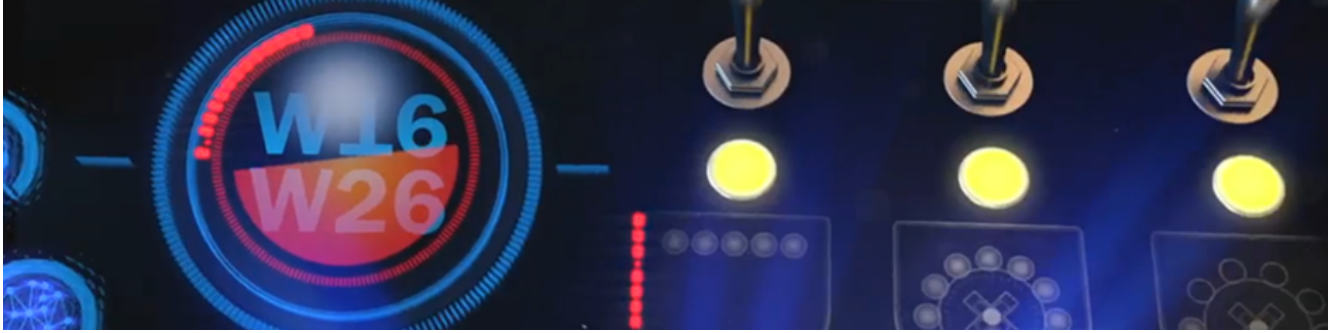# W16

The highflier in object detection

SICK
Sensor Intelligence.

Advantages

Easy and quick sensor alignment using BluePilot

Using the innovative BluePilot alignment aid, the sensors in the W16 and W26 product family can be commissioned in seconds. The blue LED display provides direct feedback to assist you with optimally aligning the sensors and reflectors as well as senders and receivers. In the case of the photoelectric proximity sensors, a push-and-turn mechanism enables the sensor to be adjusted quickly and precisely, thereby eliminating the customary time-consuming fine adjustment using rotary controls.

BluePilot also reports any change in detection quality, e.g., due to contamination or vibrations, which ensures faults are detected in a timely manner, long before a production downtime occurs.

Photoelectric retro-reflective and through-beam photoelectric sensors
- The blue LED alignment aid speeds up the process of optimally aligning the sensors and reflectors or senders and receivers
- Any changes in the operational safety due to contamination or vibrations can be recognized at a glance

Photoelectric proximity switch
- 2 in 1: The combination of teach-in button and potentiometer in one control element enables intuitive fine-tuning in a matter of seconds
- The visual representation of the sensing range allows 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 control element

With the new BluePilot operating concept, you will save valuable time commissioning the sensor, and avoid production downtimes thanks to the timely reporting of faults.

Rugged and reliable

The sensors from the W16 product family are particularly rugged and reliable.

If optical contamination exists on the sensor or reflector and after cleaning, the sensors automatically adjust their switching thresholds thanks to AutoAdapt, meaning they always keep a clear view. With the OptoFilter, the sensors see what they have to see: they are immune to LED lights, reflections from safety vests and the influence of depolarizing objects.

The sensors can also withstand many chemical, thermal and mechanical environmental influences thanks to the ultra-rugged VISTAL housing.
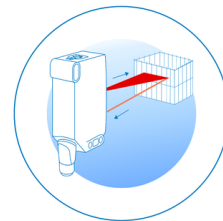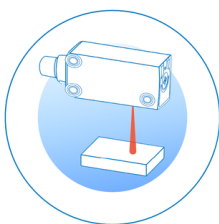
Everything reliably detected
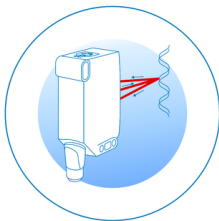
For uneven, shiny, reflective and even jet black objects, TwinEye technology offers a high level of operational safety. Two receivers in one sensor ensure a high detection reliability.
Find out more in the video
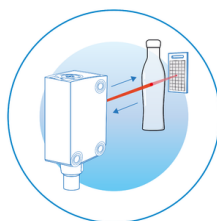
In the case of transparent objects such as glass bottles or cling film, the ClearSens technology guarantees reliable detection results.
Find out more in the video

