



W12-3

Rugged metal housing provides exceptional performance in demanding applications

SMALL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Technical data overview

Dimensions (W x H x D)	15.6 mm x 48.5 mm x 42 mm
Sensing range max.	30 mm ... 175 mm ¹⁾ 40 mm ... 200 mm ¹⁾ 30 mm ... 500 mm ¹⁾ 20 mm ... 350 mm ¹⁾ 20 mm ... 600 mm ¹⁾ 20 mm ... 80 mm ¹⁾ 50 mm ... 100 mm ²⁾ 15 mm ... 310 mm ¹⁾ 50 mm ... 800 mm ¹⁾ 30 mm ... 700 mm ¹⁾ 30 mm ... 350 mm ¹⁾ 20 mm ... 150 mm ¹⁾ 0 m ... 7 m ³⁾ 0 m ... 2 m ³⁾ 0.15 m ... 10 m ³⁾ 0 m ... 5 m ³⁾ 0 m ... 20 m 0 m ... 1.7 m ⁴⁾ 0 m ... 1.7 m 0 m ... 5 m
Light source	LED / PinPoint LED (depending on type)
Type of light	Visible red light / Infrared light (depending on type)
Enclosure rating	IP66 IP67 IP69K
Housing material	Metal Metal Zinc diecast
Adjustment	Potentiometer, 5 turns Double teach-in button Single teach-in button IO-Link None

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

²⁾ Object with 6 % reflectance (referred to standard white, DIN 5033).

³⁾ Reflector PL80A.

⁴⁾ With apertures.

Product description

The W12-3 family features a complete range of photoelectric sensors that are enclosed in a metal housing. There are a large number of variations that are available, including proximity, retro-reflective, through-beam, special laser and clear material versions. These sensors offer many advantages over conventional optical sensors due to their reliable object detection and monitoring capabilities. Whether in packaging, pharmaceutical, or the food and beverage industries – the W12 family provides a solution for any application.

At a glance

- Best-in-class optical performance due to superior OES technology
- Autocollimation with retro-reflective sensors
- Background and foreground suppression with second emitter LED on proximity sensors
- Highly visible, precise light spot and high-energy IR transmitters
- Rugged die-cast zinc housing, optional with Teflon[®] coating
- Mounting options with through holes, base blind holes, oblong through holes and dovetail
- Flexible sensor settings, monitoring, advanced diagnostics, and visualization thanks to IO-Link

Your benefits

- Reliable detection due to superior ASIC (application-specific integrated circuit) technology and immunity to optical interference factors from the industrial environment
- PinPoint LED technology provides a bright, small and precise light spot that enables quick and easy sensor alignment
- Precise switching characteristics ensure reliable object detection, reducing downtime caused by re-adjusting sensors during recipe changes
- Wide range of products enclosed in a rugged metal housing enables application flexibility in a broad range of industrial environments
- Flexible mounting options reduce installation time
- IO-Link provides easy data access from the PLC
- Quick and easy configuration
- Quick and easy integration using function blocks

Ordering information

Other models and accessories → www.sick.com/W12-3

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Foreground suppression
- **Switching mode:** Light/dark switching

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
30 mm ... 175 mm	Visible red light	LED	Double teach-in button	NPN	Male connector M12, 4-pin	WTF12-3N2433	1041409
				PNP	Male connector M12, 4-pin	WTF12-3P2433	1041405
			Potentiometer, 5 turns	NPN	Cable, 4-wire 2 m ¹⁾	WTF12-3N1131	1041410
					Male connector M12, 4-pin	WTF12-3N2431	1041408
				PNP	Cable, 4-wire 2 m ¹⁾	WTF12-3P1131	1041406
					Male connector M12, 4-pin	WTF12-3P2431	1041404
30 mm ... 500 mm	Visible red light	LED	Single teach-in button	NPN	Male connector M12, 4-pin	WTF12-3N2443	1094258
				PNP	Male connector M12, 4-pin	WTF12-3P2443	1041401
			Potentiometer, 5 turns	NPN	Male connector M12, 4-pin	WTF12-3N2441	1041403
					Cable, 4-wire 2 m ¹⁾	WTF12-3P1141	1041402
				PNP	Male connector M12, 4-pin	WTF12-3P2441	1041400
					Male connector M12, 4-pin	WTF12-3P2441S64	1061909

