



Capacitive Sensors

Capacitive sensors with special properties

Balluff capacitive sensors BCS are not only masters of object and level detection. They put the competition to shame when stringent technical requirements are involved. This is because high temperature and pressure ratings, stainless steel and Teflon housings for harsh environments, a wide supply voltage range and especially compact designs are all available in the BCS family. Capacitive adhesive sensors adapt to the shape of the housing with great flexibility.





Capacitive Sensors with Special Properties

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Capacitive Sensors with Special Properties

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SmartLevel 500+	799



Basic information and definitions can be found on **page 934**.

Capacitive Sensors with Special Properties

+250 °C

High temperature rated sensors, cylinder designs, DC 3-wire

Balluff high-temperature sensors can be used for level detection of liquid, paste-like or powdery media at high temperatures up to 250 °C.

To withstand such extreme conditions, the housing of the high-temperature rated sensors is made of stainless steel and the sensor heads of PTFE. The sensors are also used with a special Triax sensor cable and a separate amplifier.



Size	
Mounting type	
Rated switching distance s_n	
With sensor amplifier	Ordering code
	Part number
Supply voltage U_S	
Ambient temperature T_a	
Degree of protection as per IEC 60529	
Material	Housing
	Sensing surface
	Cover
Connection	

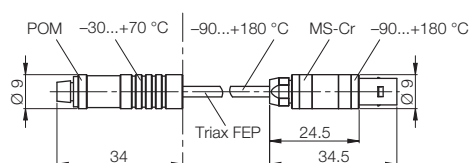
Sensor amplifiers for capacitive high-temperature resistant sensors can be found on page 806.

Wiring diagrams, see page 971.

Additional cable lengths on request.



Description	Connectors for high-temperature sensors
Ordering code	BCC04JW
Part number	BCC Z003-020
Ambient temperature T_a	See drawing
Degree of protection as per IEC 60529	IP 54
Connection	2 m Triax FEP



Capacitive Sensors with Special Properties

High-temperature resistant sensors, cylinder designs, DC 3-wire, M18x1, M30x1.5, R3/8", NPTF3/8"



Temperature-resistant up to +250 °C



Temperature-resistant up to +250 °C



Temperature-resistant up to +180 °C



Temperature-resistant up to +180 °C

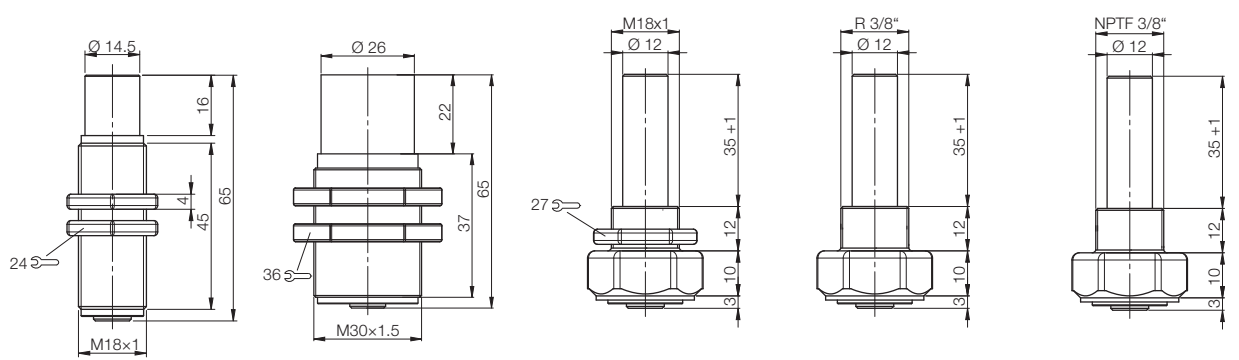


Temperature-resistant up to +180 °C

M18x1	M30x1.5	M18x1	R3/8"	NPTF3/8"
Not flush 1...10 mm	Not flush 1...20 mm	Not flush Level adjustable	Not flush Level adjustable	Not flush Level adjustable
BCS00A1	BCS00A2	BCS00A3	BCS00A4	BCS00A5
BCS M18T4H1-XXS10H-SZ02-T08	BCS M30T4G1-XXS20H-SZ02-T08	BCS S10T401-XXSFNC-SZ02-T07	BCS S10T402-XXSFNC-SZ02-T07	BCS S10T403-XXSFNC-SZ02-T07
4...8 V DC -180...+250 °C	4...8 V DC -180...+250 °C	4...8 V DC -10...+180 °C	4...8 V DC -10...+180 °C	4...8 V DC -10...+180 °C
IP 54	IP 54	IP 54 (sensing surface: IP 68 at a max. of 6 bar)	IP 54 (sensing surface: IP 68 at a max. of 6 bar)	IP 54 (sensing surface: IP 68 at a max. of 6 bar)
Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
PTFE	PTFE	PTFE	PTFE	PTFE
PTFE, MS-Cr	PTFE, MS-Cr	PTFE, MS-Cr	PTFE, MS-Cr	PTFE, MS-Cr
Triax sensor cable	Triax sensor cable	Triax sensor cable	Triax sensor cable	Triax sensor cable



