

Operating Instructions: PICO-BT and TRIME® Blue App



Thank you very much that you have decided to buy our Bluetooth®-Module PICO-BT.

The PICO-BT is state-of-the-art Bluetooth® technology.

In order to achieve the best possible results with your PICO-BT, please read these operating instructions carefully. Should anything still be unclear, or should you have any suggestions regarding your new PICO-BT, please do not hesitate to contact one of our authorised dealers or IMKO directly. We will gladly help you.

IMKO Micromodultechnik GmbH
Am Reutgraben 2
D-76275 Ettlingen
Germany

Phone: +49-7243-5921-0
Fax: +49-7243-90856
E-mail: info@imko.de
Internet: <http://www.imko.de>

Abstract

This document depicts the installation and the operation of the TRIME® Blue software, as well as the use of the PICO-BT Bluetooth interface provided by the company IMKO GmbH. The PICO-BT interface enables to control modules and probes, which are addressed using the IMP bus protocol via Bluetooth. The software TRIME® Blue was developed for the operating system Android and, in combination with the PICO-BT Bluetooth interface, enables the control of the aforementioned modules and probes using a customary Android smartphone equipped with a Bluetooth interface.

Operating Instructions: PICO-BT and App TRIME® Blue

CONTENT

1	PICO-BT Hardware Description	4
	Specifications	5
	Charging the Storage Battery.....	6
	Suited Smartphone	6
2	Installation of the TRIME Blue® App from the Google Playstore.....	7
3	Establishing the Bluetooth Connection	10
4	TRIME® Blue Initial Configuration	12
5	First Trial Measurement	15
6	Creating own Measuring Points	16
7	Specifying the Measuring Point at the Measurement.....	18
8	Sending Measurement Data via E-Mail.....	20
9	Safety Notes.....	21

1 PICO-BT Hardware Description

Delivery Scope:

- PICO-BT Module
- Wall Power Supply 12V/DC
- Charging Adapter (7-pole coupling socket to DC)
- Retainer (belt clip)
- Protective Cap
- Manual

Description

1. ON/OFF button (keep pressed for 2 seconds)
2. 7-pole socket for connection of the sensor and charger
3. 4 LEDs for indication of the different operation modes:

1. **Blue** Indicator, if device is activated
2. **White** Connected via Bluetooth.
3. **Red** PICO-BT sends data to the sensor
4. **Yellow** PICO-BT is receiving data from the sensor



Specifications

Height		36mm
Width		63mm
Length		98mm
Weight		(with storage battery) approx. 230g
Power Consumption	Power Down Condition	approx. 86µA
	Idle Condition	approx. 20mA
	Connected	ca. 100mA with Sensor ca. 10mA without Sensor
	Measuring	approx. 450mA
Operating Systems	Tested with	Windows Mobile™ 6.0 Microsoft® Windows XP™ Microsoft® Windows 10™ Linux Kernel Version >= 2.6 Android >= 2.6 Mac OS X Version >= 10.100
Connectable Sensors		PICO64, PICO32, PICO-IPH
Bluetooth		Bluetooth Specification 2.0
Operating Temperature		20°C to 70°C
Charging Temperature		10°C to 50°C
Charging Voltage		Nom. 12V, Max. 15V, Min. 12V
Charging Time		When completely discharged approx. 2h
Storage Battery		Ni-MH (4 x 1.2V) (AA), 1000mAh, >1500 Measurements
IMP-Bus Port Settings		

Table 1: Technical Data

Charging the Storage Battery

Important: *The PICO-BT module must be switched on for charging!*

If the blue LED blinks 1x, 2x, 3x (after switching on your PICO-BT module), or if the module can not be switched on at all after a longer storage period, the internal storage battery of your device must be recharged. The blinking frequency increases in proportion to the reduction of the battery voltage. In order to charge the storage battery of your PICO-BT interface, please connect the plug (see diagram 1.2 (2) below) of the provided charger (see diagram 1.2 (1)) with the charging plug (see diagram 1.2 (3)) and subsequently connect this setup with the 7-pole plug of your PICO-BT that is presented in diagram 1.1 under item (2). The blue LED will blink during the charging process. It will cease to blink as soon as the storage battery is completely charged.



You can recharge your PICO-BT module with any DC voltage source that features a voltage situated between 9 V and 15 V (e.g. via an adapter for the cigarette lighter in your car). The recommended charging voltage is 12 V.

