



Photoelectric sensors
W24-2, Photoelectric proximity sensor,
Background suppression

WT24-2B420S14



Model Name > **WT24-2B420S14**
Part No. > **1023363**



Illustration may differ

At a glance

- Precise background suppression at ranges up to 2500 mm
- Immune to ambient light and crosstalk from another photoelectric sensor
- Switch selectable PNP or NPN output, Switch selectable Light or Dark operating mode
- Variants with DC voltage and universal AC/DC voltage with UL approval
- Optional test input, adjustable ON and OFF time delays, alarm output and front screen heating also available in high-power version
- M12 or terminal chamber connection: 90° rotatable
- Red light or long-range IR

Your benefits

- Metal housing that has been IP 69K tested provides reliability and a long service life
- Immune to ambient light and crosstalk, reducing sensor downtime
- Precise detection at long sensing ranges
- User interface is stored under a durable protection hood to prevent unwanted tampering and protect vital components
- Selectable output type, operating mode, and adjustable time delays makes integration easier and reduce the number of devices needed
- Variants with DC voltage and universal AC/DC voltage provide installation flexibility



Features

Sensor/detection principle:	Photoelectric proximity sensor, 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 ... 3,000 mm ¹⁾
Sensing range:	100 mm ... 3,000 mm ²⁾
Type of light:	Infrared light ³⁾
Light source:	LED ³⁾
Light spot diameter (distance):	Ø 80 mm (2,500 mm)
Adjustment of operating distance:	Potentiometer
Time type:	Switch on delay time delay off
Delay time:	Adjustable via time delay selector switch: 0.6 ... 1.3 s

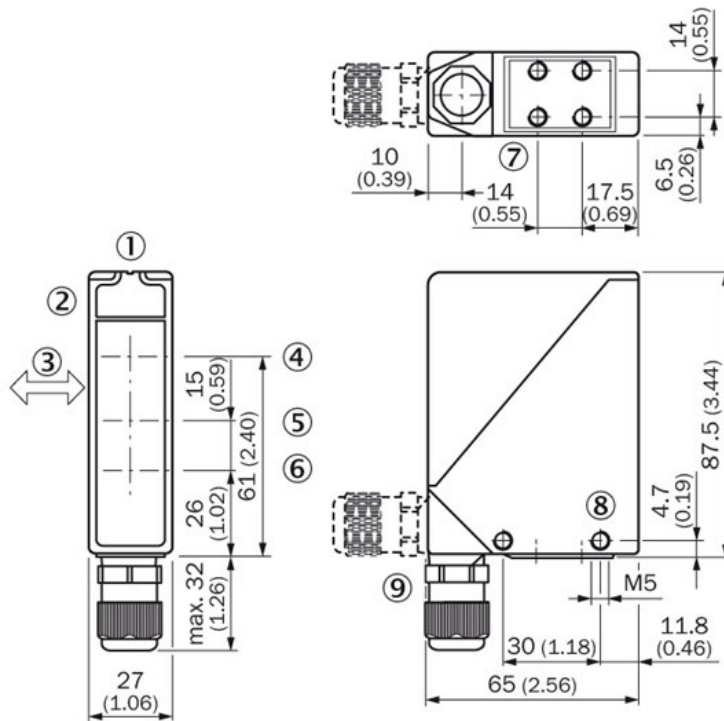
^{1) 2)} Object with 90 % reflectance (referred to standard white DIN 5033) ³⁾ Average service life of 100,000 h at T_A = +25 °C

Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Ripple:	< 5 V _{pp} ²⁾
Power consumption:	≤ 50 mA ³⁾
Output type:	NPN, Light/dark-switching, selectable via NPN/PNP selector, PNP, selectable via light/dark selector
Switching mode selector:	Selectable via light/dark selector, Selectable via NPN/PNP selector
Output current I _{max} :	100 mA
Response time:	≤ 500 μs ⁴⁾
Switching frequency:	1,000 Hz ⁵⁾
Connection type:	Connector M12, 4-pin ⁶⁾
Circuit protection:::	A, C, D ^{7) 8) 9)}
Protection class:	II ¹⁰⁾
Weight:	350 g
Special device:	✓
Housing material:	Zinc diecast
Optics material:	Glass
Enclosure rating:	IP 67
Special features:	Front lense made of glass, Sensing distance: preset 2300 mm (90 % reflectance)
Test input sender off:	TE to 0 V
Ambient operating temperature:	-40 °C ... 60 °C
Ambient storage temperature:	-40 °C ... 75 °C

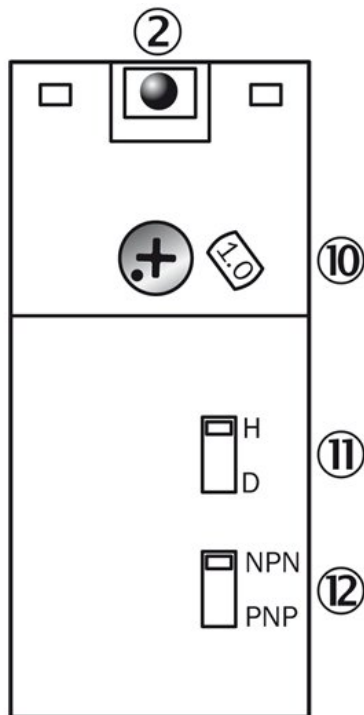
¹⁾ Limit values, operation in short-circuit protected network max. 8 A ²⁾ May not exceed or fall short of V_S tolerances ³⁾ Without load ⁴⁾ Signal transit time with resistive load ⁵⁾ With light/dark ratio 1:1 ⁶⁾ Connection rotatable by 90° ⁷⁾ A = V_S connections reverse-polarity protected ⁸⁾ C = interference suppression ⁹⁾ D = outputs overcurrent and short-circuit protected ¹⁰⁾ Reference voltage 50 V DC

