



## Operating Manual

### *SensControl*

Wireless IO-Link Master and App

EN-US

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# 1 About this document

## 1.1 Purpose

This operating manual (subsequently referred to as *manual*) allows the safe and efficient handling of the *SensControl* from Baumer.

The manual is a constituent part of the product. It must be kept in the immediate vicinity of the product and must be accessible to personnel at all times.

Personnel must have carefully read and understood this manual before beginning any work. The basic prerequisite for safe working is compliance with all safety instructions and handling instructions given in this manual.

In addition, the local occupational health and safety regulations and general safety regulations apply.

The illustrations in this manual are examples only. Deviations are at the discretion of Baumer at all times.

The product is not intended for permanent installation in automation systems.

### NOTICE

#### The device can cause radio frequency interferences

This is a device of class A. This device can cause radio frequency interferences in residential areas. In such cases, the operator may be asked to carry out appropriate measures.

## 1.2 Applicable documents

- Operating Instructions for Wireless IO-Link Master (Short Version)
- Data sheet
- EU conformity declaration
- General information insert (11042373)

## 1.3 Labels in this manual

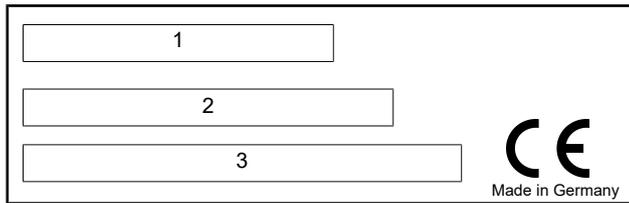
Identifier	Use	Example
<i>Dialog element</i>	Indicates dialog elements.	Click the <b>OK</b> button.
<i>Unique name</i>	Indicates the names of products, files, etc.	<i>Internet Explorer</i> is not supported in any version.
Code	Indicates entries.	Enter the following IP address: 192.168.0.250

## 1.4 Scope of delivery

- 1 × *SensControl*
- 1 × USB charging cable
- 1 × operating instructions for wireless IO-Link master (short version) in German and English

## 1.5 Name plate

The name plate can be found on the back of the *SensControl*.



III. 1: Name plate

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1 Serial number

2 Device name

---

3 WLAN SSID ex works

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## 2 Description

### 2.1 General functionality

The Baumer *SensControl* allows you to parameterize and analyze IO-Link devices. The *SensControl* is accessed with the *SensControl* app via WLAN or Bluetooth.



III. 2: Functionality of the *SensControl*

### 2.2 Operating modes

You can use the *SensControl* in the following operating modes:

- Master mode
- Sniffing mode
- Direct mode

#### 2.2.1 Master mode

- The *SensControl* communicates directly with the connected IO-Link device.
- The *SensControl* cyclically reads and writes the process data of the connected IO-Link device and transfers it to the *SensControl* app.
- The changes made to the parameters and control commands in the *SensControl* app are forwarded to the IO-Link device.
- Master mode is the mode in which the *SensControl* starts when it is switched on.
- As soon as an IO-Link device is connected to the *SensControl*, communication is established between the IO-Link device and the *SensControl*. Communication is maintained as long as the IO-Link device is connected.

#### 2.2.2 Sniffing mode

- The *SensControl* tracks the communication between the IO-Link device and IO-Link master in sniffing mode without affecting the existing connection between the IO-Link device and IO-Link master. The communication is stored on a MicroSD card that can be inserted into the *SensControl*.
- For this purpose, the *SensControl* is connected directly between the IO-Link device and the IO-Link master.
- The data can then be read out from the MicroSD card and analyzed.

#### Also see about this

- [Operating the SensControl in sniffing mode](#) [▶ 12]

