Instructions

SMI
Sensor Master Interface

Sensor Master Communicator (SMC) by Trafag AG

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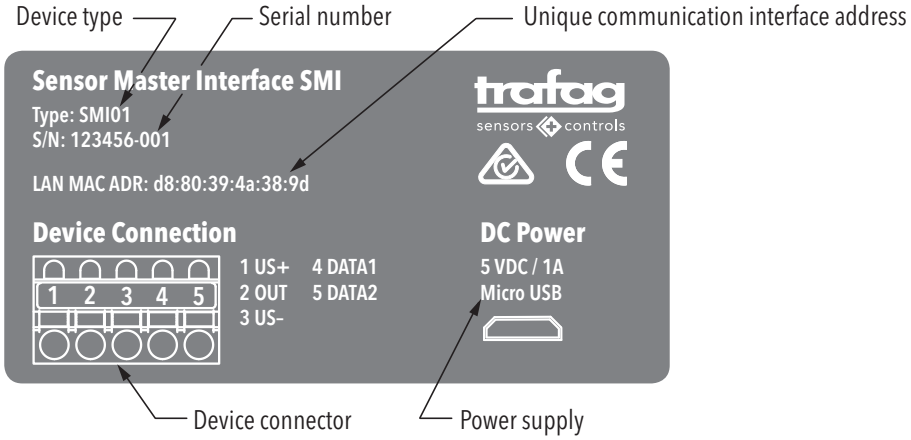
Technical specification

Power supply:	5 VDC, ±0.25 V, 1 A (via Micro USB)
Ambient temperature:	0 ... +40°C
Storage temperature:	– 10°C ... +50°C
Protection:	IP20
Dimension:	LxWxH 120x76x27 (mm)
Supported device types:	Pressure switches: NAT 8252, NAH 8254, NAR 8258 Submersible pressure transmitter: ECL 8439 Other pressure transmitters: Reading device data only

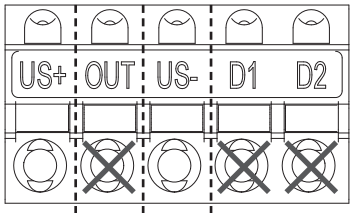
Interfaces:

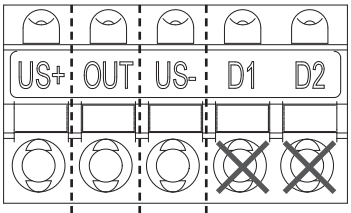
Micro USB:	Power supply
RJ45:	Ethernet connection
Device connection 5-pole:	Versatile connector to connect pressure devices with different pin-outs
USB:	To connect the USB Bluetooth dongle in order to communicate with the SMC App installed on an Android smartphone