The LineSpot technology offers a high detection reliability for perforated, structured and uneven objects.
Find out more in the video

Thanks to foreground suppression, the sensors reliably detect very flat, poorly remitting, reflective, and uneven objects.
Find out more in the video

Thanks to the OptoFilter, the sensors feature high ambient light immunity.
Find out more in the video
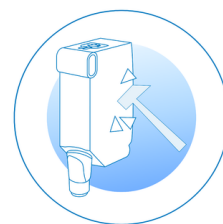
Thanks to the VISTAL housing, the sensors can also withstand extreme loads.
Find out more in the video

 The rugged design ensures high system availability and reduces downtimes.

Smart sensors for efficient machine communication

Smart Sensors provide indispensable input for every process chain. They support dynamic, real-time-optimized, and self-organized industry processes. The Smart Sensors W16 and W26 capture real-life situations, and generate and receive data and information beyond traditional switching signals or measured process parameters.

<a href=https://www.sick.de/smart-sensors target="_self">Find out more

From raw signals to customized information
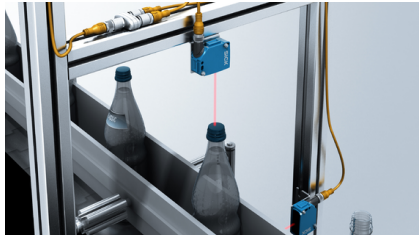
Base logic: User-definable logic functions with trigger sensors and switching signal delays
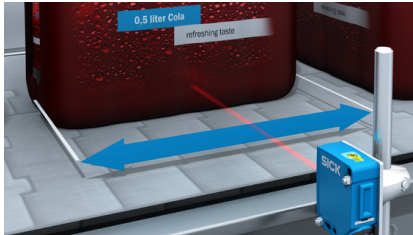
Time measurement and debouncing with the aid of the Time Measurement and Debouncing Smart Task
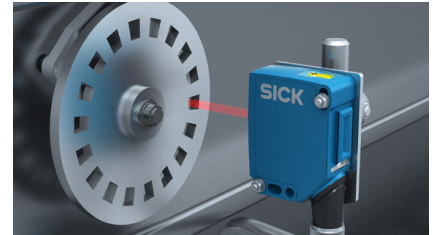
W16 with the Counter and Debouncing Smart Task counts and evaluates detection signals

Interconnectivity and efficient processing of data ensure leaner structures and cost benefits for your process.

Technical data overview

|	
Dimensions (W x H x D)	20 mm x 55.7 mm x 42 mm
Functional principle detail	Background suppression NarrowBeam Foreground suppression LineSpot technology TwinEye technology MultiPulse Without reflector minimum distance (autocollimation/coaxial optics) ClearSens With minimum distance to reflector (dual lens system) (depending on type)
Light source	PinPoint LED / LED (depending on type)
Type of light	Visible red light / Infrared light (depending on type)
Enclosure rating	IP66 / IP67 / IP69 / IP65 (depending on type)
Housing material	Plastic
Adjustment	Teach-in button Cable Potentiometer Teach-Turn adjustment None (depending on type)

Product description

The W16 is equipped with new technologies such as TwinEye, LineSpot, ClearSens and OptoFilter for reliable object detection. It can be quickly and conveniently adjusted via the BluePilot operating and display concept. Since every W16 is designed as a Smart Sensor, it can be configured to fit the application via IO-Link and offers additional diagnostic functions and Smart Tasks. It 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. Thanks to the very rugged VISTAL® housing and the predictive maintenance, the W16 offers very high reliability and prevents unplanned machine downtimes.
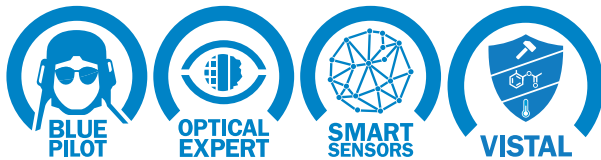
At a glance

