BALLUFF

M12 Capacitive Sensors with IO-Link

DETECT NONMETALLIC MATERIALS AND LEVELS OF LIQUIDS AND SOLIDS

Our new and improved M12 compact capacitive sensors accurately detect nonmetallic objects or materials and the levels of liquids and solids. These M12 capacitive sensors have improved electromagnetic compatibility (EMC), and their sensing face is composed of polyetheretherketone (PEEK), which is a stronger and better material than Teflon, providing outstanding chemical resistance. These latest versions are available with an IO-Link interface or with a conventional normally open or normally closed output, each with a push-pull function.

These capacitive sensors are ideal for detecting the presence of solid bodies like wood, cartons, paper stacks, bottles, and plastic. They are equally good at detecting material or liquids like granulates, sugar, oil, and aqueous media through a nonmetal wall, such as packaging, glass or plastic, with a maximum thickness of 4 mm. Flush-mounted versions have a measuring range of 0.5...5 mm, while non-flush mounting versions have a measuring range of 0.5...8 mm.
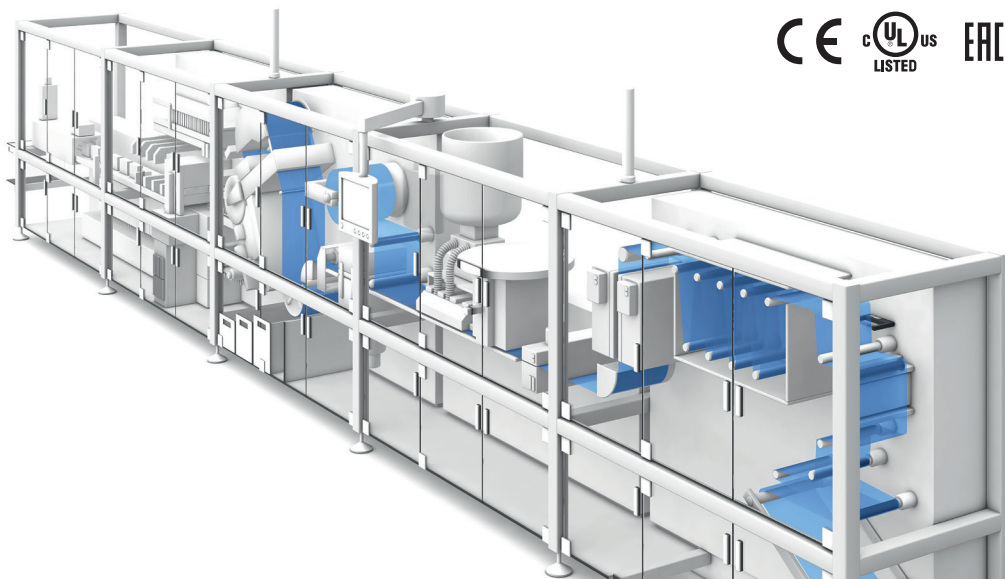
The IO-Link versions can use IO-Link Device Manager software to configure features like full/empty calibration, switching setpoint, and output type. This can be done via IO-Link through the network, or connect directly to the sensor using the USB IO-Link Master module. The software allows you to configure and test IO-Link devices and also to monitor process values after deployment.

For the standard versions of the sensor, you can use the BAE00MN M12 teach-adapter accessory. It makes it simple to calibrate the sensor, setting the switching point sensitivity and limits, all using the adapter's pushbutton. On these versions, the power, status, and switching function indicator lights on the sensor provide diagnostics.
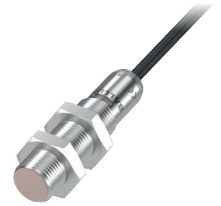
Our new M12 capacitive sensors provide flexibility and accuracy for nonmetal material and level-sensing application needs.