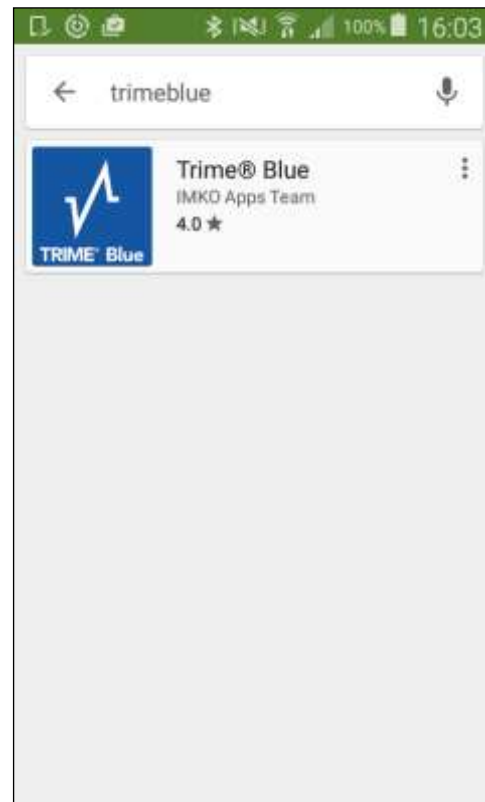
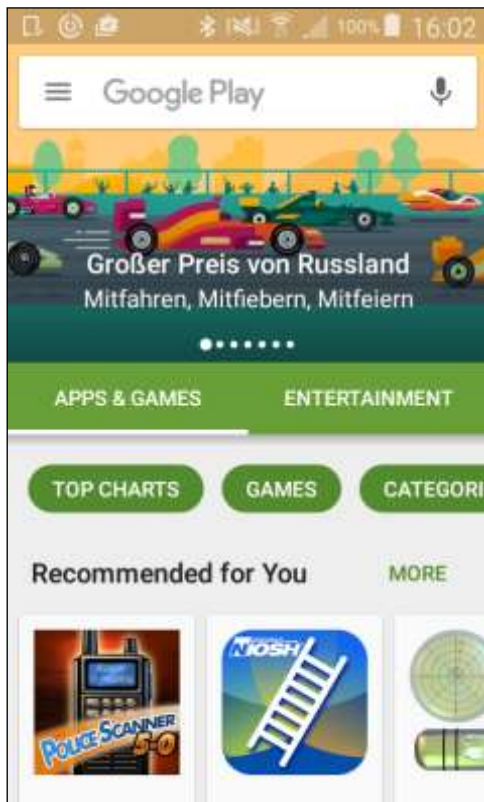
Suited Smartphone

In order to use the TRIME Blue® App, you require an Android smartphone of the version 4.0 (or higher), as well as a Bluetooth interface.

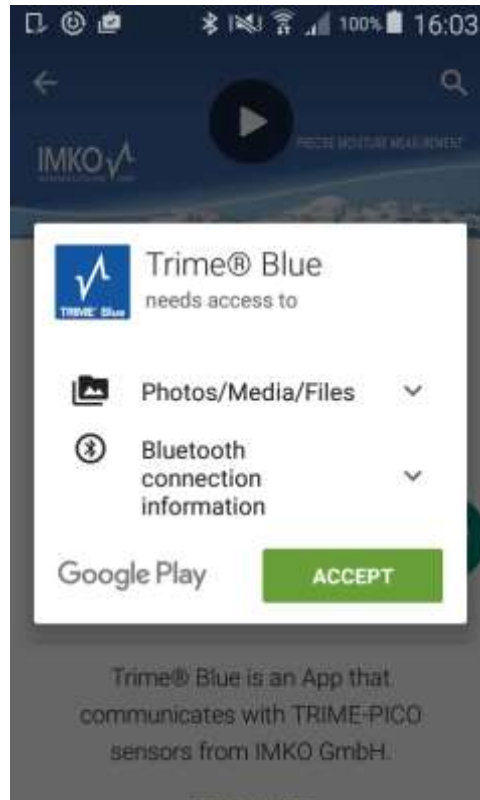
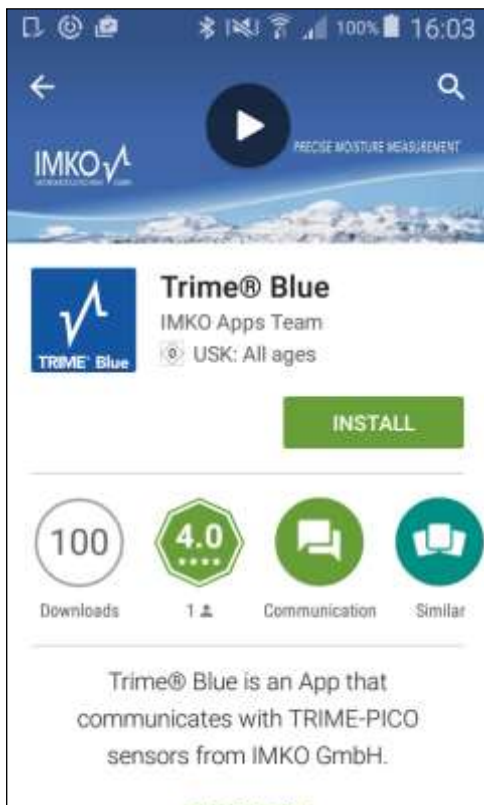
2 Installation of the TRIME Blue® App from the Google Playstore

The Android App TRIME Blue® is installed via the Android Playstore. You can find an instruction for the registration at the Google PlayStores under: <https://play.google.com/store>.

