more efficient and transparent, enables predictive maintenance and is thereby a trailblazer for Industry 4.0 applications

Additional information

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→ www.sick.com/W26

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

Sensor principle	Photoelectric retro-reflective sensor
Detection principle	Autocollimation
Dimensions (W x H x D)	24.6 mm x 82.5 mm x 53.3 mm
Housing design (light emission)	Rectangular
Sensing range max. ¹⁾	0 m ... 18 m
Type of light	Visible red light
Light source ²⁾	PinPoint LED
Light spot size (distance)	Ø 100 mm (10 m)
Wave length	635 nm
Adjustment	BluePilot: With alignment aid, IO-Link
Pin 2 configuration	External Input (test), Teach-in, switching signal

¹⁾ Reflector PL80A.

²⁾ Average service life: 100,000 h at T_u = +25 °C.

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 1000 Hz ¹⁾ SIO Logic: 800 Hz ²⁾ IOL: 650 Hz ³⁾
Response time	SIO Direct: 500 µs ¹⁾ SIO Logic: 600 µs ²⁾ IOL: 750 µs ³⁾
Repeat accuracy	SIO Direct: 150 µs ¹⁾ SIO Logic: 300 µs ²⁾ IOL: 400 µs ³⁾
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

¹⁾ SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Mechanics/electronics

Supply voltage ¹⁾	10 V DC ... 30 V DC
Ripple	≤ 5 V _{pp}
Power consumption	≤ 30 mA ²⁾ < 50 mA ³⁾
Output type	PUSH/PULL, PNP, NPN
Output function	Complementary, Pin 2: NPN normally closed (light switching), PNP normally open (dark switching), Pin 4: NPN normally open (dark switching), PNP normally closed (light switching), IO-Link
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. V _s - 2.5 V / 0 V
Signal voltage NPN HIGH/LOW	Approx. V _S / < 2.5 V
Output current I_{max}	≤ 100 mA
Response time ⁴⁾	≤ 500 μs
Switching frequency ⁵⁾	1,000 Hz
Connection type	Cable, 2 m ⁶⁾ Male connector, M12 Cable with male connector, M12, 270 mm ⁶⁾ (depending on type)
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾ , D ¹⁰⁾
Protection class	III
Weight	
Cable	130 g
Male connector M12, 4-pin	80 g
Cable with M12 male connector, 4-pin	100 g
Polarisation filter	✓
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	
Cable	IP66, IP67
Male connector M12, 4-pin	IP66, IP67, IP69K
Cable with M12 male connector, 4-pin	IP66, IP67
Ambient operating temperature	-40 °C ... +60 °C
Ambient storage temperature	-40 °C ... +75 °C

¹⁾ Limit values.

²⁾ 16 V DC ... 30 V DC, without load.

³⁾ 10 V DC ... 16 V DC, without load.

⁴⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁵⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Communication interface

Communication interface	IO-Link V1.1
Mode	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q _{L1} Bit 1 = switching signal Q _{L2} Bit 2 ... 15 = empty
VendorID	26

Ordering information

Visible red light

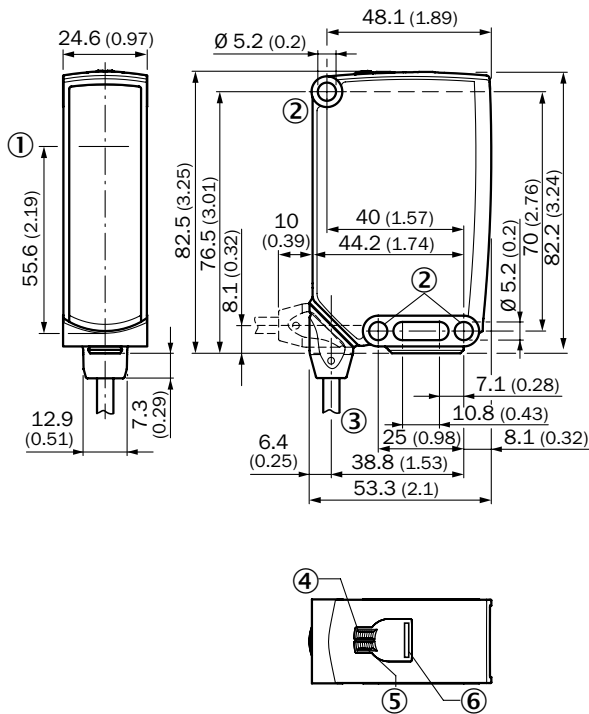
- **Detection principle:** autocollimation
- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: With alignment aid, IO-Link

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
0 m ... 18 m	Ø 100 mm (10 m)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8388992 dez / 0x800180	cd-389	WLA26P-1H162100A00	1218822
			Male connector M12, 4-pin	8388992 dez / 0x800180	cd-390	WLA26P-24162100A00	1218664
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8388992 dez / 0x800180	cd-390	WLA26P-34162100A00	1218823

¹⁾ Reflector PL80A.

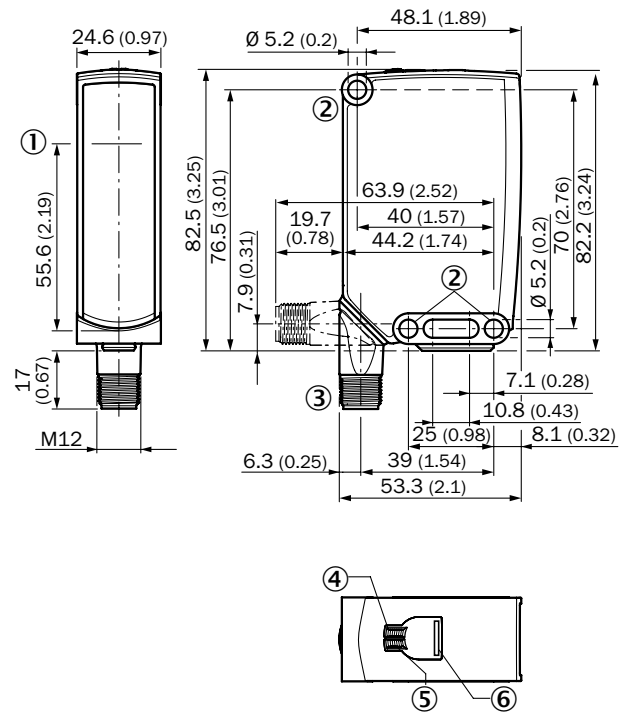
Dimensional drawings (Dimensions in mm (inch))

WLA26, cable



- ① Center of optical axis
- ② Mounting hole, Ø 5.2 mm
- ③ Connection
- ④ LED indicator green: power
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ BluePilot blue: Alignment aid

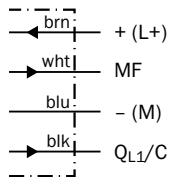
WLA26, connector



- ① Center of optical axis
- ② Mounting hole, Ø 5.2 mm
- ③ Connection
- ④ LED indicator green: power
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ BluePilot blue: Alignment aid

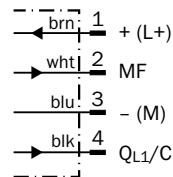
Connection diagram

Cd-389



Default: MF = \bar{Q}
 Q_{L1}/C = Q

Cd-390



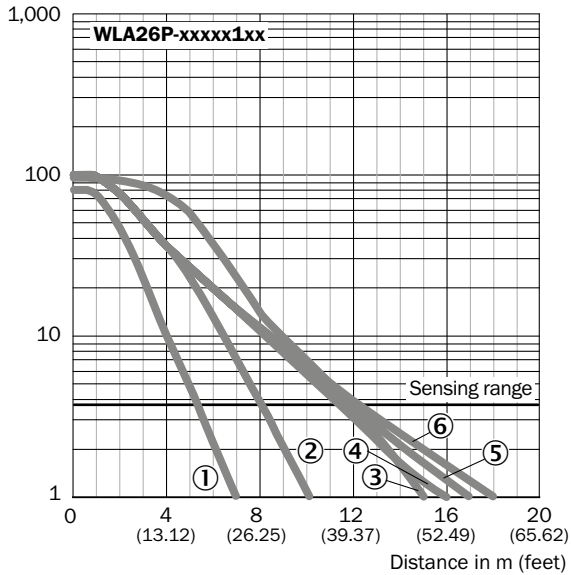
Default: MF = \bar{Q}
 Q_{L1}/C = Q

Characteristic curves

WLA26P-xxxxx1xx

Standard reflectors

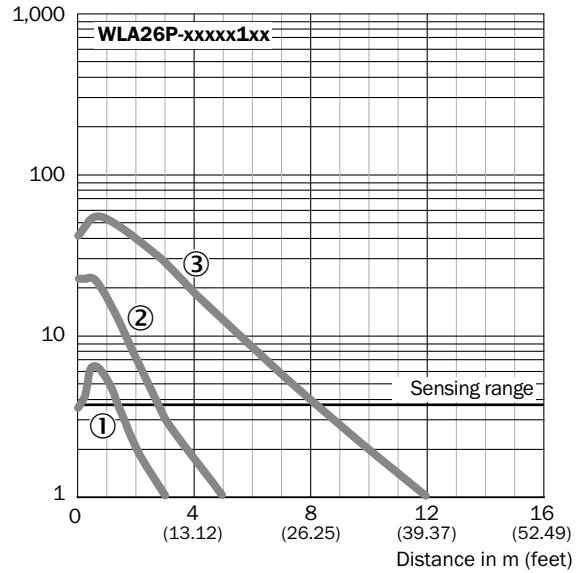
Function reserve



- ① Reflector PL20A
- ② Reflector PL22
- ③ Reflector PL250
- ④ Reflector PL30A
- ⑤ Reflector PL40A
- ⑥ Reflector PL80A, C110A

Reflective tape

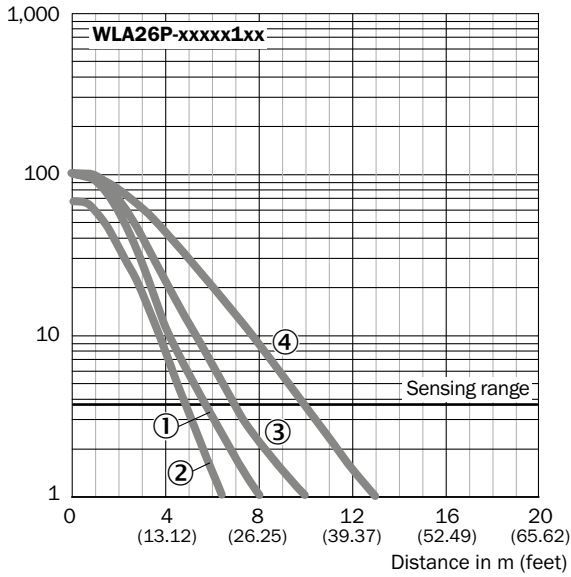
Function reserve



- ① Reflective tape REF-DG (50 x 50 mm)
- ② Reflective tape REF-IRF-56 (50 x 50 mm)
- ③ Reflective tape REF-AC1000 (50 x 50 mm)

Fine triple reflectors

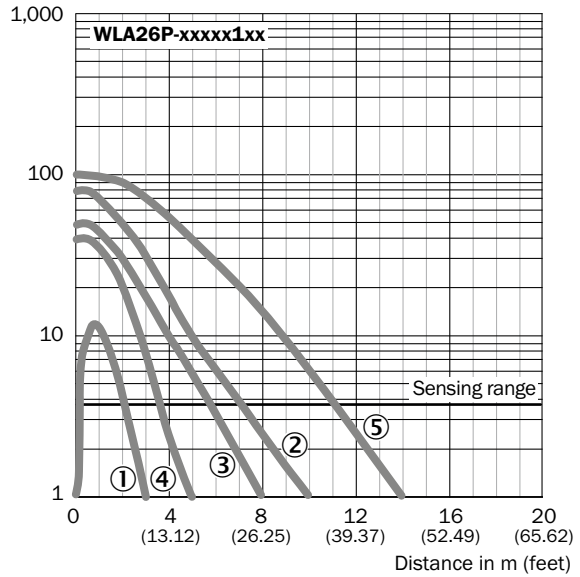
Function reserve



- ① PL10FH-1 reflector
- ② PL10F reflector
- ③ Reflector PL20F
- ④ Reflector P250F

Chemical-resistant reflectors

Function reserve

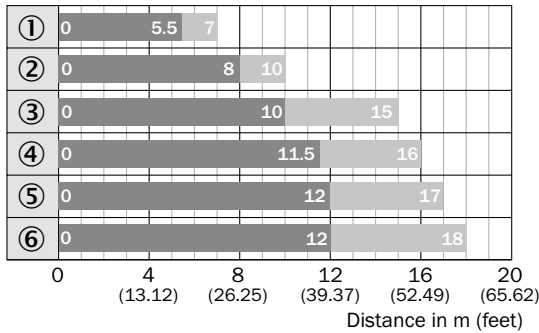


- ① PL10F CHEM reflector
- ② Reflector P250H
- ③ Reflector P250 CHEM
- ④ Reflector PL20 CHEM
- ⑤ Reflector PL40A Antifog

Bar diagrams

WLA26P-xxxxx1xx

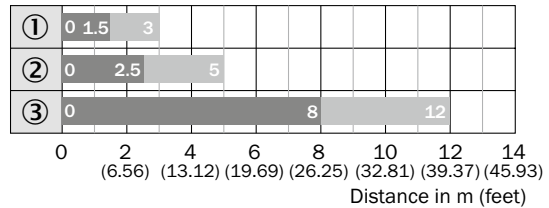
Standard reflectors



■ Sensing range ■ Sensing range typ. max.

