TURCK

Your Global Automation Partner

BC... | UC...
Capacitive Sensors

Instructions for Use

Contents

1 About these instructions

These instructions describe the setup, functions and use of the product and help you to operate the product according to its intended purpose. Read these instructions carefully before using the product. This will prevent the risk of personal injury and damage to property. Keep these instructions safe during the service life of the product. If the product is passed on, pass on these instructions as well.

1.1 Target groups

These instructions are aimed at qualified personal and must be carefully read by anyone mounting, commissioning, operating, maintaining, dismantling or disposing of the device.

1.2 Explanation of symbols

The following symbols are used in these instructions:

	**DANGER** DANGER indicates a hazardous situation with a high level of risk, which, if not avoided, will result in death or serious injury.
	**WARNING** WARNING indicates a hazardous situation with a medium level of risk, which, if not avoided, will result in death or serious injury.
	**CAUTION** CAUTION indicates a hazardous situation with a medium level of risk, which, if not avoided, will result in moderate or minor injury.
	**NOTICE** CAUTION indicates a situation which, if not avoided, may cause damage to property.
	**NOTE** NOTE indicates tips, recommendations and important information about special action steps and issues. The notes simplify your work and help you to avoid additional work.
▶	**MANDATORY ACTION** This symbol denotes actions that the user must carry out.
⇨	**RESULT OF ACTION** This symbol denotes the relevant results of an action.

1.3 Other documents

Besides this document, the following material can be found on the Internet at www.turck.com:

- Data sheet
- Declarations of conformity (current version)
- Commissioning manual IO-Link devices

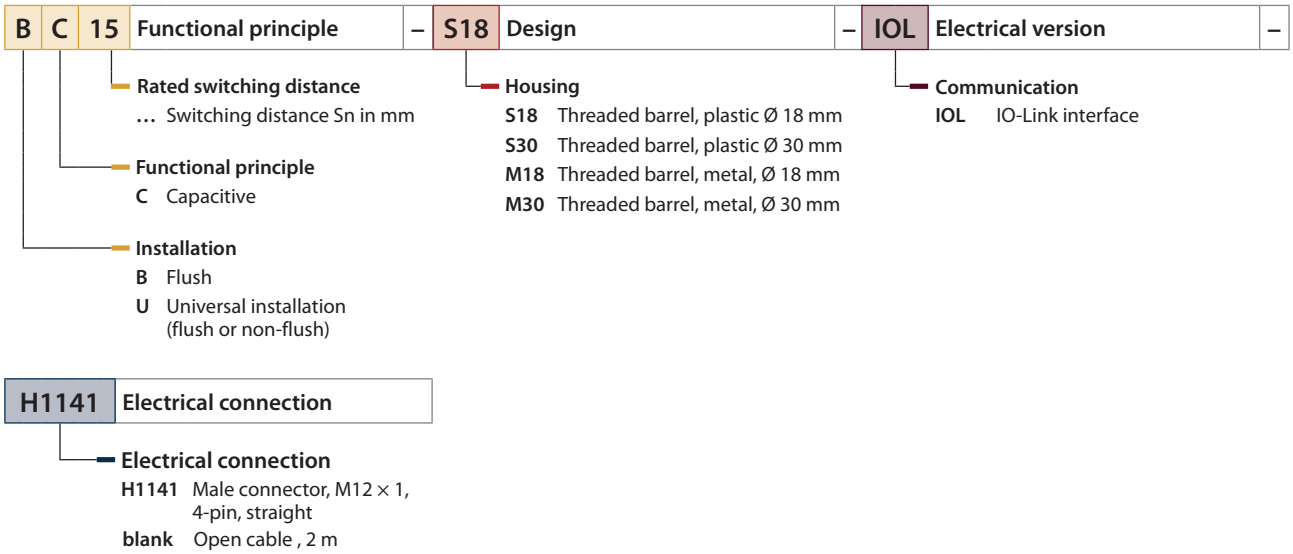
1.4 Feedback about these instructions

We make every effort to ensure that these instructions are as informative and as clear as possible. If you have any suggestions for improving the design or if some information is missing in the document, please send your suggestions to techdoc@turck.com.

2 Notes on the product

2.1 Product identification

B C 15 – S18 – IOL – H1141



2.2 Scope of delivery

The delivery consists of the following:

- Capacitive Sensor
- Two nuts for mounting

2.3 Turck service

Turck supports you in your projects — from the initial analysis right through to the commissioning of your application. The Turck product database at www.turck.com offers you several software tools for programming, configuring or commissioning, as well as data sheets and CAD files in many export formats.