Features

- Optimal for object detection of nonmetallic materials and level detection for liquids or solids
- Device manager software for configuration and diagnostics window for IO-Link versions
- Simple sensitivity adjustment via teach-adapter for versions without IO-Link
- Extended measuring and temperature ranges
- Improved electromagnetic compatibility (EMC)

CE · c UL us LISTED · EAC · IO-Link

CAPACITIVE SENSORS FOR OBJECT DETECTION

	BCS017M	BCS017K	BCS017L	BCS017H	BCS017J
Dimension	Ø 12 × 60 mm	Ø 12 × 60 mm	Ø 12 × 60 mm	Ø 12 × 50 mm	Ø 12 × 50 mm
Installation	Flush	Flush	Flush	Flush	Flush
Connection	M12 male, 4-pin	M12 male, 4-pin	M12 male, 4-pin	Cable, 4-wire, 2 m, PUR	Cable, 4-wire, 2 m, PUR
Switching output	PNP/NPN/ push-pull	push-pull	push-pull	push-pull	push-pull
Output function	Normally open / normally closed	Normally open	Normally closed	Normally open	Normally closed
Interface	IO-Link 1.1				
Switching frequency	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz
Measuring range	0.5...5 mm	0.5...5 mm	0.5...5 mm	0.5...5 mm	0.5...5 mm
Housing material	Stainless steel 1.4404	Stainless steel 1.4404	Stainless steel 1.4404	Stainless steel 1.4404	Stainless steel 1.4404
Material sensing surface	PEEK	PEEK	PEEK	PEEK	PEEK
Ambient temperature	−10…80 °C	−10…80 °C	−10…80 °C	−10…80 °C	−10…80 °C
Operating voltage	18...30 V DC	12...30 V DC	12...30 V DC	12...30 V DC	12...30 V DC
Approval/conformity	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Protection degree	IP67	IP67	IP67	IP67	IP67

CAPACITIVE
LEVEL
SENSORS

	BCS017C	BCS0179	BCS017A	BCS0177	BCS0178
Dimension	Ø 12 × 60 mm	Ø 12 × 60 mm	Ø 12 × 60 mm	Ø 12 × 50 mm	Ø 12 × 50 mm
Installation	Non-flush	Non-flush	Non-flush	Non-flush	Non-flush
Connection	M12 male, 4-pin	M12 male, 4-pin	M12 male, 4-pin	Cable, 4-wire, 2 m, PUR	Cable, 4-wire, 2 m, PUR
Switching output	PNP/NPN/ push-pull	push-pull	push-pull	push-pull	push-pull
Output function	Normally open / normally closed	Normally open	Normally closed	Normally open	Normally closed
Interface	IO-Link 1.1				
Switching frequency	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz
Measuring range	0.5...8 mm	0.5...8 mm	0.5...8 mm	0.5...8 mm	0.5...8 mm
Housing material	Stainless steel 1.4404	Stainless steel 1.4404	Stainless steel 1.4404	Stainless steel 1.4404	Stainless steel 1.4404
Material sensing surface	PEEK	PEEK	PEEK	PEEK	PEEK
Ambient temperature	−10…80 °C	−10…80 °C	−10…80 °C	−10…80 °C	−10…80 °C
Operating voltage	18...30 V DC	12...30 V DC	12...30 V DC	12...30 V DC	12...30 V DC
Approval/conformity	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Protection degree	IP67	IP67	IP67	IP67	IP67

ACCESSORIES

	BAE00MN	BAM0218	BAM00C4	BAM00C0	BAM00CH	BNI0073
Description	Teach-adapter for capacitive sensors	Mounting clamp for M12 sensors	Mounting clamp for M12 sensors	Mounting bracket for M12 sensors	Mounting block for M12 sensors	USB IO-Link device tool
Dimension	12 × 30 × 300 mm	12 × 20 × 32 mm	32 × 12 × 20 mm	25 × 30 × 30 mm	30 × 18 × 24 mm	66 x 24 x 69 mm
Material	PA	Anodized aluminium	PA 6	Aluminum	PC	Aluminum
Connector 1	M12 female, 5-pole					–
Connector 2	M12 male, 5-pole					–

CONNECTIVITY

	BCC08A6	BCC0FL0	BCC0C5N	BCC0J7L
Description	M12 female, straight, 5-pin/ M12 male, straight, 5-pin, 2 m, A-coded, TPE, double-ended, drag chain compatible	M12 female, right-angle, 5-pin/ M12 male, straight, 5-pin, 2 m, A-coded, TPE, double-ended, drag chain compatible	M12 female, straight, 5-pin, 2 m, A-coded, TPE, single-ended, drag chain compatible	M12 female, right-angled, 5-pin, 2 m, A-coded, TPE, single-ended, drag chain compatible