



WL12C-3P2432A70

W12-3

SMALL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
WL12C-3P2432A70	1067775

Other models and accessories → www.sick.com/W12-3

Detailed technical data

Features

Sensor/ detection principle	Photoelectric retro-reflective sensor, autocollimation
Dimensions (W x H x D)	15.6 mm x 48.5 mm x 42 mm
Housing design (light emission)	Rectangular
Sensing range max.	0 m ... 5 m ¹⁾
Sensing range	0 m ... 4 m ¹⁾
Type of light	Visible red light
Light source	PinPoint LED ²⁾
Light spot size (distance)	Ø 100 mm (3 m)
Angle of dispersion	Approx. 1.5°
Wave length	640 nm
Adjustment	IO-Link Single teach-in button
Diagnosis	Device contamination monitoring, Quality of teach-in
Pin 2 configuration	External input, Teach-in input, Sender off input, Detection output, logic output, Device contamination alarm output
IO-Link functions	Standard functions, advanced functions

¹⁾ Reflector PL80A.

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

Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC ¹⁾
Ripple	$\leq 5 \text{ V}_{pp}$ ²⁾
Current consumption	30 mA ³⁾
Switching output	PNP
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	$> U_v - 2,5 \text{ V} / \text{ca. } 0 \text{ V}$
Output current $I_{max.}$	$\leq 100 \text{ mA}$
Response time Q/ on Pin 2	$200 \mu\text{s} \dots 300 \mu\text{s}$ ^{4) 5)}
Switching frequency	1,500 Hz ⁶⁾
Switching frequency Q / to pin 2	$\leq 1,500 \text{ Hz}$ ⁷⁾
Connection type	Male connector M12, 4-pin
Circuit protection	A ⁸⁾ B ⁹⁾ C ¹⁰⁾ D ¹¹⁾
Protection class	III
Weight	120 g
Polarisation filter	✓
IO-Link	✓
IO-Link version	1.0
Transmission rate	COM2
Housing material	Metal, zinc diecast
Optics material	Plastic, PMMA
Enclosure rating	IP66 IP67
Ambient operating temperature	$-40 \text{ }^{\circ}\text{C} \dots +60 \text{ }^{\circ}\text{C}$
Ambient storage temperature	$-40 \text{ }^{\circ}\text{C} \dots +75 \text{ }^{\circ}\text{C}$
UL File No.	NRKH.E181493 & NRKH7.E181493
Repeatability Q/ on Pin 2:	$100 \mu\text{s}$ ⁵⁾

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

²⁾ May not exceed or fall below U_v tolerances.

³⁾ Without load.

⁴⁾ Signal transit time with resistive load.

⁵⁾ Valid for Q \ on Pin2, if configured with software.

⁶⁾ With light/dark ratio 1:1.

⁷⁾ With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

⁸⁾ A = V_S connections reverse-polarity protected.

⁹⁾ B = inputs and output reverse-polarity protected.

¹⁰⁾ C = interference suppression.

¹¹⁾ D = outputs overcurrent and short-circuit protected.

Communication interface

Communication interface	IO-Link V1.1
Communication Interface detail	COM2 (38,4 kBaud)

Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q_{L1} Bit 1 = switching signal Q_{L2} Bit 2 ... 15 = measuring value
VendorID	26
DeviceID HEX	0x8000EF
DeviceID DEC	8388847

Smart Task

Smart Task name	Time measurement + debouncing
Logic function	Direct WINDOW
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Time measurement accuracy	SIO Direct: — SIO Logic: - 0,7 ... + 0,7 ms $\pm$ 0,5 % of time measurement value IOL: - 0.9 ... + 0.9 ms $\pm$ 0.5% of the time measurement
Time measurement accuracy (e.g. accuracy for time measurement value = 1 s)	SIO Direct: — SIO Logic: - 5,6 ... + 5,6 ms IOL: - 5,9 ... + 5,9 ms
Resolution time measuring value	1 ms
Min. Time between two process events (switches)	SIO Direct: — SIO Logic: 300 μ s IOL: 500 μ s
Debounce time max.	SIO Direct: — SIO Logic: 30.000 ms IOL: 30.000 ms
Switching signal Q_{L1}	Output type (dependant on the adjusted threshold)
Switching signal Q_{L2}	Output type (dependant on the adjusted threshold)
Measuring value	Time measurement value

Classifications

ECl@ss 5.0	27270902
ECl@ss 5.1.4	27270902
ECl@ss 6.0	27270902
ECl@ss 6.2	27270902
ECl@ss 7.0	27270902
ECl@ss 8.0	27270902
ECl@ss 8.1	27270902
ECl@ss 9.0	27270902
ECl@ss 10.0	27270902
ECl@ss 11.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717