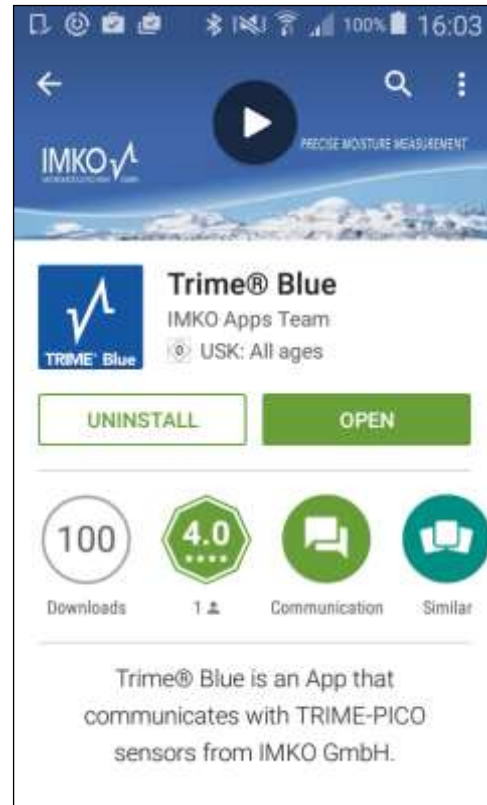
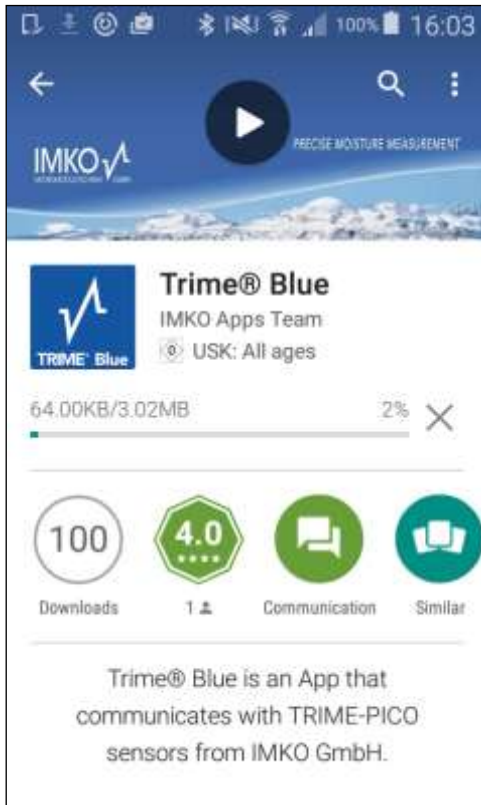
Initiate the Play Store App und enter the keyword "TRIMEblue" into the search bar situated in the top section. Select the App TRIME® Blue report card by tipping on to the same.



Initiate the installation via the **INSTALL** button and accept the respectively required authorisations.



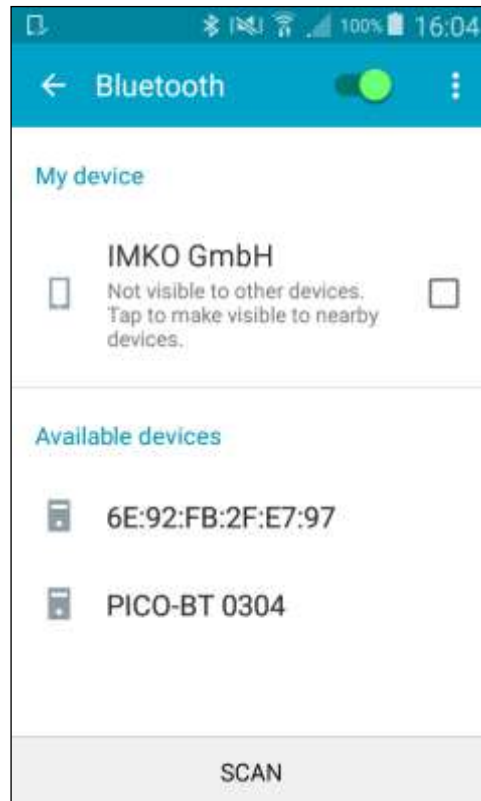
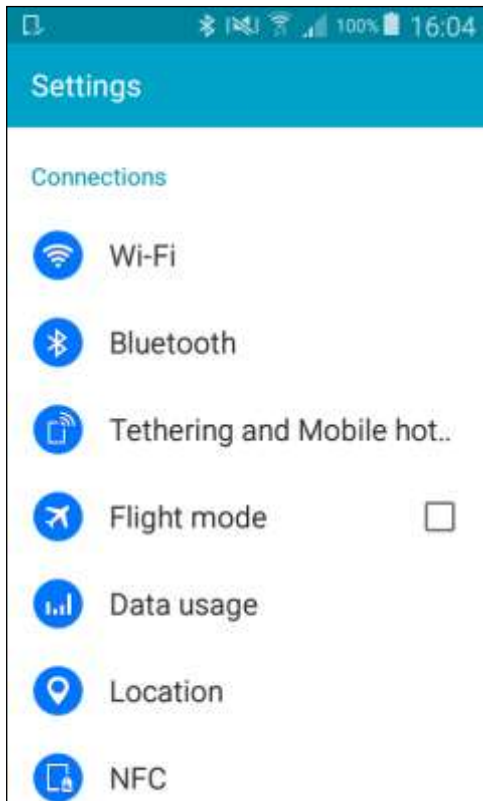
The installation may require several seconds. Wait until the progress bar has disappeared. The App TRIME® Blue is now installed.