### 2.2.3 Direct mode

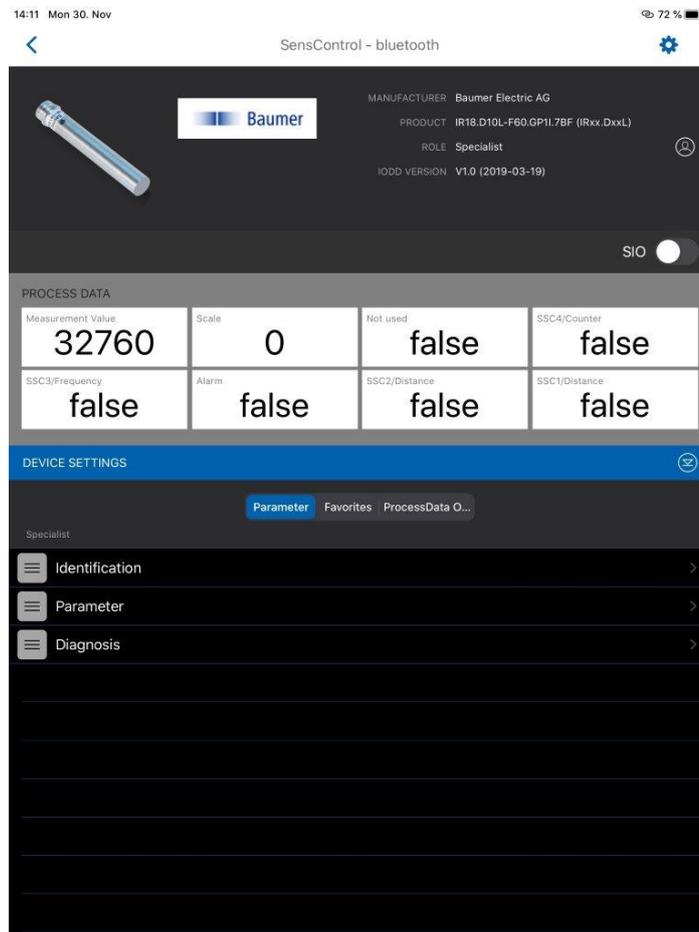
- If modern, IO-Link-capable 4-wire devices are operated on older systems, the *SensControl* provides the complete IO-Link functionality of the devices.
- For this purpose, the device must be parameterized in such a way that connection Q2 is connected as an output and provides the original function of a conventional device.
- The *SensControl* connects output Q2 to the master and allows parallel communication to the IO-Link device.

## 2.3 LEDs

Designation	Description
<b>LED 1</b>	<b>... provides information about the WLAN mode of the device</b>
<i>Lights up red:</i>	The <i>SensControl</i> provides an access point (SoftAP mode).
<i>Lights up green:</i>	The <i>SensControl</i> is connected to another WLAN in <i>Infrastructure</i> mode.
<i>Off:</i>	The <i>SensControl</i> does not provide a WLAN nor does it connect to a WLAN that may have been configured.
<b>LED 2</b>	<b>... provides information about the status of the IO-Link communication.</b>
<i>Lights up green:</i>	The <i>SensControl</i> is operating in <i>Master</i> mode and the IO-Link device has the status <b>OPERATE</b> .
<i>Lights up red:</i>	No IO-Link device is connected or the status could not be changed to <b>OPERATE</b> . No communication with the connected IO-Link device is possible.
<i>Flashing blue:</i>	The <i>SensControl</i> is operating in sniffing mode.
<i>Lights up blue:</i>	The <i>SensControl</i> is operating in sniffing mode and is waiting for a <b>STARTUP</b> command from the connected IO-Link master.
<i>Lights up yellow:</i>	The <i>SensControl</i> cannot start the sniffing mode because the SD card cannot be used (no MicroSD card is inserted or no space is available on the MicroSD card or the first partition is not FAT32-formatted).
<b>LED 3</b>	<b>... provides information about the power supply currently in use.</b>
<i>Lights up red:</i>	The <i>SensControl</i> is operating on battery power.
<i>Lights up green:</i>	The <i>SensControl</i> is being operated via USB; the batteries are being charged.
<i>Lights up blue:</i>	The connected IO-Link device is being supplied with power via the master port.
<b>LED 4</b>	<b>... displays the charging status of the batteries.</b>
<i>Lights up red:</i>	Battery is almost discharged.
<i>Lights up green:</i>	Battery is 100% charged.
<b>LED 1 &amp; LED 2</b>	<i>Flashing blue:</i> The <i>SensControl</i> is started or is in <i>Firmware Update</i> mode.

## 2.4 SensControl app

The *SensControl* app allows you to access the connected IO-Link device (for parameterization and visualization) via your smartphone/tablet. The app is available in the *Apple App Store* and *Google Play Store*.



Ill. 3: SensControl app

### Roles

The *SensControl* app distinguishes between 3 roles that have different permissions: *Observer*, *Maintainer*, *Specialist*

Authorization	Observer	Maintainer	Specialist
<b>Identification:</b> Read out identification data:	X	X	X
<b>Parameter:</b> Parameterize IO-Link device:		X	X
<b>Diagnosis:</b> Read out diagnostic data:			X

### Also see about this

[Operation of the SensControl app \[▶ 14\]](#)

## 2.5 Power supply

The power supply is optionally provided via:

- Integrated mini-USB port
- IO-Link master
- Integrated battery

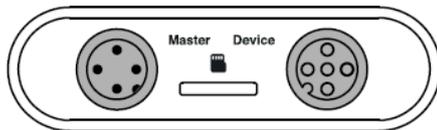
In battery mode, the *SensControl* has a runtime of approx. 3 h with an energy consumption of the IO-Link device of 2 W on average. In battery mode, the *SensControl* provides up to 350 mA for the IO-Link device.

