



WSE16P-39112100ZZZ

W16

SMALL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
WSE16P-39112100ZZZ	1102908

Other models and accessories → www.sick.com/W16

Illustration may differ



Detailed technical data

Features

Sensor/ detection 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
Light source	PinPoint LED ¹⁾
Light spot size (distance)	Ø 90 mm (8 m)
Wave length	635 nm
Adjustment	
	Wire/pin For activating the test input
Indication	
	LED indicator blue BluePilot: Alignment aid
	LED indicator green Operating indicator Static: power on
	LED indicator yellow Status of received light beam Static: object not present Static off: object present Flashing: Below the 1.5 function reserve

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

Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC ¹⁾
Ripple	< 5 V _{pp}
Power consumption, sender	≤ 30 mA ²⁾ < 50 mA ³⁾
Power consumption, receiver	≤ 30 mA ²⁾ < 50 mA ³⁾
Switching output	Push-pull: PNP/NPN
Output function	Factory setting: Pin 5 / white (MF): NPN normally closed (light switching), PNP normally open (dark switching), Pin 4 / black: NPN normally open (dark switching), PNP normally closed (light switching)
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	≤ 500 μs ⁴⁾
Switching frequency	1,000 Hz ⁵⁾
Connection type	Cable with M12 male connector, 6-pin, 270 mm ⁶⁾
Cable material	PVC
Circuit protection	A ⁷⁾ B ⁸⁾ C ⁹⁾ D ¹⁰⁾
Protection class	III
Weight	140 g
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	IP65 (According to EN 60529)
Test input sender off	Test at 0 V
Ambient operating temperature	-40 °C ... +60 °C
Ambient storage temperature	-40 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

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.

⁵⁾ With light/dark ratio 1:1 in switching 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.

Safety-related parameters

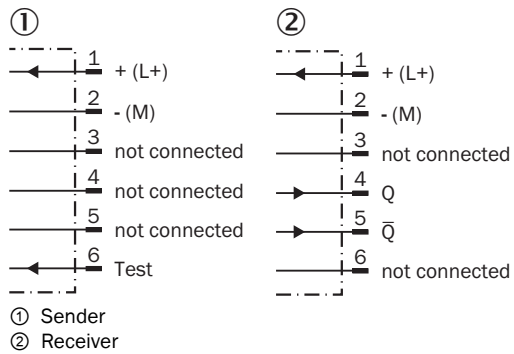
MTTF_D	534 years
DC_{avg}	0%

Classifications

ECl@ss 5.0	27270904
ECl@ss 5.1.4	27270904
ECl@ss 6.0	27270904
ECl@ss 6.2	27270904
ECl@ss 7.0	27270904
ECl@ss 8.0	27270904
ECl@ss 8.1	27270904
ECl@ss 9.0	27270904
ECl@ss 10.0	27270904
ECl@ss 11.0	27270904
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
UNSPSC 16.0901	39121528

Connection diagram

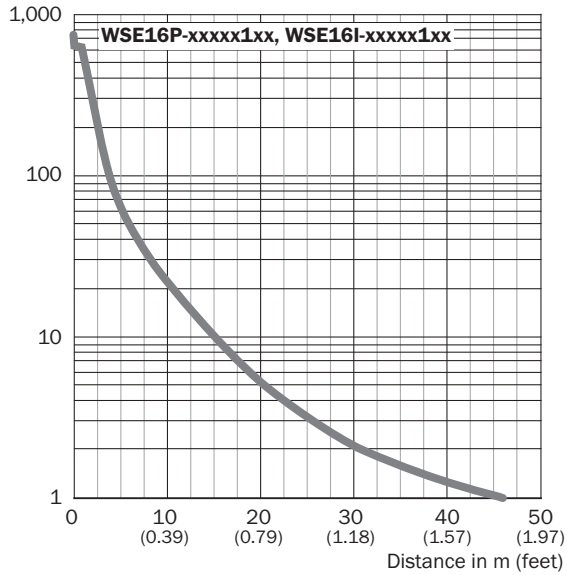
Cd-075



Characteristic curve

WSE16P-xxxxx1xx, WSE16I-xxxxx1xx

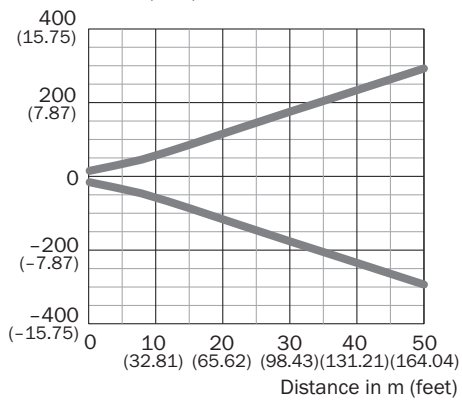
Function reserve



Light spot size

Visible red light

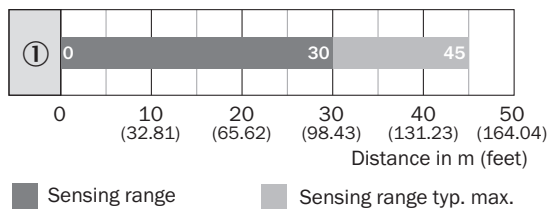
Radius in mm (inch)



WSE16P-xxxxx1xx

Sensing range diagram

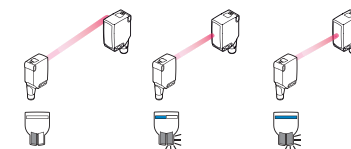
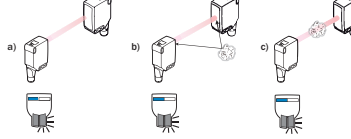
WSE16P-xxxxx1xx, WSE16I-xxxxx1xx



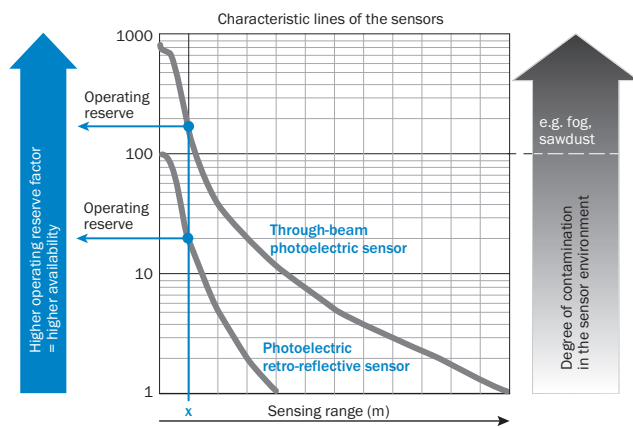
Functions

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 	

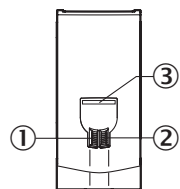
Operation note



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.

Adjustments




Display and adjustment elements



- ① LED indicator green
- ② LED indicator yellow
- ③ LED indicator blue

Recommended accessories

Other models and accessories → www.sick.com/W16

	Brief description	Type	Part no.
Universal bar clamp systems			
	Plate N02 for universal clamp bracket, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware	BEF-KHS-N02	2051608
Mounting brackets and plates			
	Adapter for mounting W16 sensors in existing W14-2/W18-3 installations or L25 sensors in existing L28 installations, plastic, fastening screws included	BEF-AP-W16	2095677
Plug connectors and cables			
	Head A: female connector, 6-pin, angled, DC-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m	DOL-1306-W02M	6030217

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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com