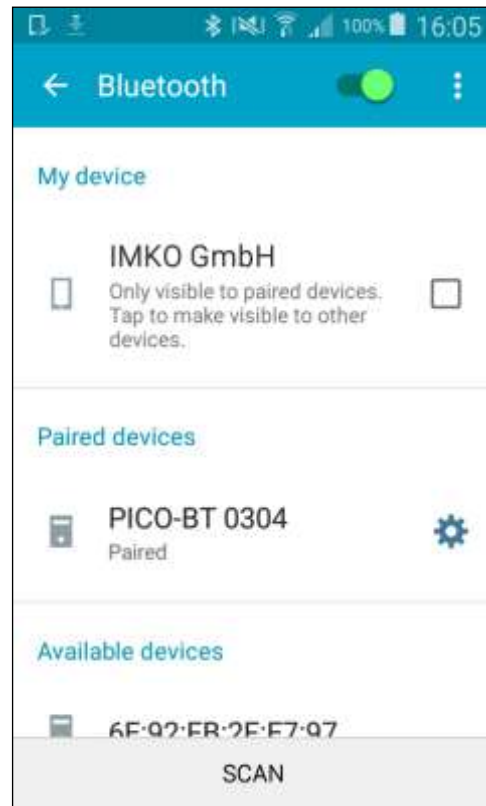
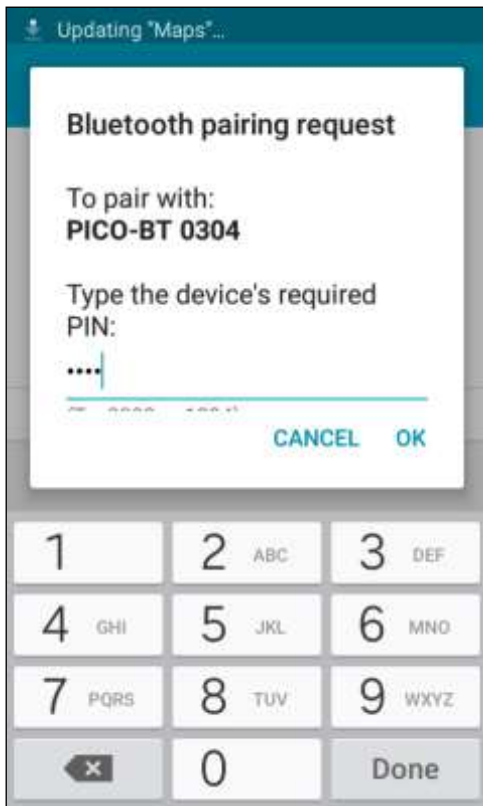
3 Establishing the Bluetooth Connection

In order to be able to communicate with the PICO-BT Bluetooth module, you must first connect the same to your smartphone ("pairing"). This is a one-time procedure.

For this purpose, initiate the App „Settings“ on your smartphone and select the menu item "Bluetooth" contained under "Connections". As soon as you now initiate the PICO-BT Bluetooth module via the On/Off" button (keep pressed for 2 seconds),the module should appear under "Available devices".



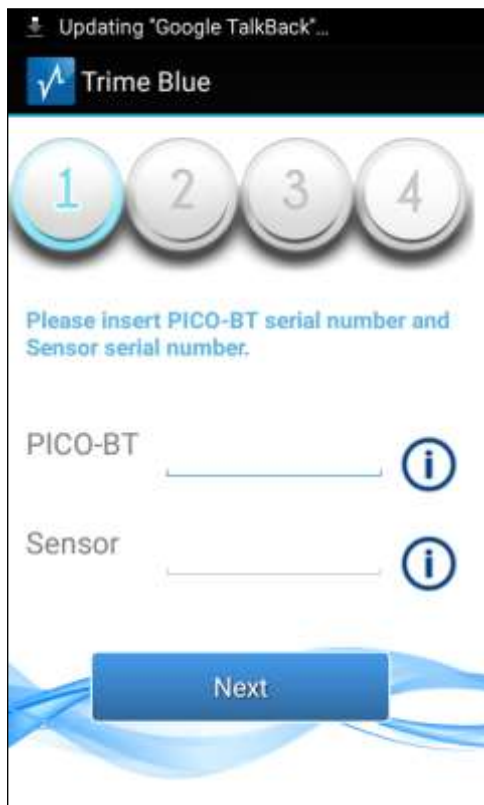
Initiate the connection by selecting the module. Enter 0000 as pin in the following dialogue and acknowledge the same with **OK**. The PICO-BT Bluetooth module is now connected with your smartphone.



