WTL16P-24861120A00

W16

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

WTL16P-24861120A00 | W16
PHOTOELECTRIC SENSORS

Illustration may differ

Ordering information

Type	part no.
WTL16P-24861120A00	1125468

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

Detailed technical data

Features

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression, LineSpot technology
Emitted beam	
Light source	PinPoint LED
Type of light	Visible red light
Light spot size (distance)	3 mm x 30 mm (200 mm)
Key LED figures	
Wave length	635 nm
Adjustment	
Teach-Turn adjustment	BluePilot: For setting the sensing range
IO-Link	For configuring the sensor parameters and Smart Task functions
Display	
LED blue	BluePilot: sensing range indicator
LED green	Operating indicatorStatic on: power onFlashing: IO-Link mode
LED yellow	Status of received light beamStatic on: object presentStatic off: object not present
Special features	Line-shaped light spot
Special applications	Detecting perforated objects

Safety-related parameters

$MTTF_D$	626 years
DC_{avg}	0%
T_M (mission time)	20 years

Communication interface

IO-Link	✓ , COM2 (38,4 kBaud)
Data transmission rate	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q_{L1}
	Bit 1 = switching signal Q_{L2}
	Bit 2 ... 15 = empty
VendorID	26
DeviceID HEX	0x800168
DeviceID DEC	8388968

Electronics

Supply voltage U_B	10 V DC ... 30 V DC [1]
Ripple	< 5 V_{pp}
Current consumption	30 mA
Protection class	III
Digital output	
Type	PNP
Signal voltage PNP HIGH/LOW	Approx. V_S – 2.5 V / 0 V
Output current $I_{max.}$	≤ 100 mA
Response time	≤ 500 μs [2]
Switching frequency	1,000 Hz [3]

[1] Limit values.

[2] Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

[3] With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

Mechanics

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
Weight	50 g

Ambient data

Enclosure rating	IP66 (EN 60529) IP67 (EN 60529)

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

	IP69 (EN 60529) [1]
Ambient operating temperature	−40 °C … +60 °C
Ambient temperature, storage	−40 °C … +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

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

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Logic: 800 Hz [1] IOL: 650 Hz [2]
Response time	SIO Logic: 600 µs [1] IOL: 750 µs [2]
Repeatability	SIO Logic: 300 µs [1] IOL: 400 µs [2]
Switching signal	
Switching signal Q_{L1}	Switching output

[1] SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.
[2] IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Diagnosis

Device status	Yes
Quality of teach	Yes

Classifications

ECLASS 5.0	27270904
ECLASS 5.1.4	27270904
ECLASS 6.0	27270904
ECLASS 6.2	27270904
ECLASS 7.0	27270904
ECLASS 8.0	27270904
ECLASS 8.1	27270904
ECLASS 9.0	27270904
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ETIM 5.0	EC002719

ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

Certificates

| EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
ECOLAB certificate	✓
cULus certificate	✓
IO-Link	✓
Photobiological safety (DIN EN 62471) certificate	✓

Dimensional drawing, sensor
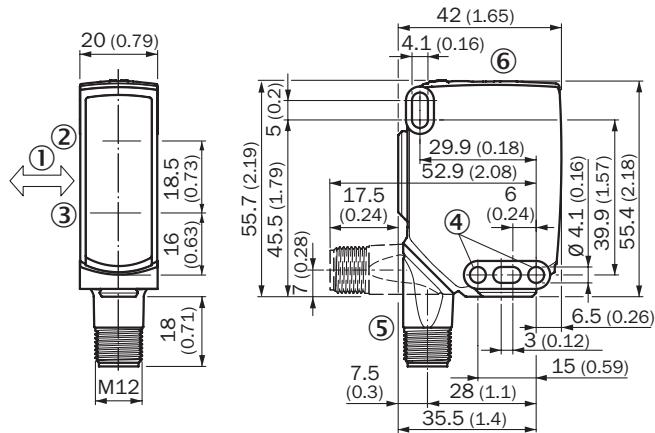
Dimensions in mm (inch)
① Standard direction of the material being detected
② Center of optical axis, sender
③ Center of optical axis, receiver
④ Mounting hole, Ø 4.1 mm
⑤ Connection
⑥ display and adjustment elements

