Data sheet


# WL12C-3P2432A70

## W12

**PHOTOELECTRIC SENSORS**

SICK
Sensor Intelligence.

Illustration may differ

## Ordering information

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

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 ... 5 m [1] |
| **Sensing range** | 0 m ... 4 m [1] |
| **Polarisation filter** | 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 |

## 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 [4] |
| Switching mode | Light/dark switching |
| Signal voltage PNP HIGH/LOW | > Uv - 2,5 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]<br>B [9]<br>C [10]<br>D [11] |

[1] Limit values when operated in short-circuit protected network: max. 8 A.
[2] May not fall below or exceed $U_V$ 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.

| | |
|---|---|
| **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 fall below or exceed $U_V$ 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.

## 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, zinc diecast |
| Front screen | Plastic, PMMA |
| **Weight** | 120 g |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP66<br>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<br>WINDOW |
| **Timer function** | Deactivated<br>Switch-on delay<br>Off delay<br>ON and OFF delay<br>Impulse (one shot) |
| **Inverter** | Yes |
| **Time measurement accuracy** | SIO Direct: ---<br>SIO Logic: - 0,7 ... + 0,7 ms ± 0,5 % of time measurement value<br>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: ---<br>SIO Logic: - 5,6 ... + 5,6 ms<br>IOL: - 5,9 ... + 5,9 ms |
| **Resolution time measuring value** | 1 ms |
| **Min. Time between two process events (switches)** | SIO Direct: ---<br>SIO Logic: 300 µs<br>IOL: 500 µs |
| **Debounce time max.** | SIO Direct: --- |

| | |
|---|---|
| | SIO Logic: 30.000 ms<br>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 |

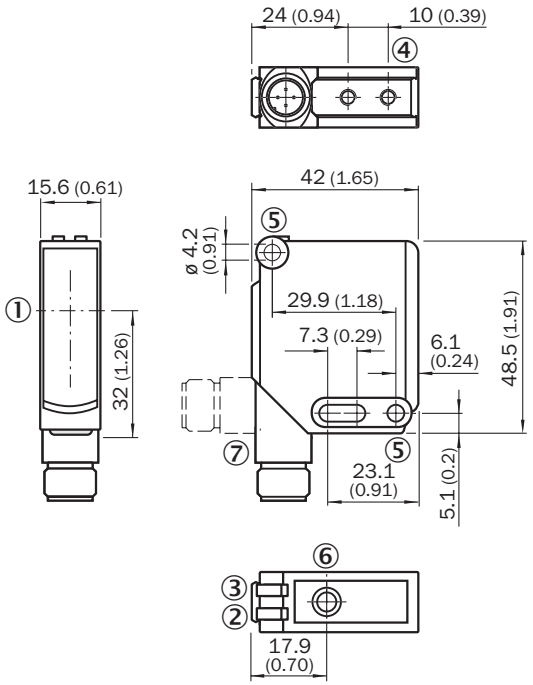
## Certificates

| | |
|---|---|
| **EU declaration of conformity** | ✓ |
| **UK declaration of conformity** | ✓ |
| **ACMA declaration of conformity** | ✓ |
| **Moroccan declaration of conformity** | ✓ |
| **China RoHS** | ✓ |
| **ECOLAB certificate** | ✓ |
| **cULus certificate** | ✓ |
| **IO-Link certificate** | ✓ |
| **Photobiological safety (DIN EN 62471) certificate** | ✓ |
| **Information according to Art. 3 of Data Act (Regulation EU 2023/2854)** | ✓ |

## Classifications

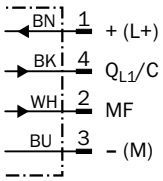
| | |
|---|---|
| **ECLASS 5.0** | 27270902 |
| **ECLASS 5.1.4** | 27270902 |
| **ECLASS 6.0** | 27270902 |
| **ECLASS 6.2** | 27270902 |
| **ECLASS 7.0** | 27270902 |
| **ECLASS 8.0** | 27270902 |
| **ECLASS 8.1** | 27270902 |
| **ECLASS 9.0** | 27270902 |
| **ECLASS 10.0** | 27270902 |
| **ECLASS 11.0** | 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