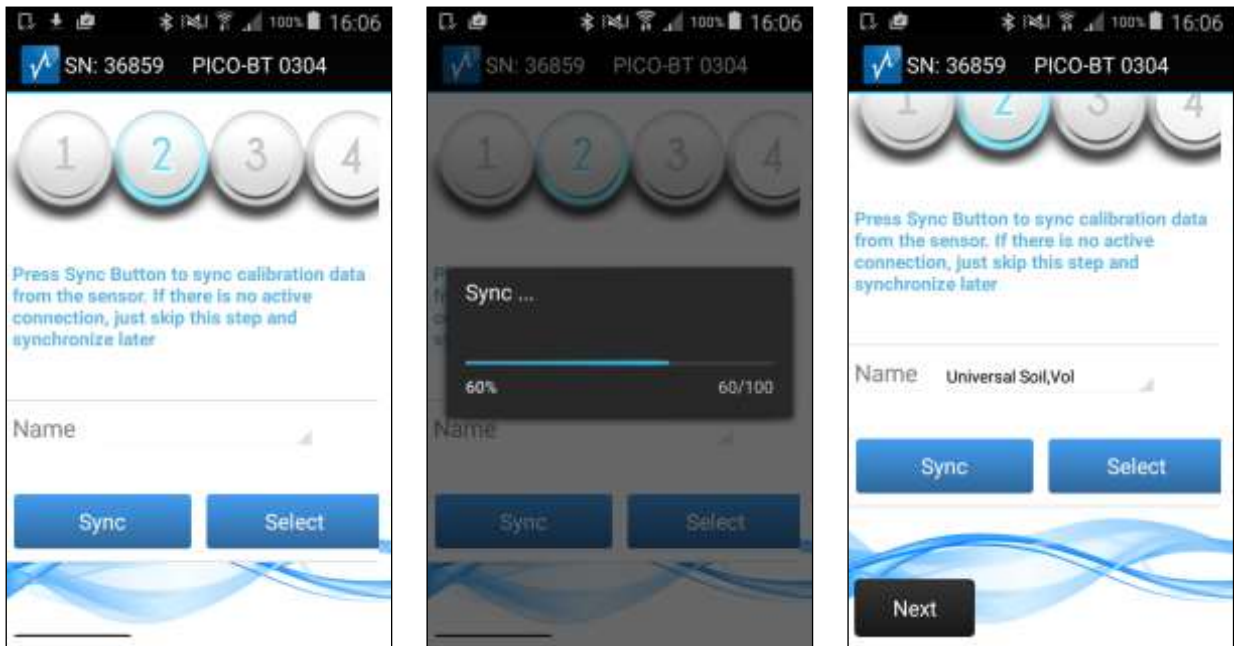
4 TRIME® Blue Initial Configuration

In the next step, the TRIME® Blue App must be configured. The configuration assistant is automatically uploaded at the first initiation of the App.

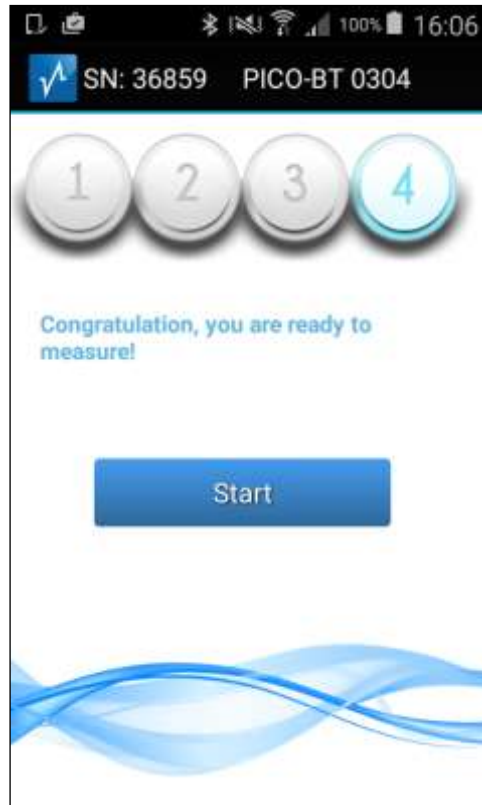
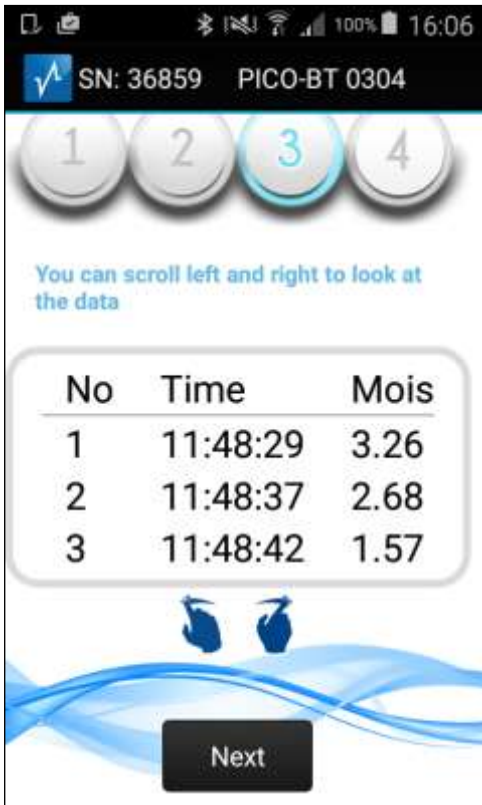
As the first step, now enter the serial number of your PICO-BT Bluetooth module (e.g: 0304) and of the connected PICO-sensor (e.g.: 36859) and confirm the same with **Next**.



In the second step, download the calibrations from the sensor into the App using the **Sync** button. There, you have the option to select a calibration and to allocate the same as standard setting with the button **Select**. Conclude this second step with the button **Next**.

