

# WLA26P-3B112100ZZZ

W26

**PHOTOELECTRIC SENSORS** 





# Ordering information

Туре	part no.
WLA26P-3B112100ZZZ	1222791

Other models and accessories → www.sick.com/W26





## Detailed technical data

#### **Features**

Functional principle	Photoelectric retro-reflective sensor
Functional principle detail	Without reflector minimum distance (autocollimation/coaxial optics)
Sensing range	
Sensing range min.	0 m
Sensing range max.	18 m
Maximum distance range from reflector to sensor (operating reserve 1)	0 m 18 m
Recommended distance range from reflector to sensor (operating reserve 3,75)	0 m 12 m
Reference reflector	Reflector PL80A
Recommended sensing range for the best per- formance	0 m 12 m
Polarisation filters	Yes
Emitted beam	
Light source	PinPoint LED
Type of light	Visible red light
Shape of light spot	Point-shaped
Light spot size (distance)	Ø 100 mm (10 m)
Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle)	< +/- 1.0° (at Ta = +23 °C)
Key LED figures	
Normative reference	EN 62471:2008-09   IEC 62471:2006, modified

LED risk group marking	Free group
Wave length	635 nm
Average service life	100,000 h at $T_a$ = +25 °C
Display	
LED blue	BluePilot: Alignment aid
LED green	Operating indicator Static on: power on
LED yellow	Status of received light beam Static on: object not present Static off: object present Flashing: Below the 1.5 function reserve
Special applications	Detecting objects wrapped in film

# Safety-related parameters

MTTF <sub>D</sub>	690 years
DC <sub>avg</sub>	0 %
T <sub>M</sub> (mission time)	20 years

#### Electronics

Supply voltage U <sub>B</sub>	10 V DC 30 V DC <sup>1)</sup>
Ripple	≤ 5 V <sub>pp</sub>
Usage category	DC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2)
Current consumption	$\leq$ 30 mA, without load. At U <sub>B</sub> = 24 V <sup>2</sup>
Protection class	III
Digital output	
Number	2 (Complementary)
Туре	Push-pull: PNP/NPN
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. $U_B$ -2.5 V / 0 V
Signal voltage NPN HIGH/LOW	Approx. $U_B$ / < 2.5 V
Output current I <sub>max.</sub>	≤ 100 mA
Circuit protection outputs	Reverse polarity protected
	Overcurrent and short-circuit protected
Response time	≤ 500 µs <sup>3)</sup>
Repeatability (response time)	150 µs
Switching frequency	1,000 Hz <sup>4)</sup>
Pin/Wire assignment	
Function of pin 4/black (BK)	Digital output, light switching, object present $\rightarrow$ output Q LOW $^{5)}$
Pin 5 function/white (WH)	Digital output, dark switching, object present $\rightarrow$ output $\bar{Q}$ HIGH

<sup>1)</sup> Limit values

<sup>2) 10</sup> V DC ... 16 V DC, without load.

<sup>3)</sup> Signal transit time with resistive load in switching mode.

<sup>4)</sup> With light/dark ratio 1:1.

<sup>5)</sup> This switching output must not be connected to another output.

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# PHOTOELECTRIC SENSORS

#### Mechanics

Housing	Rectangular
Dimensions (W x H x D)	24.6 mm x 82.5 mm x 53.3 mm
Connection	Cable with Q7 male connector, 7-pin, DC-coded, 298 mm
Connection detail	
Deep-freeze property	Do not bend below 0 °C
Conductor size	0.14 mm <sup>2</sup>
Cable diameter	Ø 4.8 mm
Length of cable (L)	270 mm
Bending radius	For flexible use > 12 x cable diameter
Bending cycles	1,000,000
Material	
Housing	Plastic, VISTAL®
Front screen	Plastic, PMMA
Cable	Plastic, PVC
Male connector	Plastic, VISTAL®
Weight	Approx. 100 g
Maximum tightening torque of the fixing screws	1.3 Nm

