



Photoelectric sensors  
W12-3, Photoelectric proximity sensor,  
Background suppression

WTB12-3P2441S59



**Type** > [WTB12-3P2441S59](#)  
**Part No.** > [1056725](#)



*Illustration may differ*

**At a glance**

- State of the art technology provides precise background suppression
- Withstands harsh environments
- PinPoint LED technology with highly visible light spot; variants available with IR LED for highly critical applications
- Rugged die-cast zinc housing, with optional Teflon® coating
- Versatile mounting options due to dovetail mounting - mounting holes and oblong holes
- Flexible sensing ranges and hysteresis settings
- Key lock function, remote teach, quality monitoring
- Diagnostics messages (contamination and short-circuit)

**Your benefits**

- State of the art technology, e.g. OES3 provides precise background suppression and reliable detection of challenging objects
- High immunity to ambient light, optical reflections and crosstalk ensures fewer false readings and less downtime
- PinPoint LED technology provides a highly visible light spot that enables quick and easy sensor alignment
- Highly visible status LEDs simplify sensing distance adjustments and reduce installation time
- A rugged metal housing withstands high-pressure cleaners and cleaning agents, reducing downtime
- Complementary outputs in one housing reduce inventory and procurement costs
- IO-Link enables quick remote diagnostics and maintenance (optional)
- Easy installation using SICK accessories



**Features**

Sensor/detection principle:	Photoelectric proximity sensor, Background suppression
Dimensions (W x H x D):	15.6 mm x 48.5 mm x 42 mm
Housing design (light emission):	Rectangular
Sensing range max.:	50 mm ... 100 mm <sup>1)</sup>
Type of light:	Visible red light
Light source:	LED <sup>2)</sup>
Delay time:	One shot, 1.2 ms delay:
Special features:	Minimum detectable object size of Ø 0.4 mm, Sensing range preset: 55 mm
Adjustment:	Potentiometer, 5 turns
Light spot size (distance):	Ø 2 mm (60 mm)

1) Object with 6 % reflectance (referred to standard white, DIN 5033) 2) Average service life of 100,000 h at  $T_A = +25\text{ °C}$