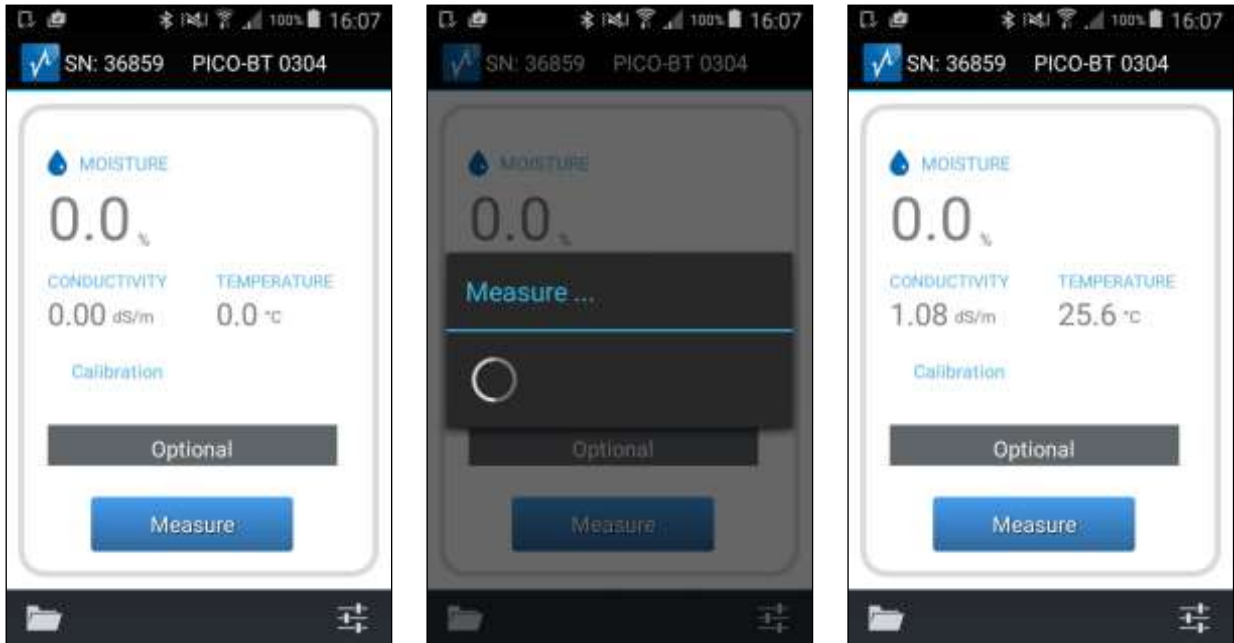


The third step comprises a demonstration on how to navigate within the stored measurement data. Click on to **Next** and conclude the configuration with the TRIME® Blue App by actuating the **Start** button.

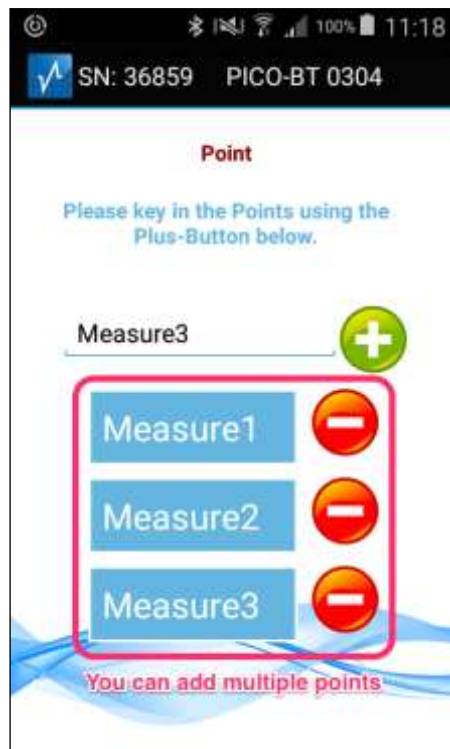
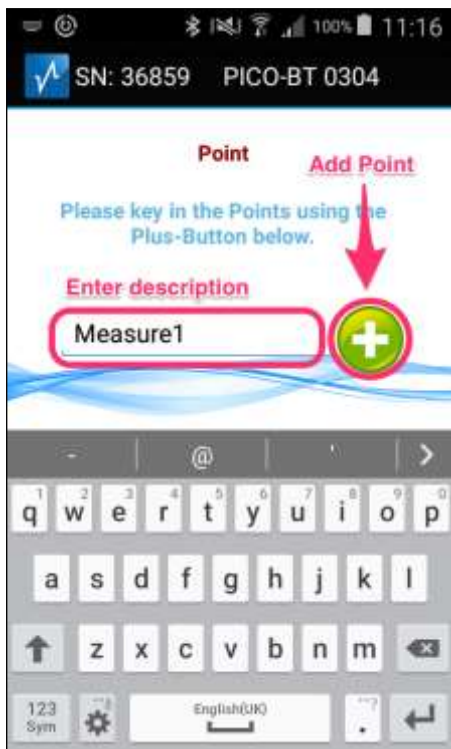
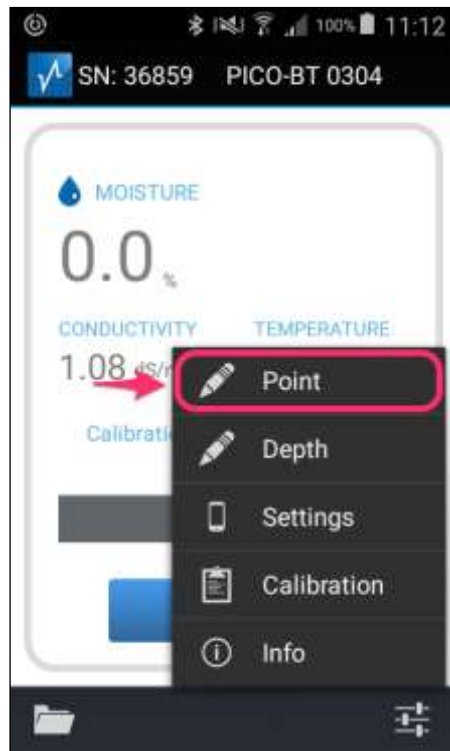


