TURCK

TEACHABLE CAPACITIVE SENSORS

Sense it! Connect it! Bus it! Solve it!

TURCK

Technical Data

	S18	S30
Rated switching distance (flush)	5 mm	10 mm
Rated switching distance (non-flush)	7.5 mm	15 mm
Assured switching distance	$\leq$ (0.75 x Sn) mm	
Hysteresis	2 ... 20%	
Temperature drift	typ. 20 %	
Repeatability	$\leq$ 2 % of full scale	
Ambient temperature	-25…+70℃	
Operating voltage	10…30 VDC	
Ripple	$\leq$ 10 % Uss	
DC Rated operational current	$\leq$ 200 mA	
No-load current I_0	$\leq$ 15 mA	
Residual current	$\leq$ 0.1 mA	
Switching frequency	10 Hz	
Rated insulation voltage	$\leq$ 0.5 kV	
Output function	5-wire, programmable	PNP (UP), NPN (UN)
Short-circuit protection	yes, cyclic	
voltage drop at Ie	$\leq$ 2.4 V	
Wire breakage / reverse polarity protection	yes, completely	
Design threaded barrel	M18 x 1	M30 x 1
Housing material	Plastic, PA 12-GF30, PEI	
Material active face	Plastic, PA12-GF30	
Admissible pressure on front cap	$\leq$ 6 bar	$\leq$ 3 bar
Max. tightening torque of housing nut	2 Nm	5 Nm
Vibration resistance	55 Hz (1 mm)	
Shock resistance	30 g (11 ms)	
Protection type	IP67	
MTTF	1,080 years acc. to SN 29500, Ed. 99, 40 ℃	
Switching status display	2-color LED (green / yellow)	

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Your Global Automation Partner

Teachable Capacitive Sensors – BCT

In industrial automation capacitive sensors detect levels and media in a variety of industries and applications. Whether in the plastics, packaging and chemical industries or on mobile vehicles, such as in the farming or wood industry, capacitive sensors monitor liquids or bulk goods anywhere.

Capacitive sensors react to approaching the active surface: In this case, all the solids, liquids, metals and non-metals are detected that fall below a certain distance. The attainable switching distance is directly dependent on the dielectric constant of the material to be detected. The higher the dielectric constant of the material, the greater switching distance. Even through non-metallic materials as well as through tank walls, detection is possible if the dielectric constant of the medium to be detected is significantly larger.

TURCK has expanded its product portfolio of capacitive sensors to a new milestone with the BCT series. Instead of a potentiometer, the sensors can be taught with a button on their respective medium. The BCT sets the switchpoint automatically, thus avoiding switching errors caused by buildup on the tank wall or dirt on the sensor cap. A logical analysis of the selected setting also prevents programming errors in weakly detectable media.

The BCT series is available as universal NC/NO switch in cylindrical shape and as S18 and S30 version. Users can not only effectively reduce the number of stocked variants, but also realize failsafe under and overfill protection of tanks with a single sensor type. The switching of the output characteristic is also carried out by via button. All versions are available with PNP or NPN output.

At a glance

- Plastic housing with allround visible LED cap
- Optical feedback of parameterization
- Additional setting options
- Remote or button teach (button version allows both)
- Cable-teach version, thus no possibility of manipulation on the device
- Easy to use teach function for the states
  - "medium present" (default)
  - "medium not present" (high sensitivity)
  - "General teach" (difficult media)
- Switchable between NC and NO
- Improved wetting compensation
- 100 % permanently sealed (IP67/IP69K)
- Excellent EMC

Overview of types

	Ident. no.	Type code	Design Threaded barrel	Button	Output
	2101100	BCT5-S18-UP6X2T-H1151	S18	yes	PNP
	2101200	BCT5-S18-UN6X2T-H1151		yes	NPN
	2101300	BCT5-S18-UP6X2-H1151		–	PNP
	2101400	BCT5-S18-UN6X2-H1151		–	NPN
	2101500	BCT10-S30-UP6X2T-H1151	S30	yes	PNP
	2101600	BCT10-S30-UN6X2T-H1151		yes	NPN
	2101700	BCT10-S30-UP6X2-H1151		–	PNP
	2101800	BCT10-S30-UN6X2-H1151		–	NPN

Accessories

	Type code	Description
	TX1-Q20L60	Teach adapter for parameterisation
	RKC 4.5T-2/TEL	Extension cable, M12 female, straight, 5-pin, cable length: 2 m, Material: PVC, black, cULus approval
	RKC 4.5T-2/TEL	Extension cable, M12 female, angled, 5-pin, cable length: 2 m, Material: PVC, black, cULus approval
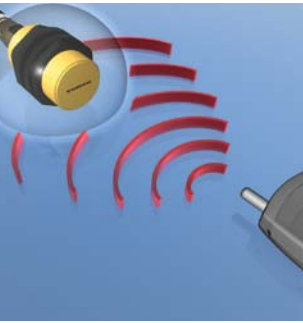
Simple Operation
The button-operated variants of BCT series can be taught at a single press of a button. The BCT creates automatically a buffer area around the actual switching threshold. The experience of the technician is therefore integrated within the sensor. The variants with cable teach allow the tamper-proof setting via line, for example from a control booth.

Increased Process Safety
In addition to the significantly simpler parameterization, by which user errors are immediately recognizable through the active feedback, the precisely adjustable switching thresholds, the extremely dense housing and the particularly large EMC resistance ensure for increased process safety – even when used in harsh environments.

Optimized Wetting Compensation
Deposits and conductive liquid films on a tank wall are a special challenge. The BCT sensor series from TURCK can handle this. With the automatic wetting compensation integrated as a standard, they blank out adhesive deposits and liquid films on tank walls.

Reduced Variants
With NC and NO combined in one device TURCK could reduce the number of variants of the BCT series. The new generation of devices is available as M18 and M30 variant in cylindrical plastic housing with male thread – with or without back-end teach. All four variants are available as NPN or PNP version.