- ① Reflector PL20A
- ② Reflector PL22
- ③ Reflector PL250
- ④ Reflector PL30A
- ⑤ Reflector PL40A
- ⑥ Reflector PL80A, C110A

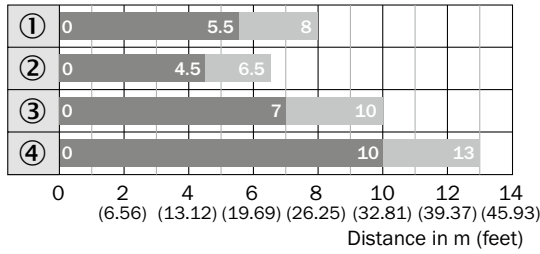
Reflective tape



■ Sensing range ■ Sensing range typ. max.

- ① Reflective tape REF-DG (50 x 50 mm)
- ② Reflective tape REF-IRF-56 (50 x 50 mm)
- ③ Reflective tape REF-AC1000 (50 x 50 mm)

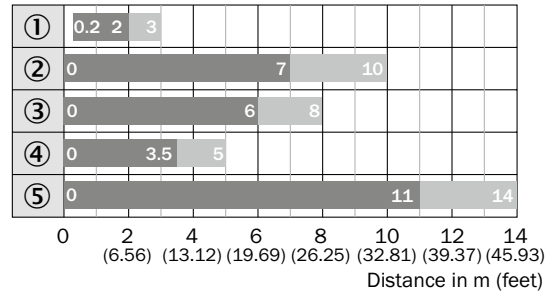
Fine triple reflectors



■ Sensing range ■ Sensing range typ. max.

- ① PL10FH-1 reflector
- ② PL10F reflector
- ③ Reflector PL20F
- ④ Reflector P250F

Chemical-resistant reflectors

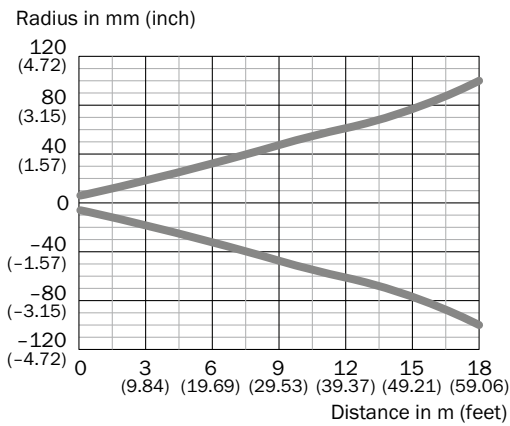


■ Sensing range ■ Sensing range typ. max.

- ① PL10F CHEM reflector
- ② Reflector P250H
- ③ Reflector P250 CHEM
- ④ Reflector PL20 CHEM
- ⑤ Reflector PL40A Antifog

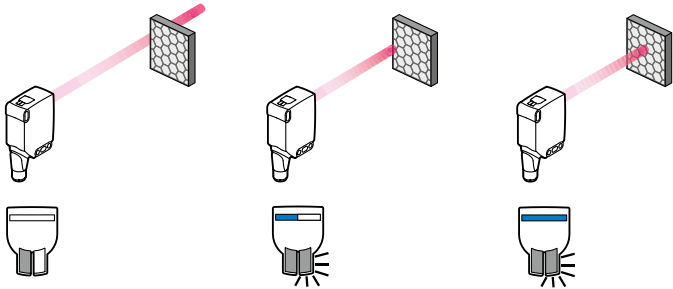
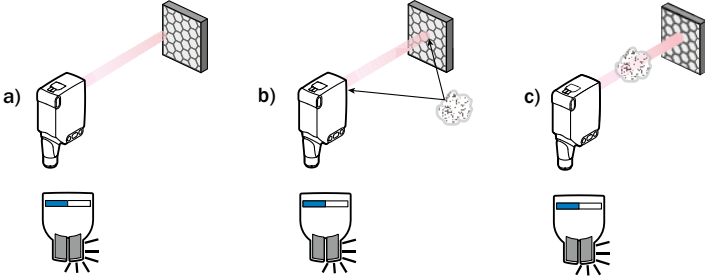
Light spot diameter

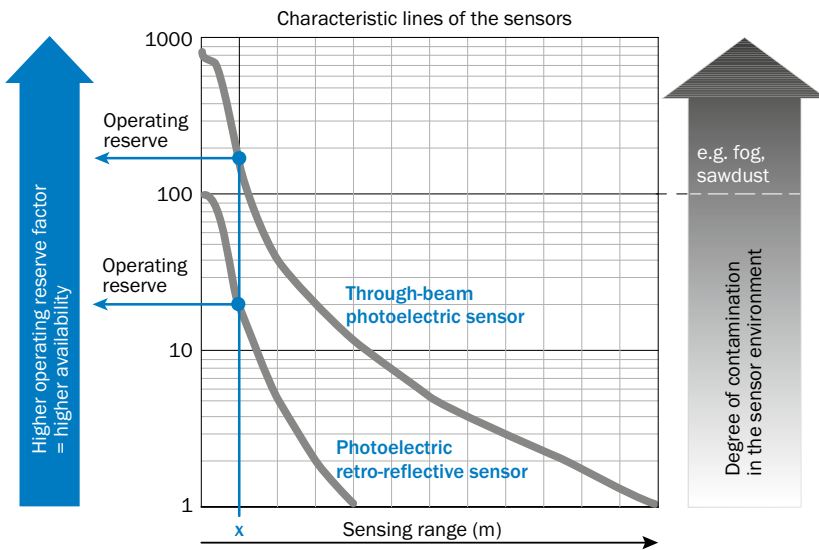
WLA26P-xxxxx1xx



Operation note




BluePilot: Blue indicator LEDs with double benefits

<p>Easy and quick sensor alignment with the help of the LED indicator</p> <p>All blue LEDs illuminate</p> <ul style="list-style-type: none"> - optimum alignment - highest possible operating reserve 	<p>WLA photoelectric retro-reflection sensor alignment</p> 
<p>Service note</p> <p>A reduction in sensor availability is displayed by a decrease of the blue LEDs.</p> <p>Possible causes:</p> <ol style="list-style-type: none"> insufficient alignment contamination of the optical surfaces particles in the light beam 	



At a sensing range of „x“ the photoelectric retro-reflective and through-beam photoelectric sensors have different operating reserves (see blue arrow). The higher the operating reserve factor, the better the sensor can compensate the contamination in the air or in the light beam and on the optical surfaces (front screen, reflector), i.e. the sensor has the maximum availability, otherwise the sensor switches due to pollution although there is no object in the path of the light beam.

PRECISE ALIGNMENT OVER LARGE DISTANCES WITH PINPOINT LED AND BLUEPILOT

Additional information

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Product description

With the new BluePilot optical intensity display in the WSE26, alignment is more precise, particularly over large distances, and the sensor performance can be monitored during operation. The WSE26 through-beam photoelectric sensor gets by without the sensitivity adjustment necessary on other devices. Since every WSE26 is designed as a Smart Sensor, it can be configured via IO-Link and of-

fers additional diagnostic functions and Smart Tasks. It is therefore a trailblazer on the path to Industry 4.0. The durable laser inscription ensures device identification in the long run. Thanks to the extremely rugged VISTAL® housing and the predictive maintenance, the WSE26 offers previously unattainable reliability and prevents unplanned machine downtimes.

At a glance

- BluePilot: Optical alignment aid
- Very large sensing range
- Very high operating reserve at short distances
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Diagnostics, Smart Tasks

Your benefits

- Reliable detection and very precise leading edge detection thanks to the small and homogeneous light spot of the PinPoint LED
- Simplification when aligning the light beam to the receiver thanks to the PinPoint LED in combination with BluePilot
- BluePilot offers the certainty that you are actually taking advantage of the maximum performance
- Continuous display of the operating reserve with BluePilot or via IO-Link
- The Smart Sensor makes machine processes quicker, more efficient and transparent, enables predictive maintenance and is thereby a trailblazer for Industry 4.0 applications

→ www.sick.com/W26

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

	Visible red light	Infrared light
Sensor principle	Through-beam photoelectric sensor	
Dimensions (W x H x D)	24.6 mm x 82.5 mm x 53.3 mm	
Housing design (light emission)	Rectangular	
Sensing range max.	0 m ... 60 m	
Type of light	Visible red light	Infrared light
Light source ¹⁾	PinPoint LED	LED
Light spot size (distance)	Ø 115 mm (15 m)	Ø 140 mm (15 m)
Wave length	635 nm	850 nm
Adjustment	BluePilot: With alignment aid, IO-Link	
Pin 2 configuration	External Input (test), Teach-in, switching signal	

¹⁾ Average service life: 100,000 h at T₀ = +25 °C.

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 1000 Hz ¹⁾ SIO Logic: 800 Hz ²⁾ IOL: 650 Hz ³⁾
Response time	SIO Direct: 500 µs ¹⁾ SIO Logic: 600 µs ²⁾ IOL: 750 µs ³⁾
Repeat accuracy	SIO Direct: 150 µs ¹⁾ SIO Logic: 300 µs ²⁾ IOL: 400 µs ³⁾
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

¹⁾ SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Mechanics/electronics

Supply voltage ¹⁾	10 V DC ... 30 V DC
Ripple	≤ 5 V _{pp}
Power consumption, sender	≤ 30 mA ²⁾ < 50 mA ³⁾
Power consumption, receiver	≤ 30 mA ²⁾ < 50 mA ³⁾
Output type	PUSH/PULL, PNP, NPN
Output function	Complementary, Pin 2: NPN normally closed (light switching), PNP normally open (dark switching), Pin 4: NPN normally open (dark switching), PNP normally closed (light switching), IO-Link
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. V _s - 2.5 V / 0 V
Signal voltage NPN HIGH/LOW	Approx. V _S / < 2.5 V
Output current I_{max}	≤ 100 mA
Response time ⁴⁾	≤ 500 μs
Switching frequency ⁵⁾	1,000 Hz
Connection type	Cable, 2 m ⁶⁾ Male connector, M12 Cable with male connector, M12, 270 mm ⁶⁾ (depending on type)
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾ , D ¹⁰⁾
Protection class	III
Weight	
	Cable 260 g
	Male connector M12, 4-pin 160 g
	Cable with M12 male connector, 4-pin 200 g
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	
	Cable IP66, IP67
	Male connector M12, 4-pin IP66, IP67, IP69K
	Cable with M12 male connector, 4-pin IP66, IP67
Test input sender off	Test at 0 V
Ambient operating temperature	-40 °C ... +60 °C
Ambient storage temperature	-40 °C ... +75 °C

¹⁾ Limit values.

²⁾ 16 V DC ... 30 V DC, without load.

³⁾ 10 V DC ... 16 V DC, without load.

⁴⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁵⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Communication interface

Communication interface	IO-Link V1.1
Mode	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q _{L1} Bit 1 = switching signal Q _{L2} Bit 2 ... 15 = empty
VendorID	26

Ordering information

Visible red light

- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: With alignment aid, IO-Link

Sensing range max.	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
0 m ... 60 m	Ø 115 mm (15 m)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8389000 dez / 0x800188	cd-391	WSE26P-1H162100A00	1088337
			Male connector M12, 4-pin	8389000 dez / 0x800188	cd-392	WSE26P-24162100A00	1088335
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8389000 dez / 0x800188	cd-392	WSE26P-34162100A00	1088336

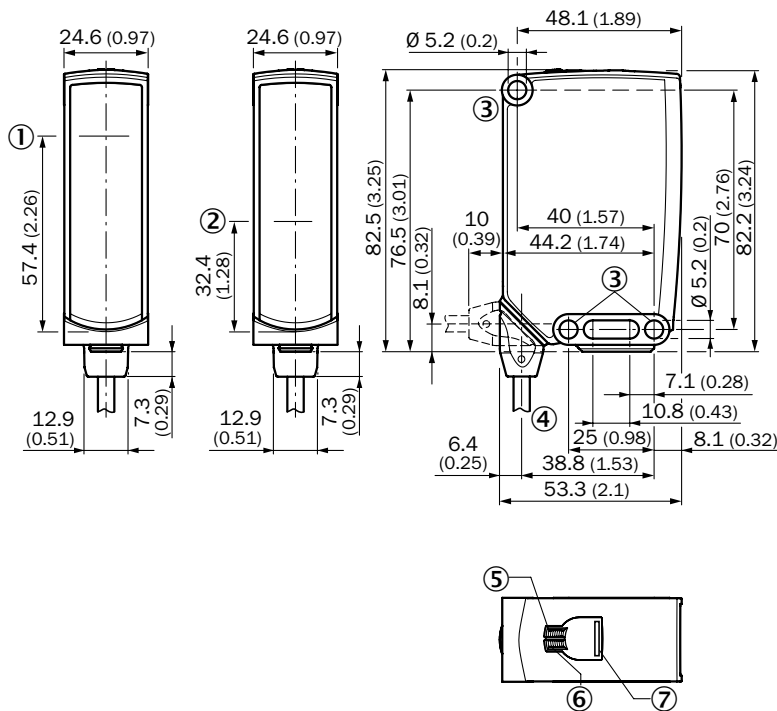
Infrared light

- **Switching mode:** Light/dark switching
- **Adjustment:** BluePilot: With alignment aid, IO-Link

