



CM12 Capacitive proximity sensors

Intelligent capacitive sensor with cylindrical thread design

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Product description

The CM12 has a number of excellent features. It is equipped with optimized moisture compensation technology and offers a high level of protection against electromagnetic interference. The Dynamic Teach function enables you to adjust the sensor's sensitivity to suit the prevailing conditions. The CM12 also automatically detects the NPN output or PNP output load. Teach allows you to switch between the NO and NC functions.

The sensor has a compact design and long sensing range of up to 8 mm. Its fields of application are diverse and range from detecting objects in packaging for food, beverage, pharmaceutical, and cosmetic products to monitoring fill levels in print machine tanks or containers and supply lines for rubber and polymer granules.

At a glance

- High electromagnetic compatibility
- Compact sensor with long sensing range of up to 8 mm
- Teach-button for teaching in the background and/or the object (also possible via an external cable)
- Dynamic Teach for teaching in the background and/or the object
- Automatic detection of NPN output or PNP output load
- Teach-in procedure allows you to switch between the NO and NC functions

Your benefits

- Its high electromagnetic compatibility prevents switching errors and increases machine availability
- Its long sensing range and compact design allow the sensor to be used in a number of different applications
- The compact sensor design saves installation space
- Fast sensor configuration possible using Teach-in pushbutton or external control cable
- The Dynamic Teach function can be used to familiarize the sensor with the object/medium. This enables more reliable detection and thus increases the machine's throughput
- Less variants (NO/NC, NPN/PNP, flush/non-flush) means that fewer parts need to be stored
- Since measurements can also be made through the wall of the tank or container, there is no need to drill holes, reducing installation time



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→ www.mysick.com/en/CM12

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

Housing	Cylindrical
Thread size	M12 x 1
Sensing range S_n	8 mm
Assured sensing range S_a	5.76 mm
Installation type ¹⁾	Non-flush / flush
Switching frequency	Approx. 15 Hz
Output type	PNP / NPN (auto recognition)
Output function	Programmable
Electrical wiring	DC 4-wire
Sensitivity adjustment	Teach-in button / External Teach-in
Enclosure rating ^{2) 3)}	IP 68

¹⁾ For flush mounting, Teach-in necessary.

²⁾ According to EN 60529.

³⁾ 1.3 m water depth / 60 min.

Mechanics/electronics

Supply voltage	10 V DC ... 40 V DC
Ripple ¹⁾	≤ 10 %
Voltage drop ²⁾	≤ 2.5 V DC
Current consumption ³⁾	≤ 12 mA
Time delay before availability	≤ 120 ms
Hysteresis	3 % ... 20 %
Repeatability ^{4) 5)}	≤ 5 %
EMC ⁶⁾	According to EN 60947-5-2
Output current I_a	≤ 200 mA
Connection type	Connector, M12 Cable, 2 m, PVC ⁷⁾ (depending on type)
Short-circuit protection	✓
Reverse polarity protection	✓
Power-up pulse protection	✓
Shock/vibration	30 g, 11 ms / 10 ... 55 Hz, 1 mm
Ambient operating temperature	-20 °C ... +85 °C
Ambient storage temperature	-40 °C ... +85 °C
Housing material	PBT
Tightening torque, max.	≤ 1 Nm

¹⁾ Of U_b .

²⁾ At I_a max.

³⁾ Without load.

⁴⁾ Of S_r .

⁵⁾ U_b and T_a constant.

⁶⁾ Non-flush installation min. 1 x S_n and sensor grounded.

⁷⁾ Do not bend below 0 °C.