For the contact details of our branches worldwide, please see page [▷ 25].

3 For your safety

The product is designed according to state of the art technology. Residual hazards, however, still exist. Observe the following safety instructions and warnings in order to prevent danger to persons and property. Turck accepts no liability for damage caused by failure to observe these safety instructions.

3.1 Intended use

The capacitive sensors detect without contact the presence of solid, powder or liquid objects.

The device must only be used as described in these instructions. Any other use is not in accordance with the intended use. Turck accepts no liability for any resulting damage.

3.2 Obvious misuse

- The devices are not safety components and must not be used for personal or property protection.

3.3 General safety instructions

- The device meets the EMC requirements for the industrial areas. When used in residential areas, take measures to prevent radio frequency interference.
- The device must only be fitted, installed, operated, parameterized and maintained by trained and qualified personnel.
- Only use the device in compliance with the applicable national and international regulations, standards and laws.
- Not all objects are detected equally well by the sensor. The detection of the object must be checked by the user prior to regular operation.
- The power supply must comply with the regulations for a low voltage power supply with safe isolation (SELV or PELV).

4 Product description

The devices are housed in a cylindrical housing made of metal (M18 or M30) or plastic (S18 or S30). The active face can be mounted flush or non-flush with the surrounding area. The BC… sensors are intended for flush mounting. The UC… sensors are suitable for flush and non-flush mounting. The devices are connected to the sensor cable via an M12 connector or an open-ended connection cable.

The sensors have an IO-Link interface and can be configured via an IO-Link master or using a software-based tool (e.g. via TAS). A digital potentiometer (DIGIPOT) is also available for teaching in the device sensitivity.

4.1 Device overview

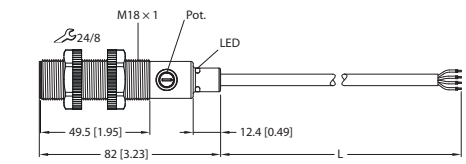


Fig. 1: Dimensions UC15-S18-IOL

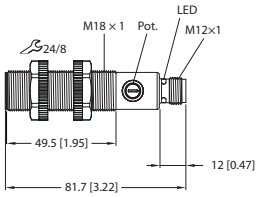


Fig. 2: Dimensions UC15-S18-IOL-H1141

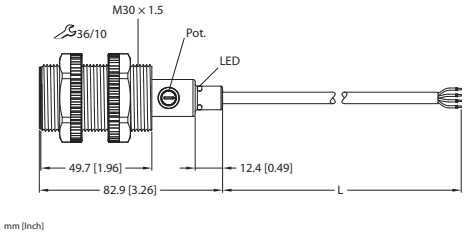


Fig. 3: Dimensions UC25-S30-IOL

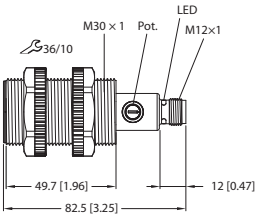


Fig. 4: Dimensions UC25-S30-IOL-H1141

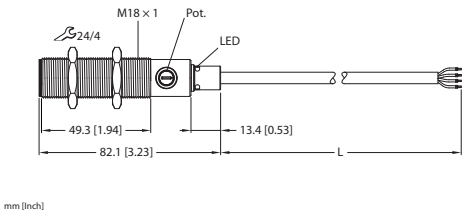


Fig. 5: Dimensions BC8-M18-IOL

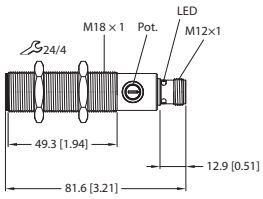


Fig. 6: Dimensions BC8-M18-IOL-H1141

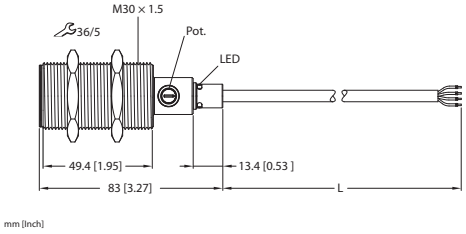


Fig. 7: Dimensions BC15-M30-IOL

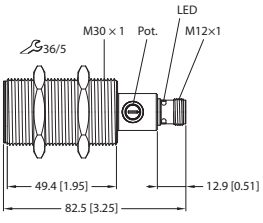


Fig. 8: Dimensions BC15-M30-IOL-H1141

4.1.1 Operating elements

The device has a digital potentiometer (DIGIPOT) for setting the sensor sensitivity.