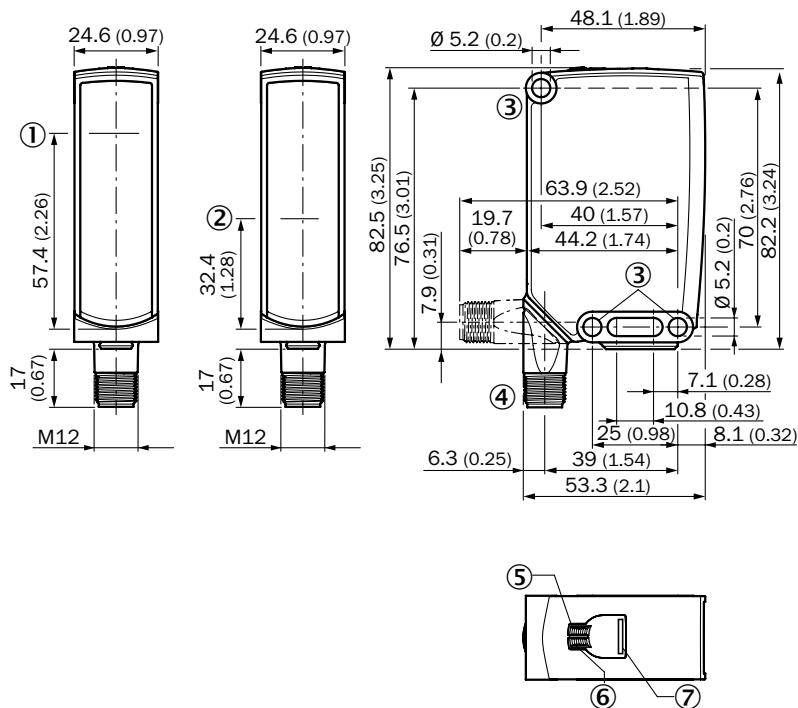
Sensing range max.	Light spot size (distance)	Output type	Connection	DeviceID	Connection diagram	Type	Part no.
0 m ... 60 m	Ø 140 mm (15 m)	PUSH/PULL, PNP, NPN	Cable, 2 m, PVC	8389000 dez / 0x800188	cd-391	WSE26I-1H162100A00	1088334
			Male connector M12, 4-pin	8389000 dez / 0x800188	cd-392	WSE26I-24162100A00	1088332
			Cable with M12 male connector, 4-pin, 270 mm, PVC	8389000 dez / 0x800188	cd-392	WSE26I-34162100A00	1088333

Dimensional drawings (Dimensions in mm (inch))

WSE26, cable

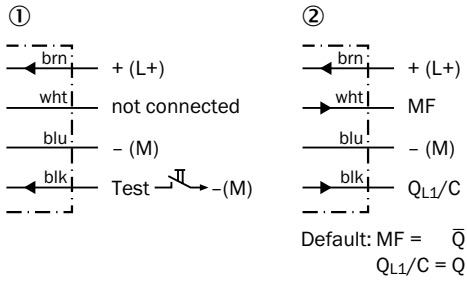


WSE26, connector

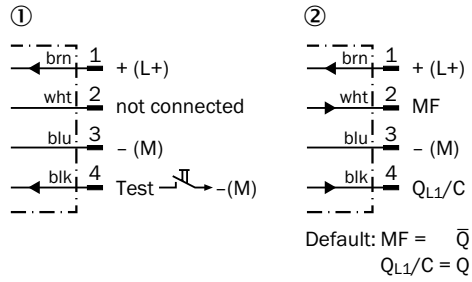


Connection diagram

Cd-391



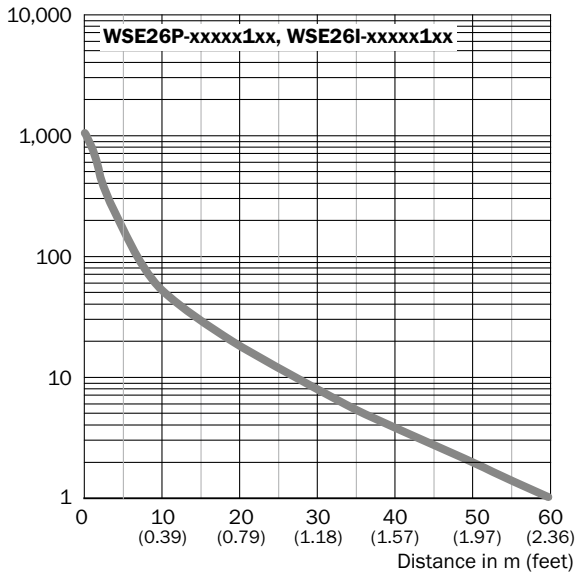
Cd-392



Characteristic curves

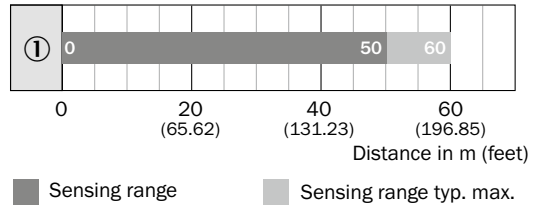
WSE26P-xxxxx1xx, WSE26I-xxxxx1xx

Function reserve



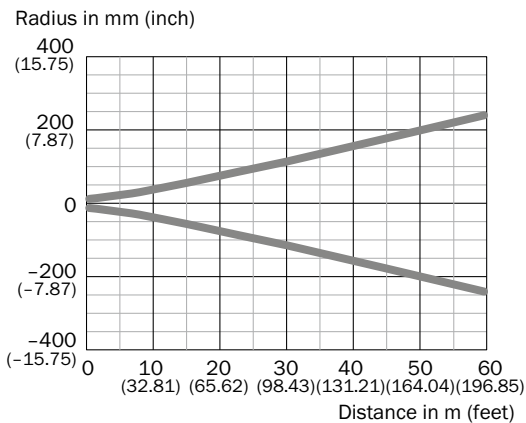
Bar diagrams

WSE26P-xxxxx1xx, WSE26I-xxxxx1xx

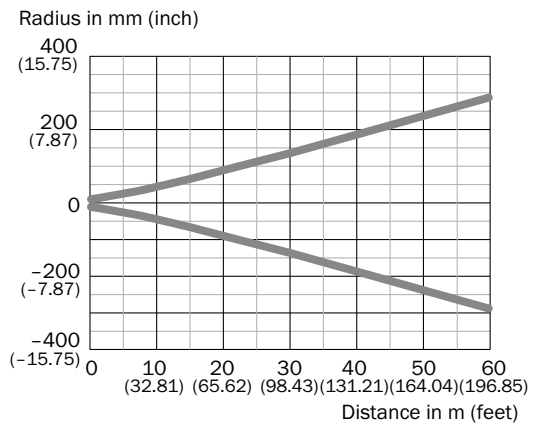


Light spot diameter

Visible red light, WSE26P-xxxxx1xx

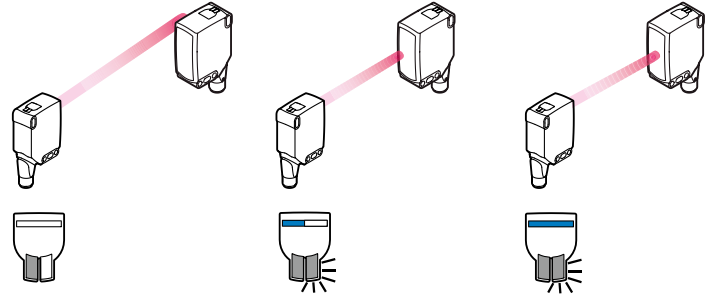
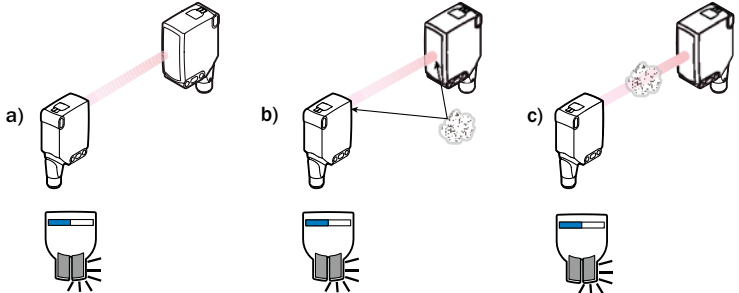


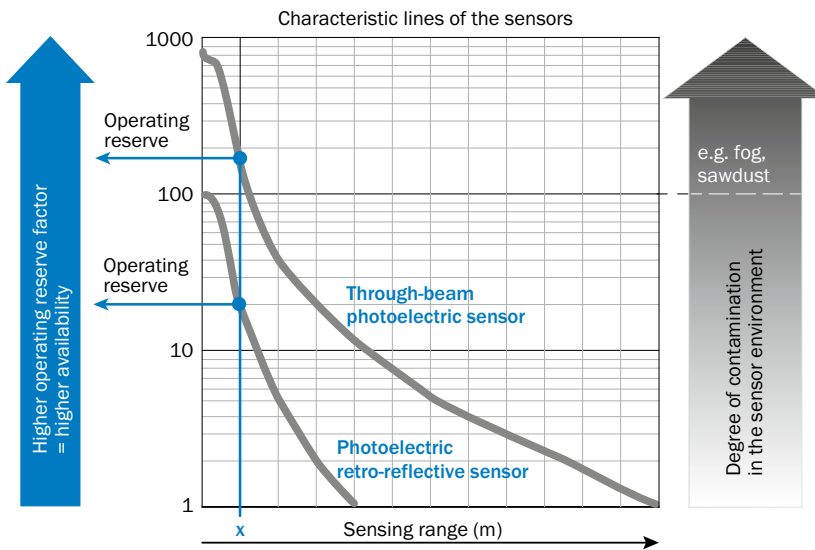
Infrared light, WSE26I-xxxxx1xx



Operation note

BluePilot: Blue indicator LEDs with double benefits

<p>Easy and quick sensor alignment with the help of the LED indicator</p> <p>All blue LEDs illuminate</p> <ul style="list-style-type: none"> - optimum alignment - highest possible operating reserve 	<p>WSE through-beam photoelectric sensor alignment</p> 
<p>Service note</p> <p>A reduction in sensor availability is displayed by a decrease of the blue LEDs.</p> <p>Possible causes:</p> <ul style="list-style-type: none"> a) insufficient alignment b) contamination of the optical surfaces c) particles in the light beam 	




At a sensing range of „x“ the photoelectric retro-reflective and through-beam photoelectric sensors have different operating reserves (see blue arrow). The higher the operating reserve factor, the better the sensor can compensate the contamination in the air or in the light beam and on the optical surfaces (front screen, reflector), i.e. the sensor has the maximum availability, otherwise the sensor switches due to pollution although there is no object in the path of the light beam.