#### Ambient data

Enclosure rating	IP65 (EN 60529)
Ambient operating temperature	-40 °C +60 °C
Ambient temperature, storage	-40 °C +75 °C
Shock resistance	$50$ g, $11$ ms (25 positive and 25 negative shocks per axis, for X, Y, Z axes, $150$ shocks in total (EN60068-2-27)) $50$ g, $6$ ms (5,000 positive and 5,000 negative shocks per axis, for X, Y, Z axes, $30,\!000$ shocks in total (EN60068-2-27))
Vibration resistance	$10~{\rm Hz} \dots 2,\!000~{\rm Hz}$ (Amplitude 0.5 mm / $10~{\rm g},20~{\rm sweeps}$ per axis, for X, Y, Z axes, 1 octave/min, (EN60068-2-6))
Air humidity	$35\ \% \dots 95\ \%,$ relative humidity (no condensation)
Electromagnetic compatibility (EMC)	EN 60947-5-2
UL File No.	NRKH.E181493 & NRKH7.E181493

## Certificates

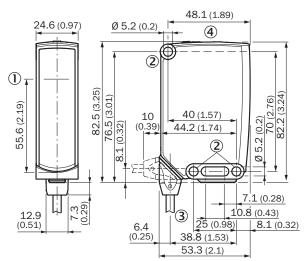
• • • • • • • • • • • • • • • • • • • •	
EU declaration of conformity	✓
UK declaration of conformity	<b>√</b>
ACMA declaration of conformity	<b>√</b>
Moroccan declaration of conformity	<b>√</b>
China RoHS	<b>√</b>
ECOLAB certificate	<b>√</b>
cULus certificate	<b>√</b>
Photobiological safety (DIN EN 62471) certificate	<b>√</b>

## Classifications

ECLASS 5.0	27270902
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ECLASS 5.1.4	27270902
ECLASS 6.0	27270902
ECLASS 6.2	27270902
ECLASS 7.0	27270902
ECLASS 8.0	27270902
ECLASS 8.1	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
UNSPSC 16.0901	39121528

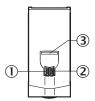
# Dimensional drawing, sensor



Dimensions in mm (inch)

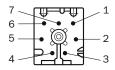
- ① Center of optical axis
- ② Mounting hole, Ø 5.2 mm
- ③ Connection
- ④ display and adjustment elements

## display and adjustment elements

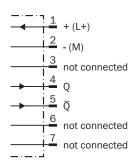


- ① LED indicator green
- ② LED indicator yellow
- ③ LED blue

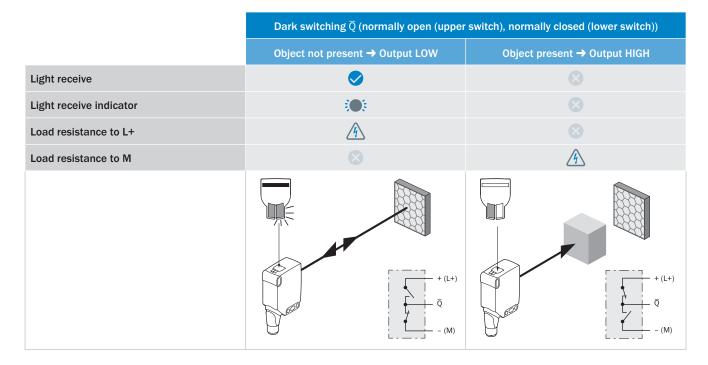
## Connection type Cubic connector, 7-pin



# Connection diagram Cd-191



# Truth table Push-pull: PNP/NPN – dark switching $\bar{Q}$

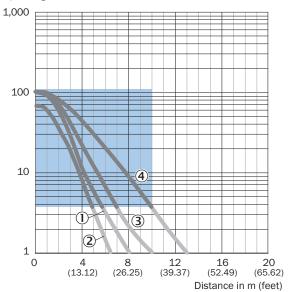


# Truth table Push-pull: PNP/NPN - light switching Q

	Light switching Q (normally closed (upper switch), normally open (lower switch))	
	Object not present → Output HIGH	Object present → Output LOW
Light receive	<b>⊘</b>	
Light receive indicator	<b>:</b> • • • • • • • • • • • • • • • • • • •	
Load resistance to L+		4
Load resistance to M	A	
	+ (L+) Q Q - (M)	+ (L+) Q - (M)