Dimensional drawing



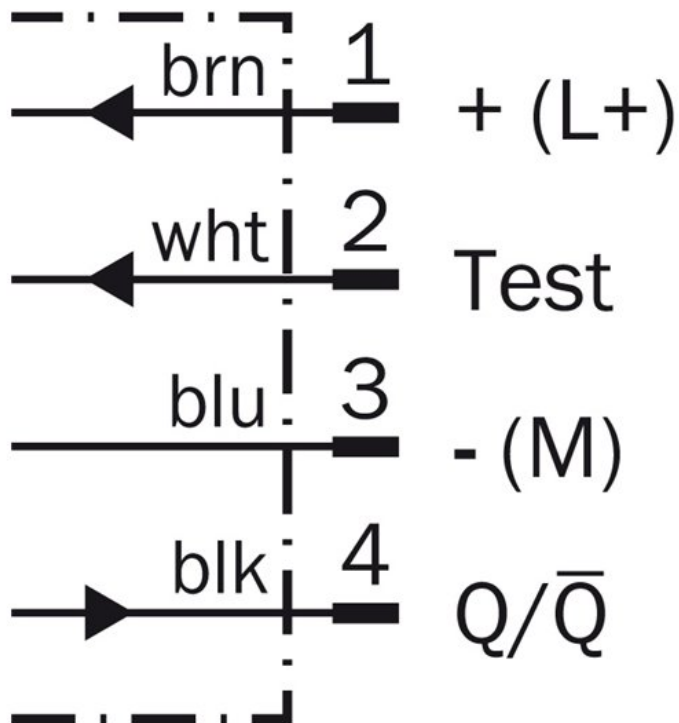
- |1| Alignment sight
- |2| LED signal strength indicator
- |3| Standard direction of the material being scanned
- |4| Center of optical axis, sender
- |5| Centre of optical axis, receiver (close range)
- |6| Centre of optical axis, receiver (far range)
- |7| M5 threaded mounting hole, 6 mm deep
- |8|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

Adjustments possible

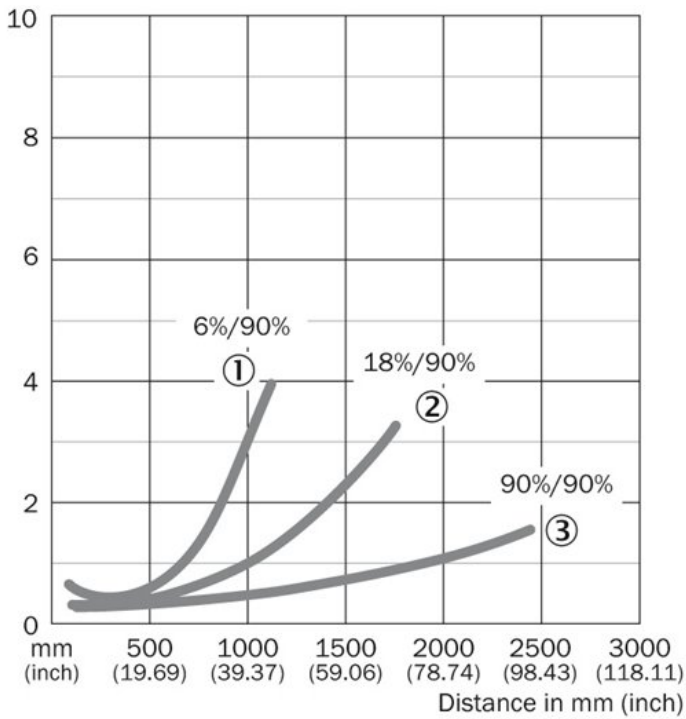


- |2| LED signal strength indicator
- |10| Adjustment sensing range
(WT) / sensitivity (WL, WS/WE)
- |11| Light/dark selector
- |12| NPN/ PNP selector

Connection diagram

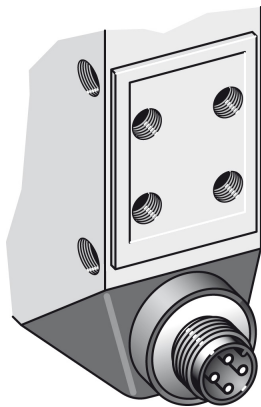


Characteristic curve

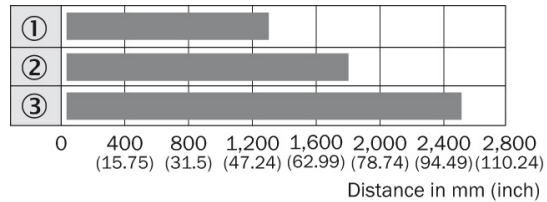


- [1] Sensing range on black, 6 % remission
- [2] Sensing range on grey, 18 % remission
- [3] Sensing range on white, 90 % remission

Connection type



Sensing range diagram



- Operating distance
- ① Scanning distance on black, 6 % remission
 - ② Scanning distance on grey, 18 % remission
 - ③ Scanning distance on white, 90 % remission

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