Product data sheet

WLG16P-24812122ZZZ

W16

SMALL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	Part no.
WLG16P-24812122ZZZ	1134225

Other models and accessories ➜ www.sick.com/W16

Detailed technical data

Features

Functional principle	Photoelectric retro-reflective sensor
Functional principle detail	Autocollimation, ClearSens
Sensing range	
Sensing range min.	0 m
Sensing range max.	5 m
Maximum distance range from reflector to sensor (operating reserve 1)	0 m ... 5 m
Reference reflector	Reflector P250F
Recommended sensing range for the best performance	0 m ... 5 m
Polarisation filters	Yes
Emitted beam	
Light source	PinPoint LED
Type of light	Visible red light
Shape of light spot	Point-shaped
Light spot size (distance)	Ø 80 mm (5 m)
Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle)	< +/- 1.0° (at Ta = +23 °C)
Key LED figures	
Normative reference	EN 62471:2008-09 | IEC 62471:2006, modified

LED risk group marking	Free group
Wave length	635 nm
Average service life	100,000 h at T_a = +25 °C
Adjustment	
Teach-Turn adjustment	BluePilot: Teach-in plus user mode selector
Indication	
LED blue 1	BluePilot: Mode display
LED blue 2	BluePilot: Time function display
LED green	Operating indicator Static on: power on
LED yellow	Status of received light beam Static on: object not present Static off: object present
Special applications	Detecting transparent objects

Safety-related parameters

$MTTF_D$	548 years
DC_{avg}	0 %
T_M (mission time)	20 years (EN ISO 13849, rate of use: 60 %)

Electrical data

Supply voltage U_B	10 V DC ... 30 V DC [1]
Ripple	≤ 5 V_{pp}
Usage category	DC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2)
Current consumption	≤ 30 mA, without load. At U_B = 24 V
Protection class	III
Digital output	
Number	2 (Complementary)
Type	PNP
Signal voltage PNP HIGH/LOW	Approx. U_B-2.5 V / 0 V
Output current $I_{max.}$	≤ 100 mA
Circuit protection outputs	Reverse polarity protected Overcurrent and short-circuit protected
Response time	≤ 500 µs [2]
Repeatability (response time)	150 µs
Switching frequency	1,000 Hz [3]
Time functions	Deactivated (factory setting), on delay, off delay, ON and OFF delay, Impulse (one shot)
Delay time	Teach-turn adjustment, 0 ms ... 30,000 ms, 0 ms (factory setting)
Pin/Wire assignment	
Function of pin 4/black (BK)	Digital output, light switching, object present → output Q LOW
Function of pin 2/white (WH)	Digital output, dark switching, object present → output $\bar{Q}$ HIGH

[1] Limit values.
[2] Signal transit time with resistive load in switching mode.
[3] With light/dark ratio 1:1.

Mechanical data

Housing	Rectangular
Dimensions (W x H x D)	20 mm x 55.7 mm x 42 mm
Connection	Male connector M12, 4-pin
Material	
Housing	Plastic, VISTAL®
Front screen	Plastic, PMMA
Male connector	Plastic, VISTAL®
Weight	Approx. 50 g
Maximum tightening torque of the fixing screws	1.3 Nm

Ambient data

Enclosure rating	IP66 (EN 60529) IP67 (EN 60529) IP69 (EN 60529) [1)]
Ambient operating temperature	–40 °C ... +60 °C
Ambient temperature, storage	–40 °C ... +75 °C
Shock resistance	50 g, 11 ms (25 positive and 25 negative shocks per axis, for X, Y, Z axes, 150 shocks in total (EN60068-2-27)) 50 g, 6 ms (5,000 positive and 5,000 negative shocks per axis, for X, Y, Z axes, 30,000 shocks in total (EN60068-2-27))
Vibration resistance	10 Hz ... 2,000 Hz (Amplitude 0.5 mm / 10 g, 20 sweeps per axis, for X, Y, Z axes, 1 octave/min, (EN60068-2-6))
Air humidity	35 % ... 95 %, Relative humidity (no condensation)
Electromagnetic compatibility (EMC)	EN 60947-5-2
Resistance to cleaning agent	ECOLAB
UL File No.	NRKH.E181493 & NRKH7.E181493

[1)] Replaces IP69K with ISO 20653: 2013-03.

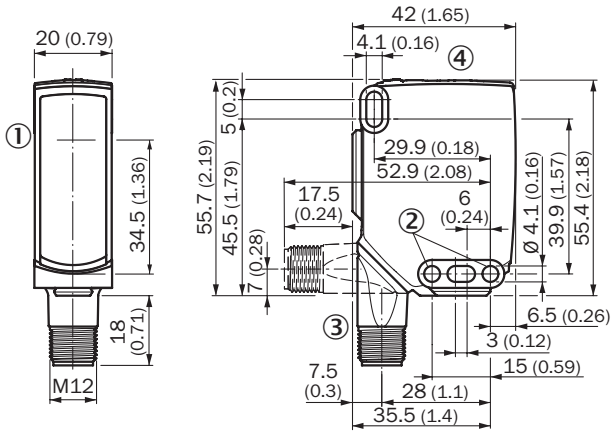
Classifications

ECLASS 5.0	27270902
ECLASS 5.1.4	27270902
ECLASS 6.0	27270902
ECLASS 6.2	27270902
ECLASS 7.0	27270902
ECLASS 8.0	27270902
ECLASS 8.1	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717