If the IO-Link device to be used requires more power, a 24 V power supply unit can be connected to the connection for the IO-Link master in order to supply the IO-Link device directly with power.

**Also see about this**

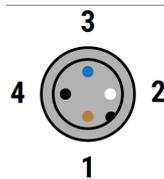
 [Charging the battery](#) [▶ 11]

## 2.6 Connection assignment



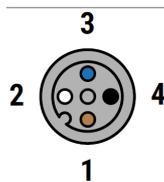
III. 4: Connections on the *SensControl*

### Connection for IO-Link master (*Master*)



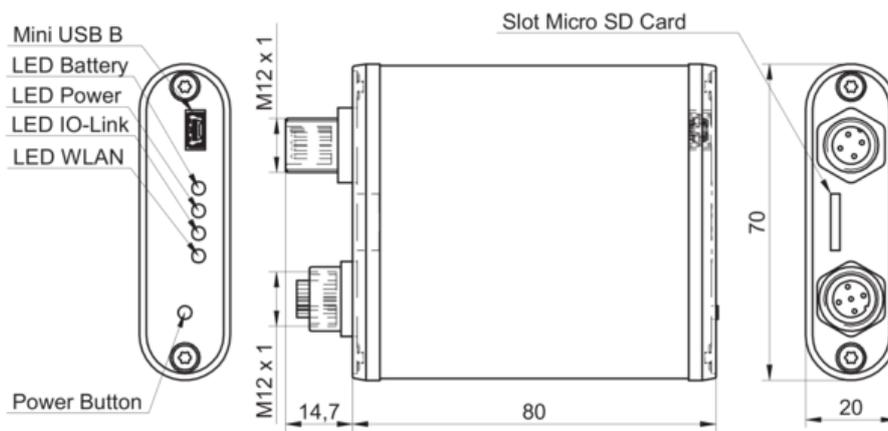
1	+	(brown)
2	DI/DQ	(white)
3	GND	(blue)
4	CQ	(black)

### Connection for IO-Link device (*Device*)



1	+	(brown)
2	DI/DQ	(white)
3	GND	(blue)
4	C/Q	(black)
5	NC	

## 2.7 Dimension drawing, connections, and display elements



III. 5: Dimension drawing, connections, and display elements

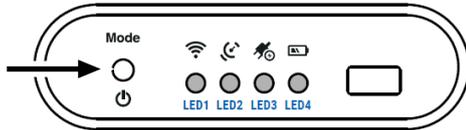
### 3 Commissioning

**Condition:**

⇒ You have installed the *SensControl* app on your smartphone/tablet. The app is available in the *Apple App Store* and the *Google Play Store* as *SensControl by Baumer* from Baumer Electric AG

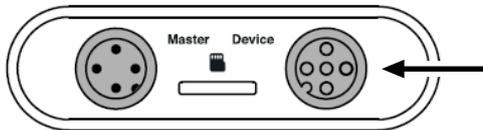
**Instruction:**

a) Press and hold the power button until all LEDs light up (approx. 1 sec).



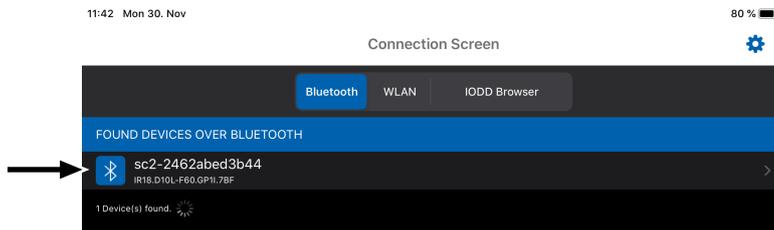
- ✓ During the switch-on process, LED 1 and LED 2 flash blue.
- ✓ After startup, the *SensControl* provides a WLAN in SoftAP mode (factory settings).

b) Connect an IO-Link device to the *SensorControl*.



- c) Start the *SensControl* app on your smartphone/tablet.
- d) Activate Bluetooth or WLAN on your smartphone/tablet and wait until the *SensControl* appears in the connection view.

