



IML

Sensors with triple sensing range for use in industrial environments

INDUCTIVE PROXIMITY SENSORS

SICK
Sensor Intelligence.



Product description

For that little bit extra, the IML inductive sensors with their threefold sensing range are ideal. Thanks to innovative SICK-ASIC technology, they offer greatly extended sensing ranges up to 40 mm, providing even more capacity in reserve. Due to the threefold sensing range, objects can be detected from great distances, which minimizes the risk of damage to the sensor or the part to be detected. They can be used like conventional proximity sensors over a operating temperature of $-25\text{ }^{\circ}\text{C}$... $+70\text{ }^{\circ}\text{C}$, for performance without restrictions.

At a glance

- Types: M8 to M30
- Triple sensing ranges: 3 mm to 40 mm
- Electrical configuration: DC 3-wire
- Enclosure rating: IP 67
- Temperature range: $-25\text{ }^{\circ}\text{C}$ to $+75\text{ }^{\circ}\text{C}$
- Nickel-plated brass housing; plastic sensing face
- Triple sensing range

Your benefits

- Large switch reserves increase machine throughput thanks to threefold sensing range
- Reduction of downtimes and maintenance costs
- Saves installation space in the machine, since less space is needed compared to standard sensors, while the sensing range is identical
- Reduced risk of mechanical damage since the sensors can be installed farther away from the target
- High detection sensitivity makes possible the detection of difficult targets such as wires, foil and small screws

Ordering information

Other models and accessories →

Inductive sensors with triple the sensing distance



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Product description

IM Triple sensing distance inductive proximity sensors provide the longest sensing distances for many applications. Due to innovative ASIC technology, they offer greatly extended operating distances up to 40 mm.

With a triple sensing distance, inductive sensors require less maintenance costs.

Not only can targets be detected from further away, but the risk of hitting and breaking either the sensor or the target is also greatly reduced. They can be used like conventional proximity sensors over an operating temperature range from -25° C to +70° C.

At a glance

- M8 to M30 housings
- Triple operating distance up to 40 mm
- Operating temperature from -25° C to +70 °C
- High switching frequencies

Your benefits

- Reduced machine downtime and maintenance costs
- Large operating reserve due to triple operating distance improves machine throughput – no missed targets
- Saves installation space on the machine. Less space required for the same operating distance when compared with standard sensors
- Lower risk of mechanical damage due to their ability to be mounted further from the target
- High level of sensitivity makes them suitable for detecting difficult parts such as wires, thin sheets, small screws – reduces design and installation time

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Detailed technical data

Features

		IM08	IM12	IM18	IM30
Housing		M8 x 1	M12 x 1	M18 x 1	M30 x 1.5
Sensing range S_n	Quasi-flush	3 mm	6 mm	12 mm	22 mm
	Non-flush	6 mm	10 mm	20 mm	40 mm
Assured sensing range S_a	Quasi-flush	2.43 mm	4.86 mm	9.72 mm	17.82 mm
	Non-flush	4.86 mm	8.1 mm	16.2 mm	32.4 mm
Installation type		Quasi-flush ¹⁾ / Non-flush			
Switching frequency	Quasi-flush	1,000 Hz	800 Hz	500 Hz	200 Hz
	Non-flush	500 Hz	400 Hz	200 Hz	100 Hz
Output type		NPN / PNP			
Output function		NO	NO / NC	NO	NO / NC
Electrical wiring		DC 3-wire			
Enclosure rating ²⁾		IP 67			

¹⁾ Please note the installation notes.

²⁾ According to EN60529.