ETIM 7.0

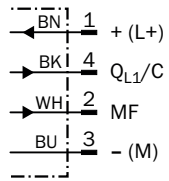
EC002717

UNSPSC 16.0901

39121528

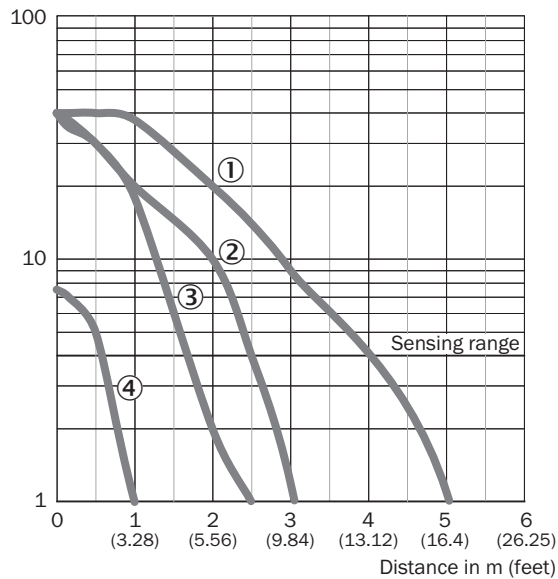
Connection diagram

Cd-367



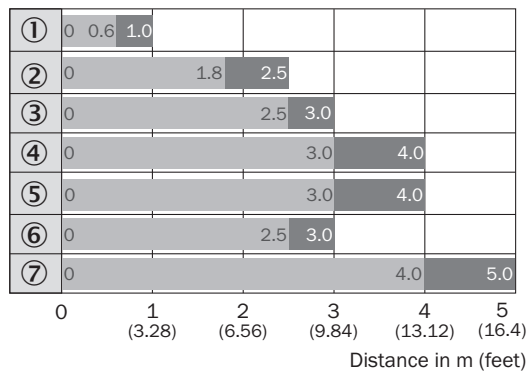
Characteristic curve

Operating reserve



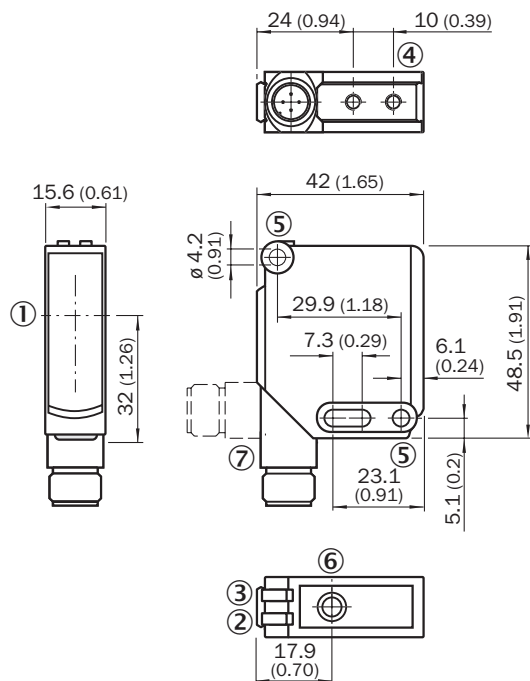
- ① Reflector PL80A
- ② Reflector C110A
- ③ Reflector PL20A
- ④ Reflective tape

Sensing range diagram



- ① Reflective tape
- ② Reflector PL20A
- ③ Reflector PL30A
- ④ Reflector PL40A
- ⑤ Reflector PL50A
- ⑥ Reflector C110A
- ⑦ Reflector PL80A

Dimensional drawing (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 setting: single teach-in button
- ⑦ Connection

Recommended accessories

Other models and accessories → www.sick.com/W12-3

	Brief description	Type	Part no.
Mounting brackets and plates			
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574
Reflectors			
	Rectangular, screw connection, 18 mm x 60 mm, PMMA/ABS, Screw-on, 2 hole mounting	PL20A	1012719
Plug connectors and cables			
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14-050VB3XLEAX	2096235
	Head A: male connector, M12, 4-pin, straight Head B: - Cable: unshielded	STE-1204-G	6009932

Recommended services

Additional services → www.sick.com/W12-3

	Type	Part no.
Function Block Factory		
Description: The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&R. More information on the FBF can be found here.	Function Block Factory	On request

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