Reduction factors

Note	The values are reference values which may vary
Metal	1
Water	1
PVC	Approx. 0.4
Oil	Approx. 0.25

Ordering information

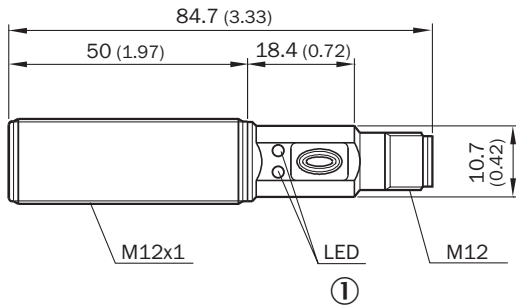
DC 4-wire

- Housing: M12 x 1
- Sensing range S_n : 8 mm
- Installation type: non-flush, flush
- Output function: programmable
- Output type: PNP, NPN (automatic detection.)

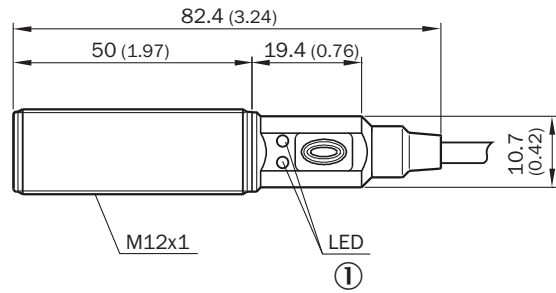
Connection	Connection diagram	Model name	Part no.
Connector M12, 4-pin	Cd-235	CM12-08EBP-KC1	6051030
Cable, 4-wire, 2 m, PVC	Cd-236	CM12-08EBP-KW1	6051029

Dimensional drawings

dimensions in mm (inch)

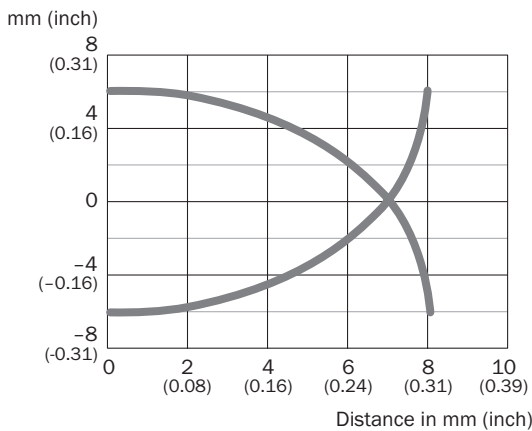


① LED yellow: output active;
LED green: Power and signal reserve



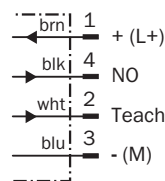
① LED yellow: output active;
LED green: Power and signal reserve

Characteristic curve

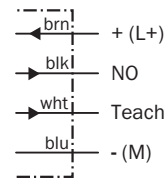


Connection diagram

Cd-235



Cd-236



Accessories

Mounting brackets/plates

Mounting brackets



- **Material:** Steel, zinc coated
- **Items supplied:** without mounting hardware

Figure	Description	Specialty	Model name	Part no.
	Mounting plate for M12 sensors	Straight	BEF-WG-M12	5321869
	Mounting bracket, M12 thread	Right angle	BEF-WN-M12	5308447

Plug connectors and cables



Connecting cable (female connector-open)

- **Jacket material:** PVC
- **Enclosure rating:** IP 67
- **Locking nut material:** CuZn
- **Connector material:** TPU

Figure	Connection type head A	Connection type head B	Cable length	Model name	Part no.
	Female connector, M12, 4-pin, straight	Cable	2 m	DOL-1204-G02M	6009382
			5 m	DOL-1204-G05M	6009866
			10 m	DOL-1204-G10M	6010543
	Female connector, M12, 4-pin, angled	Cable	2 m	DOL-1204-W02M	6009383
			5 m	DOL-1204-W05M	6009867
			10 m	DOL-1204-W10M	6010541

Female connector (ready to assemble)


- **Enclosure rating:** IP 67
- **Locking nut material:** CuZn
- **Connector material:** PBT

