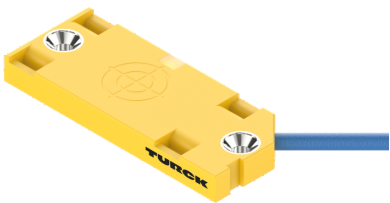
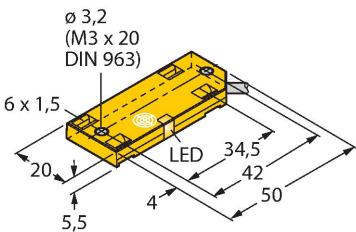


BC5-QF5.5-Y1X/S250 7M  
Capacitive Sensor



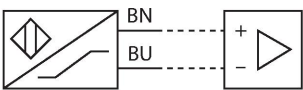
Technical data

|                                                                     |                                                                                                                                        |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Type                                                                | BC5-QF5.5-Y1X/S250 7M                                                                                                                  |
| ID                                                                  | 2030002                                                                                                                                |
| Rated switching distance (flush)                                    | 5 mm                                                                                                                                   |
| Rated switching distance (non-flush)                                | 5 mm                                                                                                                                   |
| Secured operating distance                                          | ≤ (0.72 × S <sub>n</sub> ) mm                                                                                                          |
| Hysteresis                                                          | 1...20 %                                                                                                                               |
| Temperature drift                                                   | Typical 20 %                                                                                                                           |
| Repeat accuracy                                                     | ≤ 2 % of full scale                                                                                                                    |
| Ambient temperature                                                 | -25...+70 °C                                                                                                                           |
| Electrical data                                                     |                                                                                                                                        |
| Voltage                                                             | Nom. 8.2 VDC                                                                                                                           |
| Current consumption non-actuated                                    | ≤ 1.2 mA                                                                                                                               |
| Actuated current consumption                                        | ≥ 2.1 mA                                                                                                                               |
| Switching frequency                                                 | 0.1 kHz                                                                                                                                |
| Oscillation frequency                                               | According to EN 60947-5-2, 8.2.6.2 Table 9: 0.1...2.0 MHz                                                                              |
| Output function                                                     | 2-wire, NAMUR                                                                                                                          |
| Tests/approvals                                                     |                                                                                                                                        |
| Approval acc. to                                                    | KEMA 02 ATEX 1090X                                                                                                                     |
| Internal capacitance (C <sub>i</sub> )/inductance (L <sub>i</sub> ) | 150 nF/negligibly small                                                                                                                |
| Device marking                                                      | EX II 1 G Ex ia IIC T6 Ga/II 1 D Ex ia IIIC T135 °C Da<br>(max. U <sub>i</sub> = 20 V, I <sub>i</sub> = 60 mA, P <sub>i</sub> = 80 mW) |
| Mechanical data                                                     |                                                                                                                                        |
| Design                                                              | Rectangular, QF5,5                                                                                                                     |
| Dimensions                                                          | 54 x 20.3 x 5.5 mm                                                                                                                     |
| Housing material                                                    | Plastic, PP                                                                                                                            |

Features

- Rectangular, height 5.5 mm
- Large active face, marked for correct installation
- Plastic, PP
- Fixed settings
- DC 2-wire, nom. 8.2 VDC
- Output acc. to DIN EN 60947-5-6 (NAMUR)
- Cable connection
- ATEX category II 1 G, Ex zone 0
- ATEX category II 1 D, Ex zone 20
- SIL2 (Low Demand Mode) acc. to IEC 61508, PL c acc. to ISO 13849-1 with HFT0
- SIL3 (All Demand Mode) acc. to IEC 61508, PL e acc. to ISO 13849-1 with redundant configuration HFT1

Wiring diagram



Functional principle

Capacitive proximity switches are designed for non-contact and wear-free detection of electrically conductive as well as non-conductive metal objects.

Technical data

|                       |                                           |
|-----------------------|-------------------------------------------|
| Active area material  | PP                                        |
| Electrical connection | Cable                                     |
| Cable quality         | Ø 3 mm, Blue, Lif9Y-11Y, PUR, 7 m         |
| Core cross-section    | 2 x 0.14 mm <sup>2</sup>                  |
| Vibration resistance  | 55 Hz (1 mm)                              |
| Shock resistance      | 30 g (11 ms)                              |
| Protection class      | IP67                                      |
| MTTF                  | 448 years acc. to SN 29500 (Ed. 99) 40 °C |
| Power-on indication   | Green                                     |
| Switching state       | LED, Yellow                               |



Mounting instructions

| Product features |                        |
|------------------|------------------------|
|                  | Distance D             |
|                  | 40 mm                  |
|                  | Distance W             |
|                  | 30 mm                  |
|                  | Distance S             |
|                  | 30 mm                  |
|                  | Distance G             |
|                  | 60 mm                  |
|                  | Diameter active area B |
|                  | Ø 20 mm                |

The given minimum distances have been checked against the standard switching distance.  
Should the sensitivity of the sensors be changed via potentiometer, the data sheet specifications no longer apply.

## Instructions for use

### Intended use

This device fulfills Directive 2014/34/EC and is suited for use in explosion-hazardous areas according to EN 60079-0:2018 and EN 60079-11:2012. It is also suitable for use in safety-related systems, including SIL2 (IEC 61508) and PL c (ISO 13849-1) with HFT0 and SIL3 (IEC 61508) and PL e (ISO 13849-1) with redundant configuration HFT1. In order to ensure that the device is operated as intended, the national regulations and directives must be observed.

### For use in explosion hazardous areas conform to classification

II 1 G and II 1 D (Group II, Category 1 G, electrical equipment for gaseous atmospheres and category 1 D, electrical equipment for dust atmospheres).

### Marking (see device or technical data sheet)

Ⓔ II 1 G and Ex ia IIC T6 Ga and Ⓔ II 1 D Ex ia IIIC T135 °C Da acc. to EN 60079-0, -11

### Local admissible ambient temperature

-25...+70 °C

### Installation/Commissioning

These devices may only be installed, connected and operated by trained and qualified staff. Qualified staff must have knowledge of protection classes, directives and regulations concerning electrical equipment designed for use in explosion hazardous areas. Please verify that the classification and the marking on the device comply with the actual application conditions.

This device is only suited for connection to approved Exi circuits according to EN 60079-0 and EN 60079-11. Please observe the maximum admissible electrical values. After connection to other circuits the sensor may no longer be used in Exi installations. When interconnected to (associated) electrical equipment, it is required to perform the "Proof of intrinsic safety" (EN 60079-14). Attention! When used in safety systems, all content of the security manual must be observed.

### Installation and mounting instructions

Avoid static charging of cables and plastic devices. Please only clean the device with a damp cloth. Do not install the device in a dust flow and avoid build-up of dust deposits on the device. If the devices and the cable could be subject to mechanical damage, they must be protected accordingly. They must also be shielded against strong electro-magnetic fields. The pin configuration and the electrical specifications can be taken from the device marking or the technical data sheet. In order to avoid contamination of the device, please remove possible blanking plugs of the cable glands or connectors only shortly before inserting the cable or opening the cable socket.

### Service/Maintenance

Repairs are not possible. The approval expires if the device is repaired or modified by a person other than the manufacturer. The most important data from the approval are listed.