Mechanical / electrical

		IM08	IM12	IM18	IM30
Supply voltage		10 V DC ... 30 V DC			
Ripple ¹⁾		≤ 20 %			
Voltage drop ²⁾		≤ 2 V			
Current consumption ^{3) 3)}		≤ 10 mA			
Time delay before availability	Standard	≤ 50 ms	≤ 50 ms	≤ 50 ms / ≤ 100 ms	≤ 200 ms
	Short-body housing	≤ 50 ms	≤ 50 ms	≤ 50 ms	≤ 200 ms
Hysteresis		1 % ... 15 %			
Repeatability ^{4) 5)}		≤ 5 %			
Temperature drift (% of S_r)		± 10 %			
EMC		According to EN 60947-5-2			
Output current I_a		≤ 200 mA			
Connection type		Cable, 2 m, PVC / Connector, M8	Connector, M12 / Cable, 2 m, PVC	Cable, 2 m, PVC / Connector, M12	Connector, M12 / Cable, 2 m, PVC
Short-circuit protection		✓			
Reverse polarity protection		✓			
Power-up pulse protection		✓			
Shock/vibration		30 g, 11 ms/10 ... 55 Hz, 1 mm			
Ambient operating temperature		-25 °C ... +70 °C			
Housing material		Metal, Chrome-plated brass			
Housing cap material		Plastic, PBTP			
Tightening torque, max.		4 Nm	10 Nm	25 Nm	70 Nm
Adjustment indicators ⁶⁾		✓		-	

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	IM08	IM12	IM18	IM30
Reduction factor R_m	The values are reference values which may vary			
Stainless steel (V2A, 304)				
Quasi-flush	–		0.63	0.66
Non-flush	0.77		0.66	0.78
Stainless steel (V4A, 316L)				
Quasi-flush	0.72	0.7	–	
Non-flush	–	–	–	
Aluminum (Al)				
Quasi-flush	0.33	0.3	0.26	0.4
Non-flush	0.47	0.49	0.4	0.42
Copper (Cu)				
Quasi-flush	0.27	0.25	0.2	0.35
Non-flush	0.44	0.45	0.35	0.37
Brass (Br)				
Quasi-flush	0.41	0.4	0.33	0.45
Non-flush	0.55	0.56	0.45	0.47

¹⁾ Of V_s .²⁾ At I_a max.³⁾ Without load.⁴⁾ Of S_r .⁵⁾ UB = 20 ... 30 VDC, TA = 23 °C ± 5 °C.⁶⁾ LED lights continuously ($0 \leq s \leq 0.8$ sr) ; LED flashing ($0.8 \text{ sr} < s \leq \text{sr}$)

Ordering information

IM08

- Housing: M8 x 1

Sensing range S_n	Installation	Output function	Output type	Connection	Connection diagram	Model name	Part no.
3 mm	Quasi-flush	NO	PNP	Cable, 3-wire, 2 m, PVC	Cd-001	IM08-03BPS-ZW1	6027505
				Connector M8, 3-pin	Cd-002	IM08-03BPS-ZT1	6025574
			NPN	Cable, 3-wire, 2 m, PVC	Cd-001	IM08-03BNS-ZW1	6028074
6 mm	Non-flush	NO	PNP	Connector M8, 3-pin	Cd-002	IM08-06NPS-ZT1	6027508
				Cable, 3-wire, 2 m, PVC	Cd-001	IM08-06NPS-ZW1	6027506
			NPN	Cable, 3-wire, 2 m, PVC	Cd-001	IM08-06NNS-ZW1	6027507

IM12

- Housing: M12 x 1

Sensing range S_n	Installation	Output function	Output type	Connection	Connection diagram	Model name	Part no.
6 mm	Quasi-flush	NO	PNP	Cable, 3-wire, 2 m, PVC	Cd-001	IM12-06BPS-ZW1	6027509
				Connector M12, 4-pin	Cd-007	IM12-06BPS-ZC1	6027511
			NPN	Connector M12, 4-pin	Cd-007	IM12-06BNS-ZC1	6030524
		NC	PNP	Cable, 3-wire, 2 m, PVC	Cd-003	IM12-06BPO-ZW1	6027510
10 mm	Non-flush	NO	PNP	Connector M12, 4-pin	Cd-007	IM12-10NPS-ZC1	6027514
				Cable, 3-wire, 2 m, PVC	Cd-001	IM12-10NPS-ZW1	6027512
			NPN	Cable, 3-wire, 2 m, PVC	Cd-001	IM12-10NNS-ZW1	6027513