- Technologies: ClearSens, LineSpot, TwinEye, OptoFilter
- BluePilot: Optical alignment aid, adjustment of the sensing range via Teach-Turn adjustment with optical sensing range indicator or via IO-Link
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Diagnostics, Smart Tasks
- Vistal housing: High chemical, thermal and mechanical resistance

Your benefits

- Usability and uniform operation thanks to optical quality display on the housing or conveniently via IO-Link
- Simplification when aligning the light beam to the reflector, the receiver or to an object thanks to the highly-visible light spot of the PinPoint LED combined with the optical LED display
- Very high reliability thanks to new detection technologies as well as high optical ruggedness
- The Smart Sensor makes machine processes quicker, more efficient and transparent, enables predictive maintenance and is thereby a trailblazer for Industry 4.0 applications

Fields of application

- Packaging
- Food and beverage
- Handling and assembly
- Machine tools
- Storage and conveyor
- Rubber and plastics
- Wood
- Textile

Ordering information

- **Sensing range min. / max.:** 10 mm / 1,000 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Housing:** rectangular

Switching mode	Switching output	Connection type	Type	Part no.
Light switching	Push-pull: PNP/NPN	Male connector M12, 4-pin	WTB16P-24167120A00	1124855
			WTB16P-24168120A00	1222721
Light/dark switching	PNP	Male connector M12, 4-pin	WTB16P-24861120A00	1115767
	Push-pull: PNP/NPN	Cable with M12 male connector, 4-pin, 318 mm	WTB16P-34161120A00	1218817
		Cable, 4-wire, 10 m	WTB16P-7H161120A00	1222715
		Cable, 4-wire, 2 m	WTB16P-1H161120A00	1218816
			WTB16P-1H162120A00	1221725
		Cable, 4-wire, 5 m	WTB16P-6H161120A00	1222716
		Male connector M12, 4-pin	WTB16P-24161120A00	1218626
				1220992
			WTB16P-24161122A00	1111626
			WTB16P-24162120A00	1220916

- **Sensing range min. / max.:** 10 mm / 300 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Housing:** rectangular

Connection type	Type	Part no.
Cable with M12 male connector, 4-pin, 188 mm	WTB16P-84161120A00	1222714
Male connector M12, 4-pin	WTB16P-24161120A00	1222723

- **Sensing range min. / max.:** 10 mm / 900 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN

Light source	Type of light	Connection type	Housing	Type	Part no.
PinPoint LED	Visible red light	Male connector M12, 4-pin	Rectangular	WTB16P-24161A20A00	1120338

W16

- **Sensing range min. / max.:** 10 mm / 500 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression, NarrowBeam
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Housing:** rectangular

Connection type	Type	Part no.
Cable with M12 male connector, 4-pin, 318 mm	WTB16P-34161220A00	1218821
Cable, 4-wire, 2 m	WTB16P-1H161220A00	1218820
Male connector M12, 4-pin	WTB16P-24161220A00	1218698

- **Sensing range min. / max.:** 10 mm / 500 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN

Light source	Type of light	Connection type	Housing	Type	Part no.
PinPoint LED	Visible red light	Male connector M12, 4-pin	Rectangular	WTB16P-24161B20A00	1120339

- **Sensing range min. / max.:** 10 mm / 1,600 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression
- **Switching output:** push-pull: PNP/NPN
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Housing:** rectangular

Switching mode	Connection type	Type	Part no.
Dark switching	Male connector M12, 4-pin	WTB16P-2416N420A00	1222718
Light/dark switching	Cable with M12 male connector, 4-pin, 318 mm	WTB16P-34161420A00	1222717
	Male connector M12, 4-pin	WTB16P-24161420A00	1222722

- **Sensing range min. / max.:** 10 mm / 1,500 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression
- **Switching output:** push-pull: PNP/NPN
- **Light source:** LED
- **Type of light:** Infrared light
- **Housing:** rectangular

Switching mode	Connection type	Type	Part no.
Dark switching	Cable with M12 male connector, 4-pin, 318 mm	WTB16I-34115120ZZZ	1222799
Light switching	Male connector M12, 4-pin	WTB16I-24114120ZZZ	1222795

