WSE9L-3P2437

W9

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

Ordering information

Type	part no.
WSE9L-3P2437	1058181

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

Illustration may differ

Detailed technical data

Features

Functional principle	Through-beam photoelectric sensor
Dimensions (W x H x D)	12.2 mm x 52.2 mm x 23.6 mm
Housing design (light emission)	Rectangular
Mounting hole	M3
Sensing range max.	0 m ... 60 m
Sensing range	0 m ... 50 m
Type of light	Visible red light
Light source	Laser [1]
Light spot size (distance)	Ø 1 mm (500 mm)
Wave length	650 nm
Laser class	1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11) [2]
Adjustment	Single teach-in button
Special applications	Detecting small objects

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

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

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
Response time	≤ 0.5 ms [5]
Switching frequency	1,000 Hz [6]
Connection type	Male connector M12, 4-pin
Circuit protection	A [7] B [8] C [9]
Protection class	III
Weight	13 g
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	IP66 IP67 IP69K
Ambient operating temperature	–10 °C ... +50 °C
Ambient operating temperature extended	–30 °C ... +55 °C [10] [11]
Ambient temperature, storage	–30 °C ... +70 °C
UL File No.	NRKH.E181493
Part number of individual components	2064063 WS9L-3D2436 2064068 WE9L-3P2432

[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.

[10] 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.

[11] 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.

Safety-related parameters

MTTF$_D$	355 years (EN ISO 13849-1) [1]
DC$_{avg}$	0 %

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

Certificates

EU declaration of conformity	✓

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

Classifications

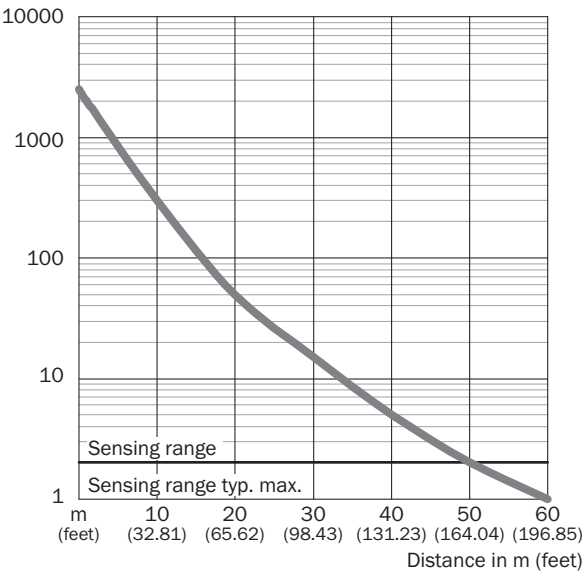|	
ECLASS 5.0	27270901
ECLASS 5.1.4	27270901
ECLASS 6.0	27270901
ECLASS 6.2	27270901
ECLASS 7.0	27270901
ECLASS 8.0	27270901
ECLASS 8.1	27270901
ECLASS 9.0	27270901
ECLASS 10.0	27270901
ECLASS 11.0	27270901
ECLASS 12.0	27270901
ETIM 5.0	EC002716
ETIM 6.0	EC002716
ETIM 7.0	EC002716
ETIM 8.0	EC002716
UNSPSC 16.0901	39121528

Adjustments Single teach-in button
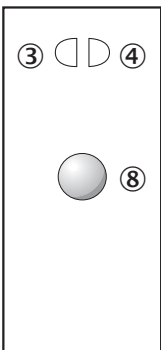
③ LED indicator yellow: Status of received light beam
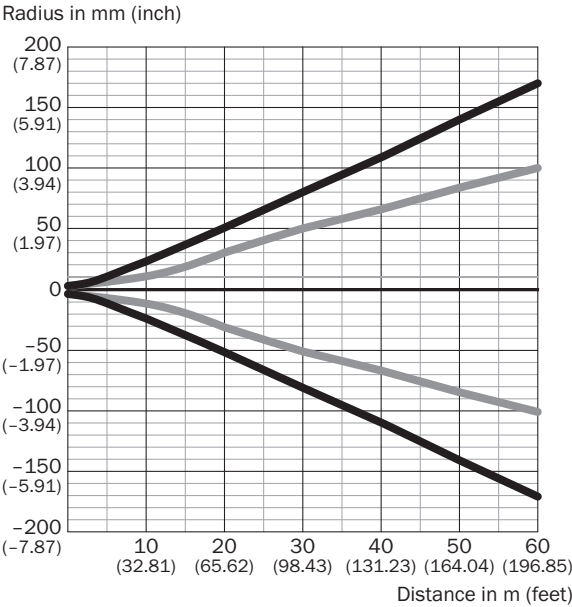④ LED indicator green: power on
⑧ Teach-in button

