Data sheet

WTB12C-3P2432A71

W12

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
WTB12C-3P2432A71	1067773

Other models and accessories ➜ www.sick.com/W12

Detailed technical data

Features

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression
Sensing range max.	20 mm ... 350 mm [1]
Sensing range	20 mm ... 350 mm [1]
Emitted beam	
Light source	PinPoint LED [2]
Type of light	Visible red light
Light spot size (distance)	Ø 6 mm (200 mm)
Key LED figures	
Wave length	640 nm
Adjustment	IO-Link, Single teach-in button
Pin 2 configuration	External input, Teach-in input, Sender off input, Detection output, logic output

[1] Object with 90% remission (based on standard white, DIN 5033).
[2] Average service life: 50,000 h at T_U = +25 °C.

Safety-related parameters

$MTTF_D$	634 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 = measuring value
VendorID	26
DeviceID HEX	0x8000EC
DeviceID DEC	8388844

Electronics

Supply voltage U_B	10 V DC ... 30 V DC [1]
Ripple	< 5 V_{pp} [2]
Current consumption	45 mA [3]
Protection class	III
Digital output	
Type	PNP [4]
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	> Uv - 2,5 V / ca. 0 V
Output current $I_{max.}$	≤ 100 mA
Response time	[5]
Repeatability (response time)	100 µs [6]
Switching frequency	1,500 Hz
Circuit protection	A [7] B [8] C [9] D [10]
Response time Q/ on Pin 2	200 µs ... 300 µs [5] [6]
Switching frequency Q / to pin 2	≤ 1,500 Hz [11]

[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: This switching output must not be connected to another output.
[5] Signal transit time with resistive load.
[6] Valid for Q \ on Pin2, if configured with software.
[7] A = V_S connections reverse-polarity protected.
[8] B = inputs and output reverse-polarity protected.
[9] C = interference suppression.
[10] D = outputs overcurrent and short-circuit protected.
[11] With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

Mechanics

Housing	Rectangular
Dimensions (W x H x D)	15.6 mm x 48.5 mm x 42 mm

Connection	Male connector M12, 4-pin
Material	
Housing	Metal, zinc diecast
Front screen	Plastic, PMMA
Weight	120 g

Ambient data

Enclosure rating	IP66 IP67
Ambient operating temperature	–40 °C ... +60 °C
Ambient temperature, storage	–40 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

Smart Task

Smart Task name	Counter + debouncing
Logic function	Direct WINDOW Hysteresis
Timer function	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Maximum counting frequency	SIO Direct: --- [1] SIO Logic: 1000 Hz [2] IOL: 650 Hz [3]
Counter reset	SIO Direct: --- SIO Logic: 1,5 ms IOL: 1,5 ms
Min. Time between two process events (switches)	SIO Direct: --- SIO Logic: 500 µs IOL: 800 µs
Debounce time max.	SIO Direct: --- SIO Logic: 30.000 ms IOL: 30.000 ms
Switching signal	
Switching signal Q_{L1}	Output type (dependant on the adjusted threshold)
Switching signal Q_{L2}	Output type (dependant on the adjusted threshold)
Measuring value	Counting value

[1] SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").
[2] SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.
[3] IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Diagnosis

Device status	Yes

Certificates

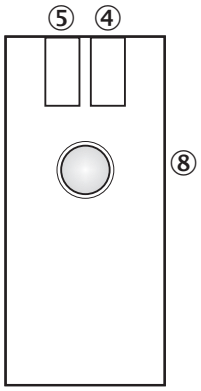
EU declaration of conformity	✓
UK declaration of conformity	✓

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

Classifications

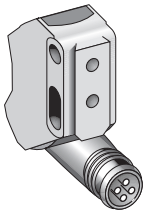
ECLASS 5.0	27270904
ECLASS 5.1.4	27270904
ECLASS 6.0	27270904
ECLASS 6.2	27270904
ECLASS 7.0	27270904
ECLASS 8.0	27270904
ECLASS 8.1	27270904
ECLASS 9.0	27270904
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