Type label description

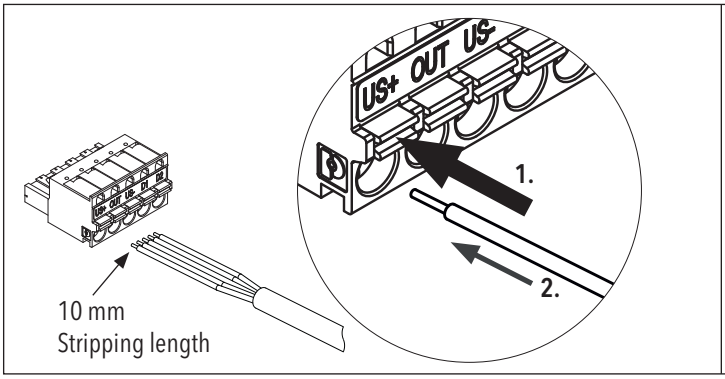


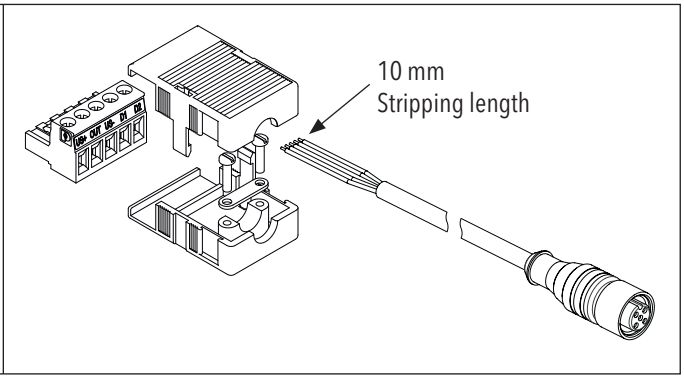
Device connector plug connection





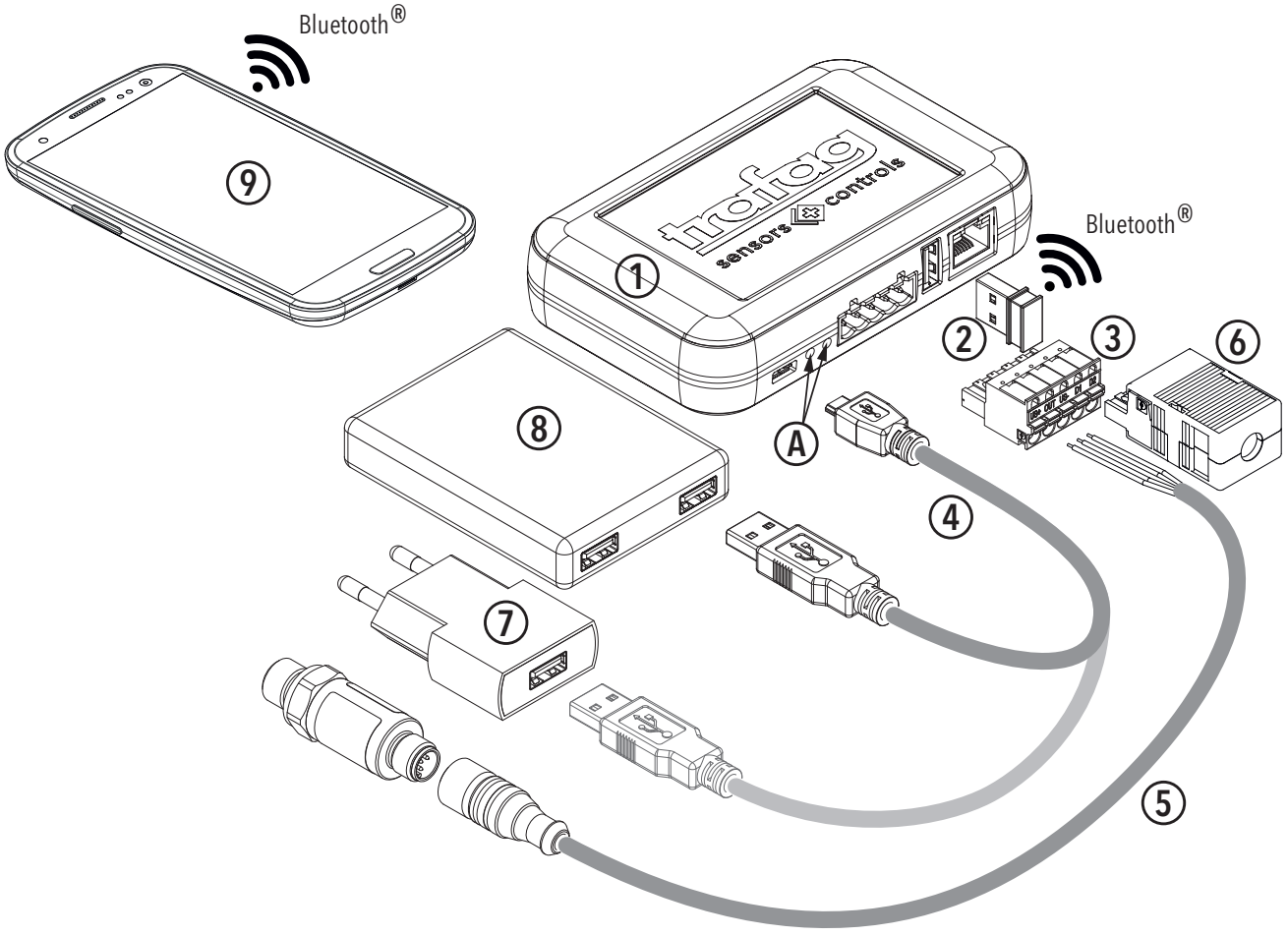
Pressure device connection	Pressure switches	US+	–	US–	–	Pressure transmitter V	US+	Out	US–	–
	Pressure transmitter mA	US+	–	Out (US–)	–	Pressure transmitter ratiometric	US+	Out	US–	–





Components and connection

1)	Sensor Master Interface SMI Ⓐ Status LED red/green	SMI package
2)	USB Bluetooth dongle	
3)	Device connector plug (5-pole, push-in)	
4)	Cable USB 2.0 A male Micro-B, 1 m	
5)	Cable PVC M12x1 connector	Accessories
6)	Device connector plug with housing (5-pole)	
7)	USB power adapter	To be procured by the end user locally
8)	Power bank	
9)	Android smartphone	



H73618d Trafag AG 07/2018

Sensor Master Communicator App SMC
Sensor Master Interface SMI

Operating Manual

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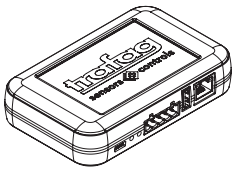
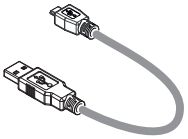
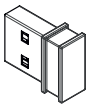
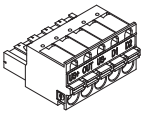
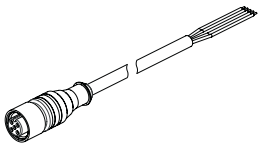
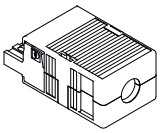
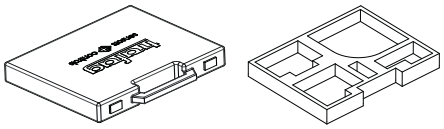
Table of contents

1. Order information / Accessories

1.1 Order information

SMI package, containing:	**F90170**	
- Sensor Master Interface SMI	1 piece	
- USB 2.0 cable A male USB Micro-B, for the power supply	1 piece as spare part F90173	
- USB Bluetooth dongle	1 piece as spare part F90172	
- Device connector plug, 5-pin with push-in spring connection	1 piece as spare part F90171	