Accessories

Mounting systems

Dimensional drawings → Page 90

Universal bar clamp systems

Figure	Material	Description	Type	Part no.	W16	W26
	Zinc plated steel (sheet), Zinc die cast (clamping bracket)	Plate N02 for universal clamp bracket	BEF-KHS-N02	2051608	●	-
	Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)	Plate N02N for universal clamp bracket	BEF-KHS-N02N	2051618	●	-
	Zinc plated steel (sheet), Zinc die cast (clamping bracket)	Plate N03 for universal clamp bracket	BEF-KHS-N03	2051609	●	-
	Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)	Plate N03N for universal clamp bracket	BEF-KHS-N03N	2051619	●	-
	Zinc plated steel (sheet), Zinc die cast (clamping bracket)	Plate N04 for universal clamp	BEF-KHS-N04	2051610	●	●
	Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)	Plate N04N for universal clamp bracket	BEF-KHS-N04N	2051620	●	●
	Steel, zinc coated	Mounting bar, straight, 200 mm	BEF-MS12G-A	4056054	●	●
		Mounting bar, straight, 300 mm	BEF-MS12G-B	4056055	●	●
	Steel, zinc coated	Mounting bar, L-shaped, 150 mm x 150 mm	BEF-MS12L-A	4056052	●	●
		Mounting bar, L-shaped, 250 x 250 mm	BEF-MS12L-B	4056053	●	●
	Steel, zinc coated	Mounting bar, Z-shaped, 150 mm x 70 mm x 150 mm	BEF-MS12Z-A	4056056	●	●
		Mounting bar, Z-shaped, 150 mm x 70 mm x 250 mm	BEF-MS12Z-B	4056057	●	●

Mounting brackets and plates

Mounting brackets





Figure	Material	Description	Type	Part no.	W16	W26
	Stainless steel	Mounting bracket, large	BEF-WG-W12	2013942	●	-
	Stainless steel	Mounting bracket, small	BEF-WK-W12	2012938	●	-

Figure	Material	Description	Type	Part no.	W16	W26
	Steel, zinc coated	Mounting bracket	BEF-WN-W23	2019085	-	●
	Steel, zinc coated	Mounting bracket with articulated arm for W16, W26	BEF-WN-MULTI2	2093945	●	●

Device protection (mechanical)




Protective housings and protective pipes

- **Description:** Protective housing for universal clamp

Figure	Material	Description	Type	Part no.	W16	W26
	Zinc plated steel (protective housing), Zinc die cast (clamping bracket)	Protective housing for universal clamp bracket	BEF-SG-W16	2096146	●	-
	Zinc plated steel (protective housing), Zinc die cast (clamping bracket)	Protective housing for universal clamp bracket	BEF-SG-W27	2039601	-	●
			BEF-SG-W27S01	2086727	-	●

Terminal and alignment brackets

Terminal brackets


Figure	Material	Description	Type	Part no.	W16	W26
	Aluminum (anodised)	Double clamp bracket for dovetail mounting	BEF-DKH-W12	2013947	●	-
	Aluminum (anodised)	Clamping block for dovetail mounting	BEF-KH-WTT12L	2080772	●	-
	Plastic	Adapter for mounting W16 sensors into existing W14-2 / W18-3 installations	BEF-AP-W16	2095677	●	-

Connection systems


Dimensional drawings → Page 92

Modules and gateways




Cloning module

Figure	Description	Type	Part no.	W16	W26
	IO-Link version V1.1, Port class 2, PIN 2, 4, 5 galvanically connected, Supply voltage 18 V DC ... 32 V DC (limit values, operation in short-circuit protected network max. 8 A)	IOLP2ZZ-M3201 (SICK Memory Stick)	1064290	●	●

Connection modules

Figure	Description	Type	Part no.	W16	W26
	IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A	IOLA2US-01101 (SiLink2 Master)	1061790	●	●




Fieldbus modules

Figure	Description	Type	Part no.	W16	W26
	EtherCAT IO-Link Master, IO-Link V1.1, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12 cable	IOLG2EC-03208R01 (IO-Link Master)	6053254	●	●
	EtherNet/IP IO-Link Master, IO-Link V1.1, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12-cable	IOLG2EI-03208R01 (IO-Link Master)	6053255	●	●
	PROFINET IO-Link Master, IO-Link V1.1, Class A port, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12 cable	IOLG2PN-03208R01 (IO-Link Master)	6053253	●	●

Plug connectors and cables



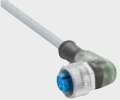
Connecting cables with female connector M12, 4-pin, PUR, halogen-free, Oil / grease resistant

- **Cable material:** PUR, halogen-free
- **Connector material:** TPU
- **Locking nut material:** zinc die-cast, nickel-plated

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.	W16	W26
	Female connector, M12, 4-pin, straight, unshielded	Cable, Flying leads	2 m, 4-wire, unshielded	YF2A14-020UB3XLEAX	2095607	●	●
			5 m, 4-wire, unshielded	YF2A14-050UB3XLEAX	2095608	●	●
			10 m, 4-wire, unshielded	YF2A14-100UB3XLEAX	2095609	●	●
			15 m, 4-wire, unshielded	YF2A14-150UB3XLEAX	2095610	●	●
			20 m, 4-wire, unshielded,	YF2A14-200UB3XLEAX	2095611	●	●
			25 m, 4-wire, unshielded	YF2A14-250UB3XLEAX	2095615	●	●
	Female connector, M12, 4-pin, angled, unshielded	Cable, Flying leads	2 m, 4-wire, unshielded	YG2A14-020UB3XLEAX	2095766	●	●
			5 m, 4-wire, unshielded	YG2A14-050UB3XLEAX	2095767	●	●
			10 m, 4-wire, unshielded	YG2A14-100UB3XLEAX	2095768	●	●
	Female connector, M12, 4-pin, angled with LED, unshielded	Cable, Flying leads	2 m, 4-wire, unshielded	YI2A14-020UB3XLEAX	2095836	●	●
			5 m, 4-wire, unshielded	YI2A14-050UB3XLEAX	2095837	●	●
			10 m, 4-wire, unshielded	YI2A14-100UB3XLEAX	2095838	●	●




Connecting cables with female connector M12, 4-pin, PVC, chemical resistant

- **Cable material:** PVC
- **Connector material:** TPU
- **Locking nut material:** zinc die-cast, nickel-plated

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.	W16	W26
	Female connector, M12, 4-pin, straight, unshielded	Cable, Flying leads	2 m, 4-wire, unshielded	YF2A14-020VB3XLEAX	2096234	●	●
			5 m, 4-wire, unshielded	YF2A14-050VB3XLEAX	2096235	●	●
			10 m, 4-wire, unshielded	YF2A14-100VB3XLEAX	2096236	●	●
			15 m, 4-wire, unshielded	YF2A14-150VB3XLEAX	2096237	●	●
			20 m, 4-wire, unshielded	YF2A14-200VB3XLEAX	2096238	●	●
	Female connector, M12, 4-pin, angled, unshielded	Cable, Flying leads	2 m, 4-wire, unshielded	YG2A14-020VB3XLEAX	2095895	●	●
			5 m, 4-wire, unshielded	YG2A14-050VB3XLEAX	2095897	●	●
			10 m, 4-wire, unshielded	YG2A14-100VB3XLEAX	2095898	●	●
			15 m, 4-wire, unshielded	YG2A14-150VB3XLEAX	2096213	●	●
	Female connector, M12, 4-pin, angled with LED, unshielded	Cable, Flying leads	10 m, 4-wire, unshielded	YI2A14-100VB3XLEAX	2096231	●	●



Female connectors (ready to assemble) M12, 4-pin

- **Locking nut material:** CuZn

Figure	Connection type head A	Connection type head B	Connector material	Type	Part no.	W16	W26
	Female connector, M12, 4-pin, straight, unshielded	Screw-type terminals	PA	DOS-1204-G	6007302	●	●
	Female connector, M12, 4-pin, straight, unshielded	Cutting technology	-	DOS-1204-GQU6	6042088	●	●
	Female connector, M12, 4-pin, angled, unshielded	Screw-type terminals	PBT	DOS-1204-W	6007303	●	●

Male connectors (ready to assemble) M12, 4-pin

- **Locking nut material:** CuZn

Figure	Connection type head A	Connection type head B	Connector material	Type	Part no.	W16	W26
	Male connector, M12, 4-pin, straight, unshielded	Screw-type terminals	PA	STE-1204-G	6009932	●	●
	Male connector, M12, 4-pin, straight	Cutting technology	-	STE-1204-GQU6	6042089	●	●
	Male connector, M12, 4-pin, angled, unshielded	Screw-type terminals	PBT	STE-1204-W	6022084	●	●

Reflectors and optics

Dimensional drawings → [Page 94](#)

Reflectors

Angular











Figure	Material	Description	Type	Part no.	WLA16	WLA26
	PMMA/ABS	Rectangular, screw connection, 47 mm x 47 mm	P250	5304812	●	●
			P250P03	2087587	●	●
	PMMA/ABS	Rectangular, screw connection, 38 mm x 15 mm	PL20A	1012719	●	●
	PMMA/ABS	Rectangular, screw connection, 56 mm x 28 mm	PL30A	1002314	●	●

Figure	Material	Description	Type	Part no.	WLA16	WLA26
	PMMA/ABS	Rectangular, screw connection, 37 mm x 56 mm	PL40A	1012720	●	●
	PMMA/ABS	Rectangular, screw connection, 80 mm x 80 mm	PL80A	1003865	●	●
	-	Reflective tape on aluminium profile, 2 hole mounting, 16.5 mm x 194.3 mm	REF-PLG120	1029196	●	●

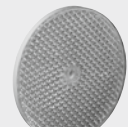



Fine triple reflectors

Figure	Material	Description	Type	Part no.	WLA16	WLG16	WLA26
	PMMA/ABS	Fine triple reflector, screw connection, suitable for laser sensors, 47 mm x 47 mm	P250F	5308843	●	●	●
	PMMA/ABS	Fine triple reflector, screw connection, suitable for laser sensors, 18 mm x 18 mm	PL10F	5311210	●	●	●
	PMMA/ABS	Fine triple reflector, screw connection, suitable for laser sensors, 38 mm x 16 mm	PL20F	5308844	●	●	●
	PC, polycarbonate	C11 fine triple reflector, screw connection, suitable for detecting transparent objects, 18 mm x 18 mm	PL10FH-1	5335696	●	●	●






Reflective tape

Figure	Description	Type	Part no.	WLA16	WLG16	WLA26
	Suitable for laser sensors, self-adhesive, sheet, see alignment note, 225 mm x 225 mm	REF-AC1000	5319429	●	●	●
	Suitable for laser sensors, self-adhesive, cut, 25 pieces per pack, see alignment note, 30 mm x 20 mm	REF-AC1000-2030P01	2061920	●	●	●
	Suitable for laser sensors, self-adhesive, cut, see alignment note; 28 mm x 28 mm	REF-AC1000-28	4067881	●	●	●
	Suitable for laser sensors, self-adhesive, cut, see alignment note; 56.3 mm x 56.3 mm	REF-AC1000-56	4063030	●	●	●
	Suitable for laser sensors, self-adhesive, cut, 20 pieces per pack, see alignment note; 73 mm x 73 mm	REF-AC1000-73P01	2061557	●	●	●
	Reflective tape "Diamond Grade", self-adhesive, sheet; 749 mm x 914 mm	REF-DG	5320565	●	-	●
	"Diamond grade" reflective tape, self-adhesive, ready to assemble from the sheet; 74.9 cm x 91.4 cm ¹	REF-DG-K	4019634	●	-	●
	Reflective tape "Diamond Grade", self-adhesive, bag, 10 mm x 10 mm	100 x REF-DG	2015348	●	-	●
	Self-adhesive; 50 mm x 60 mm	REF-IRF-56	5314244	●	-	●

Round

Figure	Material	Description	Type	Part no.	WLA16	WLG16	WLA26
	PMMA/ABS	Round, screw connection, 80 mm	C110A	5304549	●	-	●
	PMMA/ABS	Round, pluggable, 22 mm	PL22-1	1003546	●	-	●
	PMMA/ABS	Round, self-adhesive, 22 mm	PL22-2	1003621	●	-	●
	PMMA/ABS	Round, pluggable for metal plates, 21 mm	PL22-3	1004488	●	-	●

Special reflectors

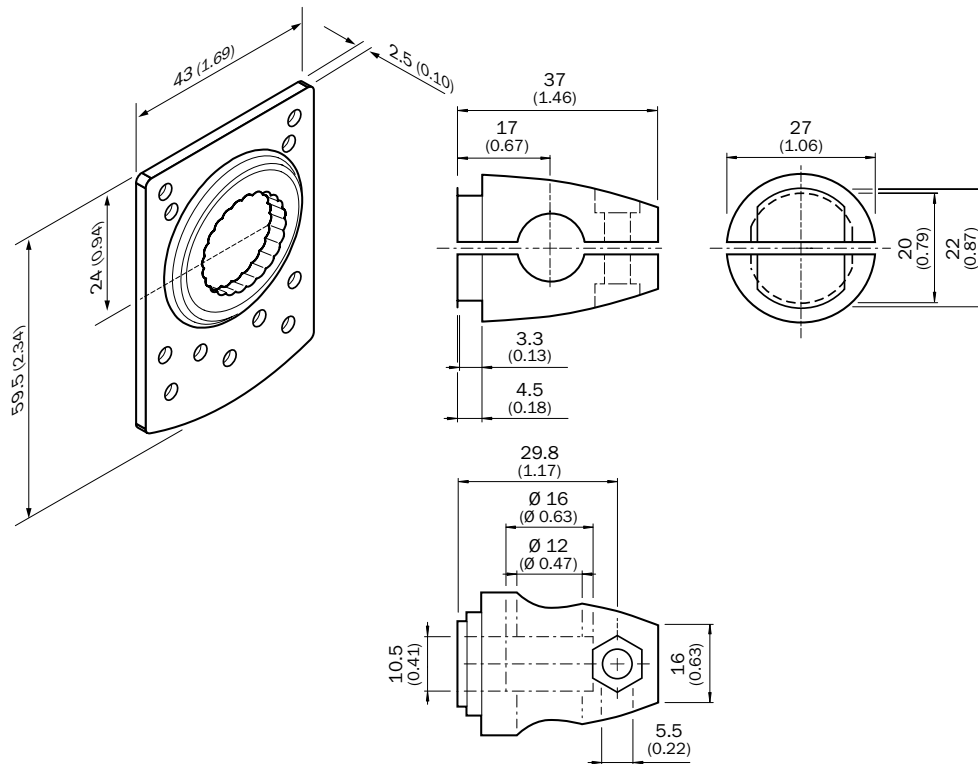
Figure	Material	Description	Type	Part no.	WLA16	WLG16	WLA26
	Plastic	Chemically resistant, screw connection, 47 mm x 47 mm	P250 CHEM	5321097	●	-	●
	HOT thermoplast	High-temperature reflector, screw connection, 47 mm x 47 mm	P250H	5315124	●	-	●
	Plastic	Fine triple reflector, chemically resistant, screw connection, 18 mm x 18 mm	PL10F CHEM	5321636	-	●	●
	Plastic	Chemically resistant, screw connection, 38 mm x 15 mm	PL20 CHEM	5321089	●	-	●
	PMMA/ABS	Anti-fog to prevent moisture condensation on the reflective surface, screw connection, 56 mm x 37 mm	PL40A Antifog	5322011	●	-	●