*The Bluetooth connection is the most convenient way to work.*



e) Tap on the *SensControl* that is found.

**Result:**

- ✓ The connection between the *SensControl* and IO-Link device is established.
- ✓ The *SensControl* automatically downloads the IODD of the connected IO-Link device.
- ✓ Finally, the start screen of the *SensControl* app opens. The device is now ready for use.



**INFO**

The *SensControl* app stores IODDs in an offline cache once they have been downloaded. If the required IODD has already been downloaded, you can also use the *SensControl* app without an Internet connection.

## 4 Operation

### 4.1 Switching the SensControl on/off

**Instruction:**

- ◆ Press and hold the power button (approx. 1.5 sec) until all LEDs have gone out.

**Result:**

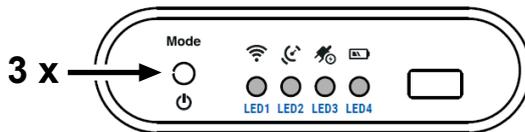
- ✓ The *SensControl* is switched on/off.

### 4.2 Changing the operating mode (master/sniffing)

You can switch between the operating modes *Sniffing* and *Master* mode via the power button.

**Instruction:**

- ◆ Press the power button 3 times within max. 3 sec (triple kick).



**Result:**

- ✓ LED 2 flashes blue: The *SensControl* is working in sniffing mode.
- ✓ LED 2 lights up yellow: The *SensControl* cannot start sniffing mode because the MicroSD card cannot be used (no MicroSD card is inserted or no storage space is available on the MicroSD card or the first partition is not FAT32-formatted).
- ✓ LED 2 lights up green: The *SensControl* is operating in master mode.

### 4.3 Charging the battery



**INFO**

When a power supply is connected to the mini-USB port of the *SensControl*, IO-Link devices can be operated with a current consumption of up to 200 mA.

- ◆ Connect the USB charging cable included in the scope of delivery to the *SensControl* (connector for mini-USB) and to a conventional charger for cell phones or to a PC/laptop.

## 4.4 Operating the SensControl in sniffing mode

### NOTICE

The SensControl app cannot be used in *sniffing mode*.

In sniffing mode, the *SensControl* tracks the communication between an IO-Link master and an IO-Link device without affecting the existing connection between the IO-Link master and the IO-Link device.

The setup of the sniffing mode is described exemplarily with the following devices:

- IO-Link master: *Baumer USB IO-Link Master (USB IOLM)*
- IO-Link device: *Baumer IR18 distance sensor*

Sniffing mode is set up with other devices analogously.

Set up sniffing mode in the following order:

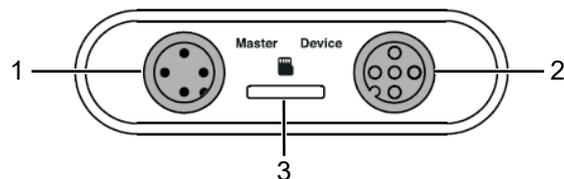
1. Connect the *SensControl*.
2. Activate sniffing mode.

Afterwards, you can read out the MicroSD card to view the data.

### Also see about this

- [Connecting the SensControl \(sniffing mode\) \[▶ 12\]](#)
- [Activating sniffing mode \[▶ 13\]](#)
- [Reading the MicroSD card \[▶ 13\]](#)

### 4.4.1 Connecting the SensControl (sniffing mode)



1	Anschluss für IO-Link Master	2	Anschluss für IO-Link Device
3	Slot für MicroSD-Karte		

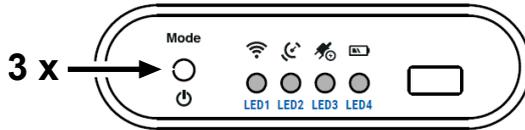
#### **Instruction:**

- a) Connect the USB IOLM to the *SensControl* (connection for IO-Link master).
- b) Connect the sensor to the *SensControl* (connection for IO-Link device).
- c) Insert a MicroSD card into the *SensControl* (slot for MicroSD card). The MicroSD card must be FAT32-formatted.

#### 4.4.2 Activating sniffing mode

**Instruction:**

- ◆ Press the power button 3 times within max. 3 sec (triple kick).



**Result:**

- ✓ LED 2 flashes blue: The *SensControl* is working in sniffing mode.
- ✓ LED 2 lights up yellow: The *SensControl* cannot start sniffing mode because the SD card cannot be used (no SD card inserted or no memory available on the SD card or the first partition is not FAT32-formatted).