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
15 mm ... 310 mm	Infrared light	LED	None	PNP	M12 male connector, 4-pin, A-coding 2 m ¹⁾	WTB12-3P2470S05	1072498
	Visible red light	PinPoint LED	None	PNP	M12 male connector, 4-pin, A-coding 2 m ¹⁾	WTB12-3P2460S04	1057942

¹⁾ Do not bend below 0 °C.

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.			
20 mm ... 350 mm	Visible red light	LED	Double teach-in button	NPN	Male connector M12, 4-pin	WTB12-3N2433	1041417			
				PNP	Male connector M12, 4-pin	WTB12-3P2433	1041412			
			Potentiometer, 5 turns	NPN	Cable, 4-wire 2 m ¹⁾	WTB12-3N1131	1041418			
						WTB12-3N1131P01	1044102			
					Cable, 4-wire 5 m ¹⁾	WTB12-3N1231	1041419			
				Male connector M12, 4-pin	WTB12-3N2431	1041416				
				PNP	Cable with M12 male connector, 4-pin 270 mm	WTB12-3P3431	1075802			
					Cable, 4-wire 2 m ¹⁾	WTB12-3P1131	1041413			
					Cable, 4-wire 5 m ¹⁾	WTB12-3P1231	1041415			
					Male connector M12, 4-pin	WTB12-3F2431	1041420			
			WTB12-3P2431	1041411						
			20 mm ... 600 mm	Infrared light	LED	Double teach-in button	NPN	Male connector M12, 4-pin	WTB12-3N2413	1041428
							PNP	Male connector M12, 4-pin	WTB12-3P2413	1041423
Potentiometer, 5 turns	NPN	Cable, 4-wire 2 m ¹⁾				WTB12-3N1111	1041429			
		Cable, 4-wire 3 m ¹⁾				WTB12-3N1711	1041430			
		Male connector M12, 4-pin				WTB12-3N2411	1041427			
PNP	Cable, 4-wire 2 m ¹⁾	WTB12-3P1111				1041424				
	Cable, 4-wire 3 m ¹⁾	WTB12-3P1711				1041426				
	Male connector M12, 4-pin	WTB12-3P2411				1041422				
20 mm ... 80 mm	Infrared light	LED	Potentiometer, 5 turns	PNP	Male connector M12, 4-pin	WTB12-3P2441S63	1059689			
30 mm ... 175 mm	Visible red light	LED	Potentiometer, 5 turns	PNP	Male connector M12, 4-pin	WTB12-3P2441	1041421			
30 mm ... 350 mm	Visible red light	LED	Potentiometer, 5 turns	PNP	Male connector M12, 5-pin	WTB12-3P2531S46	1044103			

¹⁾ Do not bend below 0 °C.

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
30 mm ... 500 mm	Visible red light	PinPoint LED	Potentiometer, 5 turns	PNP	Cable with M12 male connector, 4-pin 200 mm	WTB12-3P3461S03	1057676
					Male connector M12, 4-pin	WTB12-3P2461S58	1047850
30 mm ... 700 mm	Visible red light	PinPoint LED	Potentiometer, 5 turns	PNP	Male connector M12, 4-pin	WTB12-3P2461S02	1055582
50 mm ... 800 mm	Visible red light	PinPoint LED	Potentiometer, 5 turns	PNP	Male connector M12, 4-pin	WTB12-3P2461S01	1051967

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching
- **Smart Task name:** base logics