Further accessories

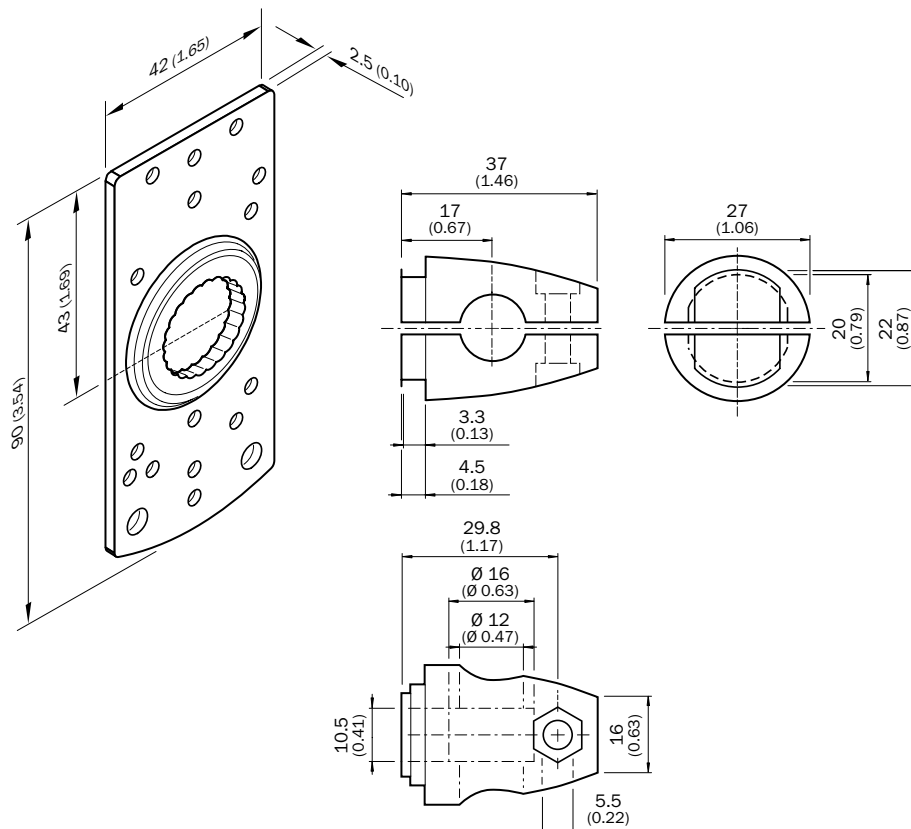
Figure	Description	Type	Part no.	W16	W26
	Cloth for cleaning the front screen	Lens cloth	4003353	●	●
	Plastic cleaner and care product, anti-static, 0.5 liter	Plastic cleaner	5600006	●	●

Dimensional drawings mounting systems

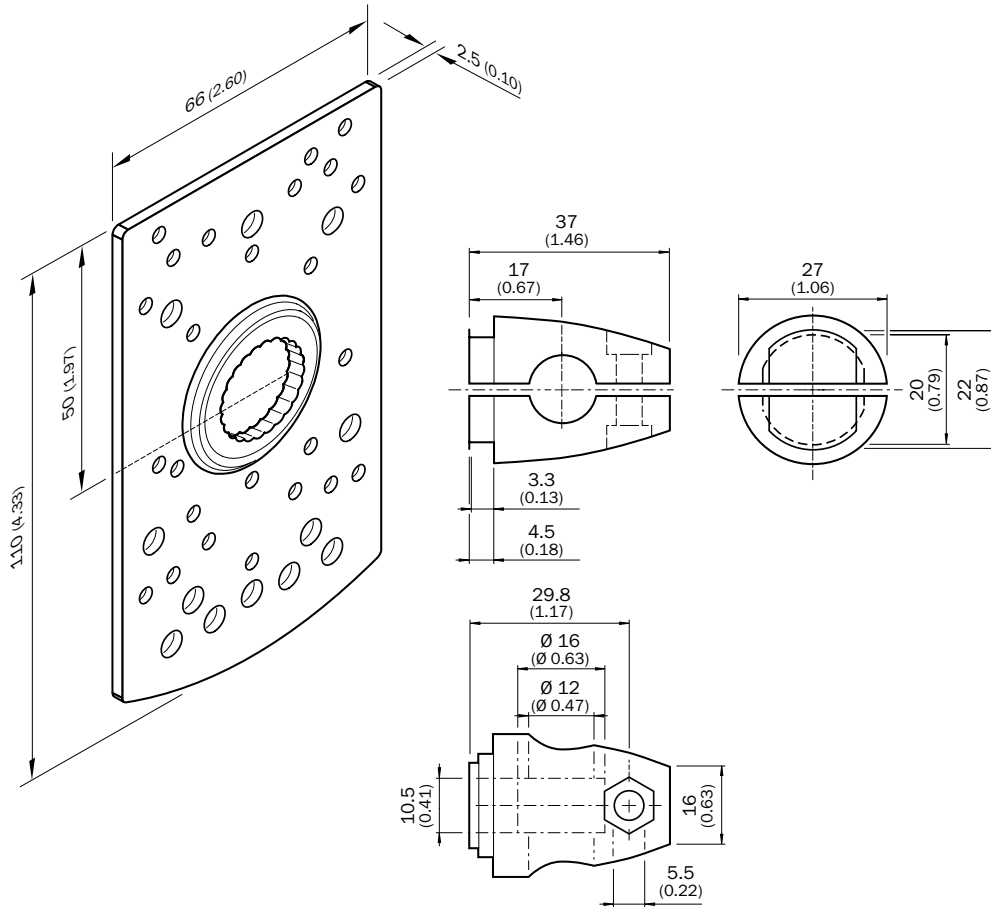
BEF-KHS-N02 / BEF-KHS-N02N



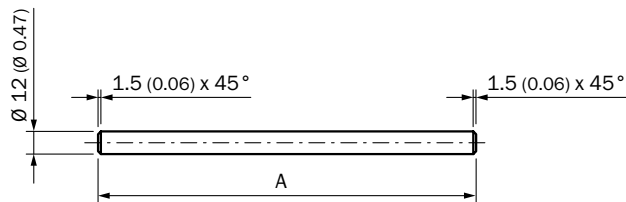
BEF-KHS-N03 / BEF-KHS-N03N



BEF-KHS-N04 / BEF-KHS-N04N

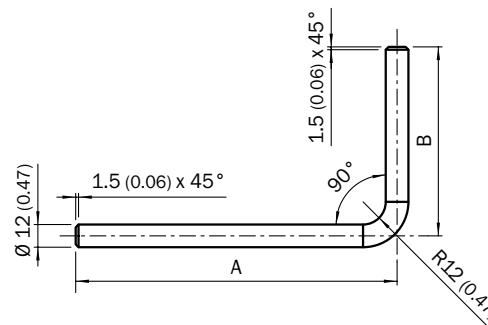


BEF-MS12G-A / BEF-MS12G-B



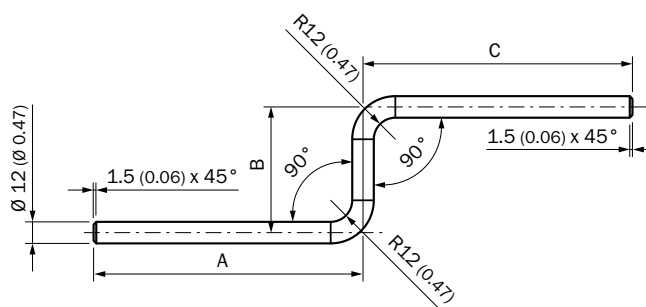
- ① BEF-MS12G-(N)A: A = 200 mm
- ② BEF-MS12G-(N)B: A = 300 mm

BEF-MS12L-A / BEF-MS12L-B



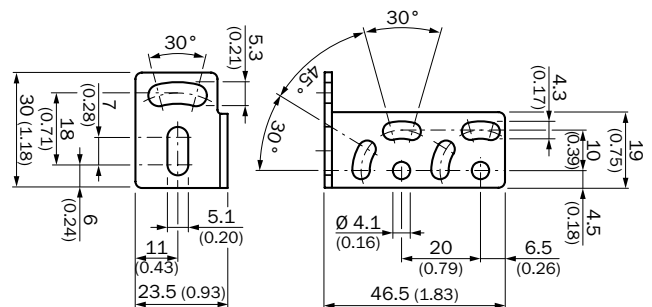
- ① BEF-MS12L-(N)A: A = 200 mm, B = 150 mm
- ② BEF-MS12L-(N)B: A = 250 mm, B = 250 mm

BEF-MS12Z-A / BEF-MS12Z-B

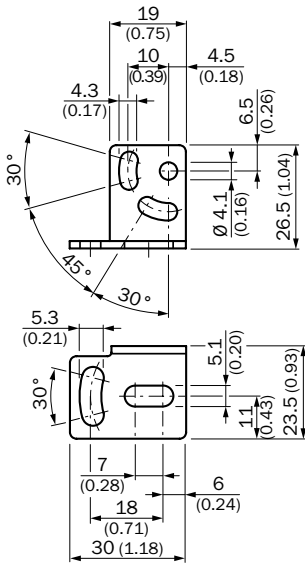


- ① BEF-MS12Z-(N)A: A = 150 mm, B = 70 mm, C = 150 mm
- ② BEF-MS12Z-(N)B: A = 150 mm, B = 70 mm, C = 250 mm

