WL27-3P2451

W27-3

COMPACT PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

WL27-3P2451 | W27-3
COMPACT PHOTOELECTRIC SENSORS

Illustration may differ
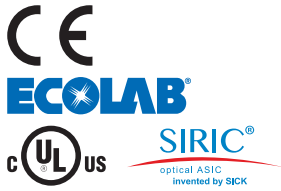
Ordering information

Type	Part no.
WL27-3P2451	1027770

Other models and accessories ➜ www.sick.com/W27-3

Detailed technical data

Features

Sensor/ detection principle	Photoelectric retro-reflective sensor, Dual lens
Dimensions (W x H x D)	24.6 mm x 80.6 mm x 54 mm
Housing design (light emission)	Rectangular
Sensing range max.	0.1 m ... 15 m [1]
Sensing range	0.1 m ... 11 m [1]
Focus	Approx. 1.5°
Type of light	Visible red light
Light source	LED [2]
Light spot size (distance)	Ø 220 mm (10 m)
Angle of dispersion	Approx. 1.5°
Wave length	660 nm
Adjustment	Potentiometer

[1] Reflector PL80A.

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

Mechanics/electronics

Supply voltage	10 V DC … 30 V DC [1]
Ripple	< 5 V_{pp} [2]
Current consumption	45 mA [3]
Switching output	PNP
Output function	Complementary
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. V_S – 2.5 V / 0 V
Output current $I_{max.}$	≤ 100 mA
Response time	≤ 500 µs [4]
Switching frequency	1,000 Hz [5]
Connection type	Male connector M12, 4-pin
Circuit protection	A [6] B [7] C [8]
Protection class	II [9]
Weight	100 g
Polarisation filter	✓
Front screen heating	✓ [10]
Housing material	Plastic, ABS
Optics material	Plastic, PMMA
Enclosure rating	IP69K
Ambient operating temperature	–40 °C … +60 °C
Ambient temperature, storage	–40 °C … +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

[1] Limit values when operated in short-circuit protected network: max. 8 A.

[2] May not exceed or fall below U_v tolerances.

[3] Without load.

[4] Signal transit time with resistive load.

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

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

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

[8] C = interference suppression.

[9] Reference voltage: 50 V DC.

[10] Static, low heat output, use in +5° C … +15° C.

Safety-related parameters

$MTTF_D$	1,640 years
DC_{avg}	0 %

Classifications

ECl@ss 5.0	27270902
ECl@ss 5.1.4	27270902
ECl@ss 6.0	27270902
ECl@ss 6.2	27270902

ECl@ss 7.0	27270902
ECl@ss 8.0	27270902
ECl@ss 8.1	27270902
ECl@ss 9.0	27270902
ECl@ss 10.0	27270902
ECl@ss 11.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
UNSPSC 16.0901	39121528

Connection diagram

Cd-083

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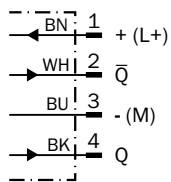
Characteristic curve

WL27-3
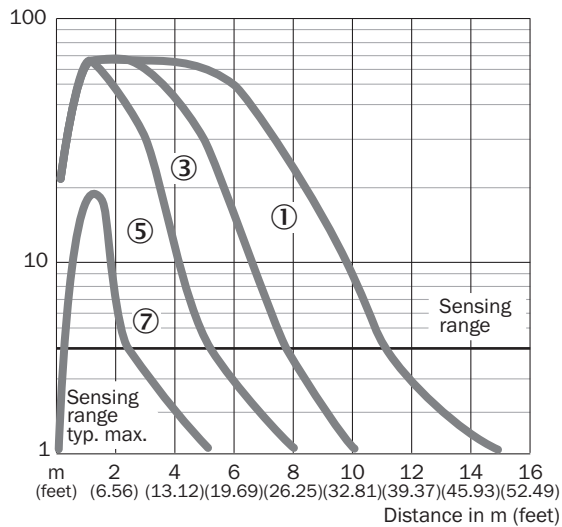
① Reflector PL80A
③ Reflector PL40A
⑤ Reflector PL20A
⑦ Reflective tape Diamond Grade