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
20 mm ... 350 mm	Visible red light	PinPoint LED	IO-Link, Single teach-in button	PNP	Male connector M12, 4-pin	WTB12C-3P2432A00	1067771

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching
- **Smart Task name:** Time measurement + debouncing

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
20 mm ... 350 mm	Visible red light	PinPoint LED	IO-Link, Single teach-in button	PNP	Male connector M12, 4-pin	WTB12C-3P2432A70	1067772

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching
- **Smart Task name:** Counter + debouncing

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
20 mm ... 350 mm	Visible red light	PinPoint LED	IO-Link, Single teach-in button	PNP	Male connector M12, 4-pin	WTB12C-3P2432A71	1067773

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Switching mode:** Light/dark switching
- **Smart Task name:** timestamp + debouncing

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
20 mm ... 350 mm	Visible red light	PinPoint LED	IO-Link, Single teach-in button	PNP	Male connector M12, 4-pin	WTB12C-3P2432A91	1060222

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Switching mode:** Light switching

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
20 mm ... 150 mm	Infrared light	LED	None	NPN	Cable with AMP connector 0.32 m ¹⁾	WTB12-3N1011S42	1044101
20 mm ... 600 mm	Infrared light	LED	Potentiometer, 5 turns	NPN	-	WTB12-3N1011S47	1044104
50 mm ... 100 mm	Visible red light	LED	Potentiometer, 5 turns	PNP	Male connector M12, 4-pin	WTB12-3P2441S50	1044106
						WTB12-3P2441S59	1056725

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** autocollimation
- **Switching mode:** Light/dark switching

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.	
0 m ... 2 m	Visible red light	LED	Potentiometer, 5 turns	NPN	Cable, 4-wire 2 m ¹⁾	WL12-3N1151	1041451	
						WL12-3N1161	1041455	
					Male connector M12, 4-pin	WL12-3N2451	1041450	
						WL12-3N2461	1041454	
				PNP	Cable, 4-wire 2 m ¹⁾	WL12-3P1151	1041449	
						WL12-3P1161	1041453	
					Male connector M12, 4-pin	WL12-3P2451	1041448	
						WL12-3P2451P01	1044118	
						WL12-3P2461	1041452	
						WL12-3P2461	1041452	
0 m ... 7 m	Visible red light	LED	None	NPN	Cable, 4-wire 5 m ¹⁾	WL12-3N1230S33	1044110	
						Potentiometer, 5 turns	NPN	Cable, 4-wire 2 m ¹⁾
				WL12-3N1141	1041447			
				Cable, 4-wire 3 m ¹⁾	WL12-3N1731		1041442	
					Male connector M12, 4-pin		WL12-3N2431	1041440
				WL12-3N2441			1041446	
				PNP	Cable, 4-wire 2 m ¹⁾		WL12-3P1131	1041437
						WL12-3P1141	1041445	
			Cable, 4-wire 3 m ¹⁾		WL12-3P1731	1041438		
					Male connector M12, 4-pin	WL12-3P2431	1041436	
			WL12-3P2431S43			1044113		
			WL12-3P2441			1041444		
			WL12-3P2441			1041444		

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** autocollimation
- **Switching mode:** Dark switching

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 7 m	Visible red light	LED	Potentiometer, 5 turns	PNP	Male connector M12, 4-pin	WL12-3V2431	1041537

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Dual lens
- **Switching mode:** Light/dark switching

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0.15 m ... 10 m	Visible red light	LED	Single teach-in button	PNP	Male connector M12, 4-pin	WL12-3P2432S01	1059691

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** autocollimation
- **Switching mode:** Light/dark switching
- **Smart Task name:** base logics

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 5 m	Visible red light	PinPoint LED	IO-Link, Single teach-in button	PNP	Male connector M12, 4-pin	WL12C-3P2432A00	1067774

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** autocollimation
- **Switching mode:** Light/dark switching
- **Smart Task name:** Time measurement + debouncing