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IM18

- Housing: M18 x 1

Sensing range S_n	Installation	Output function	Output type	Connection	Housing	Connection diagram	Model name	Part no.
12 mm	Quasi-flush	NO	PNP	Connector M12, 4-pin	Standard	Cd-007	IM18-12BPS-ZC1	6027517
				Cable, 3-wire, 2 m, PVC	Standard	Cd-001	IM18-12BPS-ZW1	6027515
			NPN	Connector M12, 4-pin	Short-body housing	Cd-007	IM18-12BPS-ZCK	6025569
				Cable, 3-wire, 2 m, PVC	Standard	Cd-001	IM18-12BNS-ZW1	6027516
20 mm	Non-flush	NO	PNP	Connector M12, 4-pin	Standard	Cd-007	IM18-20NPS-ZC1	6027519
				Cable, 3-wire, 2 m, PVC	Standard	Cd-001	IM18-20NPS-ZW1	6027518
			NPN	Connector M12, 4-pin	Standard	Cd-007	IM18-20NNS-ZC1	6041997
				Cable, 3-wire, 2 m, PVC	Standard	Cd-001	IM18-20NNS-ZW1	6028093

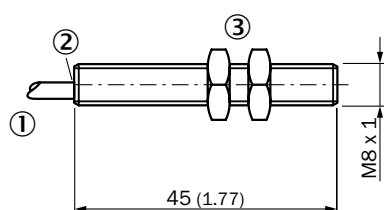
IM30

- Housing: M30 x 1.5

Sensing range S_n	Installation	Output function	Output type	Connection	Housing	Connection diagram	Model name	Part no.
22 mm	Quasi-flush	NO	NPN	Connector M12, 4-pin	Standard	Cd-007	IM30-22BNS-ZC1	6033033
				Cable, 3-wire, 2 m, PVC	Standard	Cd-001	IM30-22BNS-ZW1	6027520
			PNP	Connector M12, 4-pin	Standard	Cd-007	IM30-22BPS-ZC1	6027521
				Connector M12, 4-pin	Short-body housing	Cd-007	IM30-22BPS-ZCK	6025566
		NC	PNP	Connector M12, 4-pin	Short-body housing	Cd-008	IM30-22BPO-ZCK	6025568
40 mm	Non-flush	NO	PNP	Connector M12, 4-pin	Standard	Cd-007	IM30-40NPS-ZC1	6027522
			NPN	Connector M12, 4-pin	Standard	Cd-007	IM30-40NNS-ZC1	6033087

Dimensional drawings

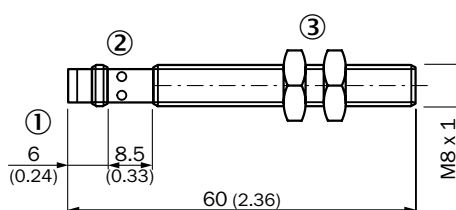
IM08-xxBxx-xW1, M8, quasi-flush, cable



All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); width across 13, metal

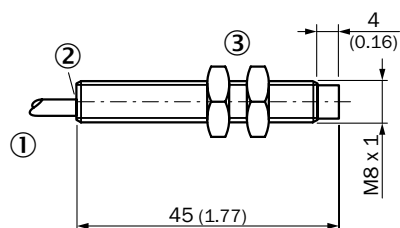
IM08-xxBxx-xT1, M8, quasi-flush, connector



All dimensions in mm (inch)

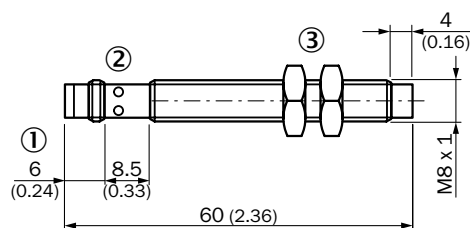
- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); width across 13, metal

C

**IM08-xxNxx-xW1,
M8, quasi-flush, cable**

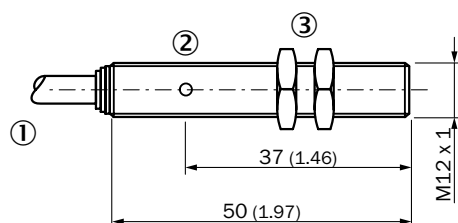
All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); width across 13, metal

**IM08-xxNxx-xT1,
M8, non-flush, connector**

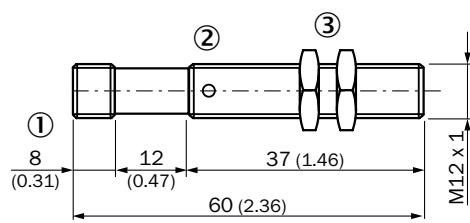
All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); width across 13, metal

