



WL12-3P2451P01

W12

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

Type	part no.
WL12-3P2451P01	1044118

Included in delivery: BEF-KHS-D01 (1)Other models and accessories → www.sick.com/W12

Detailed technical data

Features

Functional principle	Photoelectric retro-reflective sensor				
Functional principle detail	Without reflector minimum distance (autocollimation/coaxial optics)				
Sensing range max.	0 m ... 2 m ¹⁾				
Sensing range	0 m ... 1.3 m ¹⁾				
Polarisation filters	Yes				
Emitted beam	Light source	LED ²⁾			
		Visible red light			
		Light spot size (distance)			
Key LED figures	Wave length	Ø 2 mm (90 mm)			
		640 nm			
Adjustment	Potentiometer, 5 turns				
Angle of dispersion	Approx. 5 °				
Special applications	Detecting small objects				
Items supplied	BEF-KHS-D01 premounted mounting bracket				

¹⁾ Reflector PL80A.²⁾ Average service life: 100,000 h at T_U = +25 °C.

Safety-related parameters

MTTF_D	1,388 years
DC_{avg}	0 %
T_M (mission time)	20 years

Electronics

Supply voltage U_B	10 V DC ... 30 V DC ¹⁾
Ripple	$< 5 V_{pp}$ ²⁾
Current consumption	30 mA ³⁾
Protection class	III
Digital output	
Type	PNP
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	$> U_U - 2,5 \text{ V} / \text{ca. } 0 \text{ V}$
Output current $I_{max.}$	$\leq 100 \text{ mA}$
Response time	$\leq 330 \mu\text{s}$ ⁴⁾
Switching frequency	1,500 Hz ⁵⁾
Output function	Complementary
Circuit protection	A ⁶⁾ C ⁷⁾ D ⁸⁾
Special feature	Focused optics

¹⁾ Limit values when operated in short-circuit protected network: max. 8 A.

²⁾ May not fall below or exceed U_U tolerances.

³⁾ Without load.

⁴⁾ Signal transit time with resistive load.

⁵⁾ With light/dark ratio 1:1.

⁶⁾ A = V_S connections reverse-polarity protected.

⁷⁾ C = interference suppression.

⁸⁾ D = outputs overcurrent and short-circuit protected.

Mechanics

Housing	Rectangular
Dimensions (W x H x D)	15.6 mm x 48.5 mm x 42 mm
Connection	Male connector M12, 4-pin
Material	
Housing	Metal
Front screen	Plastic, PMMA
Weight	120 g

Ambient data

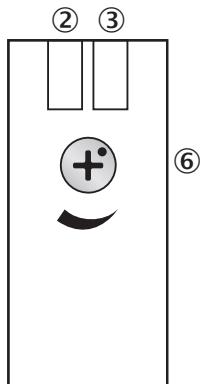
Enclosure rating	IP66 IP67 IP69K
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

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

Adjustments WL12-3, WSE12-3

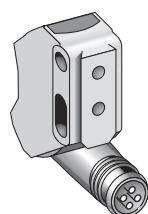


② LED indicator yellow: Status of received light beam

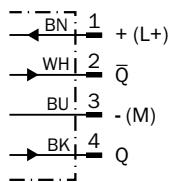
③ LED indicator green: Supply voltage active