Capacitive Sensors



Capacitive Sensors for Object Detection

Capacitive Sensors for Level Detection

Capacitive Sensors with Special Properties

High pressure-resistant Sensors

High Temperature Rated Sensors

Adhesive Sensors

AC/DC

2-wire Sensors

SmartLevel 500+

Capacitive Sensors for Analog Distance Measurement

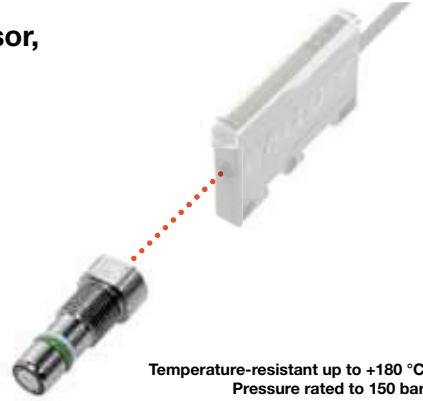
Accessories for Capacitive Sensors



Capacitive Sensors with Special Properties

High-temperature and pressure-resistant sensor, cylinder design, DC 3-wire, M12x1

up to 150 bar



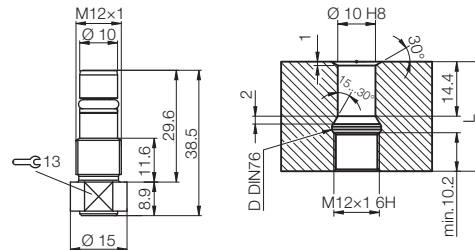
Temperature-resistant up to +180 °C
Pressure rated to 150 bar

Size	M12x1
Mounting type	Flush
Rated switching distance s_n	0...2 mm
With sensor amplifier	Ordering code
	Part number
	BCS00TC BCS S104407-XXS20D-SZ02-T09
Supply voltage U_S	4...8 V DC
Ambient temperature T_a	0...+180 °C
Degree of protection as per IEC 60529	IP 68/IP 54 at the plug socket
Material	Stainless steel
	Housing
	Sensing surface
	Stainless steel, EP
Connection	Triax sensor cable
Pressure rating	150 bar

Sensor amplifiers for capacitive high-temperature resistant sensors can be found on page 806.

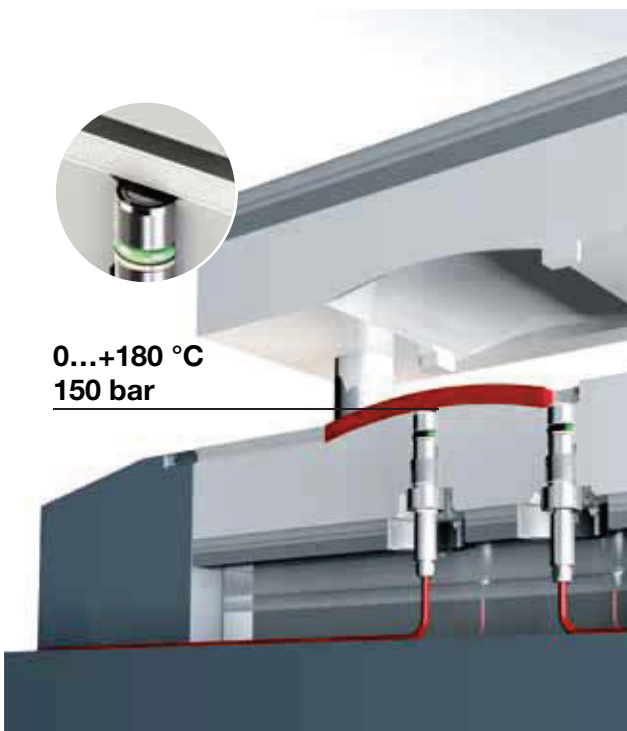
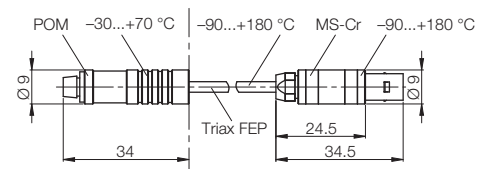
Wiring diagrams, see page 971.