UNSPSC 16.0901	39121528

Dimensional drawing (Dimensions in mm (inch))

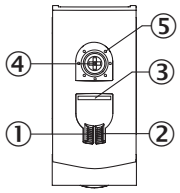
Dimensional drawing, sensor



① Center of optical axis
② Mounting hole, Ø 4.1 mm
③ Connection
④ Display and adjustment elements

Adjustments

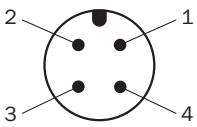
Display and adjustment elements



① LED indicator green
② LED indicator yellow
③ LED blue 1
④ Teach-Turn adjustment
⑤ LED blue 2

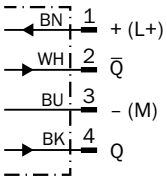
Connection type

M12 male connector, 4-pin



Connection diagram

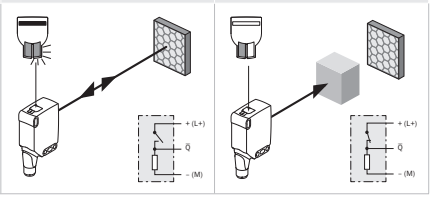
Cd-414



Truth table

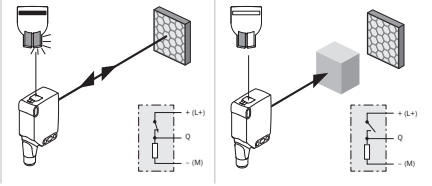
PNP - dark switching Q̄

	Dark switching Q (normally open)	
	Object not present ➔ Output LOW	Object present ➔ Output HIGH
Light receive	✓	⊗
Light receive indicator	☀	⊗
Load resistance to M	⊗	⚠



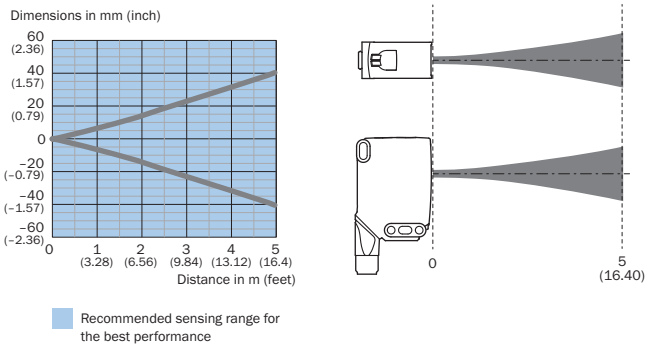
PNP - light switching Q

	Light switching Q (normally closed)	
	Object not present ➔ Output HIGH	Object present ➔ Output LOW
Light receive	✓	⊗
Light receive indicator	☀	⊗
Load resistance to M	⚠	⊗



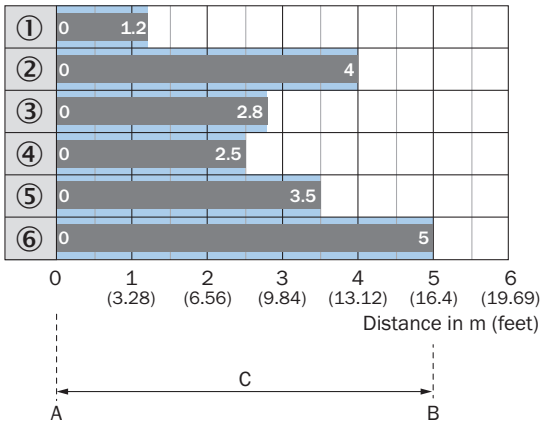
Light spot size

WLG16P-xxxxx1xx



Sensing range diagram

WLG16P-xxxxx1xx



Recommended sensing range for the best performance

1	PL10F CHEM reflector
2	Reflective tape REF-AC1000 (50 x 50 mm)
3	PL10FH-1 reflector
4	PL10F reflector
5	Reflector PL20F
6	Reflector P250F
A	Sensing range min. in m
B	Sensing range max. in m
C	Maximum distance range from reflector to sensor (operating reserve 1)

Recommended accessories

Other models and accessories ➜ www.sick.com/W16

	Brief description	Type	Part no.
Universal bar clamp systems			
	Plate N02 for universal clamp bracket, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware	BEF-KHS-N02	2051608
Mounting brackets and plates			
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574
	Adapter for mounting W16 sensors in existing W14-2/W18-3 installations or L25 sensors in existing L28 installations, plastic, fastening screws included	BEF-AP-W16	2095677

	Brief description	Type	Part no.
Plug 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	YF2A14-050VB3XLEAX	2096235
	• **Connection type head A:** Male connector, M12, 4-pin, straight • **Description:** Unshielded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** ≤ 0.75 mm²	STE-1204-G	6009932
Reflectors			
	Fine triple reflector, screw connection, suitable for laser sensors, 52 mm x 62 mm, PMMA/ABS, Screw-on, 2 hole mounting	P250F	5308843

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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