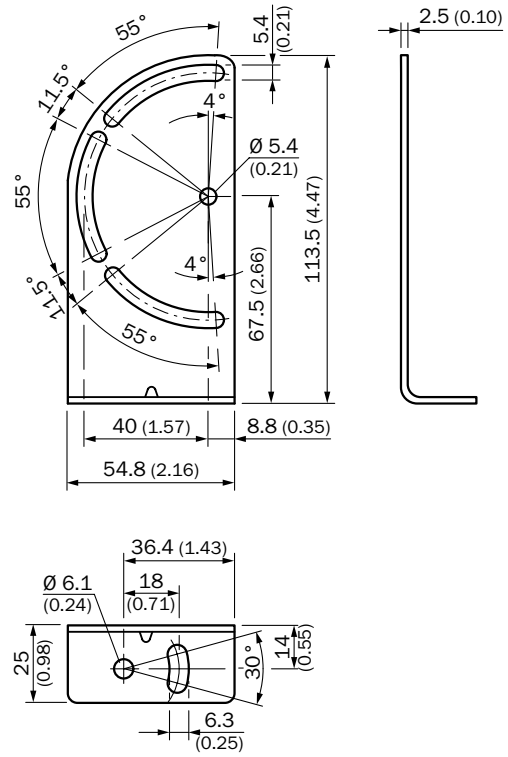
BEF-WG-W12



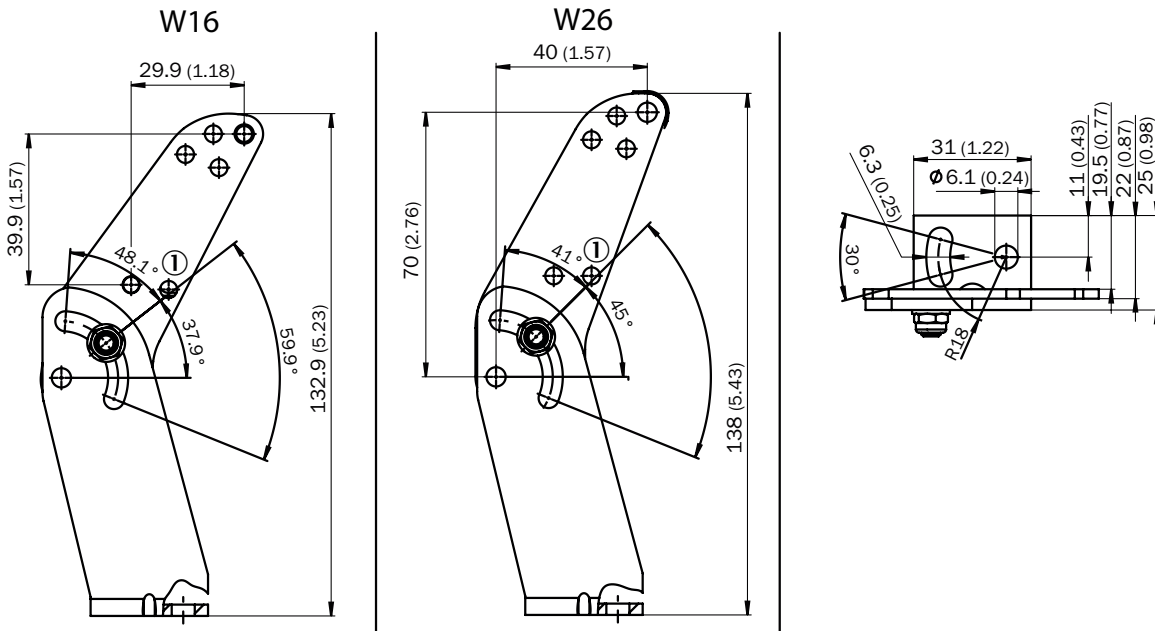
BEF-WK-W12



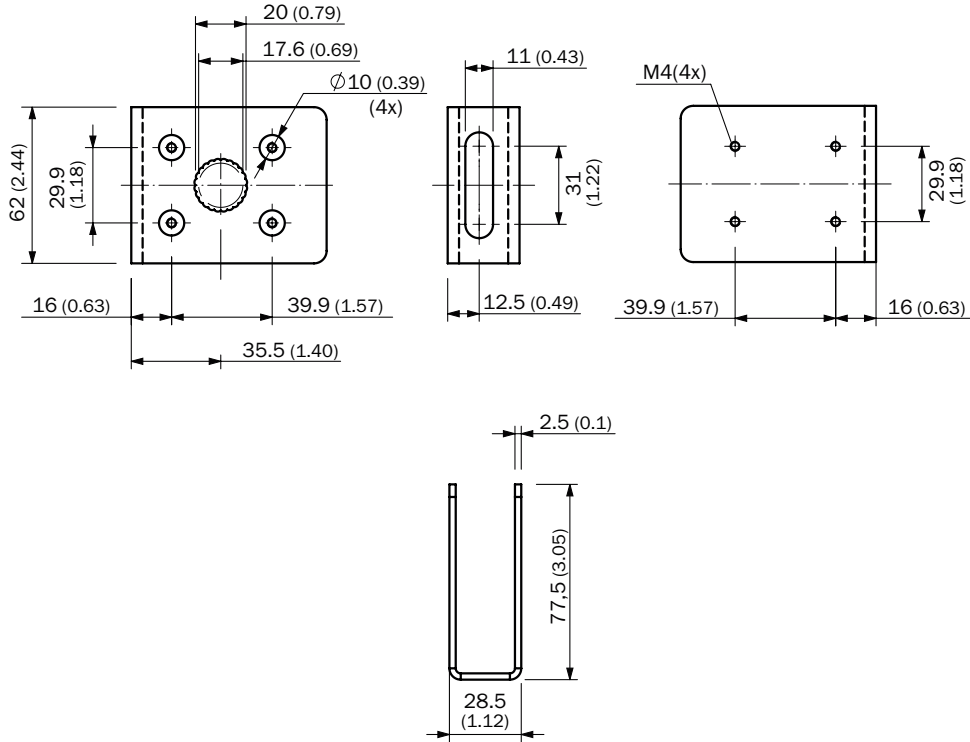
BEF-WN-W23



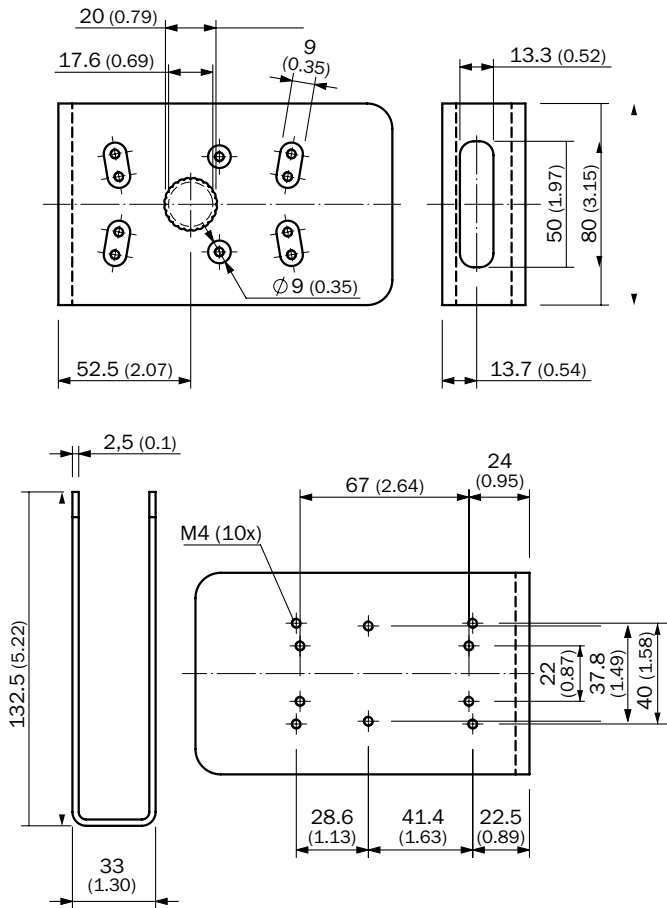
BEF-WN-MULTI2



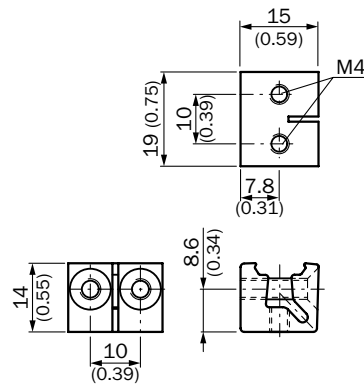
BEF-SG-W16



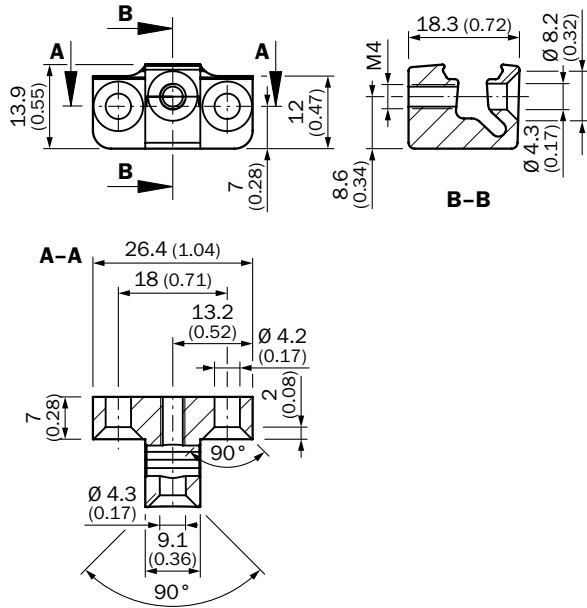
BEF-SG-W27 / BEF-SG-W27S01



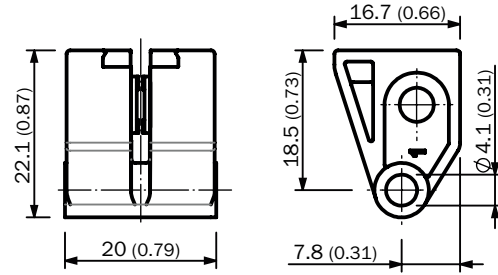
BEF-DKH-W12



BEF-KH-WTT12L

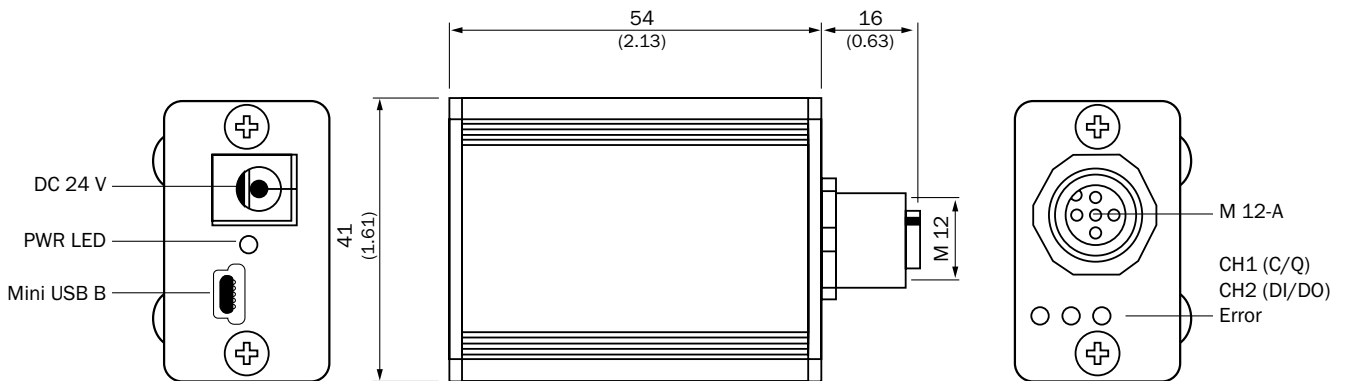


BEF-AP-W16

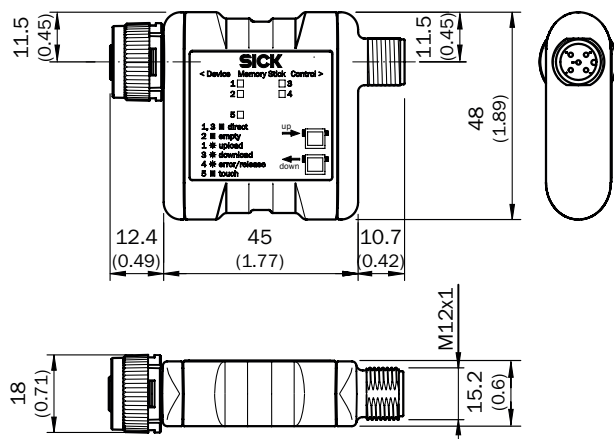


Dimensional drawings connection systems

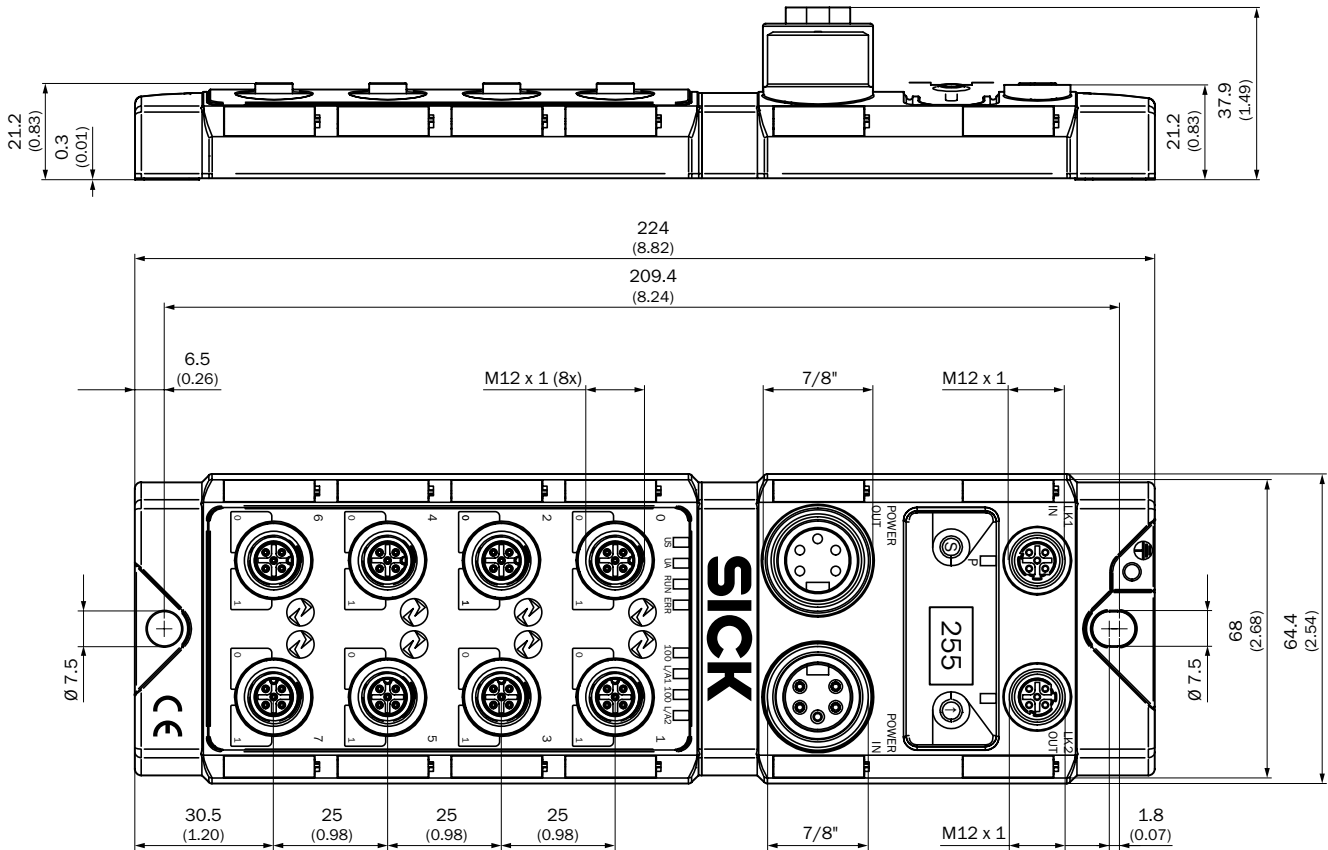
IOLA2US-01101 (SiLink2 Master)