#### 4.4.3 Reading the MicroSD card

**Instruction:**

- Remove the MicroSD card from the *SensControl* and insert the card into your PC.
- Open the folder of the MicroSD card on your PC.  
For each sniffing process, the *SensControl* saves a continuous CSV file on the MicroSD card.
- Open the desired CSV file.

**Interpretation of the CSV file (example)**

Code in CSV	Time since power on (µs)	Data direction <sup>I</sup>	Sent data to the end of the line <sup>II</sup>
792624101.0 a2 00	792624101	0	a200
792624218.1 06 1e a2 00 06 1e a3 11 2b 1b a4 33 11 28 a5 22 c3 2d	792624218	1	06 1e a2 00 06 1e a3 11 2b 1b a4 33 11 28 a5 22 c3 2d

<sup>I</sup> 0 = IO-Link master > IO-Link device

1 = IO-Link device > IO-Link master

<sup>II</sup> Information is given in hexadecimal

#### 4.5 Resetting to factory settings

**Instruction:**

- ◆ Press and hold the power button of the *SensControl* until all LEDs light up and then go out one after the other (approx. 10 sec).

**Result:**

- ✓ The *SensControl* is in the factory settings: Device name and WLAN SSID correspond to the information on the name plate (see back of device).

## 4.6 Operation of the SensControl app

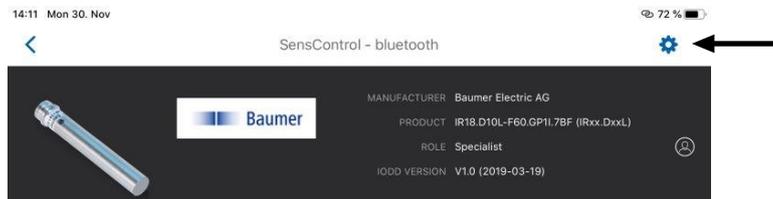
### 4.6.1 Changing the roles

**Condition:**

⇒ You are registered with the role **Specialist**.

**Instruction:**

a) Tap the gear icon in the upper right corner.



✓ The **Settings** page opens.

b) Tap **Role**.

c) Select the desired role.

### 4.6.2 Setting the IODD source

**Instruction:**

a) Tap the gear icon in the upper right corner.

✓ The **Settings** page opens.

b) Tap **IODD Repository URL**.

c) Select the desired source (URL) from which the IODD of the IO-Link device is to be downloaded.

**NOTICE! The SensControl automatically downloads the IODD from the URL set here as soon as you connect the IO-Link device to the SensControl.**

Alternatively, you can define the IODD source by manually entering the URL. To do this, tap the plus symbol at the top left and then enter the URL.



### 4.6.3 Creating favorites

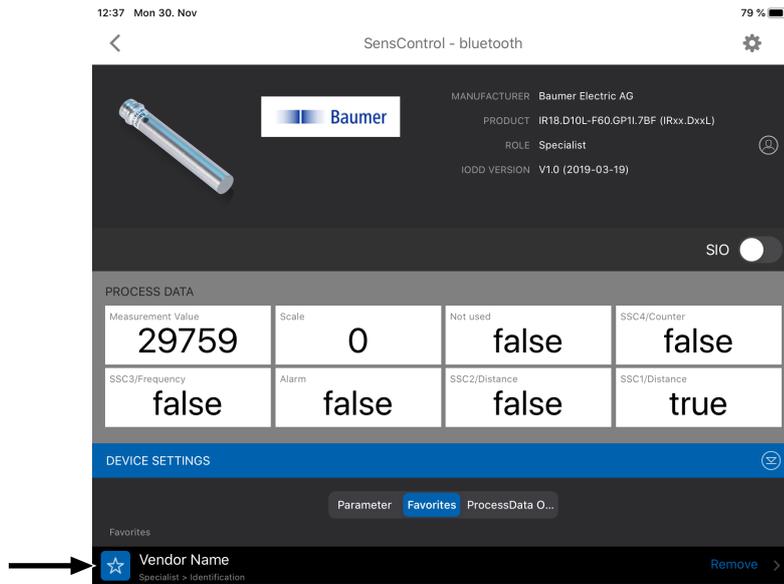
You have the option to create submenu items as favorites (for quick access). This is especially recommended for submenu items that you need regularly. In the following, the creation of a favorite is described using the example of the submenu item **Vendor Name**.

**Instruction:**

- a) Navigate to the desired submenu item.  
In our example: **Identification | Vendor Name**
- b) Tap the asterisk (on the right of the submenu item).

**Result:**

- ✓ The submenu item is saved in the list of favorites.