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 5 m	Visible red light	PinPoint LED	IO-Link, Single teach-in button	PNP	Male connector M12, 4-pin	WL12C-3P2432A70	1067775

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** autocollimation
- **Switching mode:** Light/dark switching
- **Smart Task name:** Counter + debouncing

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 5 m	Visible red light	PinPoint LED	IO-Link, Single teach-in button	PNP	Male connector M12, 4-pin	WL12C-3P2432A71	1067776

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** autocollimation
- **Switching mode:** Light/dark switching
- **Smart Task name:** timestamp + debouncing

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 5 m	Visible red light	PinPoint LED	IO-Link, Single teach-in button	PNP	Male connector M12, 4-pin	WL12C-3P2432A91	1067777

- **Sensor principle:** Through-beam photoelectric sensor
- **Switching mode:** Light/dark switching

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 1.7 m	Visible red light	LED	Potentiometer, 5 turns	PNP	Cable, 4-wire 2 m ¹⁾	WSE12-3P1131S18	1044119
					Male connector M12, 4-pin	WSE12-3P2431S40	1044121
0 m ... 20 m	Infrared light	LED	Potentiometer, 5 turns	PNP	Cable, 4-wire 2 m ¹⁾	WSE12-3P1111	1041464
					Visible red light	LED	Potentiometer, 5 turns
	Male connector M12, 4-pin	WSE12-3N2431	1041462				
	PNP	Cable, 4-wire 2 m ¹⁾	WSE12-3P1131	1041460			
Male connector M12, 4-pin		WSE12-3P2431	1041459				
0 m ... 5 m	Infrared light	LED	Potentiometer, 5 turns	NPN	Male connector M12, 4-pin	WSE12-3N2411S37	1045357
				PNP	Male connector M12, 4-pin	WSE12-3P2411S36	1044120

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Through-beam photoelectric sensor
- **Switching mode:** Light/dark switching
- **Smart Task name:** base logics

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 20 m	Visible red light	PinPoint LED	IO-Link	PNP	Male connector M12, 4-pin	WSE12C-3P2430A00	1067780

- **Sensor principle:** Through-beam photoelectric sensor
- **Switching mode:** Light/dark switching
- **Smart Task name:** Time measurement + debouncing

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 20 m	Visible red light	PinPoint LED	IO-Link	PNP	Male connector M12, 4-pin	WSE12C-3P2430A70	1067781

- **Sensor principle:** Through-beam photoelectric sensor
- **Switching mode:** Light/dark switching
- **Smart Task name:** Counter + debouncing

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 20 m	Visible red light	PinPoint LED	IO-Link	PNP	Male connector M12, 4-pin	WSE12C-3P2430A71	1067782

- **Sensor principle:** Through-beam photoelectric sensor
- **Switching mode:** Light/dark switching
- **Smart Task name:** Speed and Length Monitoring

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 20 m	Visible red light	PinPoint LED	IO-Link	PNP	Male connector M12, 4-pin	WSE12C-3P2430A72	1098510

- **Sensor principle:** Through-beam photoelectric sensor
- **Switching mode:** Light/dark switching
- **Smart Task name:** timestamp + debouncing

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 20 m	Visible red light	PinPoint LED	IO-Link	PNP	Male connector M12, 4-pin	WSE12C-3P2430A91	1067783

- **Sensor principle:** Through-beam photoelectric sensor
- **Switching mode:** Dark switching

Sensing range max.	Type of light	Light source	Adjustment	Switching output	Connection type	Type	Part no.
0 m ... 20 m	Infrared light	LED	Potentiometer, 5 turns	PNP	Cable, 4-wire 2 m ¹⁾	WSE12-3V1111S01	1058190
						WSE12-3V1111S04	1064466
	Visible red light	LED	Potentiometer, 5 turns	PNP	Cable, 4-wire 2 m ¹⁾	WSE12-3P1131S03	1064450
						WSE12-3V1131S02	1058191

¹⁾ Do not bend below 0 °C.

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