Figure	Connection type head A	Connection type head B	Model name	Part no.
	Female connector, M12, 4-pin, straight	-	DOS-1204-G	6007302
	Female connector, M12, 4-pin, angled	-	DOS-1204-W	6007303

Terminal and alignment brackets

Terminal brackets

- **Material:** Plastic (PA12), glass-fiber reinforced
- **Items supplied:** Mounting hardware included

Figure	Description	Specialty	Model name	Part no.
	Clamping block for round sensors M12, without fixed stop	Without fixed stop	BEF-KH-M12	2051479
	Clamping block for round sensors M12, with fixed stop	With fixed stop	BEF-KHF-M12	2051480

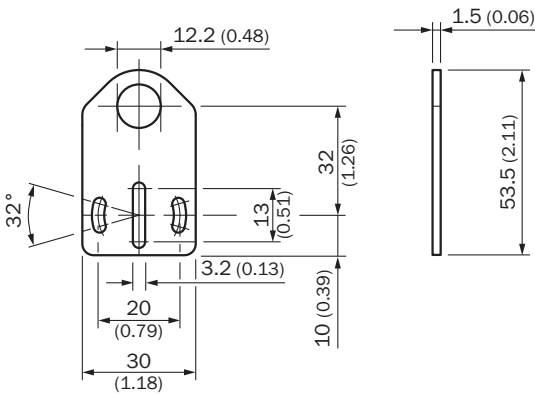
Dimensional drawings accessories

dimensions in mm

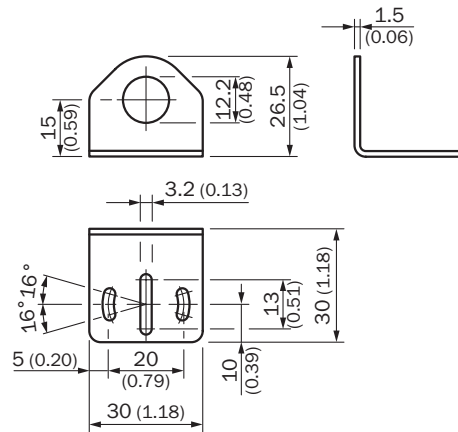
Mounting brackets/plates

Mounting brackets

BEF-WG-M12



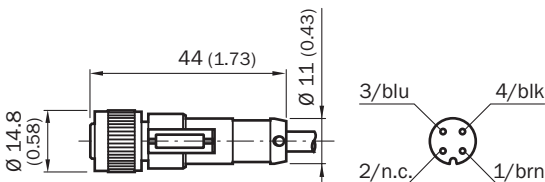
BEF-WN-M12



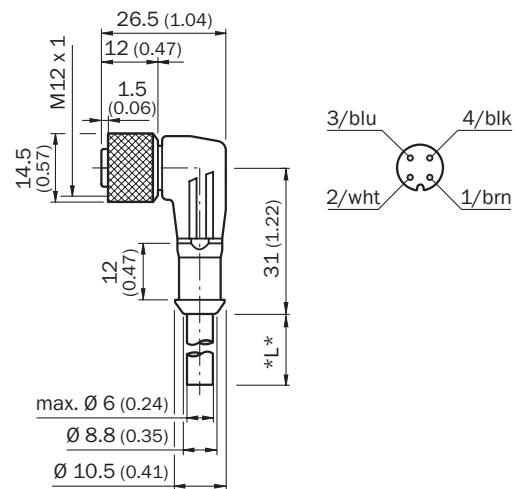
Plug connectors and cables

Connecting cable (female connector-open)