Sensing range diagram

WL27-3
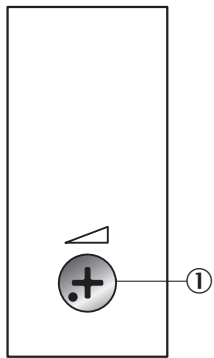
	0	2	4	6	8	10	12	14	16

① 0.1 ... 11 ... 15
② 0.1 ... 8 9
③ 0.1 ... 7.5 10
④ 0.1 ... 7.5 10
⑤ 0.1 ... 5 8
⑥ 0.3 ... 7 11
⑦ 0.3 2.5 5

0 2 4 6 8 10 12 14 16
(6.56)(13.12)(19.69)(26.25)(32.81)(39.37)(45.94)(52.49)
Distance in m (feet)
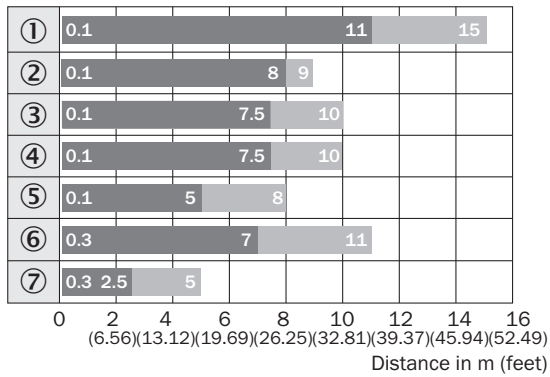
■ Sensing range   ■ Sensing range max.
① Reflector PL80A
② Reflector PL50A
③ Reflector PL40A
④ Reflector PL30A
⑤ Reflector PL20A
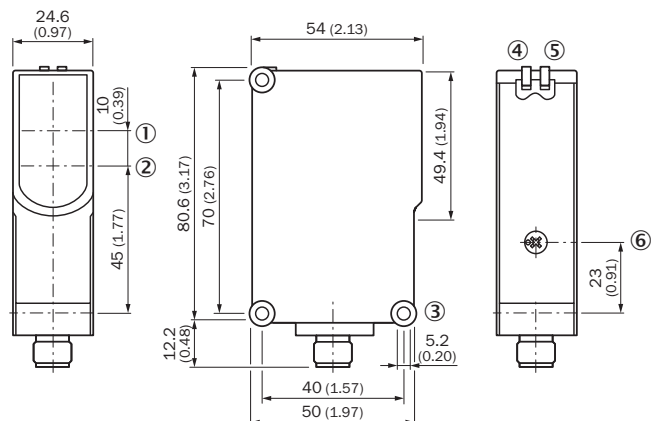⑥ Reflector C110A
⑦ Reflective tape Diamond Grade

Adjustments

Potentiometer

① Potentiometer

Dimensional drawing (Dimensions in mm (inch))

WL27-3, potentiometer

① Optical axis, sender
② Optical axis, receiver
③ Mounting hole ø 5.2 mm
④ LED indicator green: Supply voltage active
⑤ LED indicator yellow: Status of received light beam
⑥ Sensitivity control (10 revolutions)

Recommended accessories

Other models and accessories ➜ www.sick.com/W27-3

	Brief description	Type	Part no.
Device protection (mechanical)			
	• **Description:** Protective housing for W26, W27-3 and mounting rods with diameter 12 mm ... 20 mm • **Material:** Steel, zinc diecast • **Items supplied:** Universal clamp BEF-KHS-KH1 (2022726), mounting hardware • **Suitable for:** W27-3, W26, RAY26	BEF-SG-W27	2039601
Mounting brackets and plates			
	• **Description:** Universal mounting bracket for reflectors • **Dimensions (W x H x L):** 85 mm 90 mm 35 mm • **Material:** Steel • **Suitable for:** C110A, P250, PL20, PL30A, PL40A, PL80A	BEF-WN-REFX	2064574
Plug connectors and cables			
	• **Connection type head A:** Female connector, M12, 4-pin, straight, A-coded • **Connection type head B:** Flying leads • **Authorizations:** CE, UL • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals	YF2A14-050VB3XLEAX	2096235
	• **Connection type head A:** Male connector, M12, 4-pin, straight • **Connection type head B:** - • **Authorizations:** UL • **Description:** Unshielded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** ≤ 0.75 mm²	STE-1204-G	6009932

Brief description		Type	Part no.
Reflectors			
	• **Description:** Rectangular, screw connection • **Dimensions:** 84 mm 84 mm • **Ambient operating temperature:** –20 °C ... +65 °C	PL80A	1003865

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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