Switching mode	Connection type	Type	Part no.
Light/dark switching	Cable with M12 male connector, 4-pin, 188 mm	WTB16I-84161120A00	1222720
	Cable with M12 male connector, 4-pin, 318 mm	WTB16I-34161120A00	1218819
	Cable with Q6 male connector, 6-pin, DC-coded, 298 mm	WTB16I-39111120ZZZ	1222708
		WTB16I-39112120ZZZ	1222674
	Cable, 4-wire, 2 m	WTB16I-1H161120A00	1218818
		WTB16I-1H162120A00	1221723
	Cable, 4-wire, 5 m	WTB16I-6H161120A00	1222719
	Male connector M12, 4-pin	WTB16I-24161120A00	1218669
		WTB16I-24161121A00	1103234
		WTB16I-24161122A00	1222794
		WTB16I-24162120A00	1221724
		WTB16I-2416A121A00	1223231

- **Sensing range min. / max.:** 10 mm / 400 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN

Light source	Type of light	Connection type	Housing	Type	Part no.
LED	Infrared light	Male connector M12, 4-pin	Rectangular	WTB16I-24161120A00	1222706

- **Sensing range min. / max.:** 10 mm / 650 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN

Light source	Type of light	Connection type	Housing	Type	Part no.
LED	Infrared light	Male connector M12, 4-pin	Rectangular	WTB16I-24162120A00	1222181

- **Sensing range min. / max.:** 10 mm / 1,900 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN

Light source	Type of light	Connection type	Housing	Type	Part no.
LED	Infrared light	Male connector M12, 4-pin	Rectangular	WTB16I-24161420A00	1222707

W16

- **Sensing range min. / max.:** 0 mm / 250 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Foreground suppression
- **Switching mode:** Light/dark switching
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Connection type:** male connector M12, 4-pin
- **Housing:** rectangular

Switching output	Type	Part no.
PNP	WTF16P-24812620ZZZ	1137020
Push-pull: PNP/NPN	WTF16P-24162620A00	1113469

- **Sensing range min. / max.:** 0 mm / 400 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Foreground suppression, NarrowBeam
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Housing:** rectangular

Connection type	Type	Part no.
Cable with M12 male connector, 4-pin, 318 mm	WTF16P-34161220A00	1121520
Male connector M12, 4-pin	WTF16P-24161220A00	1113467

- **Sensing range min. / max.:** 0 mm / 600 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Foreground suppression
- **Switching mode:** Light/dark switching
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Connection type:** male connector M12, 4-pin
- **Housing:** rectangular

Switching output	Type	Part no.
PNP	WTF16P-24812420ZZZ	1139700
Push-pull: PNP/NPN	WTF16P-24161420A00	1113468

- **Sensing range min. / max.:** 10 mm / 500 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression, LineSpot technology
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Housing:** rectangular

Connection type	Type	Part no.
Cable with M12 male connector, 4-pin, 318 mm	WTL16P-34161120A00	1218945
Cable, 4-wire, 2 m	WTL16P-1H161120A00	1218946
Male connector M12, 4-pin	WTL16P-24161120A00	1218670
	WTL16P-24162120A00	1131249

- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression, LineSpot technology

Switching output	Light source	Type of light	Connection type	Housing	Type	Part no.
PNP	PinPoint LED	Visible red light	Male connector M12, 4-pin	Rectangular	WTL16P-24861120A00	1125468

- **Sensing range min. / max.:** 10 mm / 750 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression, TwinEye technology
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN
- **Housing:** rectangular

Light source	Type of light	Connection type	Type	Part no.
LED	Infrared light	Male connector M12, 4-pin	WTS16I-24161120A00	1137245
PinPoint LED	Visible red light	Cable with M12 male connector, 4-pin, 318 mm	WTS16P-34161120A00	1218943
		Cable, 4-wire, 2 m	WTS16P-1H161120A00	1218944
		Cable, 4-wire, 5 m	WTS16P-6H161120A00	1125378
		Male connector M12, 4-pin	WTS16P-24161120A00	1218663