1.2 Accessories

USB power supply adapter (USB charger):	-	Purchase on the local market with corresponding power plug; DC output: 5 VDC, ≥ 1 A
PVC cable, plug M12x1, 3 m	F90174	
Device connector plug with housing (5-pin)	F90175	
Case for SMI and accessories (325x248x50 mm) inlay included	H30782	

2. Technical data

Power supply:	5 VDC ±0.25 V, 1 A (power supply via USB Micro)
Communication interface	Bluetooth, Ethernet
Operating temperature:	0 ... +40°C
Storage temperature:	-10 ... +50°C
Protection class:	IP20
Dimensions:	LxWxH 120x75x27 (mm)
Supported device types	Pressure switches: NAT 8252, NAH 8254, NAR 8258 Submersible pressure transmitter: ECL 8439

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2.1 Power supply

2.2.1 Sensor Master Interface SMI

Power is supplied via the USB interface by means of a USB power supply unit, powerbank or computer USB connection.

The power supply used must be able to supply at least 1 A.

2.2.2 Pressure device

The pressure measuring device is powered via the Sensor Master Interface SMI.

3. Functionality

The Sensor Master Interface SMI serves as an interface between the Android app user interface, Sensor Master Communicator SMC, for setting parameters and the following Trafag pressure measuring device types.

Pressure device types		
Pressure switches	Setting the switch point, reset point, switching delay time and the output function Resetting to factory setting	
Pressure transmitter	Submersible pressure transmitter	Adjusting the measuring range
	Other pressure transmitters	Reading the device data

3.1 Cabling

An adapter cable, corresponding to the electrical connector, is required between the SMI and the pressure measuring device. Refer to chapter „5.2 Preparing the adapter cable“ on page 5.

4. Safety instructions

4.1 Power supply interruption

An interruption of the power supply while the SMI is in operation can result in being unable to save the new parameter values. It is important that the power supply is uninterrupted while writing the parameters to the pressure measuring device.

4.2 Bluetooth

Bluetooth is a practical interface that is available on many mobile devices, like smartphones. However, the technology does have security vulnerabilities. To prevent unintentional access, disable the Bluetooth connection again after use.

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5. SMI commissioning

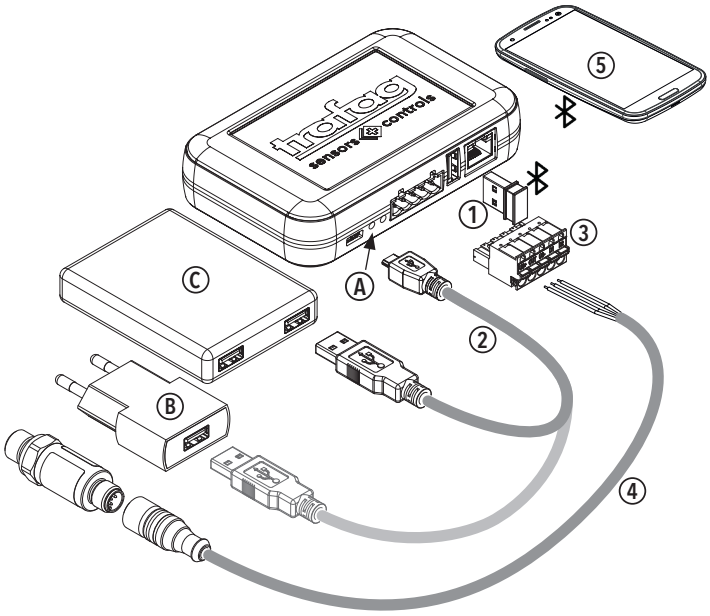
5.1 Setup

Procedure

1. Plug USB Bluetooth dongle ❶ in
2. Connect power supply with USB 2.0 cable A male Micro B ❷.
   Options:
   - PC, laptop
   - Power supply adapter (B)
   - Powerbank (C)
   - See chapter „2. Technical data" on page 3

   → The green LED (A) is flashing
3. Connect adapter cable or pressure measuring device with cable connection to the Device connector plug ❸.
   See chapter „5.2 Preparing the adapter cable" on page 5

→ The SMI with the pressure measuring device connected ❹is now ready to parameterise the pressure measuring device connected using the Sensor Master Communicator SMC app installed on an Andriod smartphone ❺. See chapter „6. Installing the SMC App" on page 6.

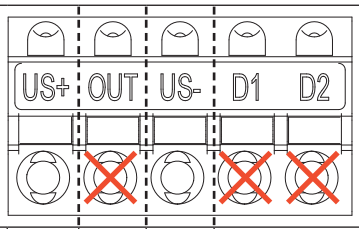


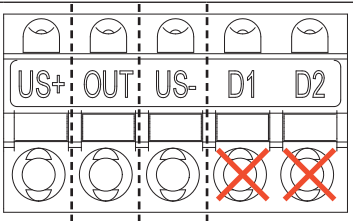
5.2 Preparing the adapter cable

The following information is required:

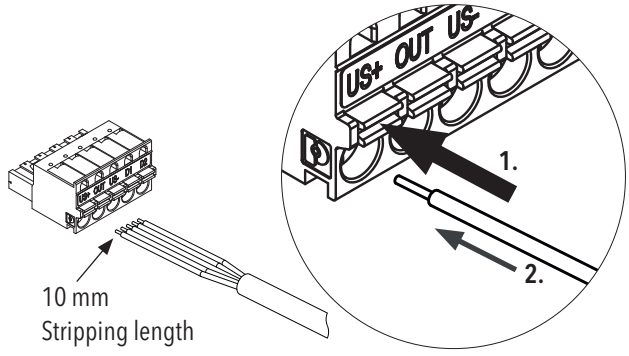
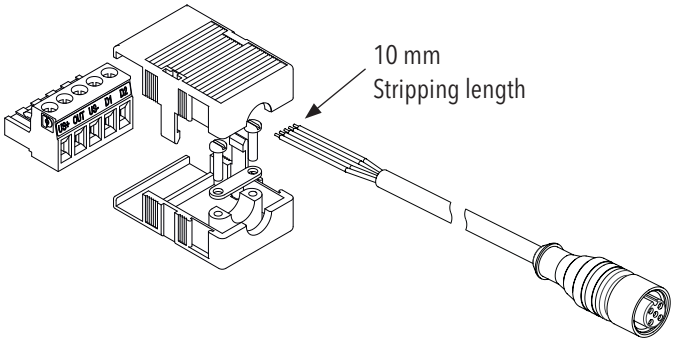
- Pin assignment according to the used pressure measuring device (see data sheet)
- Strand colours and pin assignment of the cable used

For the correct connection, the pin assignment of the pressure measuring device has to be combined with the core colours.





Pressure device connection	Pressure switches	US+	-	US-	-	Pressure transmitter V	US+	Out	US-	-
	Pressure transmitter mA	US+	-	Out (US-)	-	Pressure transmitter ratiometric	US+	Out	US-	-

Device connector plug 5-pin, push-in **F90171**	**Device connector plug with housing (5-pin)** **F90175**
Thanks to push-in spring clamping, every pressure measuring device can be easily and quickly connected to the connector plug using a cable connection or by means of an adapter cable.	Using the device connector plug with housing you can create a permanent adapter cable with corresponding plug connection and commonly used pin assignment for pressure measuring device.
	

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6. Installing the SMC App

6.1 Requirements

Smartphone

- Android OS ≥ V 4.4.2
- Bluetooth LE

Android settings

- Bluetooth activated
- Positioning service activated
- App permission to use the location

Sensor Master Communicator SMC by Trafag AG

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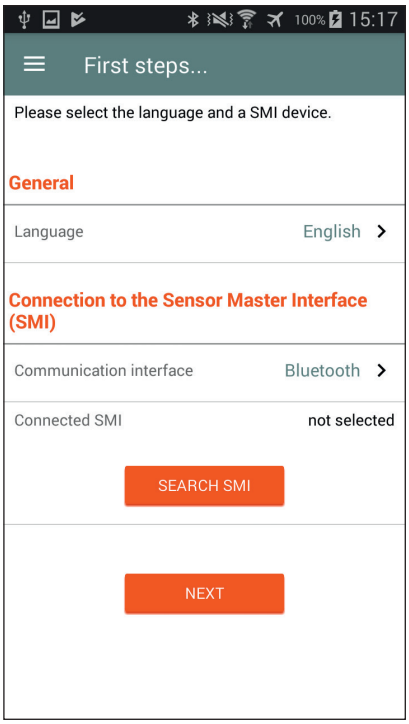
6.2 Installation

The Sensor Master Communicator (SMC) app is available from the Google Play Store.

6.3 First steps / Settings

On successful installation the „First steps...“ dialog appears

For details about the settings, see chapter „7.1 Settings“ on page 7



Procedure

1. Select dialog language
2. Connection to the SMI
   Select Bluetooth for interface
3. Select [Search SMI] to connect an SMI
4. Check serial number of the SMI on hand against the list of devices and select
   → The SMI connected is displayed
5. Select [Next]
6. Select the device type
7. Select [Connect]

→ For details see chapter „7.2 Connecting to the pressure measuring device“ on page 8

6.4 Android settings

The following settings have to be considered:

- Bluetooth activated
- Location service activated
- App permission to use the location information

For Android versions 6.0 and up App permissions are monitored. For the SMC App location permission need to be turned on.

Procedure

1. On your device, open the main Settings app ✱ (gearwheel).
2. Tap Apps or Application Manager (depending on your device, this may look different).
3. Tap the SMC App to update.
4. Tap Permissions.
5. Next to a permission you turn on, move the switch to the right until it turns green.

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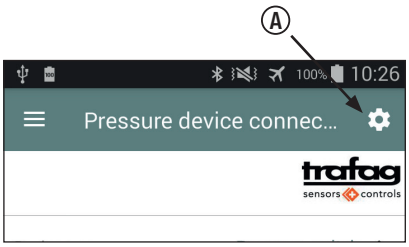
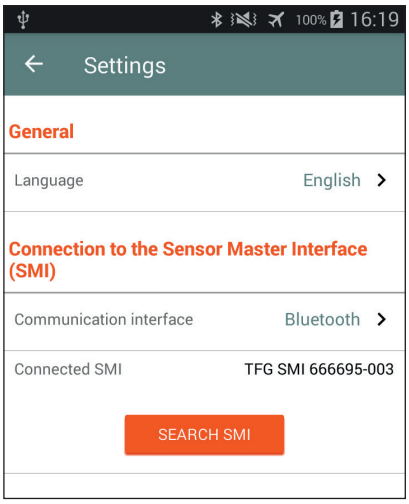
7. Sensor Master Communicator App (SMC)

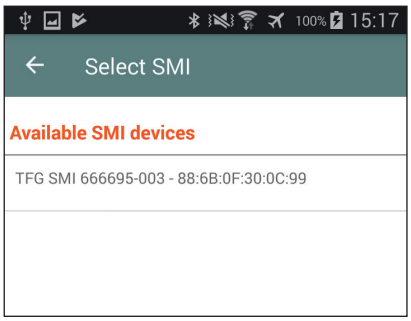
7.1 Settings

The settings are available via the gearwheel (A) at top right in the dialog.

