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DATA SHEET

WTB4SL-3P1161

W4
Photoelectric sensors

SICK Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

WTB4SL-3P1161

ORDERING INFORMATION

Type	part no.
WTB4SL-3P1161	1058239

Further device versions and accessories at www.sick.com/W4

DETAILED TECHNICAL DATA

FEATURES

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression
Sensing range max.	25 mm ... 300 mm [1]
Sensing range	25 mm ... 300 mm [1]
Emitted beam	
Light source	Laser [2]
Type of light	Visible red light
Light spot size (distance)	Ø 1 mm (170 mm)
Key laser figures	
Normative reference	EN 60825-1:2014, IEC 60825-1:2014 / CDRH 21 CFR 1040.10 & 1040.11
Laser class	1 [3]
Wave length	650 nm
Adjustment	Potentiometer, 5 turns
Special applications	Detecting small objects
Mounting hole	M3

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

[2] Average service life: 50,000 h at T_U = +25 °C.

[3] Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

SAFETY-RELATED PARAMETERS

$MTTF_D$	420 years (EN ISO 13849-1) [1]
DC_{avg}	0 %

[1] Mode of calculation: Parts-Count-calculation.

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 [4]
Output current $I_{max.}$	≤ 100 mA
Response time	≤ 0.5 ms [5]
Switching frequency	1,000 Hz [6]
Output function	Complementary
Circuit protection	A [7] B [8] C [9]

[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] Signal transit time with resistive load.

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

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

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

[9] C = interference suppression.

MECHANICS

Housing	Rectangular
Design detail	Slim
Dimensions (W x H x D)	12.2 mm x 41.8 mm x 17.3 mm
Connection	Cable, 4-wire, 2 m [1]
Connection detail	
Conductor size	0.14 mm²
Length of cable (L)	2 m [1]
Material	
Housing	Plastic, Novodur
Front screen	Plastic, PMMA
Cable	Plastic, PVC
Weight	100 g

[1] Do not bend below 0 °C.

AMBIENT DATA

Enclosure rating	IP66 IP67
Ambient operating temperature	–10 °C ... +50 °C
Ambient operating temperature extended	–30 °C ... +55 °C [1] [2]

[1] As of T_a = 50 °C, a max. supply voltage $V_{max.}$ = 24 V and a max. load current $I_{max.}$ = 50 mA is permitted.

[2] Operation below Tu –10 °C is possible if the sensor is already switched on at Tu > –10 °C, then cools down, and the supply voltage is subsequently not switched off. Switching on below Tu –10 °C is not permissible.

Ambient temperature, storage	–30 °C ... +70 °C
RoHS certificate	✓

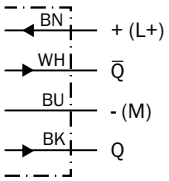
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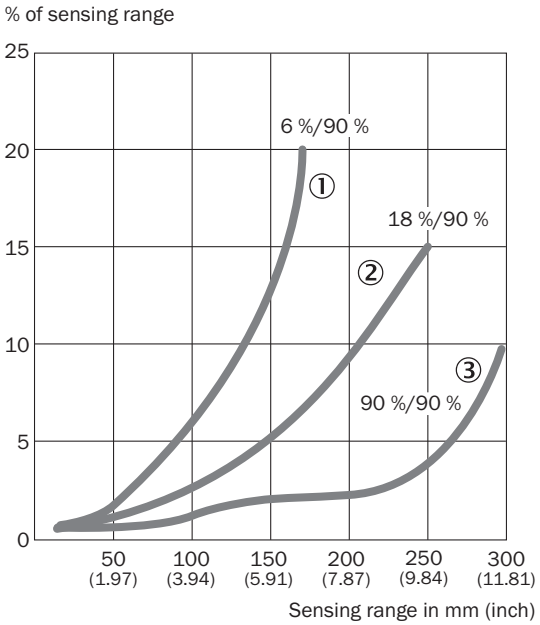
CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
ECOLAB certificate	✓
Laser safety (IEC 60825-1) certificate	✓