## 4.6.4 Parameterizing an IO-Link device (example)

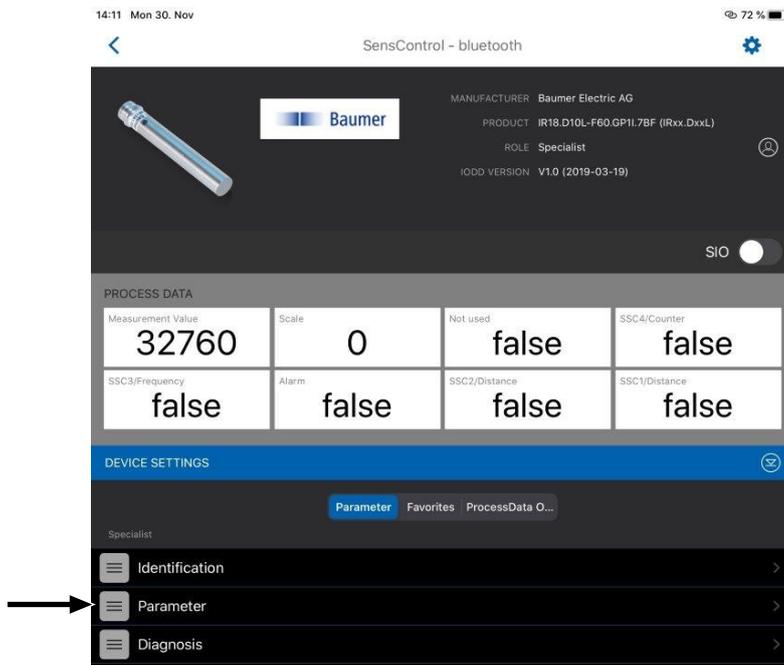
**INFO**

The type and scope of the adjustable parameters depends on the IO-Link device connected to the *SensControl*. The following is an example of how to parameterize the switch point SP1 for an inductive distance sensor from Baumer.

**Condition:**

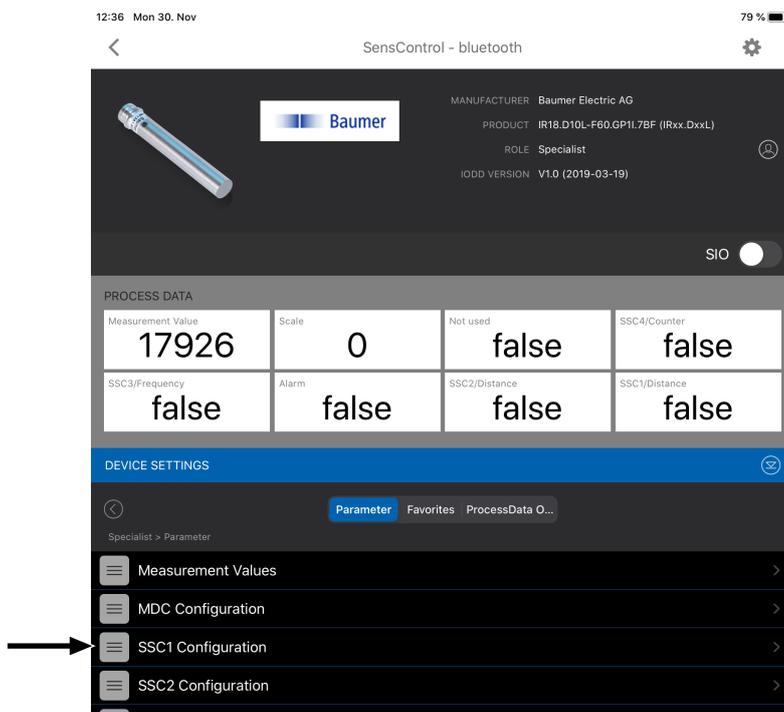
⇒ You are registered with the role **Specialist**.

a) On the start page, tap **Parameters**.