Adjustments

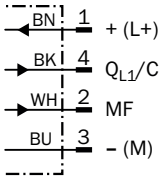


④ LED indicator green: Supply voltage active
⑤ LED indicator yellow: Status of received light beam
⑧ Adjustment sensing range: single teach-in button

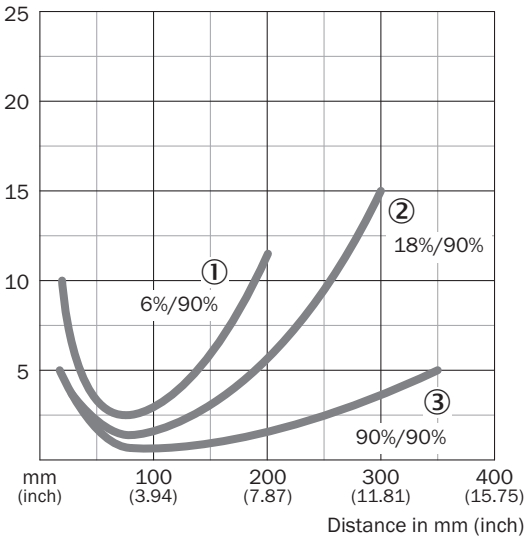
Connection type



Connection diagram Cd-367

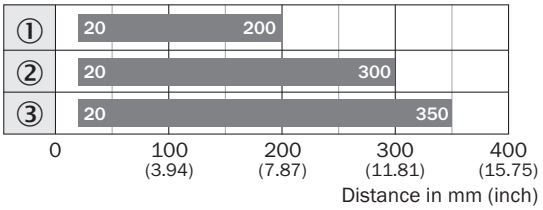


Characteristic curve WTB12-3, red light, 350 mm



① Sensing range on black, 6% remission factor
② Sensing range on gray, 18% remission factor
③ Sensing range on white, 90% remission factor

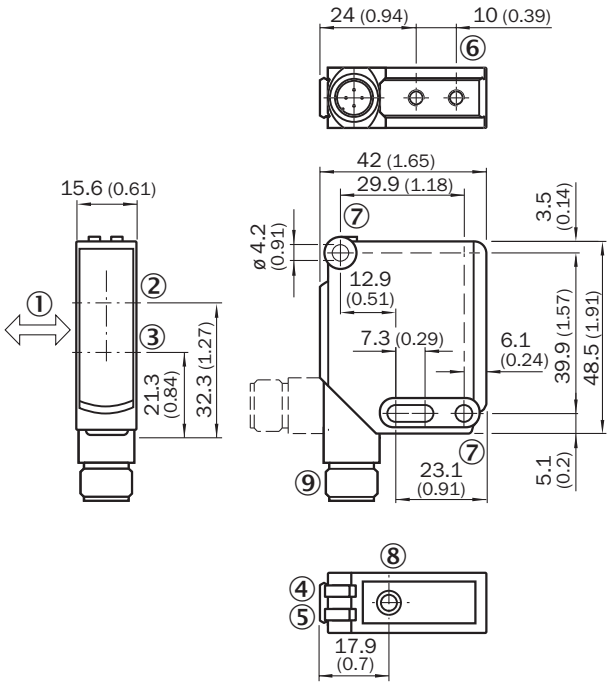
Sensing range diagram WTB12-3, red light, 350 mm



Sensing range

① Sensing range on black, 6% remission factor
② Sensing range on gray, 18% remission factor
③ Sensing range on white, 90% remission factor

Dimensional drawing WTB12-3, IO-Link



Dimensions in mm (inch)

① Standard direction of the material being detected
② Optical axis, receiver
③ Optical axis, sender
④ LED indicator green: Supply voltage active
⑤ LED indicator yellow: Status of received light beam
⑥ M4 threaded mounting hole, 4 mm deep
⑦ Mounting hole, Ø 4.2 mm
⑧ Adjustment sensing range: single teach-in button
⑨ Connection

Recommended accessories

Other models and accessories ➜ www.sick.com/W12

	Brief description	Type	part no.
network devices			
		IOLA2US-01101 (SiLink2 Master)	1061790
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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com

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