WTB9M4-3P3411S14

W9

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.
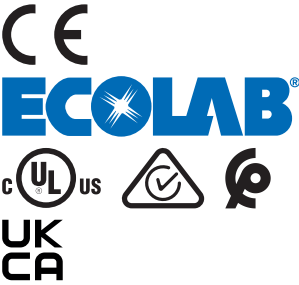
Ordering information

Type	part no.
WTB9M4-3P3411S14	1054431

Other models and accessories ➜ www.sick.com/W9

Detailed technical data

Features

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression
Dimensions (W x H x D)	12.2 mm x 52.2 mm x 23.6 mm
Housing design (light emission)	Rectangular
Mounting hole	M4
Sensing range max.	20 mm … 800 mm [1]
Sensing range	20 mm … 400 mm [2]
Type of light	Infrared light
Light source	LED [3]
Light spot size (distance)	Ø 40 mm (400 mm)
Wave length	850 nm
Adjustment	Potentiometer, 5 turns

[1] Object with 90% remission (based on standard white, DIN 5033).

[2] Object with 6% remission (based on standard white, DIN 5033).

[3] Average service life: 100,000 h at T_U = +25 °C.

Mechanics/electronics

Supply voltage U_B	10 V DC … 30 V DC [1]
Ripple	< 5 V_{pp} [2]
Current consumption	30 mA [3]
Switching output	PNP [4]
Output function	Complementary
Switching mode	Light/dark switching [4]
Output current $I_{max.}$	≤ 100 mA [5]
Response time	< 2.5 ms [6]
Switching frequency	200 Hz [7]
Connection type	Cable with M12 male connector, 4-pin, 120 mm [8]
Cable material	Plastic, PVC
Circuit protection	A [9] B [10] C [11]
Protection class	III
Special device	✓
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	IP66 IP67 IP69K
Ambient operating temperature	–40 °C … +60 °C
Ambient temperature, storage	–40 °C … +75 °C

[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] Q = light switching.

[5] At and above Tu 50 °C, a max. load current of Imax. = 50 mA is permitted.

[6] Signal transit time with resistive load.

[7] With light/dark ratio 1:1.

[8] Do not bend below 0 °C.

[9] A = V_S connections reverse-polarity protected.

[10] B = inputs and output reverse-polarity protected.

[11] C = interference suppression.

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	✓

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

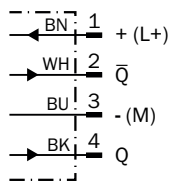## Adjustments possible Potentiometer
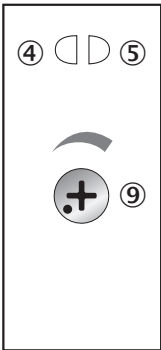
④ LED indicator yellow: Status of received light beam
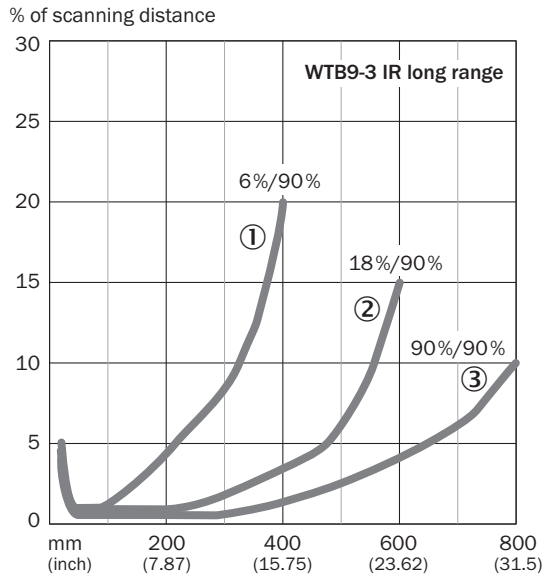⑤ LED indicator green: power on
⑨ Adjustment of sensing range

Connection type
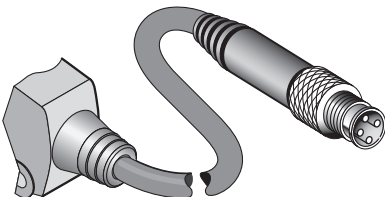
Connection diagram Cd-084