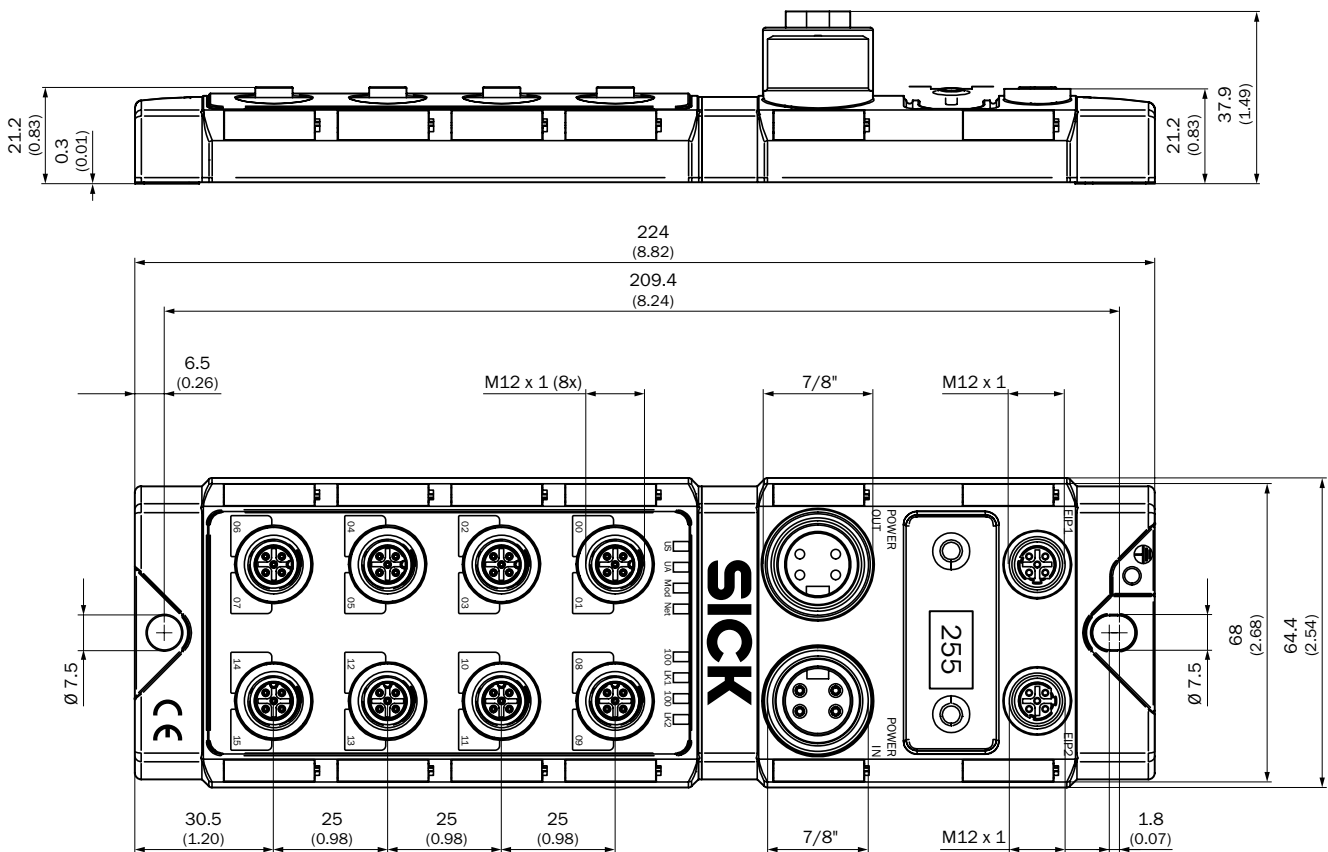
IOLP2ZZ-M3201 (SICK Memory Stick)



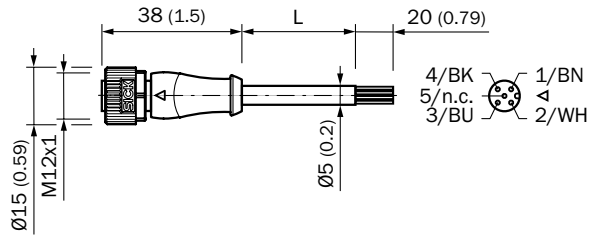
IOLG2EC-03208R01 (IO-Link Master)



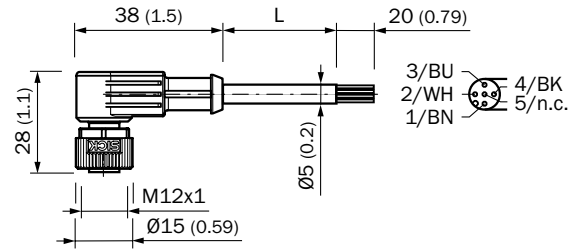
IOLG2EI-03208R01 (IO-Link Master)



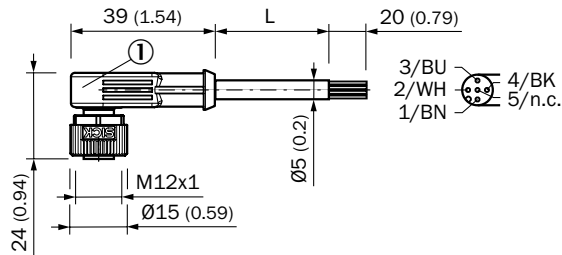
YF2A14-xxxVB3XLEAX, PVC



YG2A14-xxxVB3XLEAX, PVC

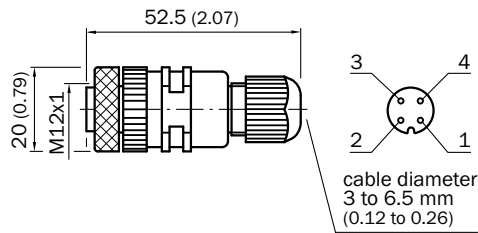


YI2A14-xxxVB3XLEAX, PVC

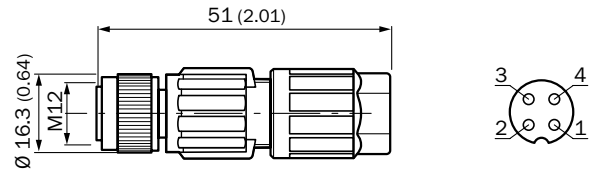


① LED

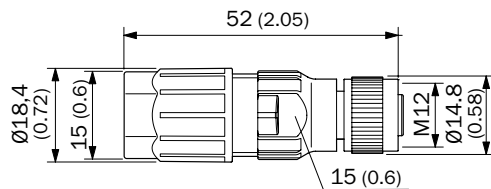
DOS-1204-G



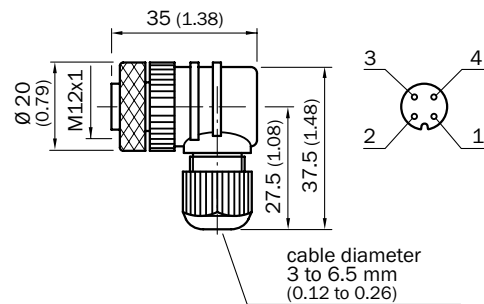
DOS-1204-GQU6



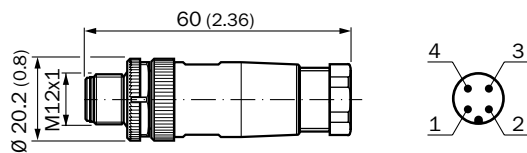
DOS-1204-GQU8



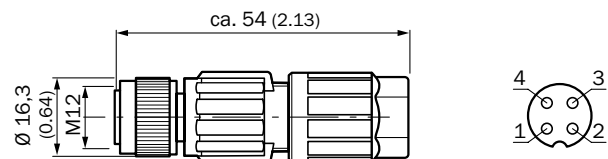
DOS-1204-W



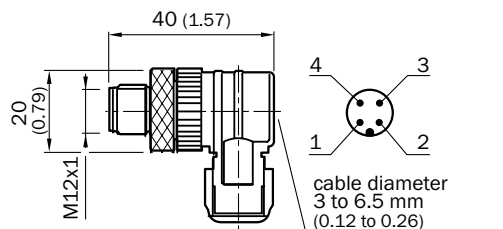
STE-1204-G



STE-1204-GQU6

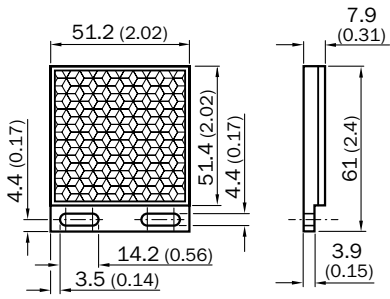


STE-1204-W

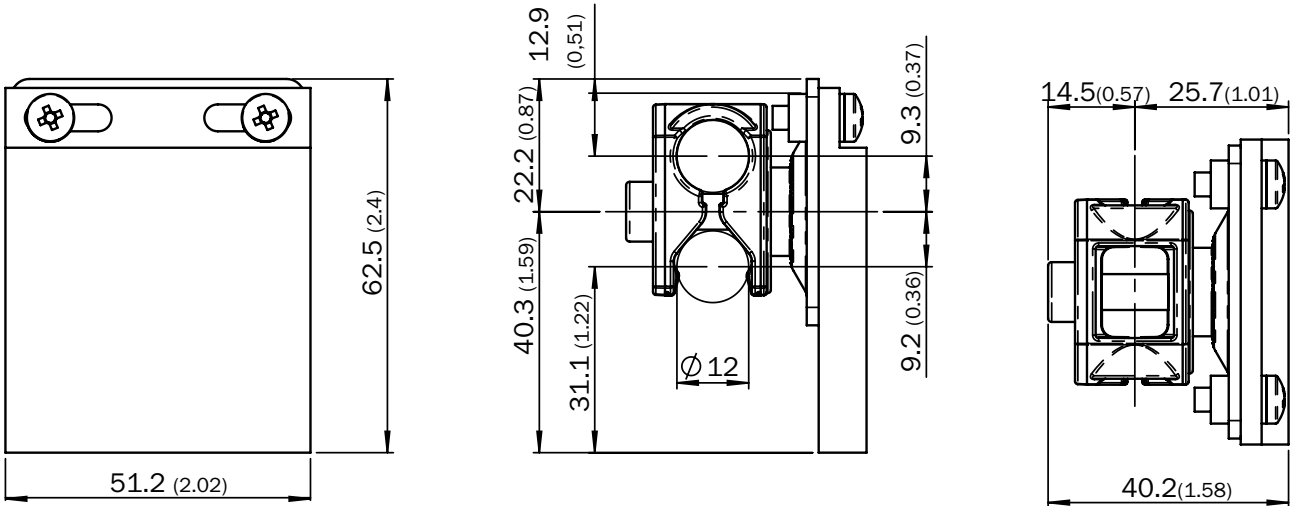


Dimensional drawings reflectors and optics

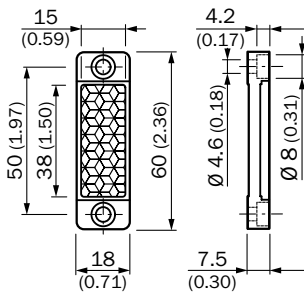
P250



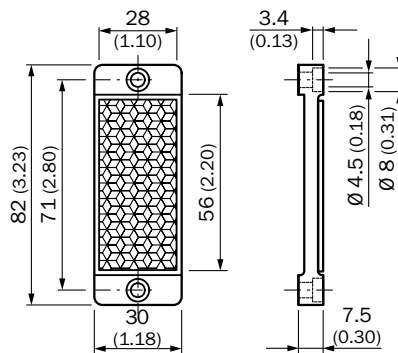
P250P03



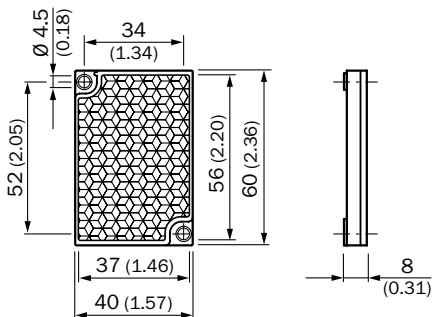
PL20A



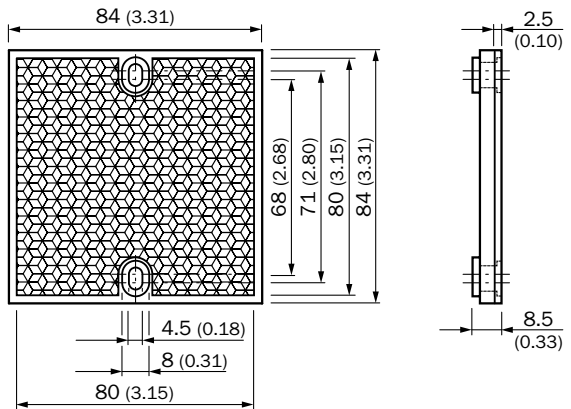
PL30A



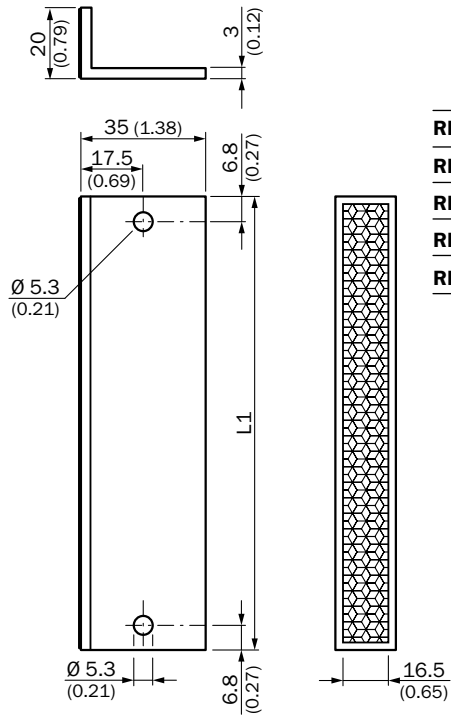
PL40A



PL80A



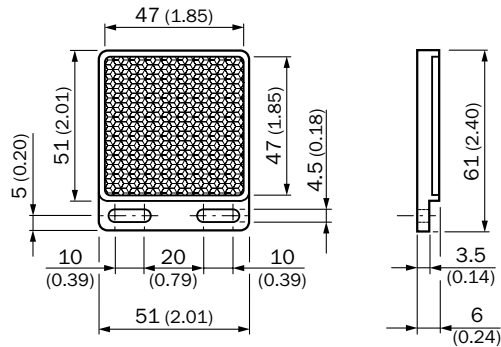
REF-PLG120



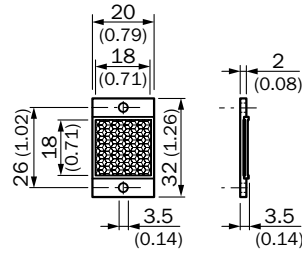
L1

REF-PLG120	194.3 (7.65)
REF-PLG210	274.3 (10.79)
REF-PLG270	344.3 (13.56)
REF-PLG360	424.3 (16.70)
REF-PLG420	494.3 (19.46)