- **Sensing range min. / max.:** 10 mm / 400 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression, TwinEye technology
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN

Light source	Type of light	Connection type	Housing	Type	Part no.
LED	Visible red light	Male connector M12, 4-pin	Rectangular	WTS16G-24161920A00	1128823

- **Sensing range min. / max.:** 50 mm / 500 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression, TwinEye technology

Switching output	Light source	Type of light	Connection type	Housing	Type	Part no.
Push-pull: PNP/NPN	PinPoint LED	Visible red light	Male connector M12, 4-pin	Rectangular	WTS16P-24101020B02	1096872

- **Sensing range min. / max.:** 50 mm / 750 mm
- **Functional principle:** Photoelectric proximity sensor
- **Functional principle detail:** Background suppression, TwinEye technology, MultiPulse
- **Switching output:** push-pull: PNP/NPN
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Connection type:** male connector M12, 4-pin
- **Housing:** rectangular

Type	Part no.
WTS16P-24161300CZZ	1111622
	1111623
	1111624
	1111625
WTS16P-24161320CZZ	1111636
WTS16P-24162320CZZ	1113997

- **Sensing range min. / max.:** 0 m / 10 m
- **Functional principle:** Photoelectric retro-reflective sensor
- **Functional principle detail:** Without reflector minimum distance (autocollimation/coaxial optics)
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Housing:** rectangular

Switching mode	Switching output	Connection type	Type	Part no.
Dark switching	Push-pull: PNP/NPN	Male connector M12, 4-pin	WLA16P-2416A100A00	1222702
Light switching	Push-pull: PNP/NPN	Cable with M12 male connector, 4-pin, 318 mm	WLA16P-34165100A00	1222786
		Male connector M12, 4-pin	WLA16P-24165100A00	1222703
			WLA16P-2416L100A00	1222701
Light/dark switching	PNP	Male connector M12, 4-pin	WLA16P-24862130A00	1115762
	Push-pull: PNP/NPN	Cable with M12 male connector, 4-pin, 188 mm	WLA16P-84162100A00	1222698
		Cable with M12 male connector, 4-pin, 318 mm	WLA16P-34161100A00	1221729
			WLA16P-34162100A00	1218815
			WLA16P-3416N100A00	1222673
		Cable with Q6 male connector, 6-pin, DC-coded, 298 mm	WLA16P-39421100ZZZ	1222700
			WLA16P-39722100ZZZ	1222789
		Cable, 4-wire, 2 m	WLA16P-1H161100A00	1221728
			WLA16P-1H162100A00	1218826
		Cable, 4-wire, 5 m	WLA16P-6H162100A00	1222699
		Cable, 5-wire, 2 m	WLA16P-1I421100ZZZ	1222704
			WLA16P-1I722100ZZZ	1222787
		Male connector M12, 4-pin	WLA16P-24161100A00	1220993
				1221053
			WLA16P-24162100A00	1218660
				1220904
			WLA16P-24162130A00	1223080

- **Functional principle:** Photoelectric retro-reflective sensor
- **Functional principle detail:** Without reflector minimum distance (autocollimation/coaxial optics)
- **Switching mode:** Dark switching
- **Switching output:** PNP

Light source	Type of light	Connection type	Housing	Type	Part no.
PinPoint LED	Visible red light	Male connector M12, 4-pin	Rectangular	WLA16P-2486A100A00	1125598

- **Sensing range min. / max.:** 0 m / 10 m
- **Sensing range max.:** 0 m … 10 m
- **Functional principle:** Photoelectric retro-reflective sensor
- **Functional principle detail:** Without reflector minimum distance (autocollimation/coaxial optics)
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN

Light source	Type of light	Connection type	Housing	Type	Part no.
PinPoint LED	Visible red light	Cable with Q6 male connector, 6-pin, DC-coded, 298 mm	Rectangular	WLA16P-39X22100SZZ	1113465

