

WLA26P-39722102ZZZ W26

PHOTOELECTRIC SENSORS





Ordering information

Туре	part no.
WLA26P-39722102ZZZ	1222819

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

Illustration may differ



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 performance	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 $T_a = +25 ^{\circ}\text{C}$
Adjustment	
Teach-Turn adjustment	BluePilot: for configuring the time function
Wire/pin	For activating the test input
Display	
LED blue 1	BluePilot: Alignment aid
LED blue 2	BluePilot: Time function display
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 _D	548 years
DC _{avg}	0 %
T _M (mission time)	EN ISO 13849, rate of use: 60 %

Electronics

Supply voltage U _B	10 V DC 30 V DC ¹⁾
Ripple	≤ 5 V _{pp}
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 _B = 24 V
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 _{max.}	≤ 100 mA
Circuit protection outputs	Reverse polarity protected
	Overcurrent and short-circuit protected
Response time	≤ 500 µs ²⁾
Repeatability (response time)	150 μs
Switching frequency	1,000 Hz ³⁾

¹⁾ Limit values.

²⁾ Signal transit time with resistive load in switching mode.

³⁾ With light/dark ratio 1:1.

⁴⁾ This switching output must not be connected to another output.

Time functions	Deactivated (factory setting), switch-on delay, off delay, ON and OFF delay, Impulse (one shot)	
Delay time	Teach-turn adjustment, 0 ms 30,000 ms, 0 ms (factory setting)	
Pin/Wire assignment		
Function of pin 4/black (BK)	Digital output, light switching, object present \rightarrow output Q LOW $^{4)}$	
Pin 5 function/white (WH)	Digital output, dark switching, object present \rightarrow output \bar{Q} HIGH	

¹⁾ Limit values.

Mechanics

Housing	Rectangular
Dimensions (W x H x D)	24.6 mm x 82.5 mm x 53.3 mm
Connection	Cable with Q6 male connector, 6-pin, DC-coded, 298 mm
Connection detail	
Deep-freeze property	Do not bend below 0 °C
Conductor size	0.14 mm ²
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 % 95 %, relative humidity (no condensation)
Electromagnetic compatibility (EMC)	EN 60947-5-2
UL File No.	NRKH.E181493 & NRKH7.E181493

Certificates

EU declaration of conformity	J.
UK declaration of conformity	✓

 $^{^{2)}\,\}mathrm{Signal}$ transit time with resistive load in switching mode.

³⁾ With light/dark ratio 1:1.

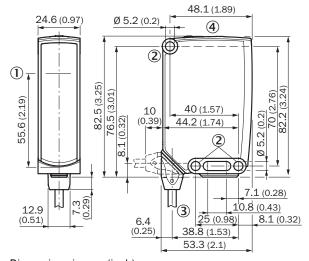
 $^{^{\}rm 4)}$ This switching output must not be connected to another output.

ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
ECOLAB certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

Classifications

ECLASS 5.0	27270902
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)

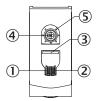
① Center of optical axis

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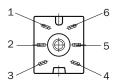
- ② Mounting hole, Ø 5.2 mm
- ③ Connection
- (4) display and adjustment elements

display and adjustment elements



- ① LED indicator green
- ② LED indicator yellow
- 3 LED blue 1
- 4 Teach-Turn adjustment
- ⑤ LED blue 2

Connection type Cubic connector, 6-pin



Connection diagram Cd-178

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

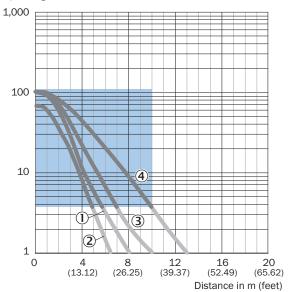
	Dark switching $\overline{\mathbb{Q}}$ (normally open (upper	r switch), normally closed (lower switch))
	Object not present → Output LOW	Object present → Output HIGH
Light receive	⊘	
Light receive indicator	:	
Load resistance to L+	A	
Load resistance to M		A
	+ (L+) \[\bar{Q} \] - (M)	+ (L+) \(\overline{Q}\) - (M)

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			
Light receive indicator	: • • • • • • • • • • • • • • • • • • •		
Load resistance to L+		4	
Load resistance to M	A		
	+ (L+) Q Q - (M)	+ (L+) Q - (M)	

Characteristic curve Fine triple reflectors



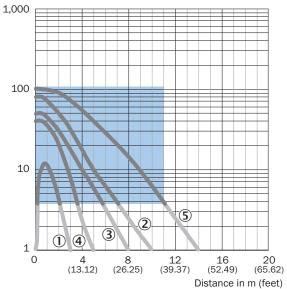


Recommended sensing range for the best performance

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

Characteristic curve Chemical-resistant reflectors

Operating reserve

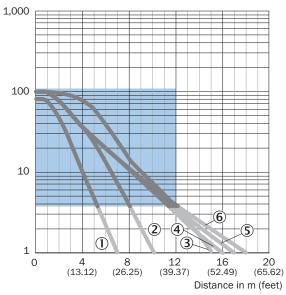


- ① PL10F CHEM reflector
- ② Reflector P250H
- 3 Reflector P250 CHEM
- ④ Reflector PL20 CHEM