4.1.2 Indicators

The device has a RGB all-round LED with three display points arranged at an angle of 120° to each other. In normal operation, the LED indicates the status of switching output 1. When teaching in via the digital potentiometer, the LED is used to support commissioning.

4.2 Properties and features

- Cylindrical threaded barrel (Ø 18 mm or 30 mm)
- M18 and M30: nickel-plated brass
- S18 and S30: plastic, PA12-GF30
- Flush or universal design
- Parameterization via IO-Link or digital potentiometer

4.3 Operating principle

The capacitive sensors are used for the contactless and wear-free detection of metallic (electrically conductive) and non-metallic (electrically non-conductive) objects. The sensors enable the counting or monitoring of moving objects. The sensors can also detect liquids or bulk material through a non-metallic container wall.

4.4 Functions and operating modes

When delivered, the device behaves like a proximity switch. The following table shows the rated switching distance:

Type	Rated switching distance
BC8…	8 mm
BC15…	15 mm
UC15…	15 mm
UC25…	25 mm

The devices have two adjustable switching outputs.

In IO-Link, Single Point Mode (SPM), Two Point Mode (TPM) or Window Mode (WIn) can be set for the switching outputs. In Single Point Mode, a limit value is set at which the selected switching output changes its switching state. In two point mode, a lower and an upper limit are set at which the selected switching output changes its switching state as the temperature rises or falls. In window mode, a lower and an upper window limit are set. Outside the window, the selected switching output changes its switching state.

The digital potentiometer provides single-value teach-in, two-value teach-in and dynamic teach-in.

4.4.1 Setting options

The devices feature the following setting options:

- Adjustment via digital potentiometer: Adjustment of the device sensitivity device to the existing object
- Setting via IO-Link: Extended parameterization of the device via Smart Sensor Profile
- Setting via FDT/IODD or TAS: software-supported parameterization

4.4.2 Output functions — switching output

The switching logic can via IO-Link be inverted. The following examples apply to the **HIGH** (0 → 1) switching logic.

Single point mode

In single point mode, the switching behavior is defined via a SP1 limit value and a hysteresis. The output changes its switching state at limit value SP1. The hysteresis can via IO-Link be set and must be within the detection range.

If an object is moved away from the sensor, the switching output is active as long as the object is located between the start of the detection range and the limit value SP1 plus the set hysteresis (SP1+Hyst). If the object passes the limit value (SP1+Hyst), the switching output becomes inactive.

If an object is moved toward the sensor, the switching output is inactive as long as the object is located between the end of the detection range and the limit value SP1. If the object passes the limit value SP1, the switching output becomes active.

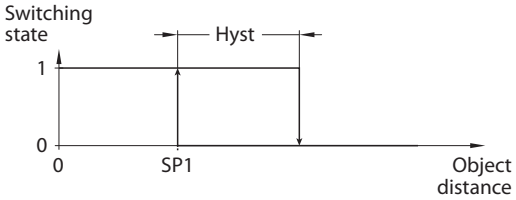


Fig. 9: Single point mode

Two point mode

In two point mode, the switching behavior is defined via a switch-off point SP1 and a switch-on point SP2. This mode can also be used as a freely adjustable hysteresis.

If an object is moved away from the sensor, the switching output is active for as long as the object is located between the start of the detection range and the switch-off point SP1. If the object passes the switch-off point SP1, the switching output becomes inactive.

If an object is moved toward the sensor, the switching output is inactive as long as the object is located between the end of the detection range and the switch-on point SP2. If the object passes the switch-on point SP2, the switching output becomes active.

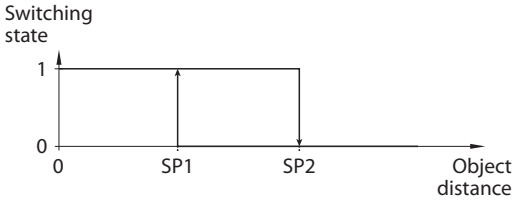


Fig. 10: Two point mode

Window mode

In window mode, an upper and a lower window limit are set for the switching output. A hysteresis can be set for the window limits SP1 and SP2. The switch window must be within the detection range. The hysteresis can via IO-Link be set and must be within the detection range.

If the process value increases, the switching output is inactive as long as the process value is between the start of the detection range and the window limit SP2. The switching output remains active until the process value increases above the window limit SP1 plus the hysteresis (SP1+Hyst). If the process value increases above (SP1+Hyst), the switching output becomes inactive again.