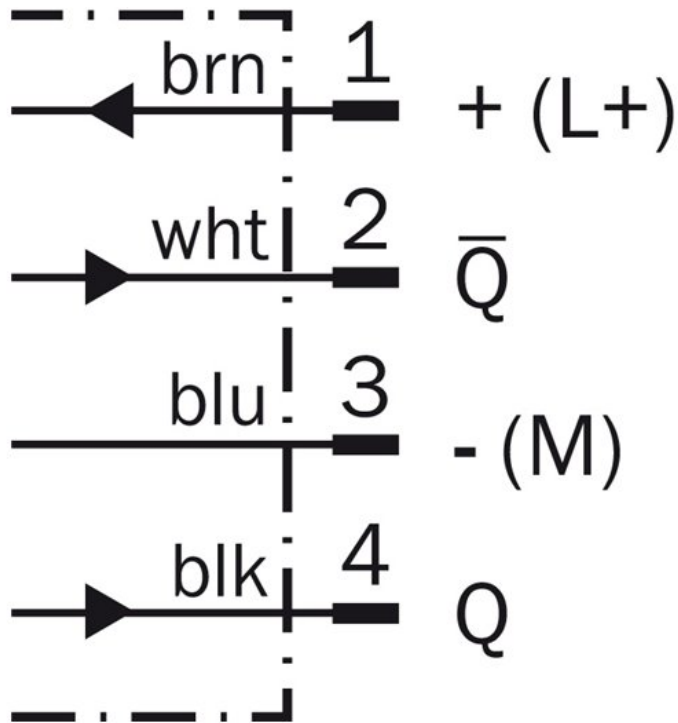
## Mechanics/electronics

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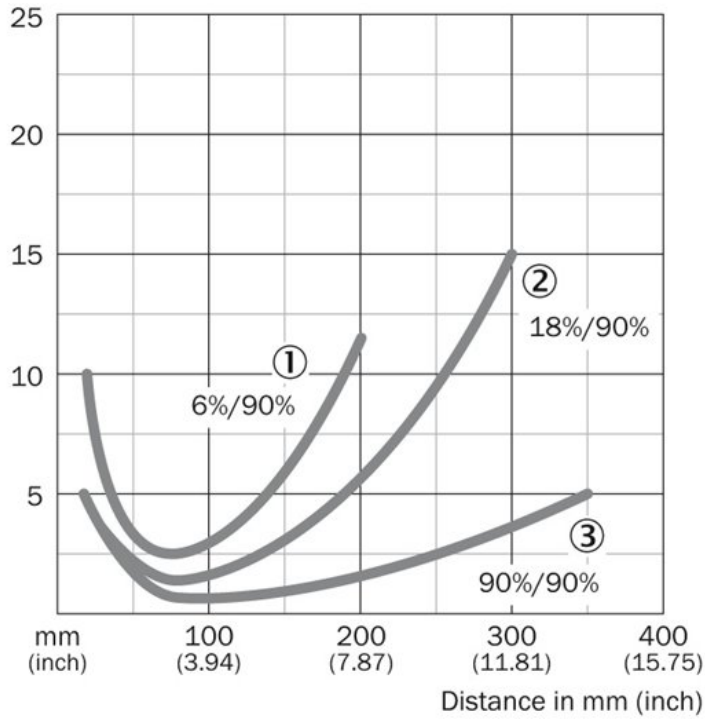
Supply voltage:	10 V DC ... 30 V DC <sup>1)</sup>
Ripple:	$\leq 5\text{ Vpp}$ <sup>2)</sup>
Power consumption:	$\leq 45\text{ mA}$ <sup>3)</sup>
Output type:	PNP
Output function:	Complementary
Switching mode:	Light switching
Output current I <sub>max.</sub> :	100 mA
Response time:	$\leq 250\text{ }\mu\text{s}$ <sup>4)</sup>
Switching frequency:	2,000 Hz <sup>5)</sup>
Connection type:	M12, 4-pin male connector
Circuit protection:::	A, C, D <sup>6) 7) 8)</sup>
Protection class:	II
Weight:	130 g
Special device:	✓
Housing material:	Metal
Enclosure rating:	IP 66 IP 67 IP 69K
Ambient operating temperature:	-40 °C ... +60 °C
Ambient storage temperature:	-40 °C ... +75 °C
UL File No.:	NRKH.E181493 & NRKH7.E181493
Signal voltage PNP HIGH/LOW:	$> U_v - 2,9\text{ V} / 0\text{ V} \leq 1,5\text{ V}$

1) Limit values, operation in short-circuit protected network max. 8 A 2) May not exceed or fall short of  $V_S$  tolerances <sup>3)</sup> Without load <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> With light/dark ratio 1:1 <sup>6)</sup> A =  $V_S$  connections reverse-polarity protected <sup>7)</sup> C = interference suppression <sup>8)</sup> D = outputs overcurrent and short-circuit protected

Connection diagram

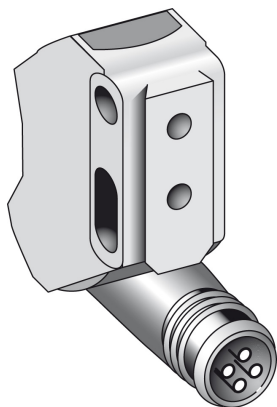


Characteristic curve

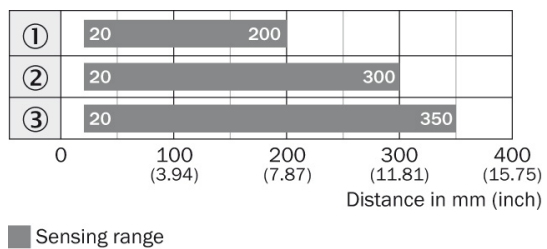


- [1] Sensing range on black, 6 % remission
- [2] Sensing range on gray, 18 % remission
- [3] Sensing range on white, 90 % remission

## Connection type



## Sensing range diagram



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