Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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# WTB12-3P2433

W12-3

**PHOTOELECTRIC SENSORS**

**SICK**
Sensor Intelligence.

Illustration may differ

## Ordering information

| Type | Part no. |
|------|----------|
| WTB12-3P2433 | 1041412 |

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

## Detailed technical data

### Features

| Sensor/ detection principle | Photoelectric proximity sensor, Background suppression |
|-----------------------------|--------------------------------------------------------|
| Dimensions (W x H x D) | 15.6 mm x 48.5 mm x 42 mm |
| Housing design (light emission) | Rectangular |
| Sensing range max. | 20 mm ... 350 mm [1] |
| Sensing range | 20 mm ... 350 mm |
| Type of light | Visible red light |
| Light source | LED [2] |
| Light spot size (distance) | Ø 6 mm (200 mm) |
| Wave length | 640 nm |
| Adjustment | Double teach-in button |

[1] Object with 90 % reflectance (referred to standard white, DIN 5033).
[2] Average service life: 100,000 h at $T_U$ = +25 °C.

### Mechanics/electronics

| Supply voltage | 10 V DC ... 30 V DC [1] |
|----------------|--------------------------|
| Ripple | ≤ 5 $V_{pp}$ [2] |

[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] 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.

| | |
|---|---|
| **Power consumption** | ≤ 45 mA [3) |
| **Switching output** | PNP |
| **Output function** | Complementary |
| **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** | ≤ 330 µs [4) |
| **Switching frequency** | 1,500 Hz [5) |
| **Connection type** | Male connector M12, 4-pin |
| **Circuit protection** | A [6)<br>C [7)<br>D [8) |
| **Protection class** | III |
| **Weight** | 120 g |
| **Housing material** | Metal |
| **Enclosure rating** | IP66<br>IP67 |
| **Items supplied** | 2 x clamps incl. screws |
| **Ambient operating temperature** | –40 °C ... +60 °C |
| **Ambient storage temperature** | –40 °C ... +75 °C |
| **UL File No.** | NRKH.E181493 & NRKH7.E181493 |

[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) With light/dark ratio 1:1.

[6) A = V$_S$ connections reverse-polarity protected.
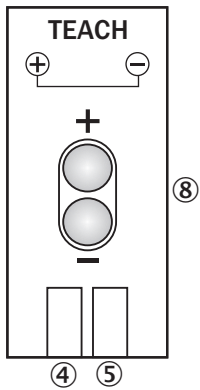
[7) C = interference suppression.

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

## Classifications

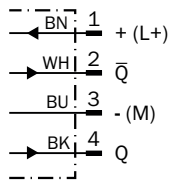| | |
|---|---|
| **ECl@ss 5.0** | 27270904 |
| **ECl@ss 5.1.4** | 27270904 |
| **ECl@ss 6.0** | 27270904 |
| **ECl@ss 6.2** | 27270904 |
| **ECl@ss 7.0** | 27270904 |
| **ECl@ss 8.0** | 27270904 |
| **ECl@ss 8.1** | 27270904 |
| **ECl@ss 9.0** | 27270904 |
| **ETIM 5.0** | EC002719 |
| **ETIM 6.0** | EC002719 |
| **UNSPSC 16.0901** | 39121528 |

## Adjustments possible

WTB12-3, WTF12-3, double teach-in button



④ LED indicator green: Supply voltage active
⑤ LED indicator yellow: Status of received light beam
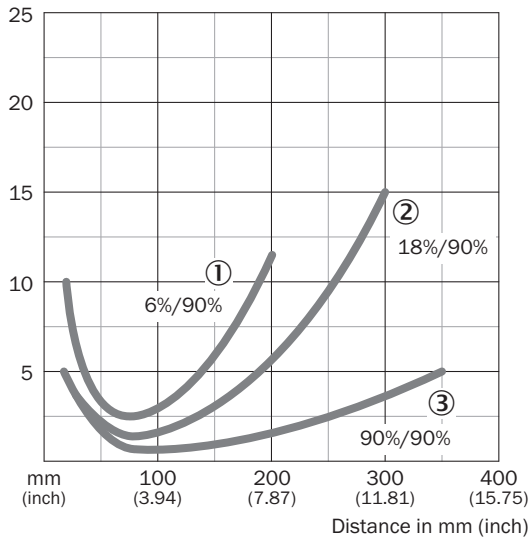⑧ Sensing range adjustment: double teach-in button
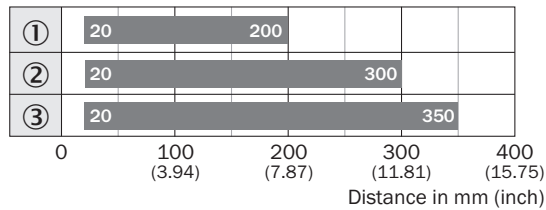
## Connection diagram