CONNECTION DIAGRAM CD-094



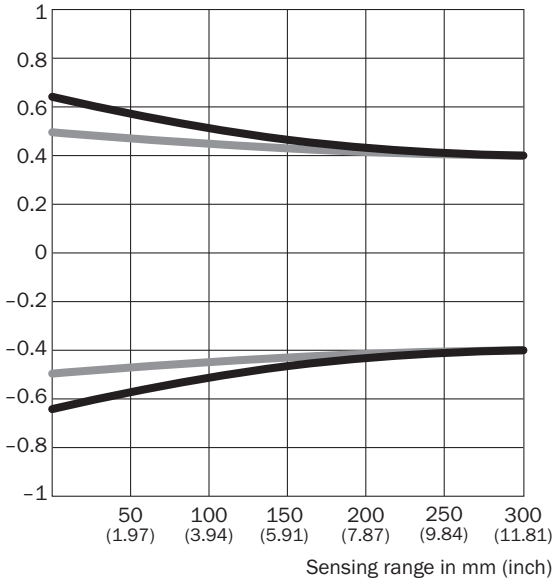
CHARACTERISTIC CURVE



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

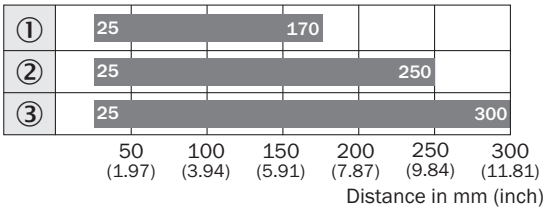
Radius in mm (inch)



Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
50 mm (1.97)	1.2 (0.05)	1.0 (0.04)
100 mm (3.94)	1.1 (0.04)	1.0 (0.04)
200 mm (7.87)	0.9 (0.04)	0.9 (0.04)
300 mm (11.81)	0.8 (0.03)	0.8 (0.03)

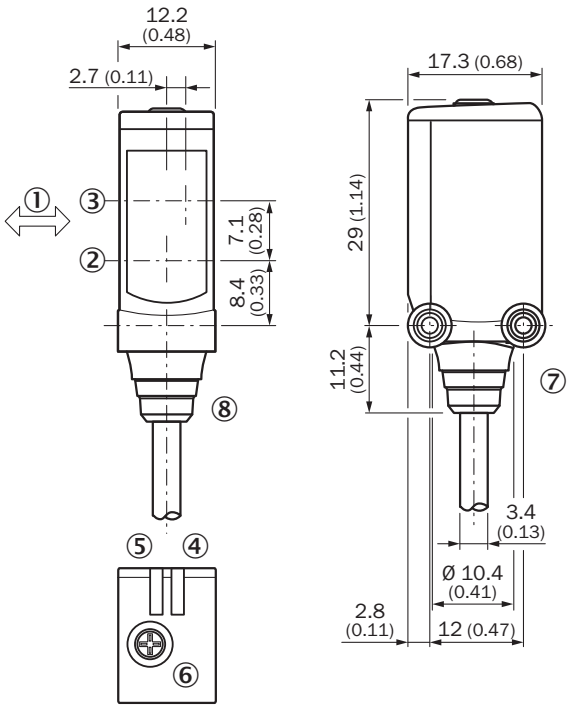
SENSING RANGE DIAGRAM



Sensing range typ. max.

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 WTB4SL-3, CABLE



Dimensions in mm (inch)
① Standard direction of the material being detected
② Center of optical axis, sender
③ Center of optical axis, receiver
④ LED indicator green: Supply voltage active
⑤ LED indicator yellow: Status of received light beam
⑥ Potentiometer
⑦ Threaded mounting hole M3
⑧ Connection

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1058239

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SICK AT A GLANCE

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