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DATA SHEET

WS/WE12L-2P410

W12
Photoelectric sensors

SICK Sensor Intelligence

Illustration may differ

PHOTOELECTRIC SENSORS

WS/WE12L-2P410

ORDERING INFORMATION

Type	part no.
WS/WE12L-2P410	1018256

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

DETAILED TECHNICAL DATA

FEATURES

Functional principle	Through-beam photoelectric sensor
Sensing range max.	0 m ... 10 m
Emitted beam	
Light source	Laser [1] [2]
Type of light	Visible red light
Light spot size (distance)	Ø 1 mm (1 m)
Key laser figures	
Normative reference	EN 60825-1:2014, IEC 60825-1:2007
Laser class	2 [3] [4]
Key LED figures	
Wave length	650 nm
Adjustment	Potentiometer
Special applications	Detecting small objects, Detection of objects moving at high speeds
Items supplied	2 x clamps BEF-KH-W12, incl. screws
Part number of individual components	2021726 WE12L-2P430 2022025 WS12L-2D410

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

[2] Parallel light beam.

[3] Pulse length 4 µs, max. pulse power < 5,0 mW.

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

SAFETY-RELATED PARAMETERS

$MTTF_D$	283 years
DC_{avg}	0 %

ELECTRONICS

Supply voltage U_B	10 V DC ... 30 V DC [1]
Ripple	< 5 V_{pp} [2]
Current consumption, sender	≤ 45 mA [3]
Current consumption, receiver	≤ 15 mA [3]
Protection class	III
Digital output	
Type	Push-pull: PNP/NPN [4]
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Uv - < 2.9 V, Uv V / 0 V <= 1.5 V
Signal voltage NPN HIGH/LOW	Uv - < 2.9 V, Uv V / 0 V <= 1.5 V
Output current $I_{max.}$	≤ 100 mA
Response time	≤ 200 µs [5]
Switching frequency	2,500 Hz [6]
Output function	Complementary
Circuit protection	A [7] C [8] D [9]
Test input sender off	TE to 0 V

[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] Pin 4 and pin 2: This switching output must not be connected to another output.

[5] Signal transit time with resistive load.

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

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

[8] C = interference suppression.

[9] D = outputs overcurrent and short-circuit protected.

MECHANICS

Housing	Rectangular
Dimensions (W x H x D)	15 mm x 49 mm x 41.5 mm
Connection	Male connector M12, 4-pin
Material	
Housing	Metal
Front screen	Plastic, PMMA
Weight	260 g

AMBIENT DATA

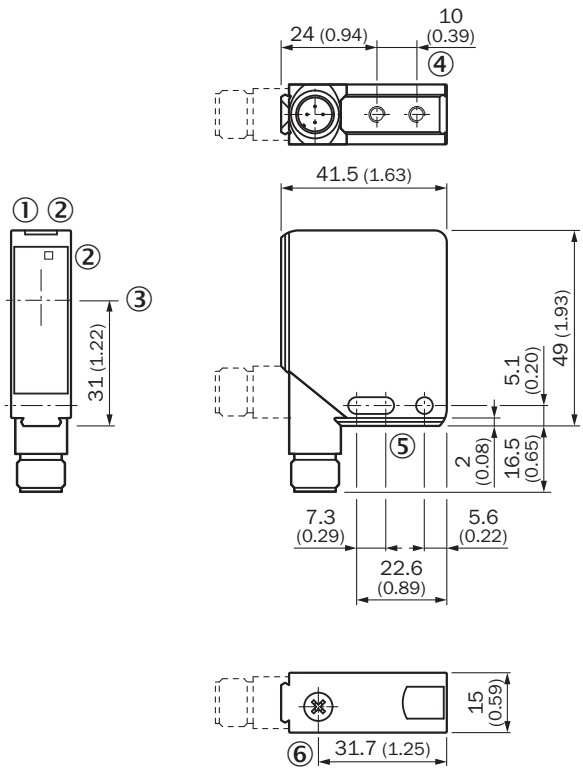
Enclosure rating	IP67 IP69K
Ambient operating temperature	–10 °C ... +50 °C
Ambient temperature, storage	–25 °C ... +75 °C

UL File No.	NRKH.E181493 & NRKH7.E181493

CERTIFICATES

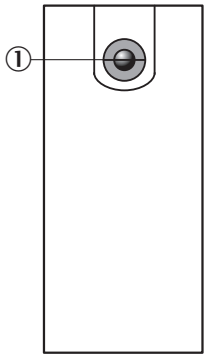
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Laser safety (IEC 60825-1) certificate	✓

DIMENSIONAL DRAWING



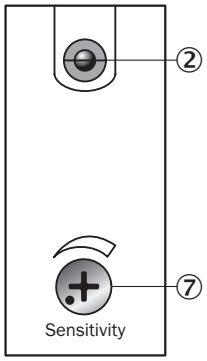
Dimensions in mm (inch)
① Operating indicator, green
② LED reception indicator, yellow
③ Center of optical axis
④ M4 threaded mounting hole – 4 mm depth
⑤ Mounting hole, Ø 4.2 mm
⑥ sensitivity control

ADJUSTMENTS



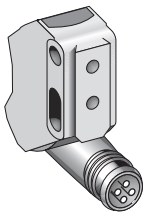
① status indicator (WS, top only)

ADJUSTMENTS

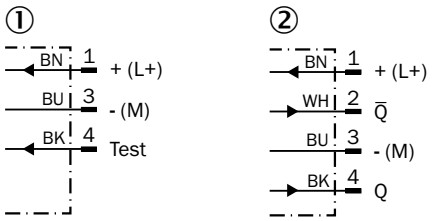


② LED signal strength indicator (WE)
⑦ Sensitivity adjustment (WE)

CONNECTION TYPE

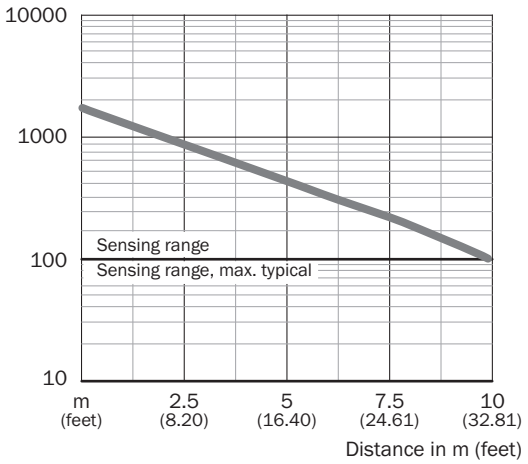


CONNECTION DIAGRAM CD-077

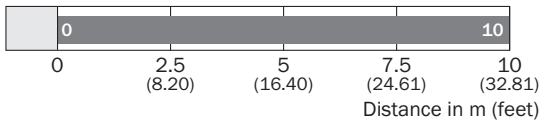


① sender
② receiver

CHARACTERISTIC CURVE WS/WE12L-2, 10 M



SENSING RANGE DIAGRAM WS/WE12L-2, 10 M



Sensing range/sensing range typ. max.

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/1018256

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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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