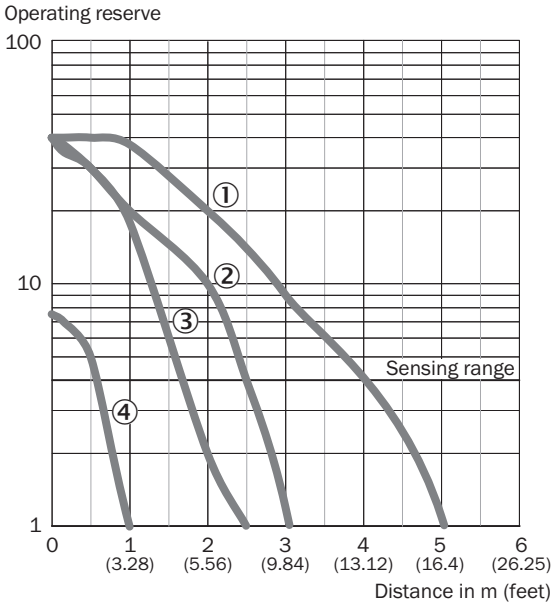



Dimensions in mm (inch)
① Optical axis
② LED indicator yellow: Status of received light beam
③ LED indicator green: Supply voltage active
④ M4 threaded mounting hole, 4 mm deep
⑤ Mounting hole, Ø 4.2 mm
⑥ Sensitivity setting: single teach-in button
⑦ Connection

## Connection diagram Cd-367

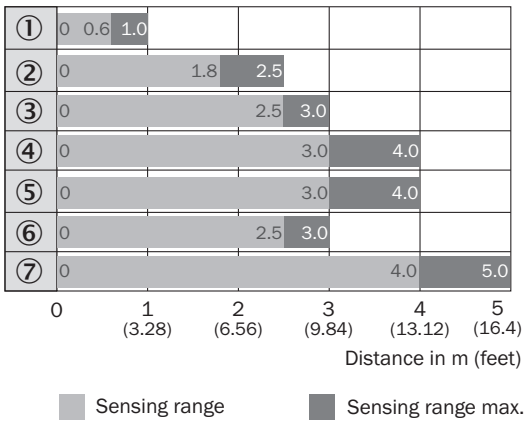


## Characteristic curve




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

## Recommended accessories

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

| | Brief description | Type | part no. |
|---|---|---|---|
| Mounting systems | | | |
|  | • **Description:** Mounting bracket, large<br>• **Material:** Stainless steel<br>• **Details:** Stainless steel<br>• **Items supplied:** Mounting hardware included<br>• **Suitable for:** W11-2, W12-3, W16 | BEF-WG-W12 | 2013942 |
|  | • **Description:** Universal mounting bracket for reflectors<br>• **Dimensions (W x H x L):** 85 mm x 90 mm x 35 mm<br>• **Material:** Steel<br>• **Details:** Steel, zinc coated<br>• **Suitable for:** C110A, P250, PL20, PL30A, PL40A, PL80A | BEF-WN-REFX | 2064574 |
|  | • **Description:** Plate N11N for universal clamp bracket<br>• **Material:** Stainless steel<br>• **Details:** Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)<br>• **Items supplied:** Universal clamp (5322627), mounting hardware<br>• **Usable for:** DeltaPac, Glare, WTD20E | BEF-KHS-N11N | 2071081 |
| reflectors and optics | | | |
|  | • **Description:** Rectangular, screw connection<br>• **Dimensions:** 18 mm 60 mm<br>• **Ambient operating temperature:** –30 °C ... +65 °C | PL20A | 1012719 |
| connectors and cables | | | |
|  | • **Connection type head A:** Female connector, M12, 4-pin, straight, A-coded<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 4-wire, PVC<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Application:** Zones with chemicals, Uncontaminated zones | YF2A14-050VB3XLEAX | 2096235 |
|  | • **Connection type head A:** Male connector, M12, 4-pin, straight, A-coded<br>• **Description:** Unshielded<br>• **Connection systems:** Screw-type terminals<br>• **Permitted cross-section:** ≤ 0.75 mm² | STE-1204-G | 6009932 |
|  | • **Connection type head A:** Female connector, M12, 4-pin, straight, A-coded<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 4-wire, PUR, halogen-free<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Application:** Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation | YF2A14-050UB3XLEAX | 2095608 |

# 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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