



W12-3

Rugged metal housing provides exceptional performance in demanding applications

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 ... 340 mm ¹⁾ 50 mm ... 800 mm ¹⁾ 30 mm ... 700 mm ¹⁾ 30 mm ... 350 mm ¹⁾ 20 mm ... 150 mm ¹⁾ 15 mm ... 310 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
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Light/dark switching
- **Type of light:** visible red light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
30 mm ... 175 mm	NPN	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WTF12-3N1131	1041410
			Male connector M12, 4-pin	WTF12-3N2431	1041408
		Teach-in button	Male connector M12, 4-pin	WTF12-3N2433	1041409
	PNP	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WTF12-3P1131	1041406
			Male connector M12, 4-pin	WTF12-3P2431	1041404
		Teach-in button	Male connector M12, 4-pin	WTF12-3P2433	1041405
30 mm ... 500 mm	NPN	Potentiometer	Male connector M12, 4-pin	WTF12-3N2441	1041403
		Teach-in button	Male connector M12, 4-pin	WTF12-3N2443	1094258
	PNP	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WTF12-3P1141	1041402
			Male connector M12, 4-pin	WTF12-3P2441	1041400
		Teach-in button	Male connector M12, 4-pin	WTF12-3P2443	1041401
40 mm ... 200 mm	PNP	Potentiometer	Male connector M12, 4-pin	WTF12-3P2441S64	1061909

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Light/dark switching
- **Type of light:** visible red light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
20 mm ... 350 mm	NPN	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WTB12-3N1131	1041418
				WTB12-3N1131P01	1044102
			Cable, 4-wire, 5 m ¹⁾	WTB12-3N1231	1041419
				WTB12-3N2431	1041416
		Teach-in button	Male connector M12, 4-pin	WTB12-3N2433	1041417
	PNP	Potentiometer	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
		Teach-in button	Cable with M12 male connector, 4-pin, 270 mm	WTB12-3P3433	1112363
			Male connector M12, 4-pin	WTB12-3P2433	1041412
30 mm ... 175 mm	PNP	Potentiometer	Male connector M12, 4-pin	WTB12-3P2441	1041421
30 mm ... 350 mm	PNP	Potentiometer	Male connector M12, 5-pin	WTB12-3P2531S46	1044103

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Light source:** PinPoint LED
- **Voltage type:** DC
- **Switching mode:** Light/dark switching
- **Type of light:** visible red light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
15 mm ... 340 mm	PNP	None	M12 male connector, 4-pin, A-coding, 2 m ¹⁾	WTB12-3P2460S04	1057942

¹⁾ Do not bend below 0 °C.

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
20 mm ... 350 mm	PNP	Cable, Teach-in button	Male connector M12, 4-pin	WTB12C-3P2432A00	1067771
				WTB12C-3P2432A70	1067772
				WTB12C-3P2432A71	1067773
				WTB12C-3P2432A91	1060222
30 mm ... 500 mm	PNP	Potentiometer	Cable with M12 male connector, 4-pin, 200 mm	WTB12-3P3461S03	1057676
			Male connector M12, 4-pin	WTB12-3P2461S58	1047850
30 mm ... 700 mm	PNP	Potentiometer	Male connector M12, 4-pin	WTB12-3P2461S02	1055582
50 mm ... 800 mm	PNP	Potentiometer	Male connector M12, 4-pin	WTB12-3P2461S01	1051967

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Light/dark switching
- **Type of light:** Infrared light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
15 mm ... 310 mm	PNP	None	M12 male connector, 4-pin, A-coding, 2 m ¹⁾	WTB12-3P2470S05	1072498
20 mm ... 600 mm	NPN	Potentiometer	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
		Teach-in button	Male connector M12, 4-pin	WTB12-3N2413	1041428
	PNP	Potentiometer	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
		Teach-in button	Male connector M12, 4-pin	WTB12-3P2413	1041423
20 mm ... 80 mm	PNP	Potentiometer	Male connector M12, 4-pin	WTB12-3P2441S63	1059689

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Light switching
- **Type of light:** visible red light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
50 mm ... 100 mm	PNP	Potentiometer	Male connector M12, 4-pin	WTB12-3P2441S50	1044106
				WTB12-3P2441S59	1056725

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Light switching
- **Type of light:** Infrared light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
20 mm ... 150 mm	NPN	None	Cable with AMP connector, 0.32 m ¹⁾	WTB12-3N1011S42	1044101
20 mm ... 600 mm	NPN	Potentiometer	–	WTB12-3N1011S47	1044104

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** autocollimation
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Light/dark switching
- **Type of light:** visible red light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
0 m ... 2 m	NPN	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WL12-3N1151	1041451
				WL12-3N1161	1041455
			Male connector M12, 4-pin	WL12-3N2451	1041450
				WL12-3N2461	1041454
	PNP	Potentiometer	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

¹⁾ Do not bend below 0 °C.