display and adjustment elements
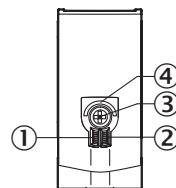
① LED indicator green
② LED indicator yellow
③ Teach-Turn adjustment
④ LED blue
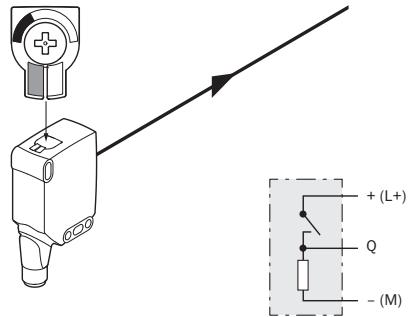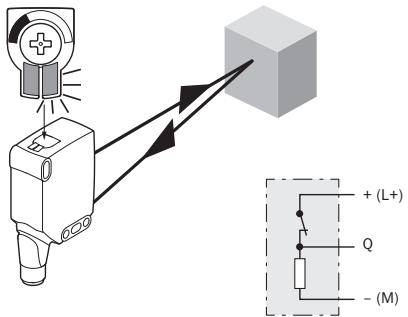
Connection type M12 male connector, 4-pin
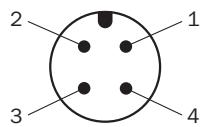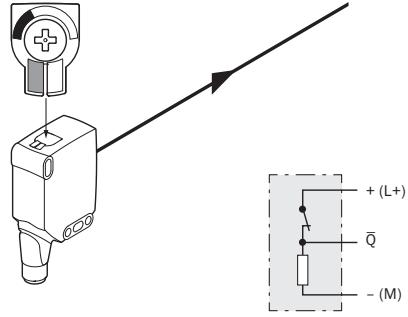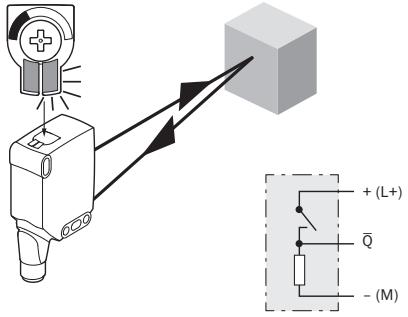
Connection diagram Cd-390

BN	1	+ (L+)
WH	2	MF
BU	3	– (M)
BK	4	Q_{L1}/C

AbN
automation
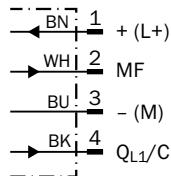
Truth table PNP - light switching Q

	Light switching Q (normally open)	
	Object not present ➜ Output LOW	Object present ➜ Output HIGH
Light receive	⊗	✔
Light receive indicator	⊗	☀
Load resistance to M	⊗	⚡

Truth table PNP - dark switching Q̄

	Dark switching Q̄ (normally closed)	
	Object not present ➜ Output HIGH	Object present ➜ Output LOW
Light receive	⊗	✔
Light receive indicator	⊗	☀
Load resistance to M	⚡	⊗

## Characteristic curve WTL16P-xxxxx1xx

Minimum distance in mm (y) between the set sensing range (x) and white background (90 % remission)
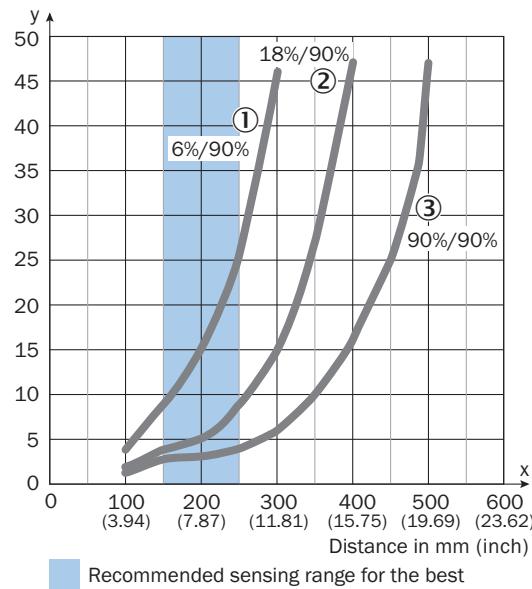
Recommended sensing range for the best performance

① Black object, 6% remission factor
② Gray object, 18% remission factor
③ White object, 90% remission factor

Example:
Safe suppression of the background

White background (90 %)
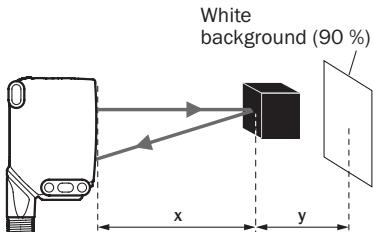
Black object (6 % remission)
Set sensing range x = 200 mm
Needed minimum distance to white background y = 15 mm