If the process value decreases, the switching output is inactive as long as the process value is between the end of the detection range and the window limit SP1. The switching output remains active until the process value decreases below the window limit SP2 minus the hysteresis (SP2-Hyst). If the process value decreases below (SP2- Hyst), the switching output becomes inactive again.

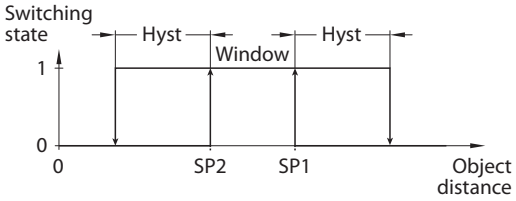


Fig. 11: Window mode

4.4.3 IO-Link mode

In order to operate in IO-Link mode, the device must be connected to an IO-Link master. When the port is configured in IO-Link mode, bidirectional IO-Link communication takes place between the IO-Link master and the device. To make this possible, the device is integrated via an IO-Link master at the control level. First the communication parameters are exchanged, and then the cyclic data exchange of process data (objects) starts.

4.4.4 SIO mode (standard I/O mode)

In standard I/O mode no IO-Link communication takes place between the device and the master. The device only transfers the switching state of its binary outputs and can also be run via a fieldbus device or controller with digital PNP . An IO-Link master is not required for operation.

The device parameters can be set via IO-Link and then operated at the digital inputs with the appropriate settings in SIO mode. Not all functions and properties of the device can be used in SIO mode.

4.4.5 Internal monitoring functions

The device is provided with an internal temperature monitoring.

The device is also equipped with a monitoring function. The monitoring function enables conclusions to be drawn about the load and the failure probability of the sensor. The device status can be indicated via the IO-Link parameters.

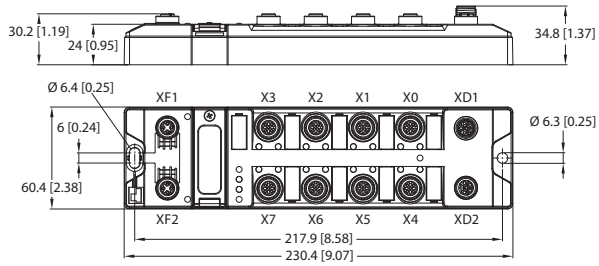
4.4.6 Teach-in function

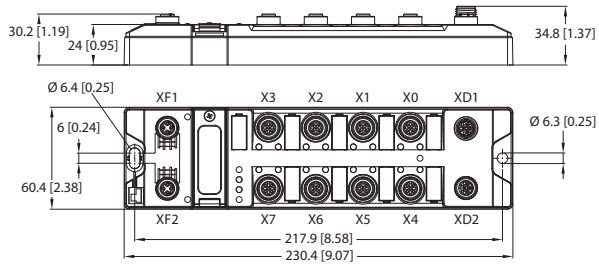
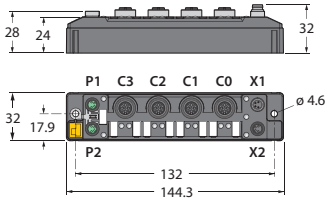
The teach-in functions can be used to set the switching point of the sensor to one or more objects that are present:

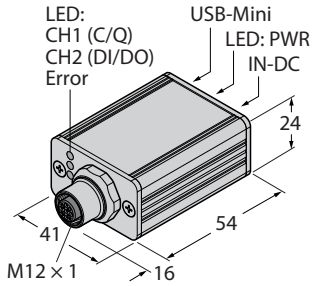
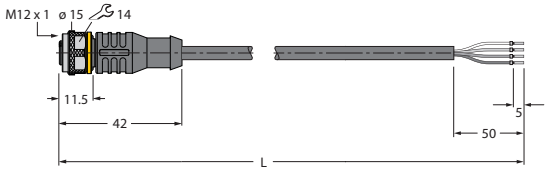
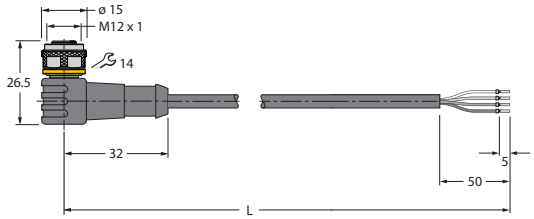
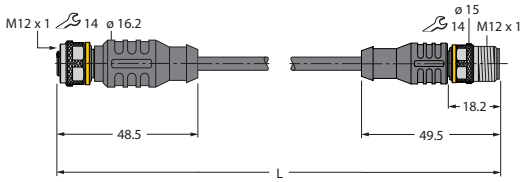
Teach	Function
Single value teach-in	The single value teach-in teaches a detected object as a switching point. Typical applications for single-value teach-in include: ■ Limit level detection in non-contaminated tanks ■ Detection of contamination in tanks ■ Detection of non-moving objects ■ Detection of open gates, doors or windows
Two-value teach-in	The two-value teach-in makes it possible to teach in two teach points (sensor values). The sensor sets the arithmetic average value of the two teach points as a switching point. Typical applications for two-value teach-in include: ■ Differentiation of media (e.g. wood — metal) ■ Limit level detection in heavily contaminated tanks ■ Detection of filled glass or plastic containers
Dynamic teach-in (Autoteach)	During dynamic teach-in (Autoteach), a large number of measured values are automatically recorded in a variable time window. The optimum switching point is calculated from the data recorded by the sensor. A typical application for dynamic teach-in is, for example, the detection of objects on a conveyor belt.