Language	Dialog language selected
Communication interface	**Bluetooth** Communication between the smartphone and the SMI is conducted via the Bluetooth interface. **WiFi** Communication between the smartphone and the SMI is conducted via the WiFi interface. To be able to use the WiFi interface, the SMI needs to be connected to a network. This can be an access point to which the SMI is connected or an intranet to which the SMI is connected via RJ45 connector. Refer to chapter „10. SMI data communication" on page 12 When changing from Bluetooth to WiFi, the sensor master interface must be restarted by unplugging and plugging in the USB power supply in order to trigger an IP address request.
Connected SMI	Serial number of the SMI selected that the app uses to connect to the pressure measuring device.
Search SMI	Use [Search SMI] to search for the available SMI devices within the selected communication interface. The result: Every SMI found is listed along with the serial number and MAC address. Please note: If an SMI is already connected to another SMC App it will not appear in the list of «Available SMI devices». Check the list «Available SMI devices» against the specifications on the rear of the SMI on hand and select the required device.







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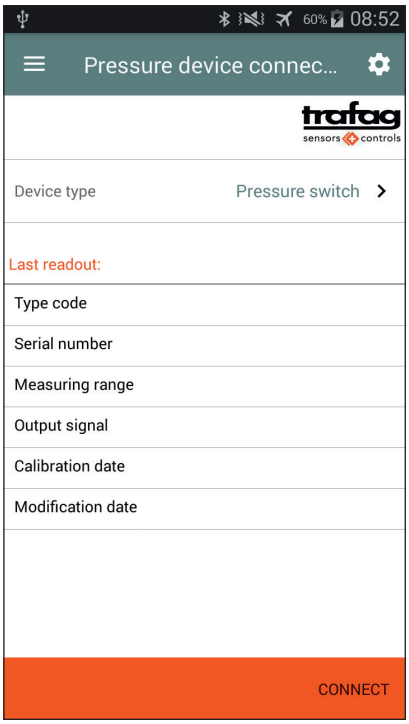
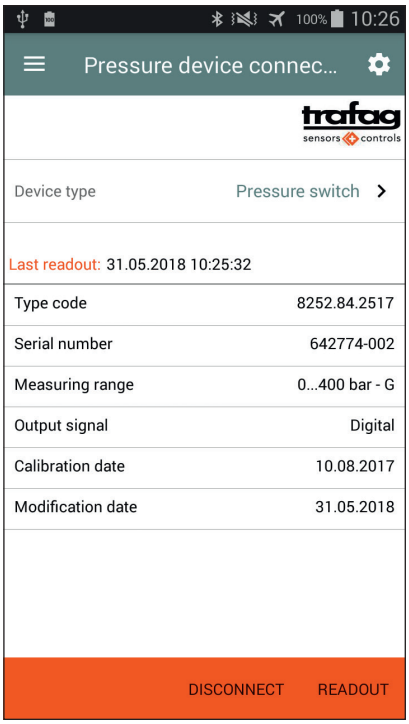
7.2 Connecting to the pressure measuring device

The „Pressure device connection" dialog is the basic dialog. Every connection made to a pressure measuring device and subsequent parameter change begins with this dialog.

If the connection to the pressure measuring device is lost, this dialog is displayed automatically.





Preparation

1. The SMI has to be prepared according to chapter „5. SMI commissioning" on page 5
2. Connect the pressure measuring device with the cable outlet or with the adapter cable and device connector plug.
3. Ensure the settings according to chapter „7.1 Settings" on page 7 are correct.

Procedure

1. Select device type
   → The command button [Connect] is displayed.
2. Select [Connect]
3. Wait while the connection to the pressure measuring device is being made and the device data is read.
   → Device data are displayed
   → Depending on the device type selected, the main menu includes additional menu items for parameter setting.
   – Pressure switch: Switchpoint settings
   – Pressure transmitter mA: Pressure range settings for submersible transmitter
   – See also chapter „7.3 Main menu" on page 9
4. To change the parameters select the corresponding menu item.
   – Pressure switch Chapter „8. Pressure switches" on page 10
   – Pressure transmitter Chapter „9. Pressure transmitters" on page 11

Device type	Selection list - Pressure switch - Pressure transmitter (V) - Pressure transmitter (mA) - Pressure transmitter (Ratio)
Connect	This function [Connect] is used to establish the communication with the connected pressure measuring device. Subseqently the device data and parameters are readout.
Disconnect	This function [Disconnect] is used to discontinue the communication with the connected pressure measuring device. It disconnects the Bluetooth on both sides (SMI and SMC App) allowing a new connection. On the SMI side it makes the Bluetooth node ready to be visible in the list of available SMI devices of the same or another SMC App.
Readout	[Readout] is used to repeat a readout of the device data. This function cannot be used to readout a new plugged-in pressure measuring device of the same type.

