



WTF12-3P2431

W12

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | part no. |
|--------------|----------|
| WTF12-3P2431 | 1041404 |

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

Detailed technical data

Features

| | | |
|------------------------------------|----------------------------|-------------------------------------|
| Functional principle | | Photoelectric proximity sensor |
| Functional principle detail | | Foreground suppression |
| Sensing range max. | | 30 mm ... 175 mm ¹⁾ |
| Sensing range | | 30 mm ... 175 mm |
| Emitted beam | Light source | LED ²⁾ |
| | Type of light | Visible red light |
| | Light spot size (distance) | Ø 2 mm (60 mm) |
| Key LED figures | | |
| | Wave length | 640 nm |
| Adjustment | | Potentiometer, 5 turns |
| Special applications | | Detecting flat objects |
| Items supplied | | 2 x clamps BEF-KH-W12, incl. screws |

¹⁾ Object with 90% remission (based on standard white, DIN 5033).
²⁾ Average service life: 100,000 h at T_U = +25 °C.

Safety-related parameters

| | |
|-------------------------|-----------|
| MTTF_D | 810 years |
| DC_{avg} | 0 % |

Electronics

| | |
|--|---|
| Supply voltage U_B | 10 V DC ... 30 V DC ¹⁾ |
| Ripple | < 5 V _{pp} ²⁾ |
| Current consumption | 45 mA ³⁾ |
| Protection class | III |
| Digital output | |
| Type | PNP |
| Switching mode | Light/dark switching |
| Signal voltage PNP HIGH/LOW | > U _v - 2,5 V / ca. 0 V |
| Output current I _{max.} | ≤ 100 mA |
| Response time | ≤ 330 μs ⁴⁾ |
| Switching frequency | 1,500 Hz ⁵⁾ |
| Output function | Complementary |
| Circuit protection | A ⁶⁾ C ⁷⁾ D ⁸⁾ |

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⁾ 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

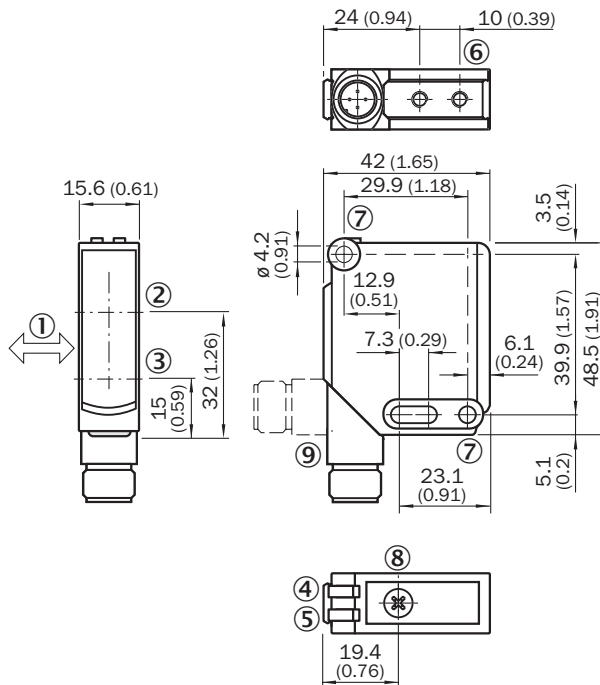
| | |
|---------------------|----------|
| ECLASS 5.0 | 27270904 |
| ECLASS 5.1.4 | 27270904 |
| ECLASS 6.0 | 27270904 |

| | |
|-----------------------|----------|
| ECLASS 6.2 | 27270904 |
| ECLASS 7.0 | 27270904 |
| ECLASS 8.0 | 27270904 |
| ECLASS 8.1 | 27270904 |
| ECLASS 9.0 | 27270904 |
| ECLASS 10.0 | 27270904 |
| ECLASS 11.0 | 27270904 |
| ECLASS 12.0 | 27270903 |
| ETIM 5.0 | EC002719 |
| ETIM 6.0 | EC002719 |
| ETIM 7.0 | EC002719 |
| ETIM 8.0 | EC002719 |
| UNSPSC 16.0901 | 39121528 |

Certificates

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

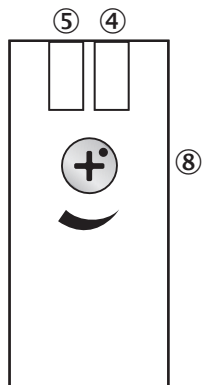
Dimensional drawing WTF12-3, potentiometer



Dimensions in mm (inch)

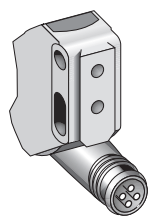
- ① Standard direction of the material being detected
- ② Optical axis, receiver
- ③ Optical axis, sender
- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ M4 threaded mounting hole, 4 mm deep
- ⑦ Mounting hole, \varnothing 4.2 mm
- ⑧ Sensing range adjustment: potentiometer
- ⑨ Connection

Adjustments WTB12-3, WTF12-3, potentiometer

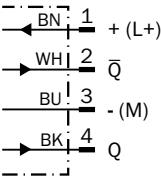


- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑧ Sensing range adjustment: potentiometer

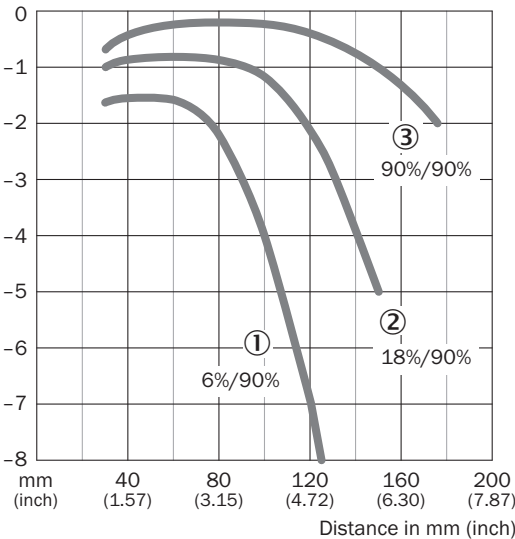
Connection type



Connection diagram Cd-083

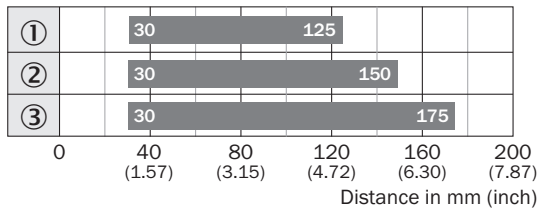


Characteristic curve WTF12-3, 175 mm



- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on white, 90% remission factor

Sensing range diagram








■ Sensing range

- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
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Recommended accessories

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

| | Brief description | Type | part no. |
|---|--|--------------------|----------|
| Mounting systems | | | |
|  | <ul style="list-style-type: none"> Description: Mounting bracket, large Material: Stainless steel Details: Stainless steel Items supplied: Mounting hardware included Suitable for: W11-2, W12-3, W16 | BEF-WG-W12 | 2013942 |
|  | <ul style="list-style-type: none"> Description: Plate N11N for universal clamp bracket Material: Stainless steel Details: Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp) Items supplied: Universal clamp (5322627), mounting hardware Usable for: DeltaPac, Glare, WTD20E | BEF-KHS-N11N | 2071081 |
| 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: Uncontaminated zones, Zones with chemicals | YF2A14-050VB3XLEAX | 2096235 |
|  | <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, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation | YF2A14-050UB3XLEAX | 2095608 |
|  | <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