4.5 Technical accessories

The following accessories are not supplied with the device:

Dimension drawing	Type	ID	Description
	TBEN-LL-8IOL	100003910	Compact multiprotocol I/O module for Ethernet; 8 IO-Link master channels; 4 universal digital PNP channels 2 A, channel diagnostics; PROFINET device, EtherNet/IP device or Modbus TCP server; integrated Ethernet switch; supports 10 Mbps/ 100 Mbps; 2 × M12, 4-pin, D-coded, Ethernet fieldbus connection; PROFINET S2 system redundancy; glass fiber-reinforced housing; shock and vibration tested; fully encapsulated module electronics; protection class IP65/IP67/IP69K; M12, 5-pin, L-coded connector for power supply; galvanically isolated voltage groups support passive safety; ATEX Zone 2/22; M12, 5-pin slots for IO-Link Master; IO-Link master Port Class A and Port Class B; IO-Link protocol 1.1; ARGEE programmable

Dimension drawing	Type	ID	Description
	TBEN-LL-8IOLA	100029880	Compact multiprotocol I/O module for Ethernet; 8 IO-Link master channels; 16 universal digital PNP channels, channel diagnostics; PROFINET device, EtherNet/IP device or Modbus TCP server; integrated Ethernet switch; supports 10 Mbps/100 Mbps; 2 × M12, 4-pin, D-coded, Ethernet fieldbus connection; PROFINET S2 system redundancy; glass fiber-reinforced housing; shock and vibration tested; fully encapsulated module electronics; protection class IP65/IP67/IP69K; M12, 5-pin, L-coded connector for power supply; galvanically isolated voltage groups support passive safety; M12, 5-pin slots for IO-Link master; IO-Link master Port Class A; IO-Link protocol 1.1
	TBEN-S2-4IOL	6814024	Compact multiprotocol I/O module for Ethernet; 4 IO-Link master channels; 4 universal digital PNP channels, 0.5 A; channel diagnostics; PROFINET device, EtherNet/IP device or Modbus TCP server; integrated Ethernet switch; supports 10 Mbps/100 Mbps; 2 × M8, 4-pin, Ethernet fieldbus connection; glass fiber-reinforced housing; shock and vibration tested; fully encapsulated module electronics; protection class IP65/IP67/IP69K; 4-pin M8 connector for power supply; galvanically isolated voltage groups; ATEX Zone 2/22; M12, 5-pin slots for IO-Link master; IO-Link protocol 1.1; ARGEE programmable

Dimension drawing	Type	ID	Description
	USB-2-IOL-0002	6825482	IO-Link adapter V1.1 with integrated USB interface
	RKC4.4T-2/TXL	6625503	Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, jacket material: PUR, black; cULus approval; other cable lengths and versions available, see www.turck.com
	WKC4.4T-2/TEL	6625025	Connection cable, M12 female connector, angled, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval; other cable lengths and types available, see www.turck.com
	RKC4.4T-P7X2-2-RSC4.4T/TEL	6627320	Extension cable, M12 female connector, straight, 4-pin; M12 male connector, straight, 4-pin; cable length: 2 m, jacket material: PUR, black; cULus approval; other cable lengths and versions available, see www.turck.com

In addition to the above connection cables, Turck also offers other cable types for specific applications with the correct terminals for the device. More information on this is available from the Turck product database at www.turck.de/products in the Connectivity area.

5 Installing

NOTE
When using more than one sensor in the application: Avoid the overlapping of electrical fields.
An overlap can occur if two sensors are mounted closer together than the stated minimum mounting distances.

- ▶ Observe the minimum mounting distances.