Connection diagram Cd-232

① BN 1 + (L+)
BU 3 - (M)
BK 4 Not connected
WH 2 Not connected

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

① sender
② receiver

Characteristic curve

Distance in m (feet)

Light spot size

Radius in mm (inch)
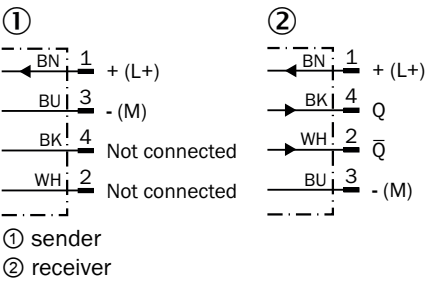
Vertical
Horizontal

Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
0.5 m **(1.64 feet)**	< 1.0 (0.04)	< 1.0 (0.04)
1 m **(3.28 feet)**	1.5 (0.06)	1.2 (0.05)
5 m **(16.40 feet)**	15 (0.59)	11 (0.43)
10 m **(32.81 feet)**	45 (1.77)	28 (1.10)
60 m **(196.85 feet)**	336 (13.23)	200 (7.87)

Light spot size (detailed view) Detailed view close range

Radius in mm (inch)
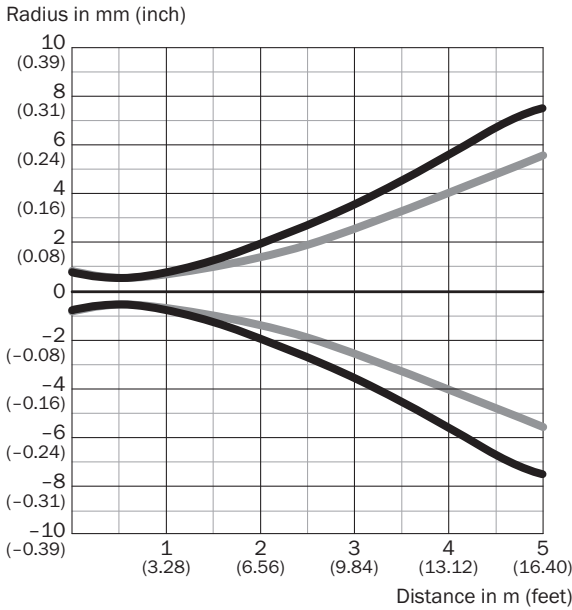
Vertical
Horizontal

Sensing range diagram

0   10   20   30   40   50   60
    (32.81) (65.62) (98.43) (131.23)(164.04)(196.85)
                        Distance in m (feet)

■ Sensing range   ■ Sensing range typ. max.
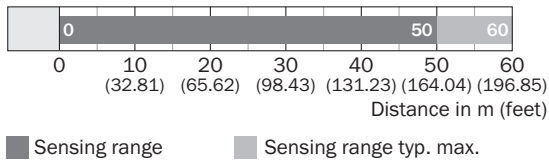
Dimensional drawing WSE9L-3
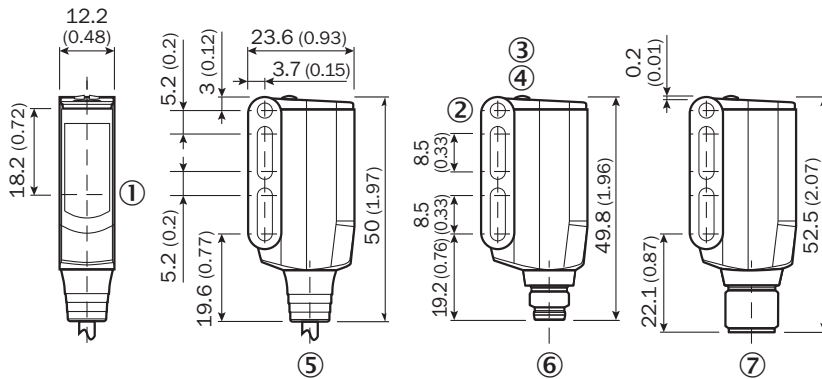
Dimensions in mm (inch)
① Sender and receiver optical axis center
② Mounting hole M3 (Ø 3.1 mm)
③ LED indicator yellow: Status of received light beam
④ LED indicator green: power on
⑤ Connecting cable or connecting cable with connector
⑥ male connector M8, 4-pin
⑦ male connector M12, 4-pin

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 • **Material:** Steel • **Details:** Steel, zinc coated • **Items supplied:** Mounting hardware included • **Suitable for:** W9-3	BEF-WN-W9-2	2022855
	• **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:** 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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