



WL12C-3P2432A70

W12-3

SMALL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|-----------------|----------|
| WL12C-3P2432A70 | 1067775 |

The sensor is equipped with a special Smart Task function. Additional information can be found in the “Technical Data.” Use of the sensor for pure object detection is limited.

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

Detailed technical data

Features

| | | |
|------------------------------------|----------------------------|---|
| Functional principle | | Photoelectric retro-reflective sensor |
| Functional principle detail | | Autocollimation |
| Sensing range max. | | 0 m ... 5 m ¹⁾ |
| Sensing range | | 0 m ... 4 m ¹⁾ |
| Polarisation filters | | Yes |
| Emitted beam | | |
| | Light source | PinPoint LED ²⁾ |
| | Type of light | Visible red light |
| | Light spot size (distance) | Ø 100 mm (3 m) |
| Key LED figures | | |
| | Wave length | 640 nm |
| Adjustment | | IO-Link, Single teach-in button |
| Angle of dispersion | | Approx. 1.5° |
| Pin 2 configuration | | External input, Teach-in input, Sender off input, Detection output, logic output, Device contamination alarm output |

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

Safety-related parameters

| | |
|-------------------------------------|-----------|
| MTTF_D | 891 years |
| DC_{avg} | 0 % |
| T_M (mission time) | 20 years |

Communication interface

| | |
|------------------------|--|
| IO-Link | ✓, COM2 (38,4 kBaud) |
| Data transmission rate | 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 |

Electrical data

| | |
|---|--|
| 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 ⁴⁾ |
| Switching mode | Light/dark switching |
| Signal voltage PNP HIGH/LOW | > $U_v - 2,5 \text{ V}$ / ca. 0 V |
| Output current I_{\max} | ≤ 100 mA |
| Response time | ⁵⁾ |
| Repeatability (response time) | 100 μs ⁶⁾ |
| Switching frequency | 1,500 Hz ⁷⁾ |
| Circuit protection | A ⁸⁾ B ⁹⁾ C ¹⁰⁾ D ¹¹⁾ |
| Response time Q/ on Pin 2 | 200 μs ... 300 μs ^{5) 6)} |
| Switching frequency Q / to pin 2 | ≤ 1,500 Hz ¹²⁾ |

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

⁵⁾ Signal transit time with resistive load.

⁶⁾ Valid for Q \ on Pin2, if configured with software.

⁷⁾ With light/dark ratio 1:1.

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.

¹²⁾ With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

Mechanical data

| | |
|-------------------------------|---------------------------|
| 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, zinc diecast |
| | Front screen Plastic, PMMA |
| Weight | 120 g |

Ambient data

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

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 ± 0,5 % of time measurement value IOL: - 0.9 ... + 0.9 ms ± 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 µs IOL: 500 µs |
| Debounce time max. | SIO Direct: --- SIO Logic: 30.000 ms IOL: 30.000 ms |
| Switching signal | 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 |

Diagnosis

| | |
|-------------------------|----------------------------|
| Device status | Yes |
| Quality of teach | Yes |
| Quality of run | Yes, Contamination display |