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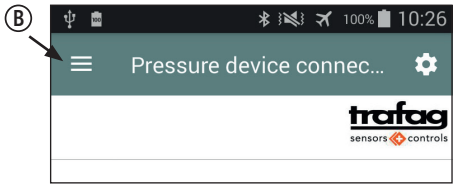
7.3 Main menu

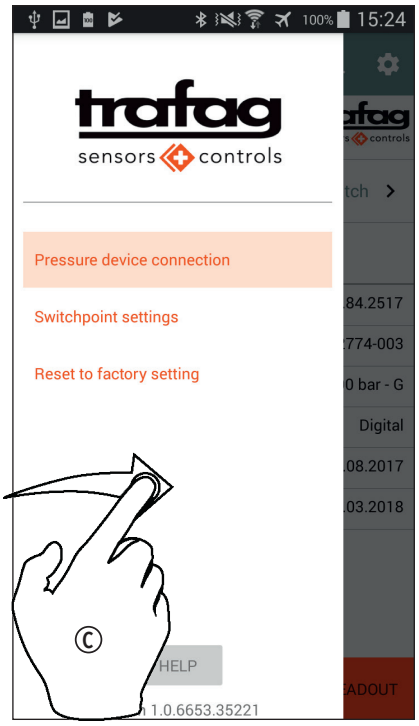
Displaying the main menu

- Tap the 3 lines (B) at top left in the dialog
- Using a finger, swipe from left to right across the screen (C)

Once the device type has been selected (see chapter 7.2 on page 8) and the connection to the pressure measuring device is in place, the corresponding menu items are displayed.



Pressure device connection	Set up basic dialog with the connection to the pressure measuring device
Switchpoint settings	Visible when: - the connection to the pressure switch is in place. Setting the switch point, reset point, switching delay time and the output function
Pressure range settings	Visible when: - the connection to a pressure transmitter with adjustable measuring range (submersible transmitter) is in place. Set the measuring range on submersible pressure transmitter with adjustable measuring range, refer to the datasheet.
Reset to factory setting	See chapter „7.4 Resetting to factory setting" on page 9 below
[Help]	Link to the operating manual on the Trafag website.



7.4 Resetting to factory setting

The parameters are reset to the values that were set at the time of production.

Procedure

1. In the main menu select „Reset to factory setting"
2. Select [Verify]
   → Current parameters = factory setting:
   Information via dialog. A reset is not required
   → Current parameters ≠ factory setting
   The command button [Restore] is displayed
3. Select [Restore]
   → A dialog about completion is displayed.

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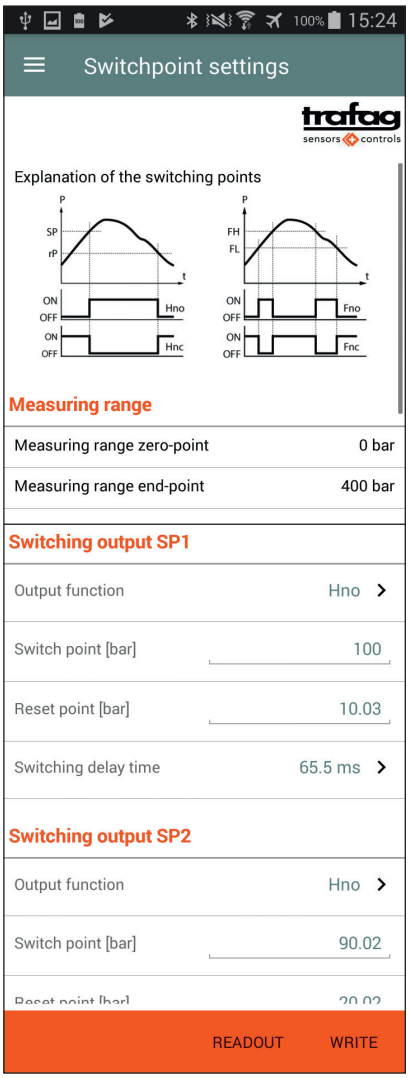
8. Pressure switches

8.1 Changing the parameters

Procedure

1. To change the parameters the connection to the pressure measuring device needs to be made first, see chapter „7.2 Connecting to the pressure measuring device“ on page 8.
2. Open the main menu and select «Switchpoint settings»
   → The dialog «Switchpoint settings» is displayed