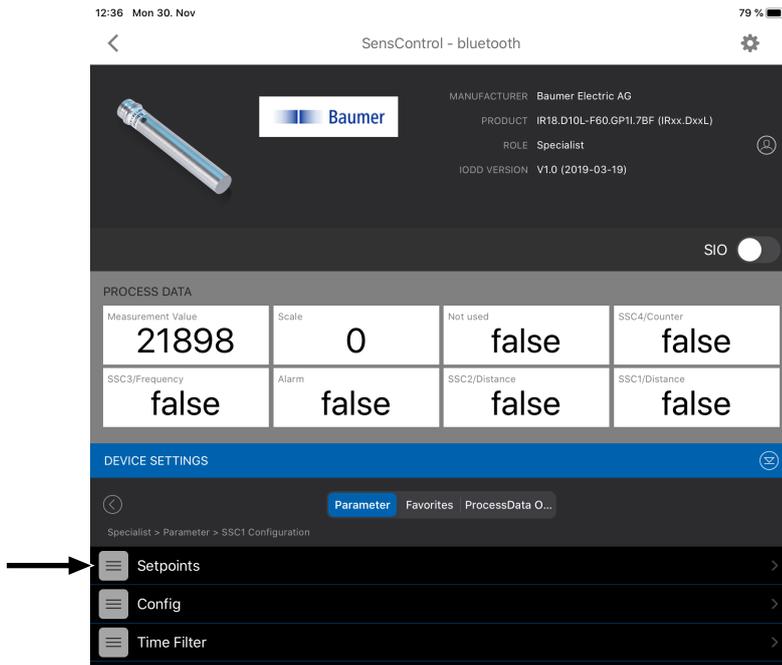
✓ The **Parameter** page opens, listing the parameters that can be set for the sensor.

b) Tap **SSC1 Configuration**.



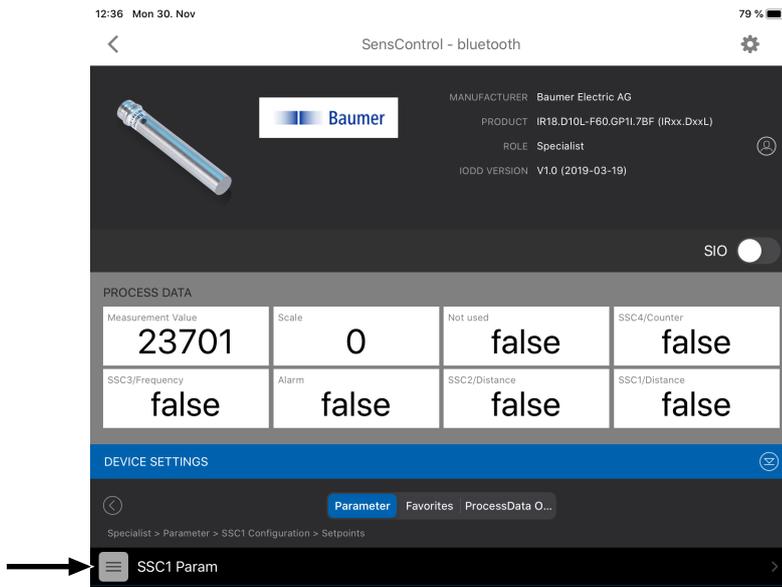
✓ The **SSC1 Configuration** page opens.

c) Tap **Setpoints**.



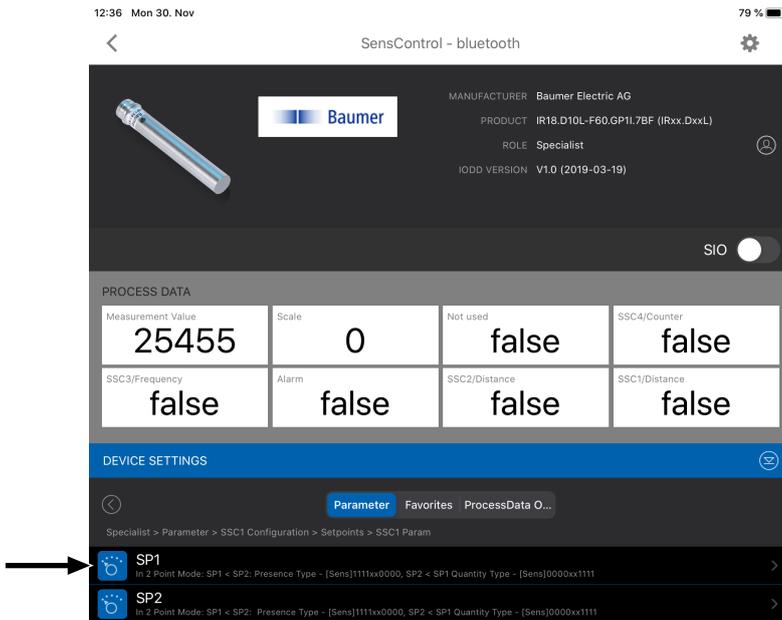
✓ The **Setpoints** page opens.

d) Tap **SSC1 Param**.