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
0 m ... 7 m	NPN	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WL12-3N1131	1041441
				WL12-3N1141	1041447
			Cable, 4-wire, 3 m ¹⁾	WL12-3N1731	1041442
				WL12-3N2431	1041440
		None	Male connector M12, 4-pin	WL12-3N2441	1041446
				WL12-3N1230S33	1044110
	PNP	Potentiometer	Cable, 4-wire, 5 m ¹⁾	WL12-3P1131	1041437
			Cable, 4-wire, 2 m ¹⁾	WL12-3P1141	1041445
				WL12-3P1731	1041438
			Cable, 4-wire, 3 m ¹⁾	WL12-3P2431	1041436
				WL12-3P2431S43	1044113
				WL12-3P2441	1041444

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** autocollimation
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Dark switching
- **Type of light:** visible red light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
0 m ... 7 m	PNP	Potentiometer	Male connector M12, 4-pin	WL12-3V2431	1041537

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Dual lens
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Light/dark switching
- **Type of light:** visible red light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
0.15 m ... 10 m	PNP	Teach-in button	Male connector M12, 4-pin	WL12-3P2432S01	1059691

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** autocollimation
- **Light source:** PinPoint LED
- **Voltage type:** DC
- **Switching mode:** Light/dark switching
- **Type of light:** visible red light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
0 m ... 5 m	PNP	Cable, Teach-in button	Male connector M12, 4-pin	WL12C-3P2432A00	1067774
				WL12C-3P2432A70	1067775
				WL12C-3P2432A71	1067776
				WL12C-3P2432A91	1067777

- **Sensor principle:** Through-beam photoelectric sensor
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Light/dark switching
- **Type of light:** visible red light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
0 m ... 1.7 m	PNP	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WSE12-3P1131S18	1044119
			Male connector M12, 4-pin	WSE12-3P2431S40	1044121
0 m ... 20 m	NPN	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WSE12-3N1131	1041463
			Male connector M12, 4-pin	WSE12-3N2431	1041462
	PNP	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WSE12-3P1131	1041460
			Male connector M12, 4-pin	WSE12-3P2431	1041459

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Through-beam photoelectric sensor
- **Light source:** PinPoint LED
- **Voltage type:** DC
- **Switching mode:** Light/dark switching
- **Type of light:** visible red light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
0 m ... 20 m	PNP	Cable	Male connector M12, 4-pin	WSE12C-3P2430A00	1067780
				WSE12C-3P2430A70	1067781
				WSE12C-3P2430A71	1067782
				WSE12C-3P2430A72	1098510
				WSE12C-3P2430A91	1067783

- **Sensor principle:** Through-beam photoelectric sensor
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Dark switching
- **Type of light:** visible red light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
0 m ... 20 m	PNP	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WSE12-3P1131S03	1064450
				WSE12-3V1131S02	1058191

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Through-beam photoelectric sensor
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Light/dark switching
- **Type of light:** Infrared light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
0 m ... 20 m	PNP	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WSE12-3P1111	1041464
0 m ... 5 m	NPN	Potentiometer	Male connector M12, 4-pin	WSE12-3N2411S37	1045357
	PNP	Potentiometer	Male connector M12, 4-pin	WSE12-3P2411S36	1044120

¹⁾ Do not bend below 0 °C.

- **Sensor principle:** Through-beam photoelectric sensor
- **Light source:** LED
- **Voltage type:** DC
- **Switching mode:** Dark switching
- **Type of light:** Infrared light

Sensing range max.	Switching output	Adjustment	Connection type	Type	Part no.
0 m ... 20 m	PNP	Potentiometer	Cable, 4-wire, 2 m ¹⁾	WSE12-3V1111S01	1058190
				WSE12-3V1111S04	1064466

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