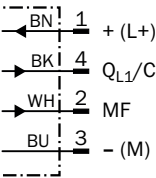
Classifications

| | |
|---------------------|----------|
| ECLASS 5.0 | 27270902 |
| ECLASS 5.1.4 | 27270902 |
| ECLASS 6.0 | 27270902 |

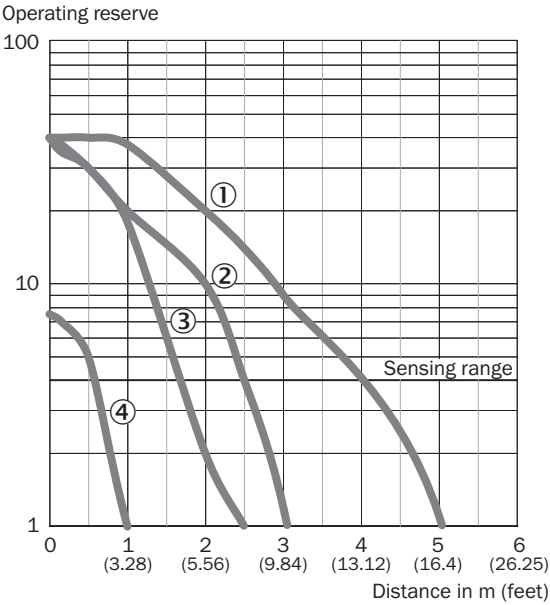
| | |
|----------------|----------|
| ECLASS 6.2 | 27270902 |
| ECLASS 7.0 | 27270902 |
| ECLASS 8.0 | 27270902 |
| ECLASS 8.1 | 27270902 |
| ECLASS 9.0 | 27270902 |
| ECLASS 10.0 | 27270902 |
| ECLASS 11.0 | 27270902 |
| ECLASS 12.0 | 27270902 |
| ETIM 5.0 | EC002717 |
| ETIM 6.0 | EC002717 |
| ETIM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

Connection diagram

Cd-367

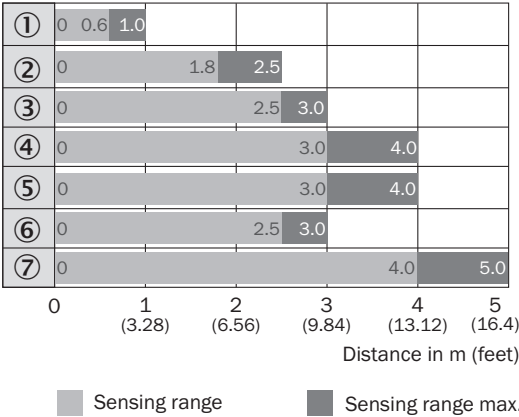


Characteristic curve



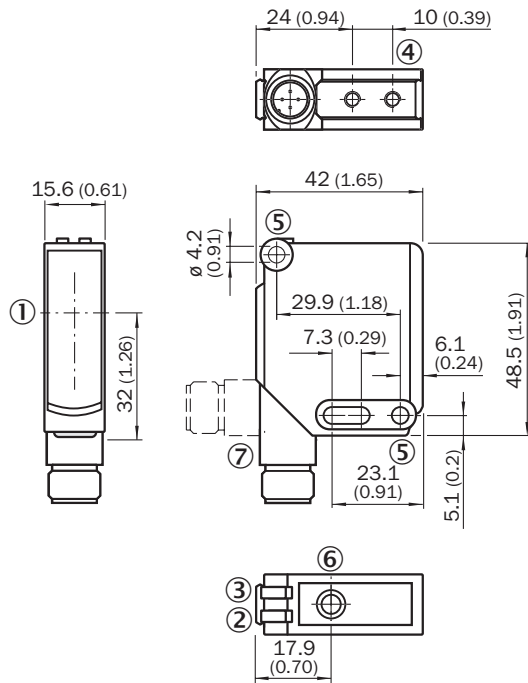
- ① Reflector PL80A
- ② Reflector C110A
- ③ Reflector PL20A
- ④ Reflective tape

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 |
| Plug 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 | YF2A14-050VB3XLEAX | 2096235 |
|  | <ul style="list-style-type: none"> Connection type head A: Male connector, M12, 4-pin, straight Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² | STE-1204-G | 6009932 |

| | Brief description | Type | Part no. |
|---|---|-------|----------|
| Reflectors | | | |
|  | Rectangular, screw connection, 18 mm x 60 mm, PMMA/ABS, Screw-on, 2 hole mounting | PL20A | 1012719 |

Recommended services

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

| | Type | Part no. |
|--|------------------------|------------|
| Function Block Factory | | |
| <ul style="list-style-type: none"> • 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 <a _blank"="" href="https://fbf.cloud.sick.com target=">here. • Note: You can configure your function block at <a _blank"="" href="https://fbf.cloud.sick.com target=">Function Block Factory. As a login please use your SICK ID. | 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:

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