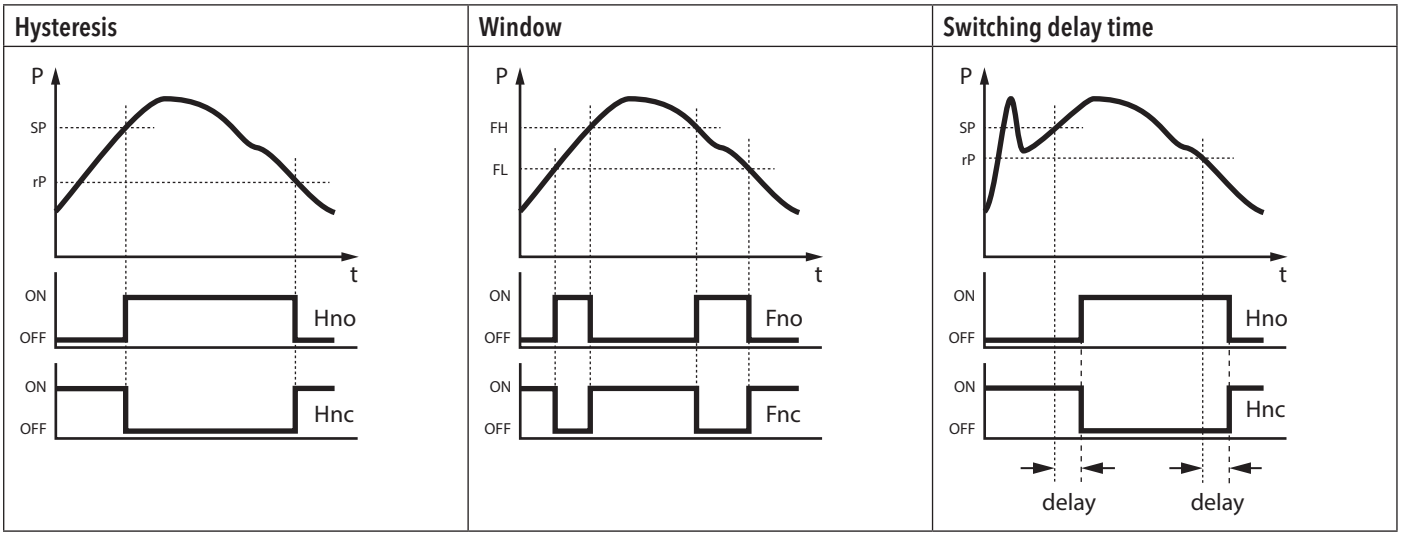


8.2 Parameters

The parameters of switching outputs SP1 and SP2 can be set independently.

Measuring range	Measuring range of the pressure switch connected (information)
Output function	Selection list: - Hysteresis normally open (Hno) - Hysteresis normally closed (Hnc) - Window normally open (Fno) - Window normally closed (Fnc) Refer to the illustration in chapter „8.3 Functions of the switching outputs“ on page 10
Switch point (SP)	Input of the pressure value in the unit of the device pressure range. The setting range according to the data sheet has to be observed.
Reset point (rP)	
Switching delay time	Selection according to the values in the selection list.
[Readout]	Reading the parameters from the pressure switch connected.
[Write]	Transferring the new parameter values to the pressure switch connected.

8.3 Functions of the switching outputs



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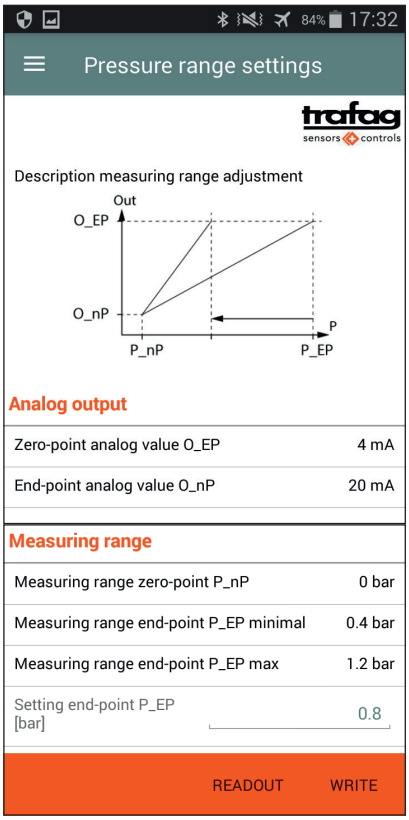
9. Pressure transmitters

9.1 Changing the parameters



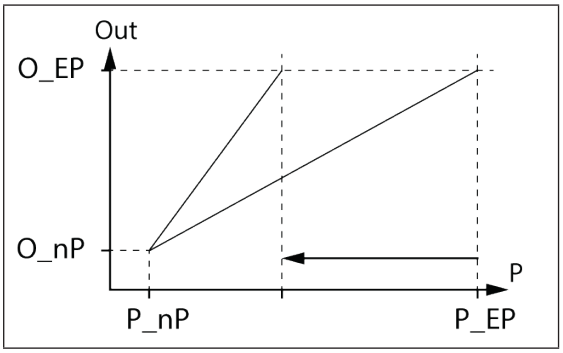
Procedure

1. To change the parameters the connection to the pressure measuring device needs to be made first, see chapter „7.2 Connecting to the pressure measuring device" on page 8.
2. Open the main menu and select «Pressure range settings»
   → The dialog «Pressure range settings» is displayed

9.2 Set the measuring range end point

Instrument types supported see chapter „2. Technical data" on page 3.