cd-083

## Characteristic curve

WTB12-3, red light, 350 mm



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

## Sensing range diagram

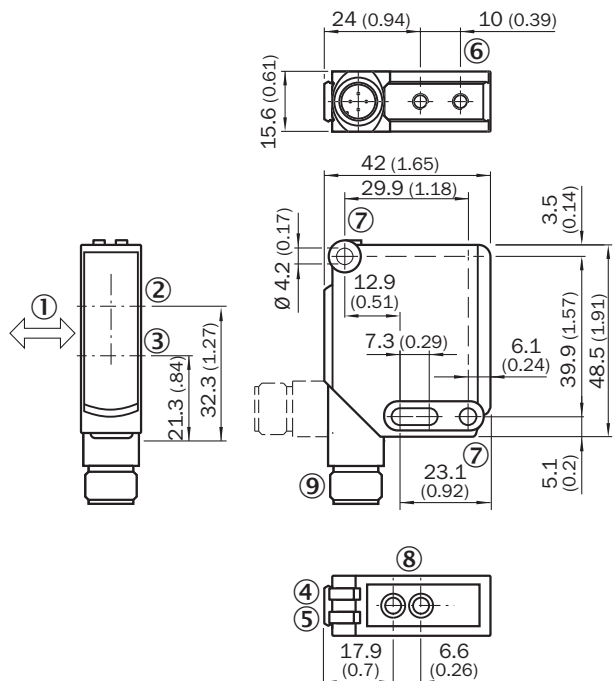WTB12-3, red light, 350 mm



Sensing range

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

## Dimensional drawing (Dimensions in mm (inch))

WTB12-3, double teach-in button



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, Ø 4.2 mm
⑧ Sensing range adjustment: double teach-in button
⑨ Connection

## Recommended accessories

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

| | Brief description | Type | Part no. |
|---|---|---|---|
| **Universal bar clamp systems** | | | |
| | Plate N02 for universal clamp bracket, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware | BEF-KHS-N02 | 2051608 |
| | Plate N03 for universal clamp bracket, zinc coated, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware | BEF-KHS-N03 | 2051609 |
| | Plate N04 for universal clamp, steel, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware | BEF-KHS-N04 | 2051610 |

| Brief description | Type | Part no. |
|---|---|---|
| **Device protection (mechanical)** | | |
| Protective housing for universal clamp, Zinc plated steel (protective housing), Zinc die cast (clamping bracket), Universal clamp, mounting hardware | BEF-SG-W12-3 | 2045175 |
| **Mounting brackets and plates** | | |
| Mounting bracket, large, stainless steel, mounting hardware included | BEF-WG-W12 | 2013942 |
| Mounting bracket, small, stainless steel, mounting hardware included | BEF-WK-W12 | 2012938 |
| **Terminal and alignment brackets** | | |
| Double clamp bracket for dovetail mounting, Aluminum (anodised), mounting hardware included | BEF-DKH-W12 | 2013947 |
| Clamping block for dovetail mounting, Aluminum (anodised), mounting hardware included | BEF-KH-W12 | 2013285 |
| **Plug connectors and cables** | | |
| Head A: female connector, M12, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 2 m | YF2A14-020VB3XLEAX | 2096234 |
| Head A: female connector, M12, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF2A14-050VB3XLEAX | 2096235 |
| Head A: female connector, M12, 4-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 2 m | YG2A14-020VB3XLEAX | 2095895 |
| Head A: female connector, M12, 4-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YG2A14-050VB3XLEAX | 2095897 |
| Head A: female connector, M12, 4-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 10 m | YG2A14-100VB3XLEAX | 2095898 |
| Head A: female connector, M12, 4-pin, angled with LED, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 2 m | YI2A14-020VB3XLEAX | 2096222 |
| Head A: female connector, M12, 4-pin, angled with LED, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YI2A14-050VB3XLEAX | 2096223 |
| Head A: female connector, M12, 4-pin, straight<br>Head B: -<br>Cable: unshielded | DOS-1204-G | 6007302 |
| Head A: female connector, M12, 4-pin, angled<br>Head B: -<br>Cable: unshielded | DOS-1204-W | 6007303 |

## 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**

SICK AG  |  Waldkirch  |  Germany  |  www.sick.com

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