⑤ Reflector PL40A Antifog

Characteristic curve Standard reflectors

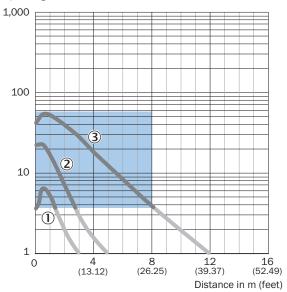
Operating reserve



- 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

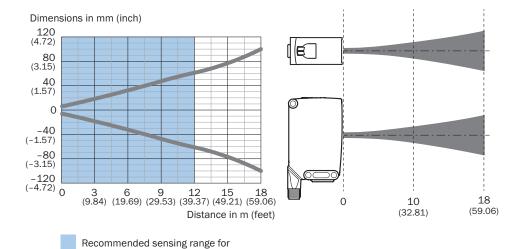
Characteristic curve Reflective tape





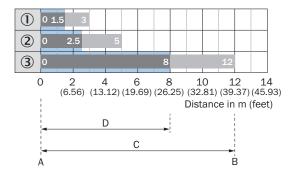
- Recommended sensing range for the best performance
- ① Reflective tape REF-DG (50 x 50 mm)
- ② Reflective tape REF-IRF-56 (50 x 50 mm)
- 3 Reflective tape REF-AC1000 (50 x 50 mm)

Light spot size WLA26P-xxxxx1xx



the best performance

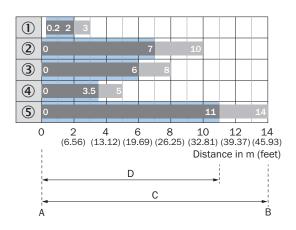
Sensing range diagram Reflective tape



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)

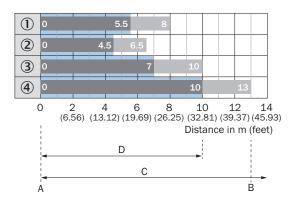
Sensing range diagram Chemical-resistant reflectors



1	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

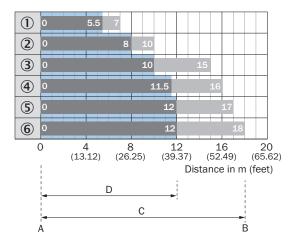
С	Maximum distance range from reflector to sensor (operating reserve 1)
D	Recommended distance range from re- flector to sensor (operating reserve 3,75)

Sensing range diagram Fine triple reflectors



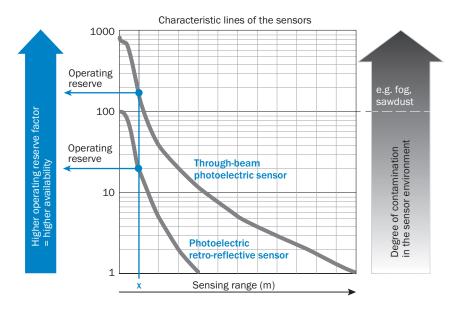
1	PL10FH-1 reflector
2	PL10F reflector
3	Reflector PL20F
4	Reflector P250F
A	Sensing range min. in m
В	Sensing range max. in m
С	Maximum distance range from reflector to sensor (operating reserve 1)
D	Recommended distance range from re- flector to sensor (operating reserve 3,75)

Sensing range diagram Standard reflectors



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

WLA photoelectric retro-reflection sensor alignment

Output

Description

Output

Description

Output

Description

Output

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Recommended accessories

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

	Brief description	Туре	part no.
connectors and cables			
	Connection type head A: Female connector, 6-pin, angled, DC-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 2 m, PVC Description: Sensor/actuator cable, unshielded	DOL-1306-W02M	6030217
Mounting sys	tems		
	 Description: Mounting bracket with hinged arm Material: Steel Details: Steel, zinc coated Items supplied: Mounting hardware included Suitable for: W23-2, W27-3, Reflex Array 	BEF-WN-W27	2009122
	 Description: Plate N12 for universal clamp. For mounting PL30A, P250 reflectors, W27 and WTR2 sensors. Material: Steel, zinc diecast Details: Zinc plated steel (sheet), Zinc die cast (clamping bracket) Items supplied: Universal clamp (2022726), mounting hardware Usable for: W26, Reflex Array, P250, W23-2, W27-3, W27-3 	BEF-KHS-N12	2071950
	 Description: Mounting bracket with articulated arm Material: Steel Details: Steel, zinc coated Items supplied: Mounting hardware included Suitable for: W16, W26, W11, W12, W23, W27, Dx50, W280, G10 	BEF-WN-MULTI2	2093945
	 Description: Mounting bracket Material: Steel Details: Steel, zinc coated Items supplied: Mounting hardware included Suitable for: W23-2, W27-3, Reflex Array 	BEF-WN-W23	2019085
2 A 10	 Description: Universal mounting bracket for reflectors Dimensions (W x H x L): 85 mm x 90 mm x 35 mm Material: Steel Details: Steel, zinc coated Suitable for: C110A, P250, PL20, PL30A, PL40A, PL80A 	BEF-WN-REFX	2064574

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В	rief description	Туре	part no.
reflectors and op	otics		
	Description: Rectangular, screw connection Dimensions: 84 mm 84 mm Ambient operating temperature: -30 °C +65 °C	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."

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