

PHOTOELECTRIC SENSORS

WTB12-3F2431S65

ORDERING INFORMATION

Type	part no.
WTB12-3F2431S65	1130742

Further device versions and accessories at www.sick.com/W12



Illustration may differ



DETAILED TECHNICAL DATA

FEATURES

Functional principle	Photoelectric proximity sensor	
Functional principle detail	Background suppression	
Sensing range max.	20 mm ... 350 mm ¹⁾	
Sensing range	20 mm ... 350 mm	
Emitted beam	Light source	LED ²⁾
	Type of light	Visible red light
	Light spot size (distance)	Ø 6 mm (200 mm)
Key LED figures	Wave length	640 nm
	Adjustment	Potentiometer, 5 turns
Special features	Sensing range preset: 140 mm on white	
Items supplied	2 x clamps BEF-KH-W12, incl. screws	
Off delay	20 ms	

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	490 years
DC _{avg}	0 %
T _M (mission time)	20 years

ELECTRONICS

Supply voltage U_B	10 V DC ... 30 V DC ¹⁾
Ripple	< 5 V _{pp} ²⁾
Current consumption	60 mA ³⁾
Protection class	III
Digital output	Type PNP Switching mode Light/dark switching Output current I_{max} ≤ 0.25 A Response time ≤ 330 μs ⁴⁾ Switching frequency 1,500 Hz ⁵⁾ Time functions Off delay Delay time ≤ 1,000 ms
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_B tolerances.

³⁾ Without load.

⁴⁾ Signal transit time with resistive load.

⁵⁾ With light/dark ratio 1:1.

⁶⁾ A = V_B 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

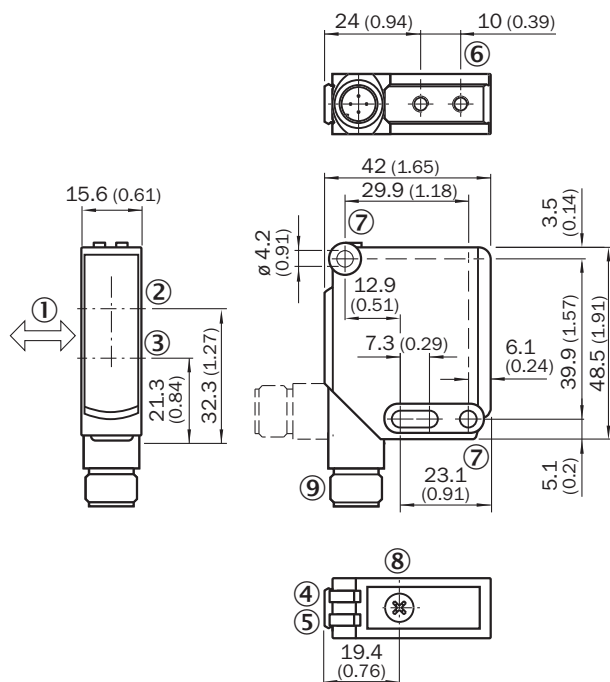
Enclosure rating	IP66 IP67 IP69K
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

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	✓

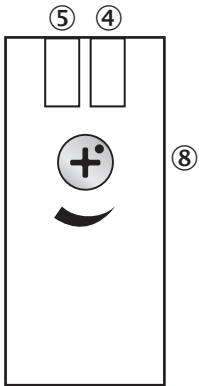
DIMENSIONAL DRAWING WTB12-3, POTENTIOMETER



Dimensions in mm (inch)

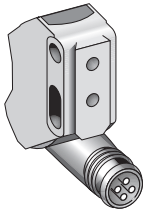
- ① Standard direction of the material being detected
- ② Optical axis, receiver
- ③ Optical axis, sender
- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ M4 threaded mounting hole, 4 mm deep
- ⑦ Mounting hole, $\varnothing 4.2$ mm
- ⑧ Sensing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

ADJUSTMENTS WTB12-3, WTF12-3, POTENTIOMETER

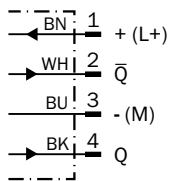


- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑧ Sensing range adjustment: potentiometer

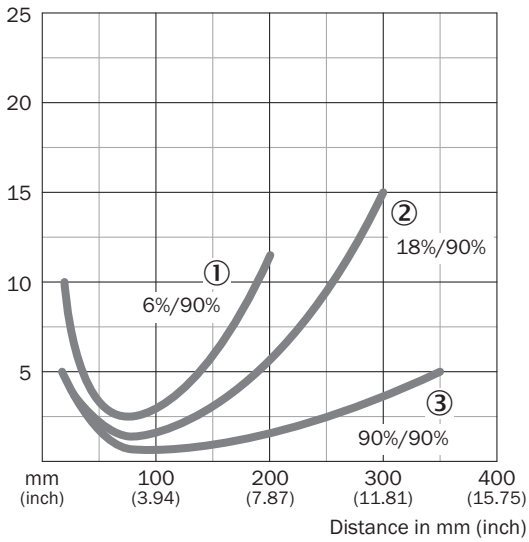
CONNECTION TYPE



CONNECTION DIAGRAM CD-083

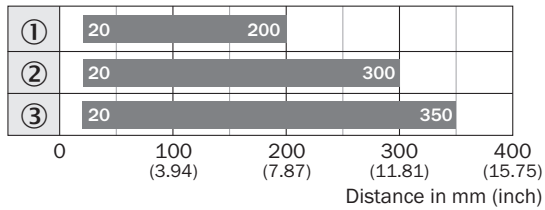


CHARACTERISTIC CURVE WTB12-3, RED LIGHT, 350 MM



- 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 WTB12-3, RED LIGHT, 350 MM



- 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

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/1130742



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SICK AT A GLANCE

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