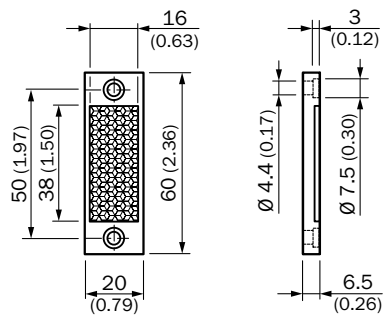
P250F



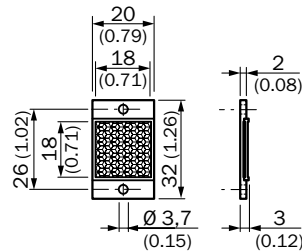
PL10F



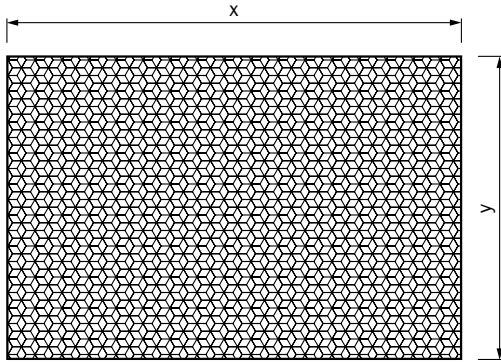
PL20F



PL10FH-1

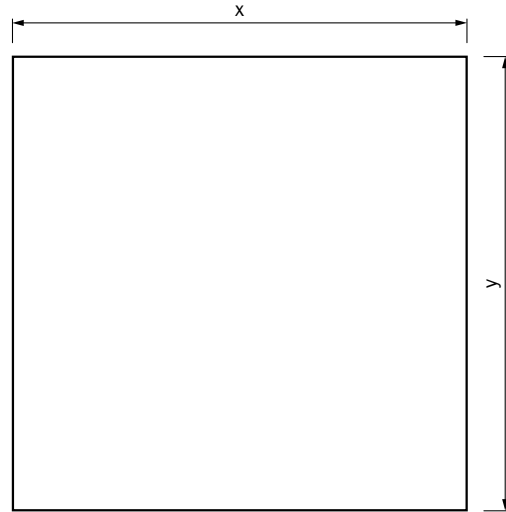


100 x REF-DG / REF-DG



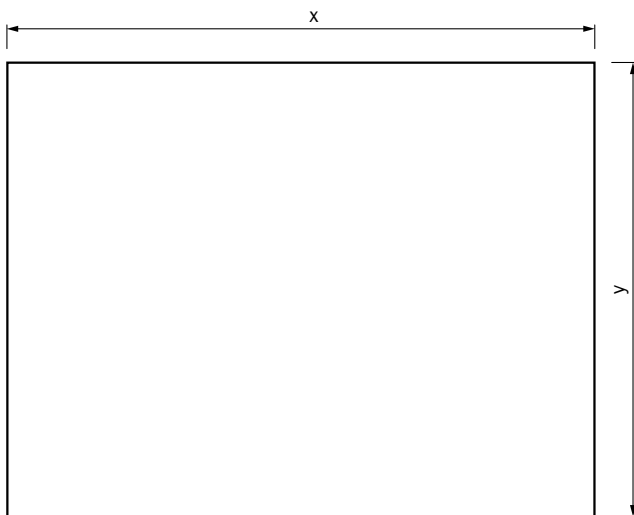
- ① X = 74.9 cm
- ② Y = 91.4 cm

REF-AC1000



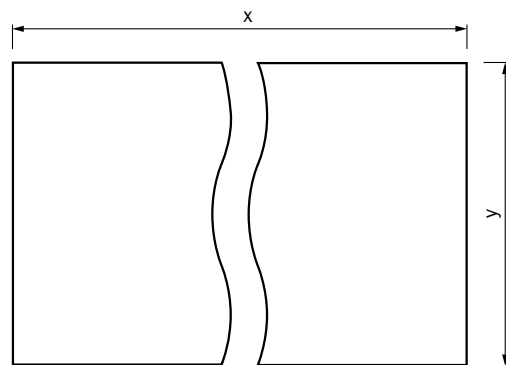
- ① x = 225 mm
- ② y = 225 mm

REF-AC1000-2030P01



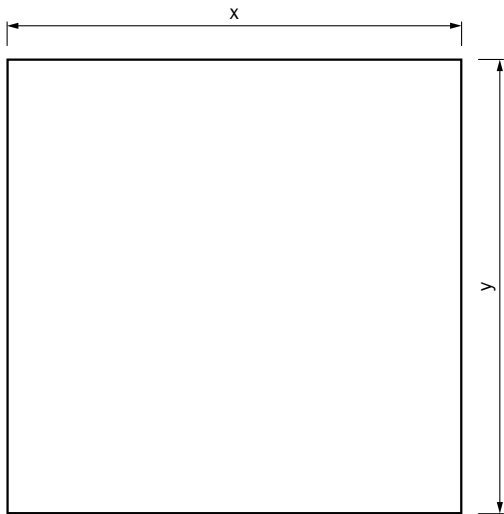
- ① x = 30 mm
- ② y = 20 mm

REF-AC1000-28



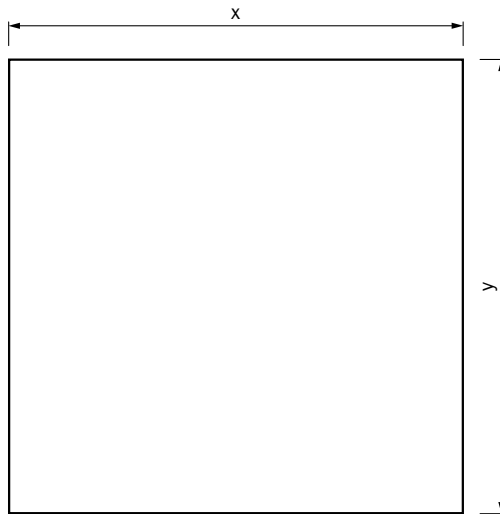
- ① X = 91.4 cm
- ② Y = 4.57 m

REF-AC1000-56



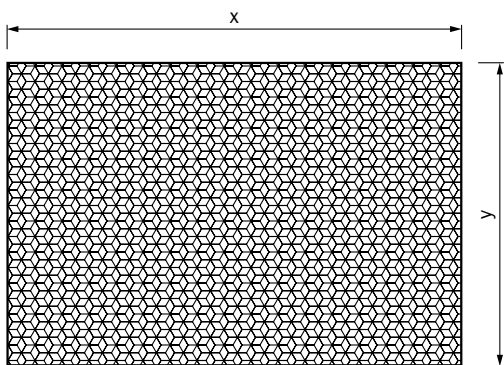
- ① x = 56,3 mm
- ② y = 56,3 mm

REF-AC1000-73P01



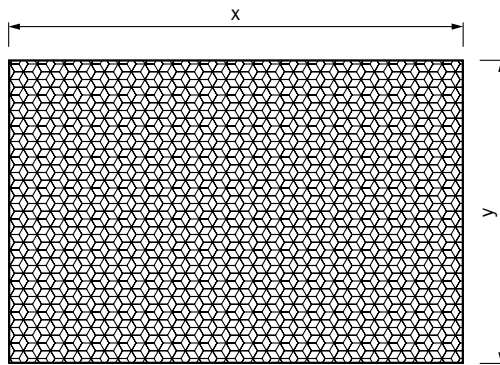
- ① x = 73 mm
- ② y = 73 mm

REF-DG-K



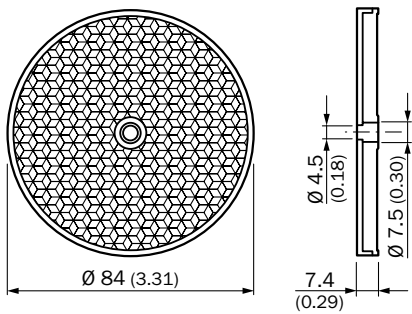
- ① X = 74.9 cm
- ② Y = 91.4 cm

REF-IRF-56

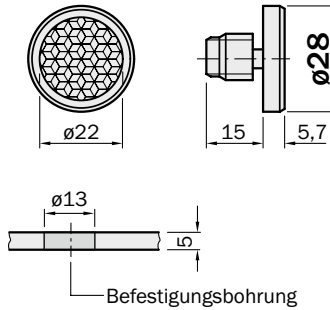


- ① x = 50 mm
- ② y = 60 mm

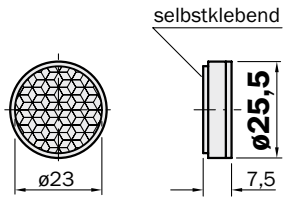
C110A



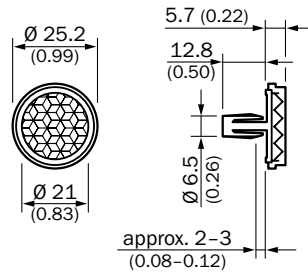
PL22-1



PL22-2

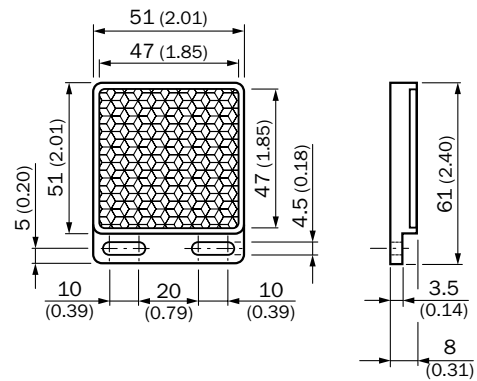


PL22-3

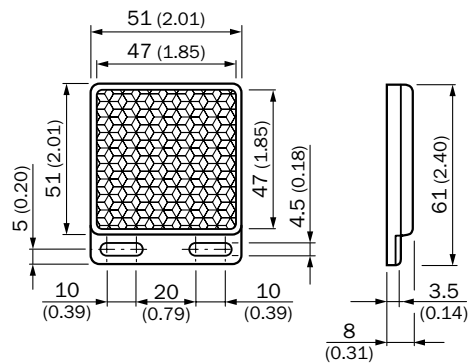


All dimensions in mm (inch)

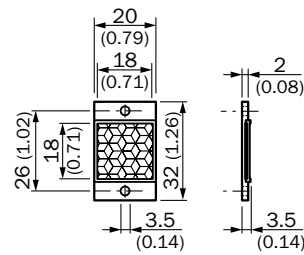
P250 CHEM



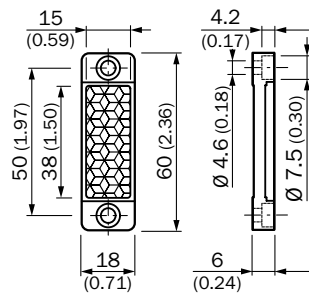
P250H



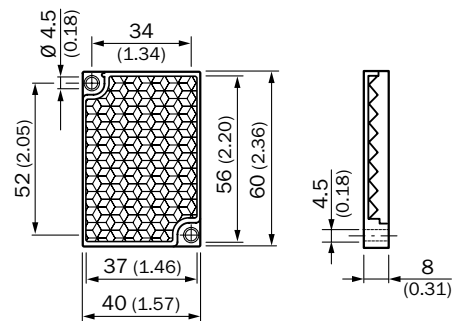
PL10F CHEM



PL20 CHEM



PL40A Antifog



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