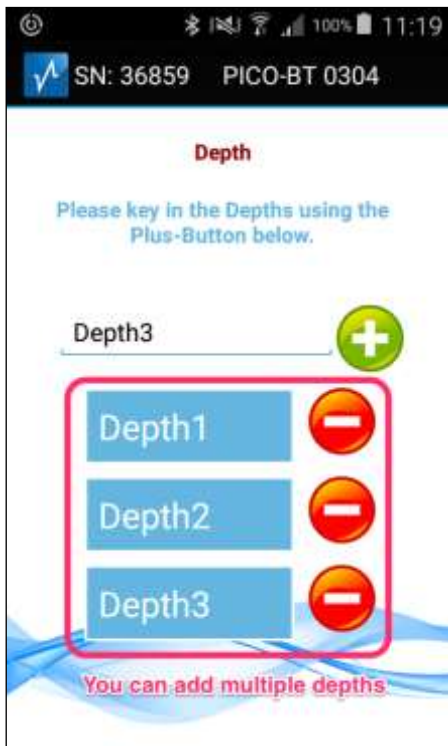
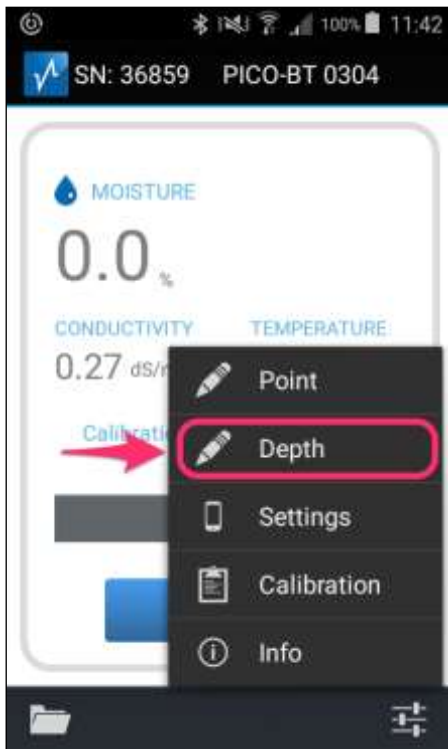
5 First Trial Measurement

Before performing any measurements, please ensure that the PICO-BT Bluetooth module is activated. In order to perform a measurement, initiate the TRIME® Blue App and actuate the **Measure** button. The result of the measurement will automatically be stored.

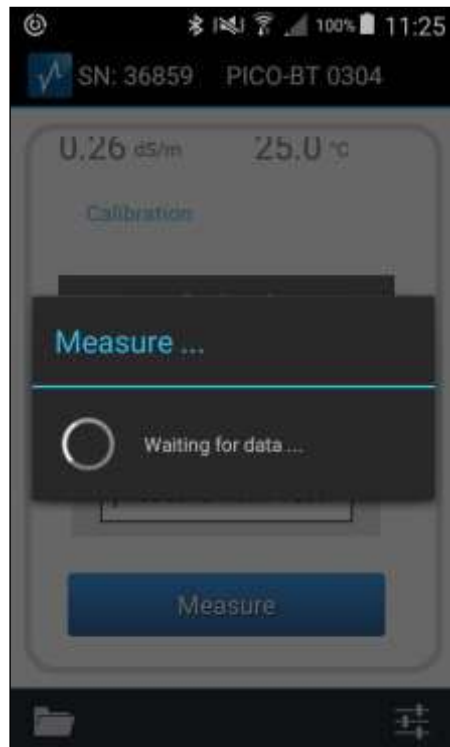
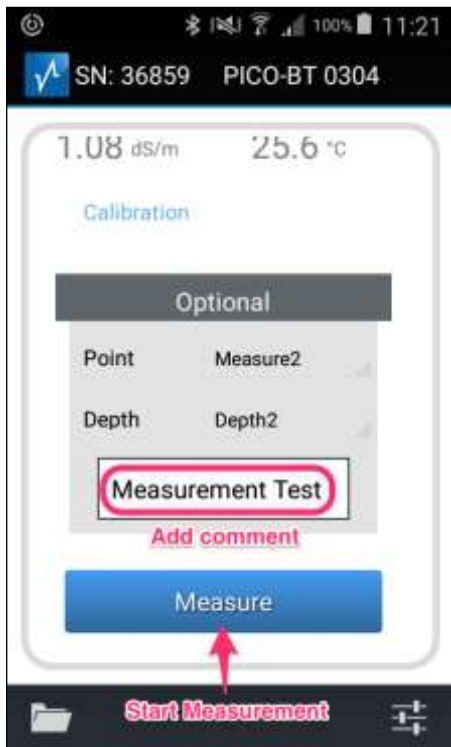
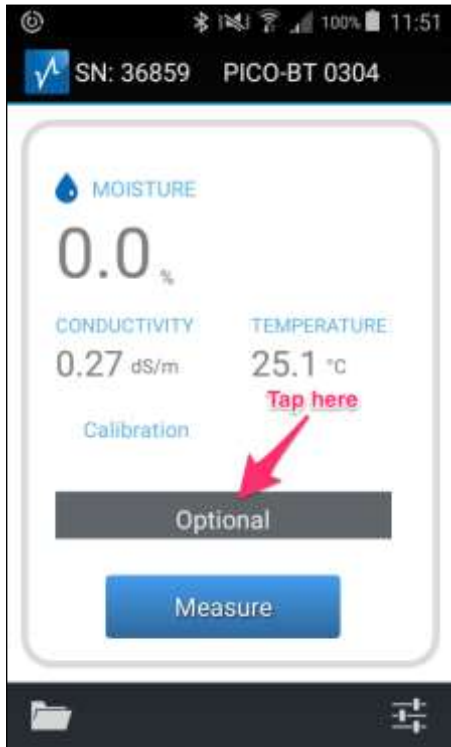