Additional cable lengths on request.



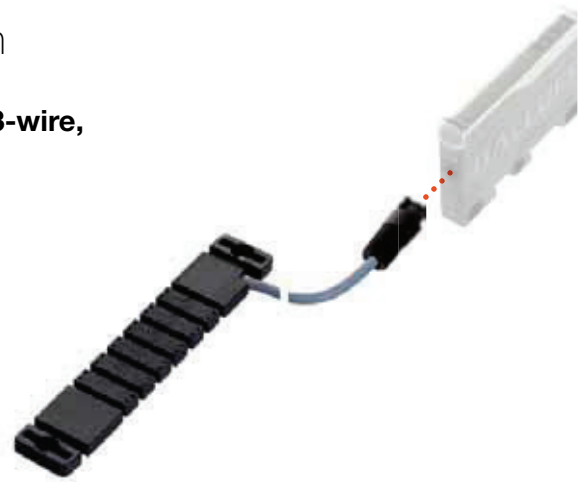
0...+180 °C
150 bar

Description	Plug connectors for high temperature-resistant and pressure-resistant sensors
Ordering code	BCC04JW
Part number	BCC Z003-020
Ambient temperature T_a	See drawing
Degree of protection as per IEC 60529	IP 54
Connection	2 m Triax FEP



Capacitive Sensors with Special Properties

Flexible adhesive sensor, DC 3-wire, 90×16×4 mm



Size	90×16×4 mm	
Mounting type	Flush	
Rated switching distance s_n	0...10 mm	
With sensor amplifier	Ordering code	BCS000Y
	Part number	BCS F01CP01-XXS10C-EP02-GZ01-002
Supply voltage U_s	4...8 V DC	
Rated insulation voltage U_i	75 V DC	
Ambient temperature T_a	0...+60 °C	
Switching frequency f	100 Hz	
Degree of protection as per IEC 60529	IP 60	
Material	Housing	PC, PUR
	Sensing surface	PUR
Connection	2 m PUR cable, 3×0.14 mm ²	

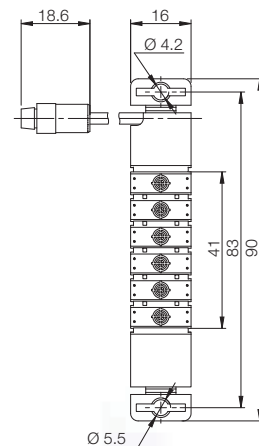


Capacitive Sensors

Sensor amplifiers for capacitive adhesive sensors can be found on page 806.

Wiring diagrams, see page 971.

Additional cable lengths on request.



Capacitive Sensors for Object Detection

Capacitive Sensors for Level Detection

Capacitive Sensors with Special Properties

High pressure-resistant Sensors

High Temperature Rated Sensors

Adhesive Sensors

AC/DC 2-wire Sensors

SmartLevel 500+

Capacitive Sensors for Analog Distance Measurement

Accessories for Capacitive Sensors



Capacitive Sensors with
Special Properties
**AC/DC, cylinder designs, 2-wire,
M18, M30, Ø 34 mm**

