WT24-2B420S14

W24

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

WT24-2B420S14 | W24

PHOTOELECTRIC SENSORS

Ordering information

Type	part no.
WT24-2B420S14	1023363

Other models and accessories ➜ www.sick.com/W24

Illustration may differ

Detailed technical data

Features

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression
Dimensions (W x H x D)	27 mm x 87.5 mm x 65 mm
Housing design (light emission)	Rectangular
Sensing range max.	100 mm ... 2,500 mm [1]
Sensing range	100 mm ... 2,500 mm [1]
Type of light	Infrared light
Light source	LED [2]
Light spot size (distance)	Ø 80 mm (2,500 mm)
Adjustment	Potentiometer
Special features	Sensing range preset: 2300 mm (90 % reflectance) Front lense made of glass

[1] Object with 90% remission (based on standard white, DIN 5033).

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

Mechanics/electronics

Supply voltage U_B	10 V DC ... 30 V DC [1]

[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] Signal transit time with resistive load.

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

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

[7] C = interference suppression.

[8] D = outputs overcurrent and short-circuit protected.

[9] Reference voltage: 50 V DC.

Ripple	$< 5\ V_{pp}$ [2]
Current consumption	50 mA [3]
Switching output	NPN, PNP
Switching mode	Light/dark switching
Switching mode selector	Selectable via PNP/NPN selector, selectable via light/dark selector
Output current $I_{max.}$	≤ 100 mA
Response time	≤ 500 µs [4]
Switching frequency	1,000 Hz [5]
Time functions	Switch-on delay Off delay
Delay time	Adjustable via time delay selector switch, 0.6 s … 1.3 s
Connection type	Male connector M12, 4-pin
Circuit protection	A [6] C [7] D [8]
Protection class	II [9]
Weight	350 g
Special device	✓
Housing material	Metal, zinc diecast
Optics material	Glass, glass
Enclosure rating	IP67
Test input sender off	TE to 0 V
Ambient operating temperature	–40 °C … +60 °C
Ambient temperature, storage	–40 °C … +75 °C

[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] Signal transit time with resistive load.

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Safety-related parameters

$MTTF_D$	621 years
DC_{avg}	0 %

Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓

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	27270904
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

Adjustments
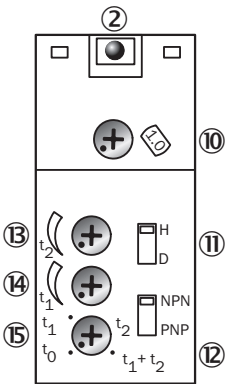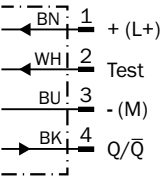

② LED signal strength indicator
⑩ Adjustment of sensing range
⑪ Light/dark selector
⑫ NPN/PNP changeover switch
⑬ time control t_2 = OFF delay
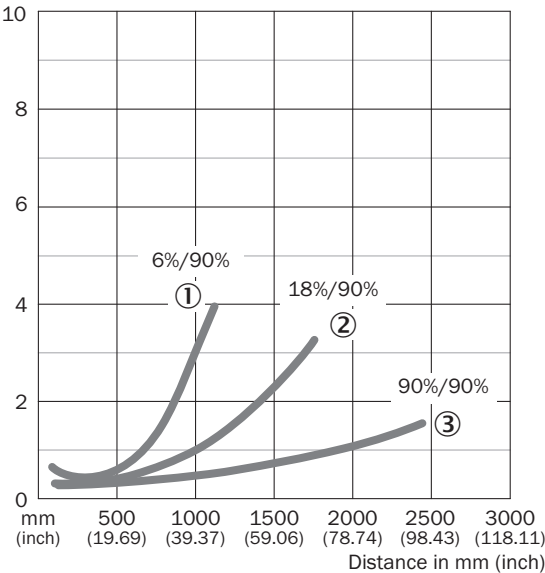⑭ time control t_1 = ON delay
⑮ time delay selector switch

Connection type
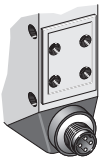
Connection diagram Cd-117

BN	1	+ (L+)
WH	2	Test
BU	3	- (M)
BK	4	Q/Q̄

Characteristic curve WT24-2, infrared light

6%/90% ①
18%/90% ②
90%/90% ③

mm (inch)   500 (19.69)   1000 (39.37)   1500 (59.06)   2000 (78.74)   2500 (98.43)   3000 (118.11)
Distance in mm (inch)

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

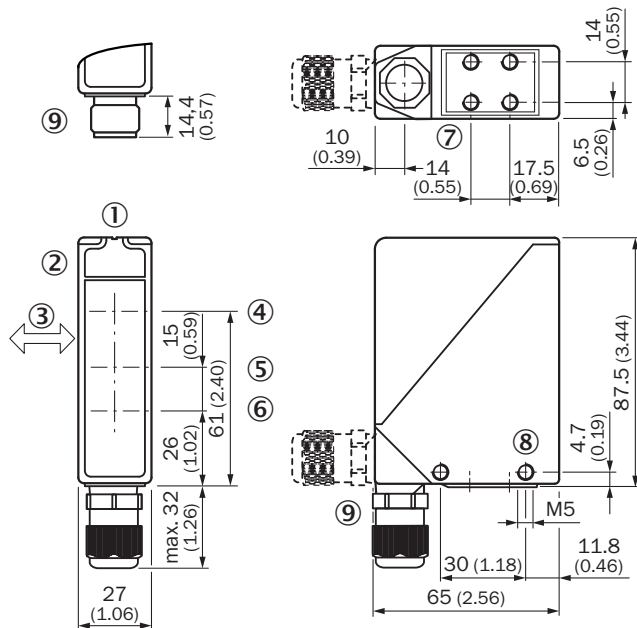## Sensing range diagram WT24-2, infrared light

①
②
③

0   400   800   1.200   1.600   2.000   2.400   2.800
Abstand in mm
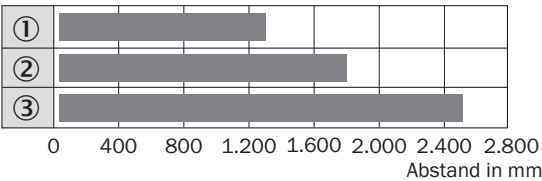
Schaltabstand

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 WT24-2

Dimensions in mm (inch)
① Alignment sight
② LED signal strength indicator
③ Standard direction of the material being detected
④ Center of optical axis, sender
⑤ Center of optical axis, receiver (close range)
⑥ Center of optical axis, receiver (far range)
⑦ M5 threaded mounting hole, 6 mm deep
⑧ M5 threaded mounting hole, through-hole
⑨ M16 screw fixing and plug rotatable by 90°

Recommended accessories

Other models and accessories ➔ www.sick.com/W24

	Brief description	Type	part no.
Mounting systems			
	• **Description:** Mounting bracket, large • **Material:** Stainless steel • **Details:** Stainless steel • **Items supplied:** Without mounting hardware for the sensor • **Suitable for:** W24-2	BEF-WG-W24	4026324
	• **Description:** Mounting bracket • **Material:** Stainless steel • **Details:** Stainless steel (1.4301) • **Items supplied:** Mounting hardware included • **Suitable for:** W24-2, W34	BEF-WN-W24	2015248
	• **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, PUR, halogen-free • **Description:** Sensor/actuator cable, unshielded • **Application:** Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A14-050UB3XLEAX	2095608
	• **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

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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