The sensors may be mounted in any position. The maximum tightening torque when mounting the sensors can be found in the following table:

Design	Maximum tightening torque
M18	25 Nm
M30	25 Nm
S18	3 Nm
S30	5 Nm

- ▶ Clean the mounting surface and surroundings.
- ▶ If using an assembly aid: Secure the sensor in the assembly aid.
- ▶ Mount the sensor or assembly aid at the intended location for use.
- ▶ Ensure that the rear connector can still be reached.

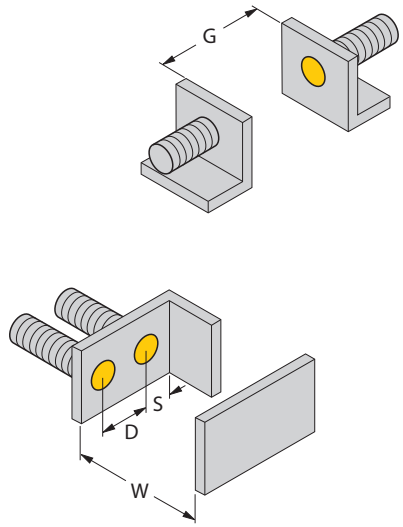


Fig. 12: Minimum mounting distances

The minimum mounting distances are as follows:

Position	Distance
G	6 × B
S	1.5 × B
D	2 × B
W	3 × Sn
B	M18 and S18 designs: 18 mm M30 and S30 designs: 30 mm

6 Connecting

- Connect the female connector of the connection cable to the male connector of the sensor.
- Connect the open end of the connection cable to the power supply and/or processing units.

6.1 Wiring diagrams

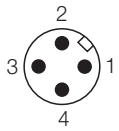


Fig. 13: Plugin devices pin assignment

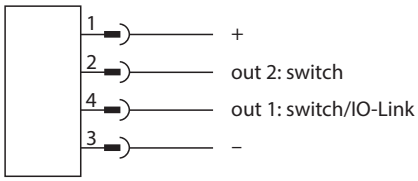


Fig. 14: Plugin devices wiring diagram

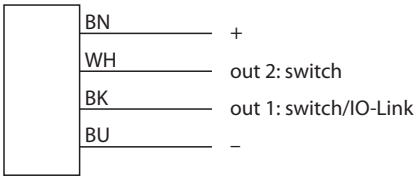


Fig. 15: Corded devices wiring diagram

7 Commissioning

After connecting and switching on the power supply, the device is automatically ready for operation.

8 Operation

8.1 LED displays

In normal operation the LEDs have the following indication functions:

LED display	Meaning
Green	Device ready for operation, SIO mode
Green flashing (900 ms on/100 ms off)	IO-Link communication active
Yellow	Switching output active
Red	Error

The LED display functions in teach-in mode are described on p. [▶ 19].

9 Setting

9.1 Settable functions and features

Parameter	Meaning
Application-specific marking	The specific application can be described in which the sensor is used.
Parameter (write) access lock	Access to the device parameters is locked or unlocked.
Reset device	The command restarts the device. Communication is interrupted momentarily.
Reset application	The function resets application-specific parameters. Communication is not interrupted and the sensor is switched to a predefined operating state. Identification parameters are not affected by this command.
Restore factory settings	The function restores the device to the factory setting. The device is restarted after the restoration. Communication is interrupted.
Reset diagnostics information	All diagnostics information of the device is reset to the factory setting. The counter of the switching operations and the maximum and minimum of the sensor signal are also reset.
Damping point	The attenuation point can be set to prevent the output from switching on and off quickly as a result of interference signals.
Switching signal output 1	For switching output 1, the switching output behavior can be set in accordance with the Smart Sensor Profile using the following parameters: ■ SP1 ■ SP2 ■ Switching logic ■ Operating mode (Single Point Mode, Two Point Mode, Window Mode) ■ Hysteresis ■ Polarity ■ Output behavior in the event of a device error ■ Switch-off delay ■ Switch-on delay
Switching signal output 2	For switching output 2, the switching output behavior can be set in accordance with the Smart Sensor Profile using the following parameters: ■ SP1 ■ SP2 ■ Switching logic ■ Operating mode (Single Point Mode, Two Point Mode, Window Mode) ■ Hysteresis ■ Polarity ■ Output behavior in the event of a device error ■ Switch-off delay ■ Switch-on delay
Single value teach-in	The following parameters are available for the single-value teach-in: ■ Selection of the switching output ■ System command for teaching in SP1 ■ System command for teaching in SP2 **Teach Result: State**, indicates whether the current teach-in process was successful.