#### Characteristic curve Fine triple reflectors



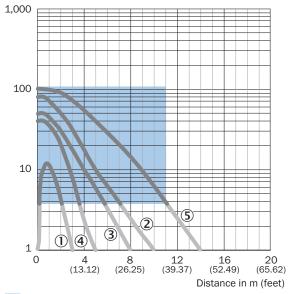


Recommended sensing range for the best performance

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

#### Characteristic curve Chemical-resistant reflectors

## Operating reserve

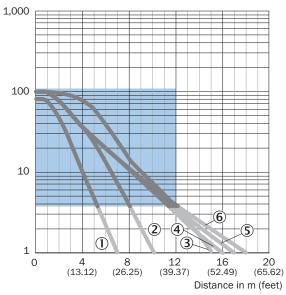


- ① PL10F CHEM reflector
- 2 Reflector P250H
- 3 Reflector P250 CHEM
- ④ Reflector PL20 CHEM

#### **⑤** Reflector PL40A Antifog

#### Characteristic curve Standard reflectors

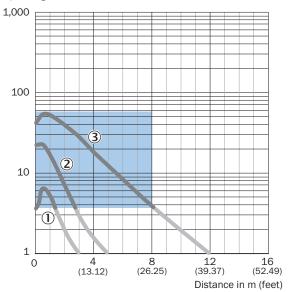
# Operating reserve



- Recommended sensing range for the best performance
- ① Reflector PL20A
- ② Reflector PL22
- 3 Reflector PL250
- ④ Reflector PL30A
- ⑤ Reflector PL40A
- ® Reflector PL80A, C110A

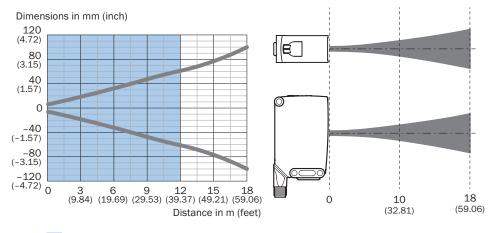
#### Characteristic curve Reflective tape



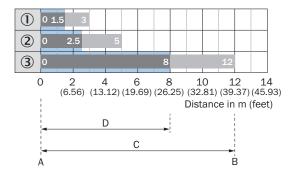


- Recommended sensing range for the best performance
- ① Reflective tape REF-DG (50 x 50 mm)
- ② Reflective tape REF-IRF-56 (50 x 50 mm)
- 3 Reflective tape REF-AC1000 (50 x 50 mm)

## Light spot size WLA26P-xxxxx1xx



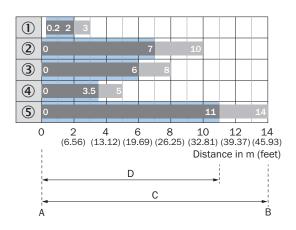
## Sensing range diagram Reflective tape



#### Recommended sensing range for the best performance

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)
Α	Sensing range min. in m
В	Sensing range max. in m
С	$\label{thm:maximum} \mbox{Maximum distance range from reflector to sensor (operating reserve \ 1)}$
D	Recommended distance range from re- flector to sensor (operating reserve 3,75)

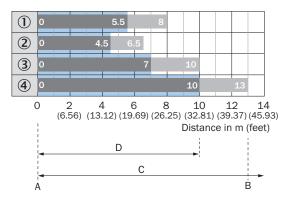
# Sensing range diagram Chemical-resistant reflectors



1	DI 40E QUEM melle chem
1	PL10F CHEM reflector
2	Reflector P250H
3	Reflector P250 CHEM
4	Reflector PL20 CHEM
5	Reflector PL40A Antifog
A	Sensing range min. in m
В	Sensing range max. in m

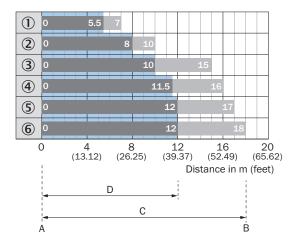
С	Maximum distance range from reflector to sensor (operating reserve 1) $$
D	Recommended distance range from re- flector to sensor (operating reserve 3,75)