Analog output	Output signal from the pressure transmitter connected (information)
Measuring range	Original measuring range of the the pressure transmitter connected (information)
Setting end point P_EP	Input of the pressure value of the new measuring range end point. The setting range according to the data sheet has to be observed.
[Readout]	Reading the parameters of the pressure transmitter
[Write]	Transferring the new parameter values to the pressure transmitter



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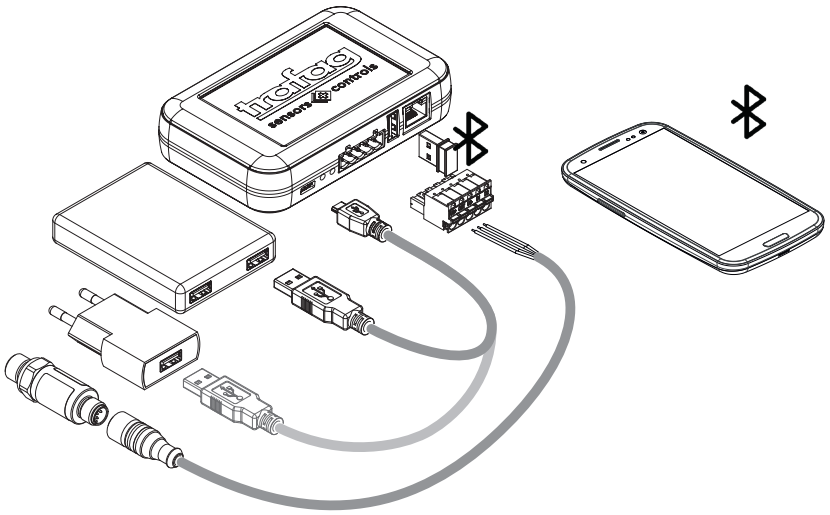
10. SMI data communication

10.1 Bluetooth

Bluetooth is intended as the standard for communication. The Bluetooth dongle is included in the SMI package. With a Bluetooth-compatible smartphone and the Sensor Master Communicator app installed, nothing stands in the way of setting the pressure switch and pressure transmitter parameters with ease.

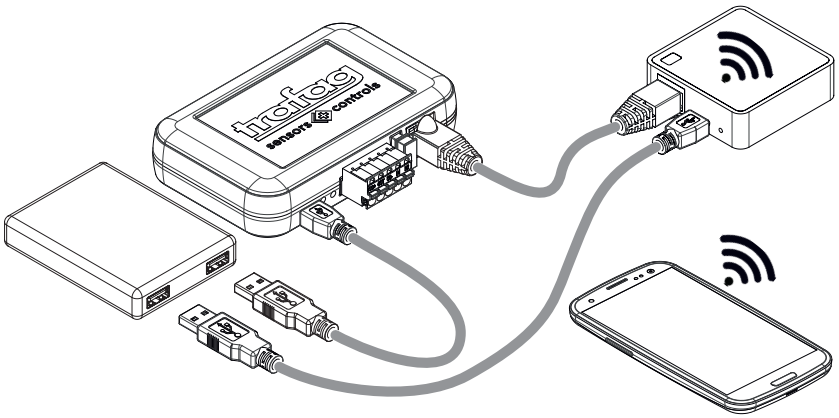


10.2 WiFi access point

The use of a WiFi access point may be necessary in the following situations:

- Distance between smartphone and SMI is too big for Bluetooth communication.
- The smartphone does not have a Bluetooth interface.
- The Bluetooth connection should not be used for reasons of security.

Various WiFi routers on the market can be operated as access point. „Access point" needs to be selected as operating mode.



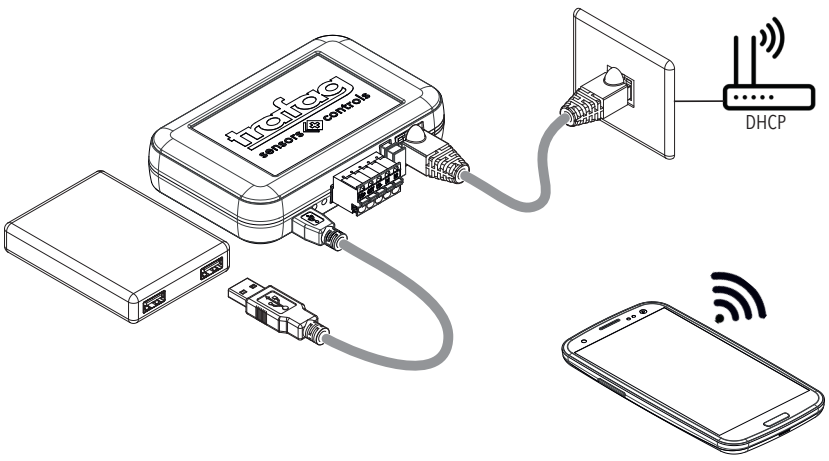
10.3 LAN / WiFi

The use of a LAN/WLAN connection may be necessary in the following situations:

- The company network has a LAN with WiFi hotspots
- Distance between smartphone and SMI is too big for Bluetooth communication.
- The smartphone does not have a Bluetooth interface.
- The Bluetooth connection should not be used for reasons of security.

Requirements

- LAN with DHCP running



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11. Troubleshooting

Message / Problem	**Cause / Measure**
Connection of the SMC App with the pressure measuring device is not successful. Message no 24	Check the stripping length of the strands connected with the device connector plug. Power supply does not deliver the required power. Please verify - Selected device type
Message no 21	Please verify - Selected device type - Power supply (the power supply via an USB plug of laptops may not be sufficient) - plugs correctly inserted - Correct WiFi network settings (if WiFi interface is seleced)
Message no 20	Pressure measuring device was unplugged during an active connection. Connect again.
Message no 319	Check the correct wiring connections have been made in the device connector plug.

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