Parameter	Meaning
Two-value teach-in	The two-value teach-in from teach point 1 and teach point 2 is used. The arithmetic average value of the two teach points is set as a switching point. The following parameters are available for the two-value teach-in: ■ Selection of the switching output ■ System command for teaching in SP1, teach point 1 ■ System command for teaching in SP1, teach point 2 ■ System command for teaching in SP2, teach point 1 ■ System command for teaching in SP2, teach point 2 ■ System command to cancel the teach-in process For each teach point, a flag can be used to check whether the teach-in was successful. **Teach Result: State**, indicates whether the entire current teach-in process was successful.
Dynamic teach-in	Dynamic teach-in is applied. All objects that pass the sensor are measured. The highest and lowest value of the object is determined. The arithmetic average value is formed from the two values. The LEDs flash at a frequency of 10 Hz during the operation. The teach-in process continues until teach-in is stopped via **TEACH SP…STOP**. The following parameters are available for the dynamic teach-in: ■ Selection of the switching output ■ System command to start the teach-in process for SP1 ■ System command to end the teach-in process for SP1 ■ System command to start the teach-in process for SP2 ■ System command to end the teach-in process for SP2 ■ System command to cancel the teach-in process **Teach Result: State**, indicates whether the current teach-in process was successful.
Switching cycles: SSC… counter	Indicates how many switching cycles have been executed at output …. The switching cycle counter can be reset using the **RESET SWITCHING COUNTERS** system command.
Switching cycles alarm threshold: SSC… threshold value	Limit value for the number of switching cycles at which an event is to be sent

9.2 Setting via digital potentiometer

The sensor sensitivity can be adjusted via the digital potentiometer. The switching point is adapted to the distance of an object.

- ▶ Position the object with the desired switching distance in front of the sensor. The object must be within the detection range.
- ▶ Turn the digital potentiometer to start teach-in mode. After turning, the device remains in teach-in mode for two seconds.
- ⇨ The LED flashes green.
- ▶ Turn the potentiometer clockwise. The LED flashes faster the further the switching point moves in the direction of the object. If the switching point moves away from the object, the flashing becomes slower.
- ⇨ The LED color changes from green to yellow as soon as the switching point is adapted to the distance of the object. If the switching point is exceeded, the LED slowly flashes yellow.

9.3 Setting via IO-Link

The device can be parameterized within the technical specifications (see data sheet) via the IO-Link communication interface — both offline, e.g. with the configuration tool, and online via the controller. Detailed instructions on the parameterization of devices via the IO-Link interface are provided in the IO-Link commissioning manual.

All parameters can be changed in IO-Link mode via the controller, both during commissioning and during operation. In SIO mode, the device operates in accordance with the most recent setting configured in IO-Link mode.

9.3.1 Single value teach

The single value teach-in teaches a detected object as a switching point.

- ▶ Position the object in front of the sensor head. The distance must correspond to the distance in the application.
- ▶ In the FDT frame, select the **Teach SP1** parameter.
- ⇨ The **Current switching point** parameter is set in the sensor.
- ⇨ The **Teach-in result parameter: Status** shows the result of the teach-in process.

9.3.2 Two value teach

The two-value teach-in makes it possible to teach in two teach points (sensor values). The sensor sets the arithmetic average value of the two teach points as a switching point. The first value can be taught in with or without an object. The second value must detect an object.

The teach-in operation can be used to distinguish between two objects. This requires the difference between measured process values to be sufficiently large. If the difference is insufficient, the sensor outputs the **Teach-in operation not successful** message.

- ▶ If a first object is present: Position the object in front of the sensor head. The distance must correspond to the distance in the application.
- ▶ Irrespective of whether an object is present: Select **Two-value teach-in without object (with Teach SP1 or SP2 TP1)**.
- ▶ Position the second object in front of the sensor head. The distance must correspond to the distance in the application.
- ▶ Select **Two value teach-in with object (with Teach SP1 or SP2 TP2)**.
- ▶ Confirm the teach-in with **Teach Apply**.
- ⇨ The **Current switching point** parameter is set in the sensor.
- ⇨ The **Teach-in result parameter: Status** shows the result of the teach-in process.

9.3.3 Dynamic teach (Autoteach)

Dynamic teach-in (Autoteach) automatically teaches in two teach points (sensor values). The sensor sets the arithmetic average value of the two teach points as a switching point. The teach-in operation can be set during the process.