Light spot size Horizontal

Dimensions in mm (inch)
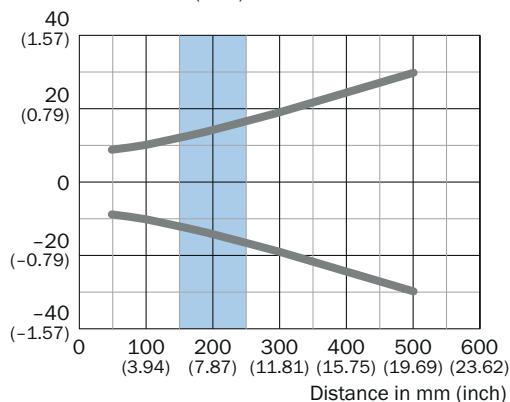
Recommended sensing range for the best performance
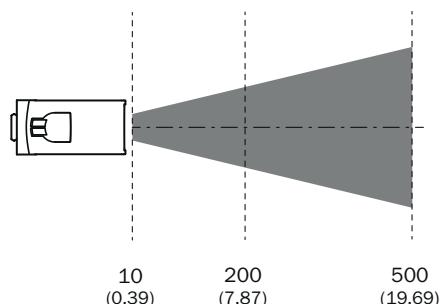
Light spot size Vertical

Dimensions in mm (inch)

Distance in mm (inch)

■ Recommended sensing range for the best performance
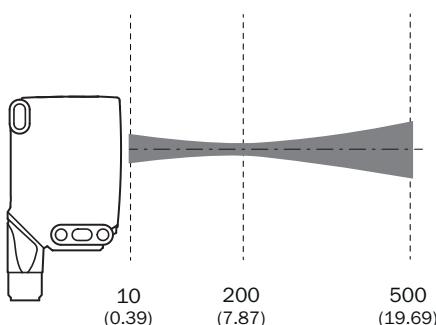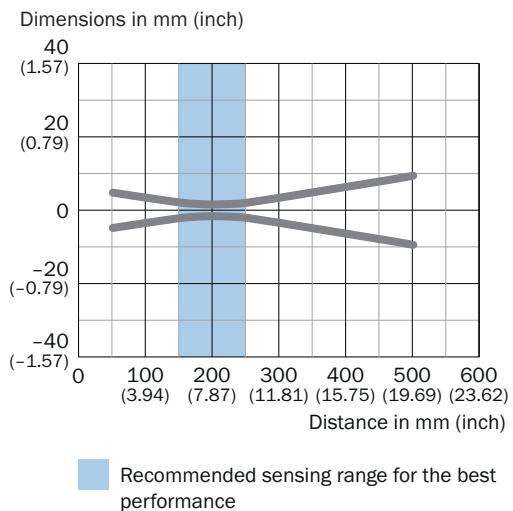
Sensing range diagram WTL16P-xxxxx1xx

①	50	100	300		
②	25	100		400	
③	10	100			500

Distance in mm (inch)

BluePilot

■ Recommended sensing range for the best performance
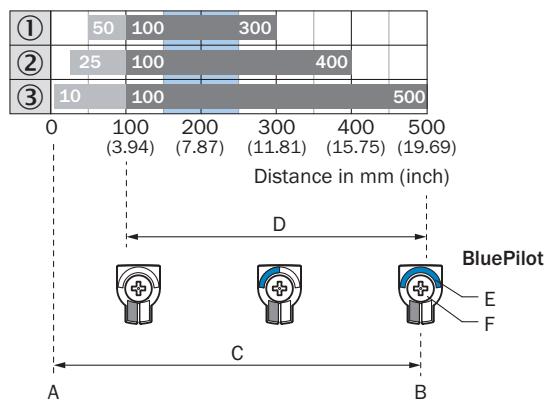
Recommended accessories

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

Brief description	Type	part no.
Mounting systems		
• **Description:** Plate N02 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:** W4S-3 Glass, W10, W4SLG-3, W4S-3 Inox, W4S-3 Inox Glass, W9, W11-2, W12-3, W12-2 Laser, W12G, W12 Teflon, W16, W250, W250-2, PowerProx, W11G-2, TranspaTect, WTT12, UC12, P250, G6 Inox, W4S, W4SL-3V, W4SLG-3V, W4SL-3H	BEF-KHS-N02	2051608
• **Description:** Adapter for mounting W16 sensors in existing W14-2/W18-3 installations or L25 sensors in existing L28 installations • **Material:** Plastic • **Details:** Plastic • **Items supplied:** Fastening screws included	BEF-AP-W16	2095677
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

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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