- **Sensing range min. / max.:** 0 m / 5 m
- **Functional principle:** Photoelectric retro-reflective sensor
- **Functional principle detail:** Without reflector minimum distance (autocollimation/coaxial optics), ClearSens
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Housing:** rectangular

Switching mode	Switching output	Connection type	Type	Part no.
–	Push-pull: PNP/NPN	Male connector M12, 4-pin	WLG16P-2416H120A71	1220929
Dark switching	Push-pull: PNP/NPN	Male connector M12, 4-pin	WLG16P-24167120A00	1135715
Light switching	Push-pull: PNP/NPN	Male connector M12, 4-pin	WLG16P-24165120A00	1222733
Light/dark switching	PNP	Male connector M12, 4-pin	WLG16P-24812122ZZZ	1134225
			WLG16P-24862120A00	1130258
	Push-pull: PNP/NPN	Cable with M12 male connector, 4-pin, 188 mm	WLG16P-84161120A00	1222693
			WLG16P-84162120A00	1222694
		Cable with M12 male connector, 4-pin, 318 mm	WLG16P-34162120A00	1218947
		Cable, 4-wire, 2 m	WLG16P-1H162120A00	1218948
		Male connector M12, 4-pin	WLG16P-24162120A00	1218661
			WLG16P-24162121A00	1223082

W16

- **Sensing range min. / max.:** 0.25 m / 14 m
- **Functional principle:** Photoelectric retro-reflective sensor
- **Functional principle detail:** With minimum distance to reflector (dual lens system)
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN
- **Light source:** PinPoint LED
- **Type of light:** visible red light
- **Housing:** rectangular

Connection type	Type	Part no.
Cable with M12 male connector, 4-pin, 318 mm	WLD16P-341121A0ZZZ	1221731
Cable, 4-wire, 2 m	WLD16P-1H1121A0ZZZ	1221730
Male connector M12, 4-pin	WLD16P-241121A0ZZZ	1218662
Male connector M12, 5-pin	WLD16P-254221A0ZZZ	1222695
	WLD16P-257221A0ZZZ	1223065

- **Sensing range min. / max.:** 0.4 m / 9.5 m
- **Functional principle:** Photoelectric retro-reflective sensor
- **Functional principle detail:** With minimum distance to reflector (dual lens system)
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN

Light source	Type of light	Connection type	Housing	Type	Part no.
PinPoint LED	Visible red light	Male connector M12, 4-pin	Rectangular	WLD16P-241125A0ZZZ	1120335

- **Sensing range min. / max.:** 0 m / 45 m
- **Functional principle:** Through-beam photoelectric sensor
- **Switching output:** push-pull: PNP/NPN
- **Housing:** rectangular

Switching mode	Light source	Type of light	Connection type	Type	Part no.
Dark switching	PinPoint LED	Visible red light	Male connector M12, 4-pin	WSE16P-24163100A00	1110738
Light/dark switching	LED	Infrared light	Cable with M12 male connector, 4-pin, 318 mm	WSE16I-34162100A00	1088327
			Cable, 4-wire, 2 m	WSE16I-1H162100A00	1088328
			Male connector M12, 4-pin	WSE16I-24162100A00	1088326
	PinPoint LED	Visible red light	Cable with M12 male connector, 4-pin, 318 mm	WSE16P-34161100A00	1099456
				WSE16P-34162100A00	1088330
			Cable with Q6 male connector, 6-pin, DC-coded, 298 mm	WSE16P-39112100ZZZ	1102908
			Cable, 4-wire, 2 m	WSE16P-1H161100A00	1099442
				WSE16P-1H162100A00	1088331
			Male connector M12, 4-pin	WSE16P-24161100A00	1129966
				WSE16P-24162100A00	1088329
					1116792

- **Sensing range min. / max.:** 2 m / 60 m
- **Functional principle:** Through-beam photoelectric sensor
- **Switching mode:** Light/dark switching
- **Switching output:** push-pull: PNP/NPN

Light source	Type of light	Connection type	Housing	Type	Part no.
LED	Visible red light	Male connector M12, 4-pin	Rectangular	WSE16G-24162400A00	1127146

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is "Sensor Intelligence."

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