- ▶ Select the **Dynamic teach-in start** parameter in order to start the teach-in operation.
- ▶ Move objects past the sensor at least 10 × or for at least 10 s. The distance must correspond to the distance in the application.
- ▶ Select the **Dynamic teach-in stop** parameter if all objects were detected multiple times.
- ⇨ The **value parameter for SSC.1 (or SSC.2) parameter SP1** is set in the sensor.

10 Troubleshooting

If the device does not work as expected, proceed as follows:

- Exclude environmental disturbances.
- Check the connections of the device for errors.
- Check device for parameterization errors.

If the malfunction persists, the device is faulty. In this case, decommission the device and replace it with a new device of the same type.

11 Maintenance

The device is maintenance-free. Clean with a damp cloth if required.

12 Repair

The device is not intended for repair by the user. The device must be decommissioned if it is faulty. Observe our return acceptance conditions when returning the device to Turck.

12.1 Returning devices

If a device has to be returned, bear in mind that only devices with a decontamination declaration will be accepted. This is available for download at
https://www.turck.de/en/return-service-6079.php
and must be completely filled in, and affixed securely and weather-proof to the outside of the packaging.

13 Disposal

The devices must be disposed of properly and do not belong in the domestic waste.

14 Technical data

Technical data	BC8-M18-IOL	BC8-M18-IOL-H1141	BC15-M30-IOL	BC15-M30-IOL-H1141
ID	100050172	100050173	100050174	100050175
Rated switching distance	8 mm		15 mm	
Hysteresis	1…15 %			
Ambient temperature	-25…+70 °C			
Storage temperature	-40…+70 °C			
Electrical data				
Operating voltage U_B	10…30 VDC in SIO mode 18…30 VDC in IO-Link mode			
DC rated operating current I_e	≤ 200 mA			
Switching frequency	≤ 0.1 kHz			
Communication protocol	IO-Link			
Number of digital outputs	2			
Output function	NC/NO programmable, PNP/NPN			
Voltage drop at I_e	≤ 1.0 V			
IO-Link				
IO-Link specification	V1.1, Smart Sensor Profile			
Parameterization	FDT/DTM			
Physical transmission layer	Complies with 3-wire technology (PHY2)			
Transmission rate	COM 3			
Process data width	32 bit			
Measured value information	12 bit			
Frame type	2.2			
Included in the SIDI GSDML	Yes			
Mechanical data				
Design	M18 × 1 threaded barrel		M30 × 1.5 threaded barrel	
Admissible pressure on front cap	≤ 5 bar			
Max. tightening torque of housing nut	25 Nm			
Electrical connection	Stranded wires, open end	M12 × 1 connector	Stranded wires, open end	M12 × 1 connector
Cable quality	LifYY, 2 m	–	LifYY, 2 m	–
Core cross-section	4 × 0.34 mm²	–	4 × 0.34 mm²	–
Protection class	IP67			
MTTF	1080 years acc. to SN 29500 (Ed. 99) 40 °C			

Technical data	UC15-S18-IOL	UC15-S18-IOL-H1141	UC25-S30-IOL	UC25-S30-IOL-H1141
ID	100050168	100050169	100050170	100050171
Rated switching distance	15 mm		25 mm	
Hysteresis	1…15 %			
Ambient temperature	-25…+70 °C			
Storage temperature	-40…+70 °C			
Electrical data				
Operating voltage U_B	10…30 VDC in SIO mode 18…30 VDC in IO-Link mode			
DC rated operating current I_e	≤ 200 mA			
Switching frequency	≤ 0.1 kHz			
Communication protocol	IO-Link			
Number of digital outputs	2			
Output function	NC/NO programmable, PNP/NPN			
Voltage drop at I_e	≤ 1.0 V			
IO-Link				
IO-Link specification	V1.1, Smart Sensor Profile			
Parameterization	FDT/DTM			
Physical transmission layer	Complies with 3-wire technology (PHY2)			
Transmission rate	COM 3			
Process data width	32 bit			
Measured value information	12 bit			
Frame type	2.2			
Included in the SIDI GSDML	Yes			
Mechanical data				
Design	M18 × 1 threaded barrel		M30 × 1.5 threaded barrel	
Admissible pressure on front cap	≤ 5 bar		≤ 4 bar	
Max. tightening torque of housing nut	3 Nm		5 Nm	
Electrical connection	Stranded wires, open end	M12 × 1 connector	Stranded wires, open end	M12 × 1 connector
Cable quality	LifYY, 2 m	–	LifYY, 2 m	–
Core cross-section	4 × 0.34 mm²	–	4 × 0.34 mm²	–
Protection class	IP67			
MTTF	1080 years acc. to SN 29500 (Ed. 99) 40 °C			

15 Turck branches — contact data

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