**IM12-xxBxx-xW1,
M12, quasi-flush, cable**

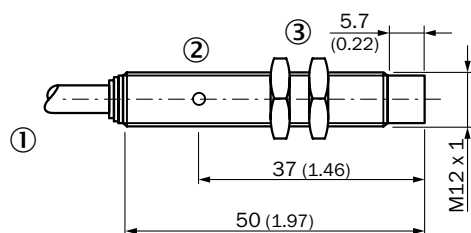
All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); width across 17, metal

**IM12-xxBxx-xC1,
M12, quasi-flush, connector**

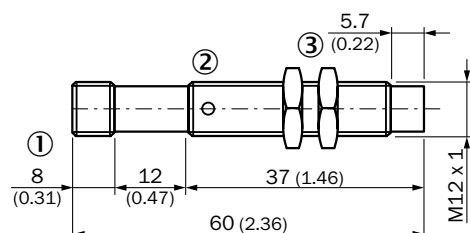
All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); width across 17, metal

**IM12-xxNxx-xW1,
M12, non-flush, cable**

All dimensions in mm (inch)

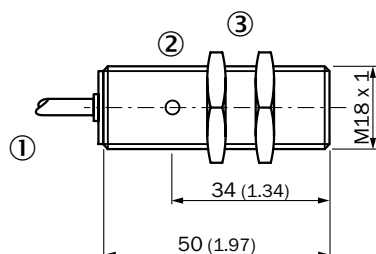
- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); width across 17, metal

**IM12-xxNxx-xC1,
M12, non-flush, connector**

All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); width across 17, metal

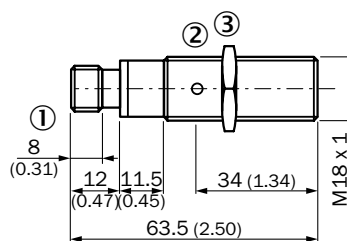
**IM18-xxBxx-xW1,
M18, quasi-flush, cable, standard**



All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); 36 mm hex, plastic

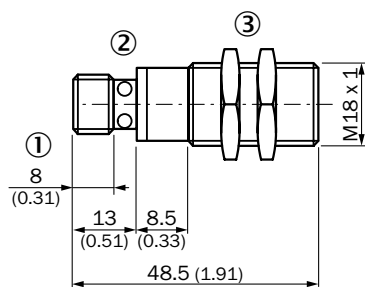
**IM18-xxBxx-xC1,
M18, quasi-flush, connector, standard**



All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); 36 mm hex, plastic

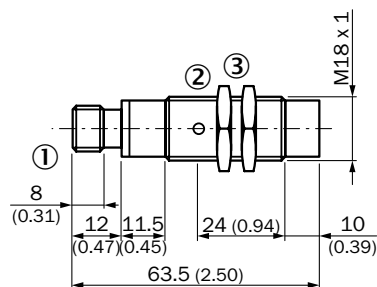
**IM18-xxBxx-xCK,
M18, quasi-flush, connector, short-body housing**



All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); 24 mm hex, metal

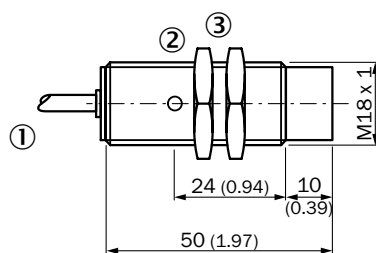
**IM18-xxNxx-xC1,
M18, non-flush, connector, standard**



All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); 36 mm hex, metal

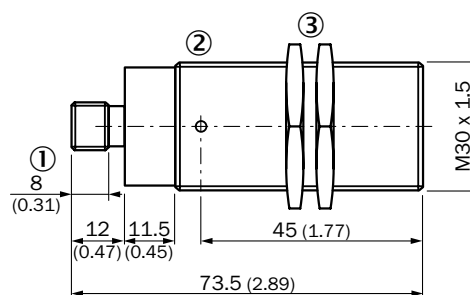
**IM18-xxNxx-xW1,
M18, non-flush, cable, standard**