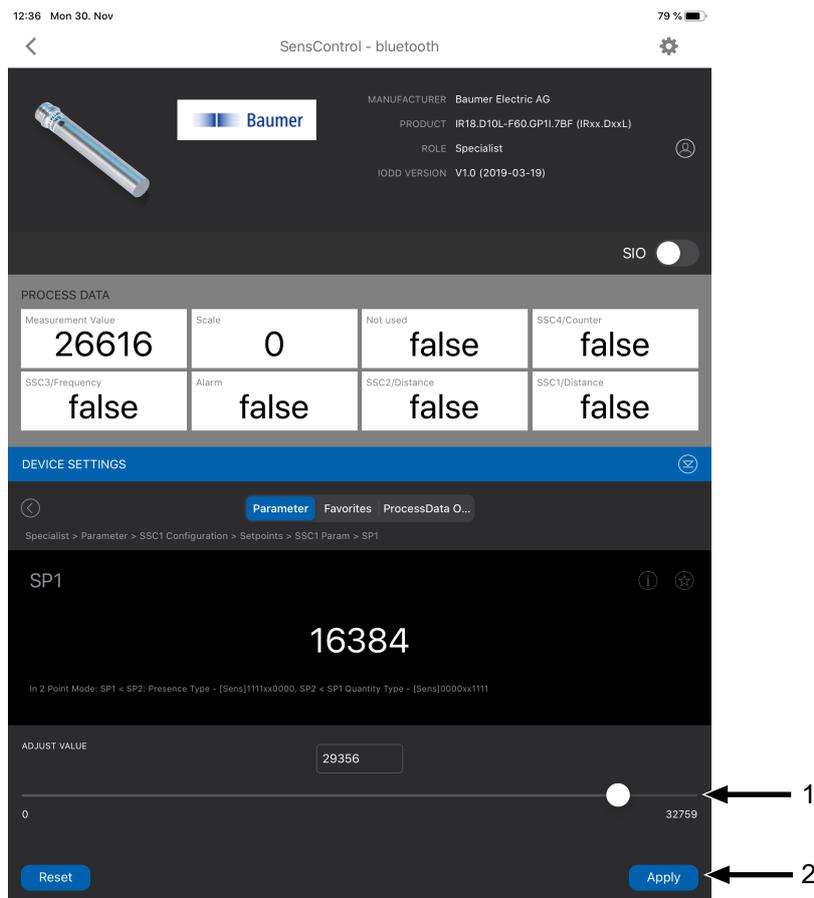
✓ The **SSC1 Param** page opens.

e) Tap on **SP1**.



✓ The **SP1** page opens.

f) Use the slider bar to set the desired value for **SP1** (1) and confirm with **Apply** (2).



**Result:**

✓ The parameter for **SP1** is set.

## 5 Technical data

Dimensions	<ul style="list-style-type: none"> <li>▪ 70 × 20 × 95 mm (W × H × D)</li> </ul>
Weight	<ul style="list-style-type: none"> <li>▪ 154 g</li> </ul>
Interfaces	<ul style="list-style-type: none"> <li>▪ 1 x M12 5-pin socket for IO-Link device (Class A)</li> <li>▪ 1 x M12 4-pin connector for IO-Link master (Class A)</li> <li>▪ 1 x micro SD card slot</li> <li>▪ 1 x mini-USB connection</li> <li>▪ Bluetooth Smart</li> <li>▪ WLAN</li> </ul>
Supported standards	<ul style="list-style-type: none"> <li>▪ IO-Link versions 1.0 and 1.1</li> <li>▪ IODD versions: 1.0.1 and 1.1</li> </ul>
Power supply	<ul style="list-style-type: none"> <li>▪ Choice of: <ul style="list-style-type: none"> <li>▪ Integrated USB port</li> <li>▪ IO-Link master</li> <li>▪ Integrated battery</li> </ul> </li> <li>▪ With battery operation: <ul style="list-style-type: none"> <li>▪ Max. current IO-Link device: 350 mA</li> <li>▪ Operating time more than 3 h at 2 W</li> <li>▪ Voltage IO-Link device: 24 V ±20%</li> </ul> </li> </ul>
Radio transmission output max.	<ul style="list-style-type: none"> <li>▪ WLAN: 18 dBm</li> <li>▪ Bluetooth Smart: 2 dBm</li> </ul>
Standards	<ul style="list-style-type: none"> <li>▪ EN 55022 /2010 Class A</li> <li>▪ EN 55024 /2010 + A1 /2015</li> <li>▪ Contains FCC ID: W7OMRF24WG0MAMB</li> <li>▪ Contains FCC ID: PVH0950 IC: 5325A-0950</li> </ul>

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