DOL-1204-GxxM

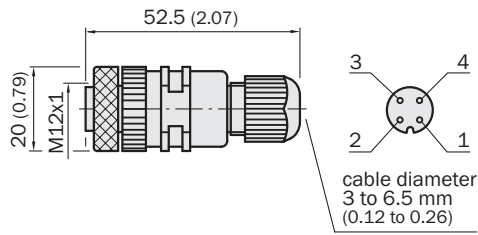


DOL-1204-WxxM

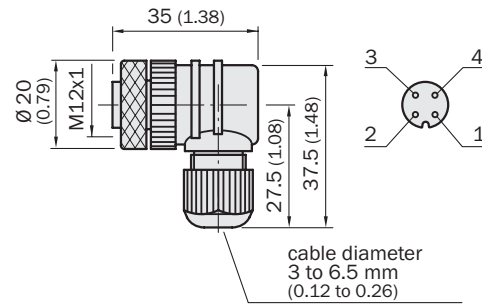


Female connector (ready to assemble)

DOS-1204-G



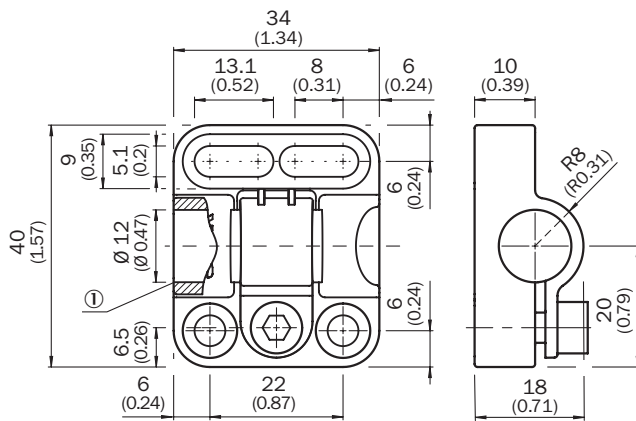
DOS-1204-W



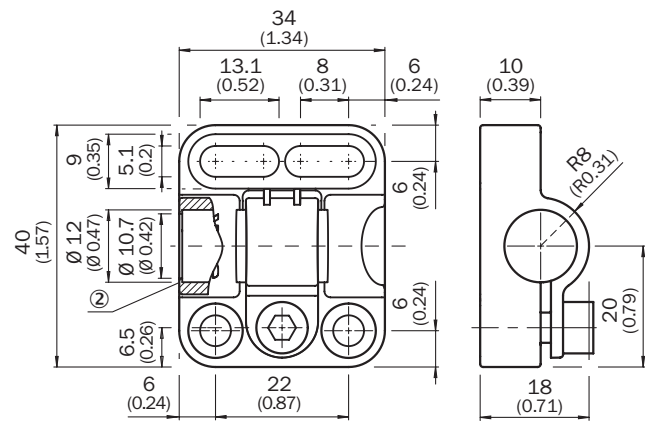
Terminal and alignment brackets

Terminal brackets

BEF-KH-M12

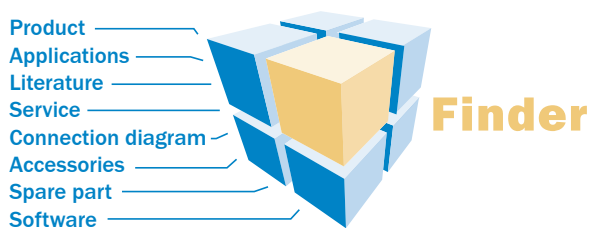


BEF-KHF-M12



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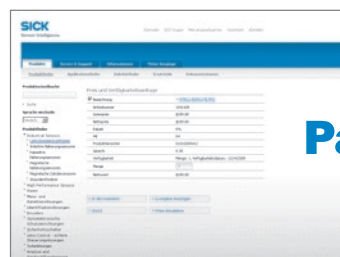


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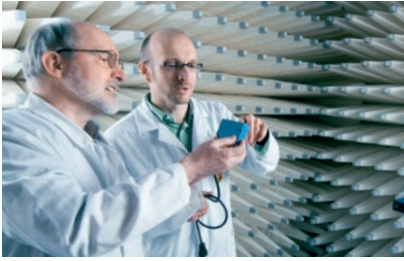


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