⑥ Sensitivity control: potentiometer

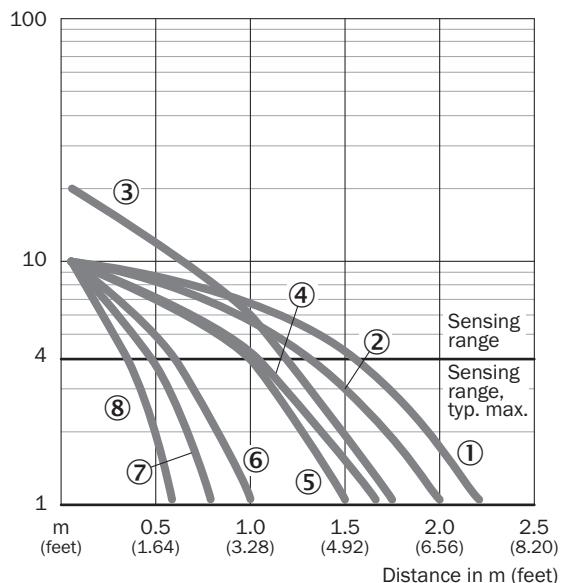
Connection type



Connection diagram Cd-083

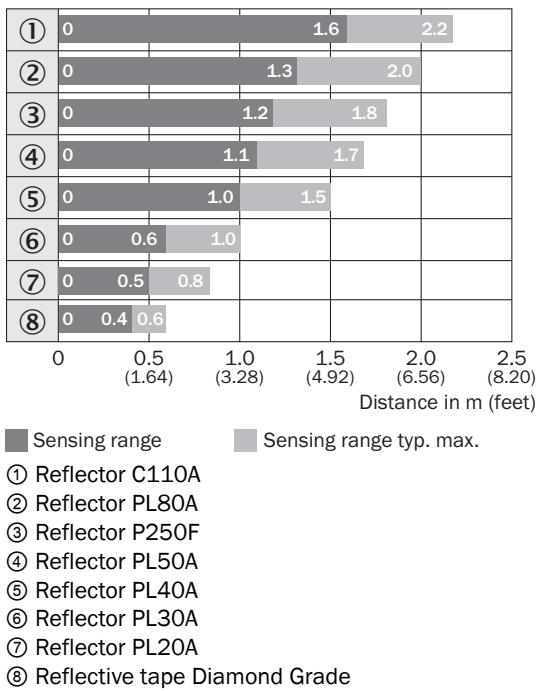


Characteristic curve WL12-3, focused

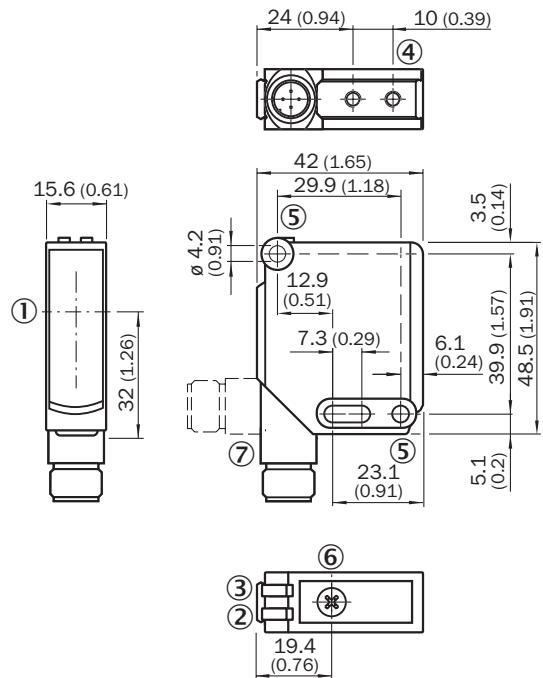


- ① Reflector C110A
- ② Reflector PL80A
- ③ Reflector P250
- ④ Reflector PL50A
- ⑤ Reflector PL40A
- ⑥ Reflector PL30A
- ⑦ Reflector PL20A
- ⑧ Reflector DG/IRF6000

Sensing range diagram WL12-3, focused



Dimensional drawing WL12-3, WSE12-3



Dimensions in mm (inch)

① Optical axis
 ② LED indicator yellow: Status of received light beam
 ③ LED indicator green: Supply voltage active
 ④ M4 threaded mounting hole, 4 mm deep
 ⑤ Mounting hole, Ø 4.2 mm

- ⑥ Sensitivity control: potentiometer
- ⑦ Connection

Recommended accessories

Other models and accessories → www.sick.com/W12

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none">• 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
reflectors and optics			
	<ul style="list-style-type: none">• Description: Rectangular, screw connection• Dimensions: 18 mm 60 mm• Ambient operating temperature: -30 °C ... +65 °C	PL20A	1012719
connectors and cables			
	<ul style="list-style-type: none">• Connection type head A: Female connector, M12, 4-pin, straight, A-coded• Connection type head B: Flying leads• Signal type: Sensor/actuator cable• Cable: 5 m, 4-wire, PVC• Description: Sensor/actuator cable, unshielded• Application: Zones with chemicals, Uncontaminated zones	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none">• Connection type head A: Male connector, M12, 4-pin, straight, A-coded• Description: Unshielded• Connection systems: Screw-type terminals• Permitted cross-section: ≤ 0.75 mm²	STE-1204-G	6009932

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