All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); 36 mm hex, metal

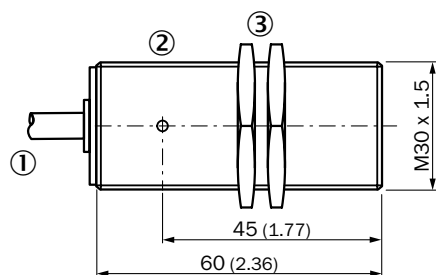
**IM30-xxBxx-xC1,
M30, quasi-flush, connector, standard**



All dimensions in mm (inch)

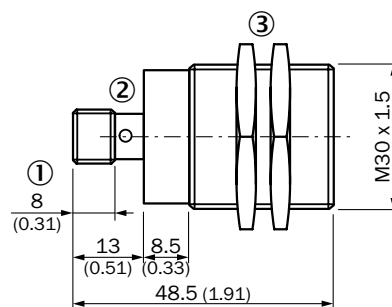
- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); 36 mm hex, metal

C

**IM30-xxBxx-xW1,
M30, quasi-flush, cable, standard**

All dimensions in mm (inch)

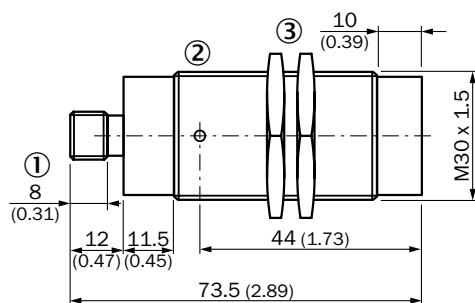
- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); 36 mm hex, metal

**IM30-xxBxx-xCK,
M30, quasi-flush, connector, short-body housing**

All dimensions in mm (inch)

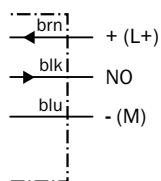
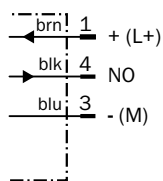
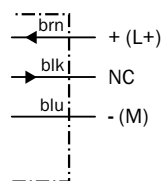
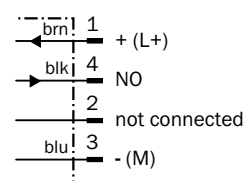
- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); 36 mm hex, metal

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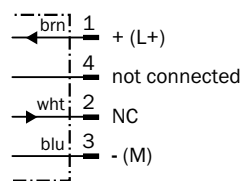
**IM30-xxNxx-xC1,
M30, non-flush, connector, standard**

All dimensions in mm (inch)

- ① Connection
- ② LED indicator
- ③ Fastening nuts (2 x); 36 mm hex, metal

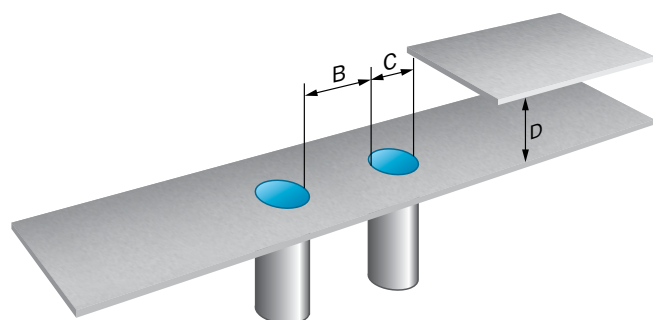
Connection diagram**Cd-001****Cd-002****Cd-003****Cd-007**

Cd-008

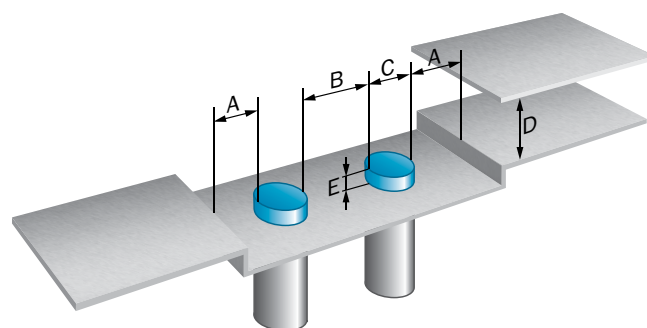


Installation note

Flush installation

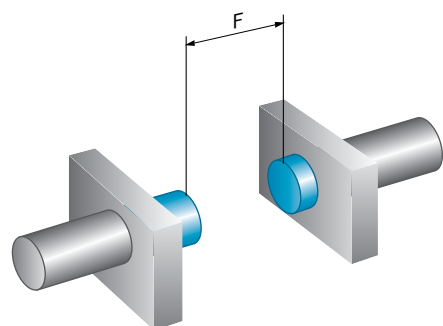


Non-flush installation



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Opposite installation

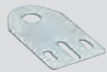
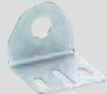