# Sensing range diagram Fine triple reflectors



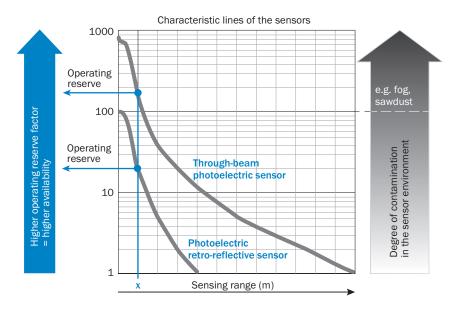
1	PL10FH-1 reflector
2	PL10F reflector
3	Reflector PL20F
4	Reflector P250F
А	Sensing range min. in m
В	Sensing range max. in m
С	Maximum distance range from reflector to sensor (operating reserve 1)
D	Recommended distance range from re- flector to sensor (operating reserve 3,75)

# Sensing range diagram Standard reflectors



1	Reflector PL20A	
2	Reflector PL22	
3	Reflector P250	
4	Reflector PL30A	
5	Reflector PL40A	
6	Reflector PL80A, C110A	
А	Sensing range min. in m	
В	Sensing range max. in m	
С	Maximum distance range from reflector to sensor (operating reserve 1)	
D	Recommended distance range from re- flector to sensor (operating reserve 3,75)	

#### **Functions 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 availablity, otherwise the sensor switches due to pollution although there is no object in the path of the light beam.

#### **Functions Operation note**

#### BluePilot: Blue indicator LEDs with double benefits

Easy and quick sensor alignment with the help of the LED indicator

All blue LEDs illuminate
- optimum alignment
- highest possible operating reserve

Service note
A reduction in sensor availability is displayed by a decrease of the blue LEDs.

Possible causes:
a) insufficient alignment b) contamination of the optical surfaces c) particles in the light beam

WLA photoelectric retro-reflection sensor alignment

b) C

b) C

c) C

possible causes:
a) insufficient alignment b) contamination of the optical surfaces c) particles in the light beam

#### Recommended accessories

Other models and accessories → www.sick.com/W26

	Brief description	Туре	part no.	
connectors and cables				
	<ul> <li>Connection type head A: Female connector, Q7, 7-pin, angled, DC-coded</li> <li>Description: Unshielded</li> <li>Connection systems: Screw-type terminals</li> <li>Permitted cross-section: 0.25 mm² 1 mm²</li> </ul>	DOS-2107-W	6006823	
Mounting sys	tems			
	<ul> <li>Description: Mounting bracket with hinged arm</li> <li>Material: Steel</li> <li>Details: Steel, zinc coated</li> <li>Items supplied: Mounting hardware included</li> <li>Suitable for: W23-2, W27-3, Reflex Array</li> </ul>	BEF-WN-W27	2009122	
	<ul> <li>Description: Plate N12 for universal clamp. For mounting PL30A, P250 reflectors, W27 and WTR2 sensors.</li> <li>Material: Steel, zinc diecast</li> <li>Details: Zinc plated steel (sheet), Zinc die cast (clamping bracket)</li> <li>Items supplied: Universal clamp (2022726), mounting hardware</li> <li>Usable for: W26, Reflex Array, P250, W23-2, W27-3, W27-3</li> </ul>	BEF-KHS-N12	2071950	
	<ul> <li>Description: Mounting bracket with articulated arm</li> <li>Material: Steel</li> <li>Details: Steel, zinc coated</li> <li>Items supplied: Mounting hardware included</li> <li>Suitable for: W16, W26, W11, W12, W23, W27, Dx50, W280, G10</li> </ul>	BEF-WN-MULTI2	2093945	
	<ul> <li>Description: Mounting bracket</li> <li>Material: Steel</li> <li>Details: Steel, zinc coated</li> <li>Items supplied: Mounting hardware included</li> <li>Suitable for: W23-2, W27-3, Reflex Array</li> </ul>	BEF-WN-W23	2019085	
00 A 00	<ul> <li>Description: Universal mounting bracket for reflectors</li> <li>Dimensions (W x H x L): 85 mm x 90 mm x 35 mm</li> <li>Material: Steel</li> <li>Details: Steel, zinc coated</li> <li>Suitable for: C110A, P250, PL20, PL30A, PL40A, PL80A</li> </ul>	BEF-WN-REFX	2064574	

# WLA26P-3B112100ZZZ | W26

# PHOTOELECTRIC SENSORS

	Brief description	Туре	part no.
reflectors and optics			
	<ul> <li>Description: Rectangular, screw connection</li> <li>Dimensions: 84 mm 84 mm</li> <li>Ambient operating temperature: -30 °C +65 °C</li> </ul>	PL80A	1003865

# 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