BN	1	+ (L+)
WH	2	$\overline{Q}$
BU	3	- (M)
BK	4	Q

Characteristic curve WTB9-3, infrared light, 800 mm

% of scanning distance

WTB9-3 IR long range

6%/90%
①

18%/90%
②

90%/90%
③

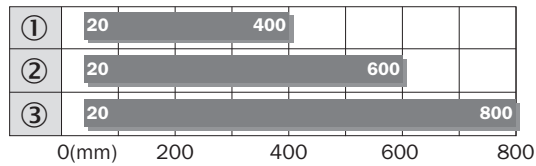| mm (inch) | 200 (7.87) | 400 (15.75) | 600 (23.62) | 800 (31.5) |

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

Light spot size WTB9-3, infrared light, 800 mm

Ø 5 mm   Ø 20 mm   Ø 40 mm   Ø 70 mm   Ø 110 mm

Sensor

| 0 | 250 | 400 | 600 | 800 |

Distance [mm]
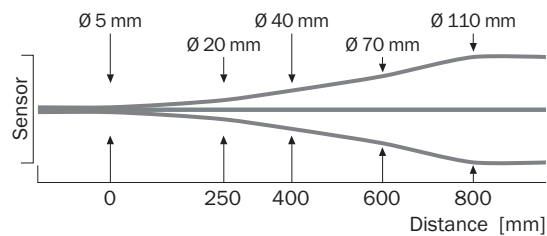
Sensing range diagram WTB9-3, infrared light, 800 mm

①	20	400			
②	20		600		
③	20			800	

0(mm)   200   400   600   800

▮ Sensing range

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

Dimensional drawing WTB9M4-3
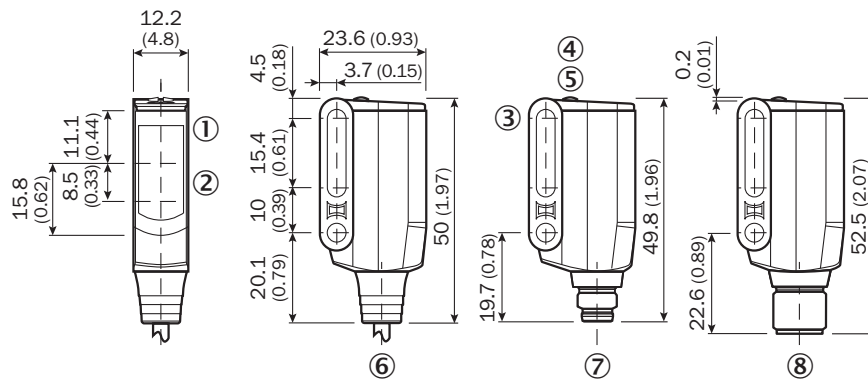
Dimensions in mm (inch)
① Center of optical axis, receiver
② Center of optical axis, sender
③ Mounting hole M4 (Ø 4.1 mm)
④ LED indicator yellow: Status of received light beam
⑤ LED indicator green: power on
⑥ Connection cable
⑦ male connector M8, 4-pin
⑧ male connector M12, 4-pin

Recommended accessories

Other models and accessories → www.sick.com/W9

	Brief description	Type	part no.
Mounting systems			
	• **Description:** Plate N08 for universal clamp bracket • **Material:** Steel, zinc diecast • **Details:** Zinc plated steel (sheet), Zinc die cast (clamping bracket) • **Items supplied:** Universal clamp (5322626), mounting hardware • **Usable for:** W100, W150, W4S, W4F, W8, W9-3, W8G, W8 Laser, W8 Inox, G6, W100 Laser, W100-2, W10, G6 Inox, RAY10, W4SLG-3, W9, GR18, MultiPulse, Reflex Array, MultiLine, LUT3, KT5, KT8, KT10, CS8	BEF-KHS-N08	2051607
	• **Description:** Mounting bracket for wall mounting • **Material:** Steel • **Details:** Steel, zinc coated • **Items supplied:** Mounting hardware included • **Suitable for:** W9M4-3	BEF-W160	5305197
	• **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			
	• **Connection type head A:** Male connector, M8, 4-pin, straight, A-coded • **Description:** Unshielded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** 0.14 mm² ... 0.5 mm²	STE-0804-G	6037323
	• **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, Uncontaminated zones	YF2A14-050VB3XLEAX	2096235
	• **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
	• **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:** 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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