	Housing	Installation type	A	B	C	D	E	F
IM08-03Bxx-xxx	M8	Flush	2 mm	8 mm	8 mm	9 mm	1 mm	30 mm
IM08-06Nxx-xxx	M8	Non-flush	8 mm	20 mm	8 mm	18 mm	8 mm	60 mm
IM12-06Bxx-xxx	M12	Flush	6 mm	18 mm	12 mm	18 mm	2 mm	60 mm
IM12-10Nxx-xxx	M12	Non-flush	10 mm	30 mm	12 mm	30 mm	10 mm	100 mm
IM18-12Bxx-xxx	M18	Flush	9 mm	26 mm	18 mm	36 mm	4 mm	120 mm
IM18-20Nxx-xxx	M18	Non-flush	21 mm	60 mm	18 mm	60 mm	20 mm	200 mm
IM30-22Bxx-xxx	M30	Flush	22 mm	50 mm	30 mm	66 mm	6 mm	220 mm
IM30-40Nxx-xxx	M30	Non-flush	40 mm	120 mm	30 mm	120 mm	Aluminum: 25 mm Steel: 35 mm Brass: 25 mm Stainless steel: 20 mm	400 mm

Recommended accessories

Mounting brackets

- **Accessory type:** Mounting brackets
- **Material:** Steel, zinc coated

Figure	Thread size	Configuration	Model name	Part no.	IM08	IM12	IM18	IM30
	M8	Straight	BEF-WG-M08	5321722	●	-	-	-
		Right angle	BEF-WN-M08	5321721	●	-	-	-
	M12	Straight	BEF-WG-M12	5321869	-	●	-	-
		Right angle	BEF-WN-M12	5308447	-	●	-	-
	M18	Straight	BEF-WG-M18	5321870	-	-	●	-
		Right angle	BEF-WN-M18	5308446	-	-	●	-
	M30	Straight	BEF-WG-M30	5321871	-	-	-	●
		Right angle	BEF-WN-M30	5308445	-	-	-	●

Cordsets and connectors

Connector M12, 4-pin

- Enclosure rating: IP 67

Figure	Connector type	Configuration	Jacket material	Cable length	Model name	Part no.
	Female connector	Straight	PVC	2 m	DOL-1204-G02M	6009382
				5 m	DOL-1204-G05M	6009866
		Right angle	PVC	2 m	DOL-1204-W02M	6009383
				5 m	DOL-1204-W05M	6009867
		Straight	PBT	–	DOS-1204-G	6007302
		Right angle	PBT	–	DOS-1204-W	6007303
	Male connector	Straight	PBT	–	STE-1204-G	6009932
		Right angle	PBT	–	STE-1204-W	6022084

Connector M8, 3-pin

- Connector type: Female connector
- Enclosure rating: IP 67

Figure	Configuration	Jacket material	Cable length	Model name	Part no.
	Straight	PVC	2 m	DOL-0803-G02M	6010785
			5 m	DOL-0803-G05M	6022009
	Right angle	PVC	2 m	DOL-0803-W02M	6008489
			5 m	DOL-0803-W05M	6022010
	Straight	PBT	–	DOS-0803-G	7902077
	Right angle	PBT	–	DOS-0803-W	7902078

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Terminal and alignment brackets

- **Material:** Plastic (PA12), glass-fiber reinforced

Figure	Description	Thread size	Model name	Part no.	IM08	IM12	IM18
	Terminal brackets, without fixed stop	M8	BEF-KH-M08	2051477	●	-	-
		M12	BEF-KH-M12	2051479	-	●	-
		M18	BEF-KH-M18	2051481	-	-	●
	Terminal brackets, with fixed stop	M8	BEF-KHF-M08	2051478	●	-	-
		M12	BEF-KHF-M12	2051480	-	●	-
		M18	BEF-KHF-M18	2051482	-	-	●

→ For additional accessories, please see page G-255

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."



SICK
Sensor Intelligence.