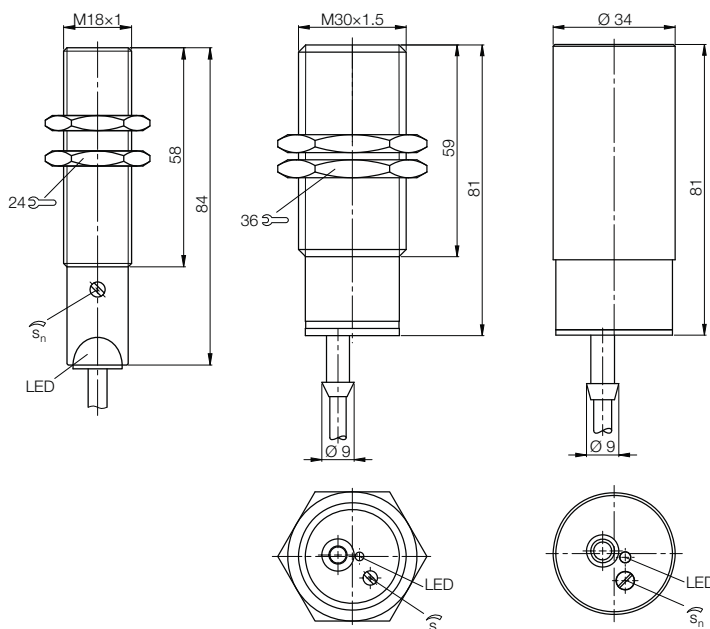
AC/DC



Size	M18x1	M30x1.5	Ø 34 mm
Mounting type	Not flush	Not flush	Not flush
Rated switching distance s_n	8 mm	15 mm	20 mm
NO	Ordering code Part number	Ordering code Part number	Ordering code Part number
	BCS000K BCS M18KM3-UST80G-BV02	BCS000W BCS M30KN2-UST15G-AV02	BCS0007 BCS G34KN2-UST20G-AV02
NC	Ordering code Part number	Ordering code Part number	Ordering code Part number
	BCS000J BCS M18KM3-UOT80G-BV02	BCS000U BCS M30KN2-UOT15G-AV02	BCS0006 BCS G34KN2-UOT20G-AV02
Supply voltage U_s	20...250 V AC/DC	20...250 V AC/DC	20...250 V AC/DC
Voltage drop U_d at I_e	≤ 6 V	≤ 10 V	≤ 10 V
Rated insulation voltage U_i (protection class)	250 V AC (□)	250 V AC (□)	250 V AC (□)
Output current max.	350 mA (AC)/100 mA (DC)	250 mA (AC)/100 mA (DC)	250 mA (AC)/100 mA (DC)
Short-circuit protected	No	No	No
Ambient temperature T_a	-25...+80 °C	-25...+70 °C	-25...+70 °C
Switching frequency f	25 Hz (AC)/50 Hz (DC)	25 Hz (AC)/40 Hz (DC)	25 Hz (AC)/40 Hz (DC)
Output function indicator	Yellow LED	Yellow LED	Yellow LED
Degree of protection as per IEC 60529	IP 67	IP 65	IP 65
Material	Housing Sensing surface Cover	PBT PBT PBT	PBT PBT PBT
Connection	2 m PVC cable, 2x0.34 mm ²	2 m PVC cable, 2x0.34 mm ²	2 m PVC cable, 2x0.5 mm ²

Wiring diagrams, see page 971.

Additional cable lengths on request.



Mounting cuff included in scope of delivery

Capacitive Sensors with Special Properties

SMART LEVEL 500+, cylinder designs, DC 3-wire, M30x1.5, Ø 30 mm

- Detecting highly conductive acids, such as sulphuric or hydrochloric acid, through plastic or glass containers that are up to 10 mm thick
- Reliable detection of levels in food items, such as ketchup or mustard, despite heavy deposits
- Detecting concentrated cleaning agents in plastic containers

Industrial wastewater
Disinfection agent
Table salt solution
Ketchup/mustard
Phosphoric acid (10 %)
Sulfuric acid (10 %)
Calcium chloride (30 %)
Hydrochloric acid (40 %)
Nitric acid (12 %)
SMART LEVEL 500+ Approx. 50...500 mS and greater



Size	M30x1.5	M30x1.5
Mounting type	Not flush	Not flush
Rated switching distance s_n	Media-dependent	Media-dependent
PNP/NPN and NO/NC, can be coded	Ordering code BCS00HJ	Ordering code BCS00TZ
	Part number	Part number
Supply voltage U_S	10...30 V DC	10...30 V DC
Voltage drop U_d at I_o	≤ 2 V	≤ 2 V
Rated insulation voltage U_i	75 V DC	75 V DC
Output current max.	100 mA	100 mA
No-load supply current I_o max.	< 15 mA	< 15 mA
Polarity reversal protected/transposition protected/short-circuit protected	No/No/Yes	No/No/Yes
Ambient temperature T_a	$-10...+60$ °C	$-10...+60$ °C
Switching frequency f	5 Hz	5 Hz
Supply voltage/output function indicator	Green LED/Yellow LED	No/Red LED
Degree of protection as per IEC 60529	IP 64, connection side IP 67	IP 67
Material	Housing: Stainless steel	PTFE
	Sensing surface: PTFE	PTFE
	Cover: PBT, PE	PTFE
Connection	M12 connector, 4-pin, A-coded	2 m PTFE cable, 3x0.2 mm ²



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SmartLevel 500+

Capacitive Sensors for Analog Distance Measurement

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Wiring diagrams, see page 971.

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