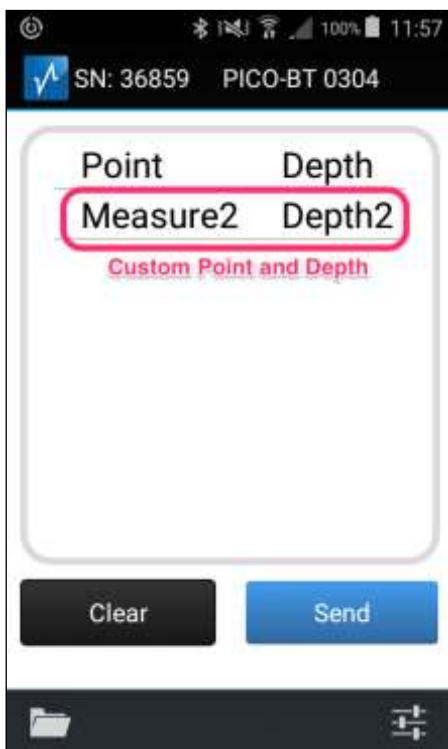
6 Creating own Measuring Points



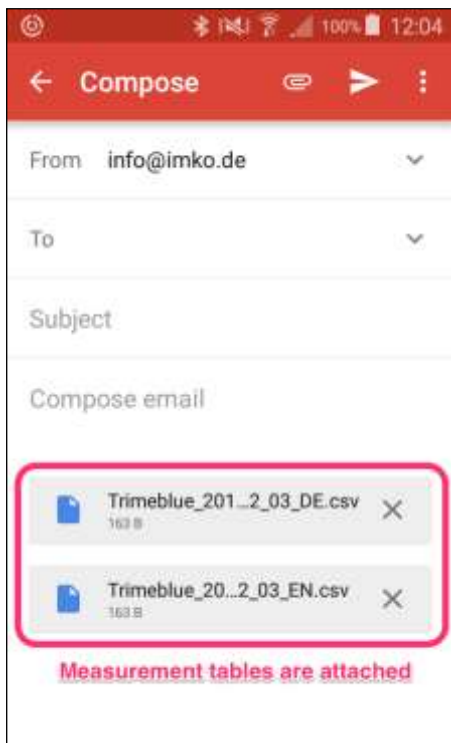
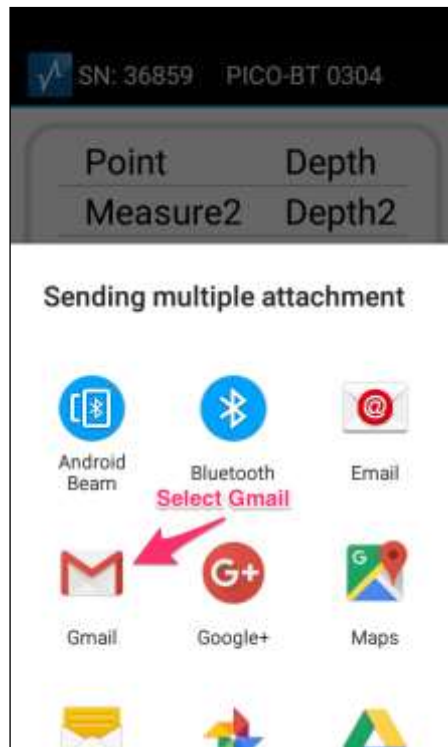
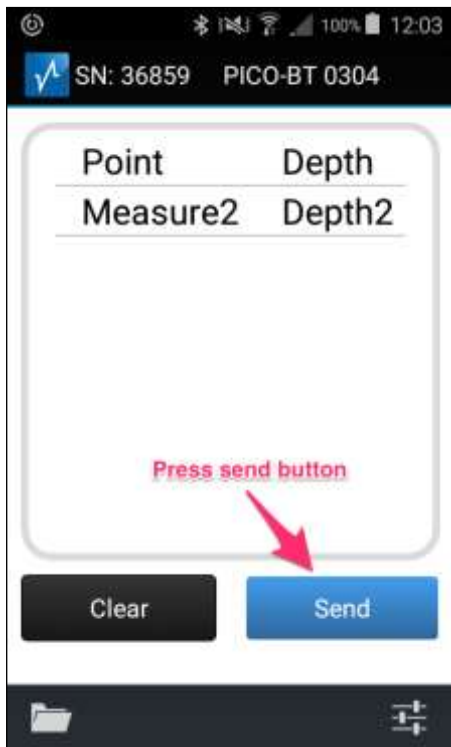


7 Specifying the Measuring Point at the Measurement





8 Sending Measurement Data via E-Mail



9 Safety Notes

In this documentation, text points are highlighted, which require special attention.



DANGER:

The Warning Triangle with the exclamation mark warns you against personal injury or property damage.

Intended Use

Sensors and measuring systems of IMKO GmbH may only be used for the purpose described, taking into account the technical data. Misuse **and use of the equipment** other than for its intended purpose **are not eligible**. The function and operational safety of a sensor or measuring system can only be guaranteed if the general safety precautions, national regulations and the special safety instructions in this operating manual are observed during use.

The moisture sensors and measuring systems of IMKO GmbH are used to measure moisture according to the measuring purpose and measuring range defined and defined in the technical data. Only adherence to the instructions described in the manual is regarded as intended use. The manual describes the connection, use and maintenance of IMKO sensors and IMKO measuring systems. Read the manual before connecting and operating a sensor or measuring system. The manual is part of the product and must be kept close to the sensor or measuring system.



Impairment of safety

The sensor or the measuring system has been designed and tested in accordance with EN 61010 safety regulations for electronic measuring instruments and has left the factory in a safe and safe condition. If the sensor or the measuring system can no longer be operated safely, it must be put out of operation and secured by means of marking before further commissioning. In case of doubt, the sensor or the measuring system must be sent to the manufacturer or his contractual partner for repair or maintenance.



Modifications

For safety reasons, it is not permitted to carry out any modifications or modifications to the sensor or the measuring system without the consent of the manufacturer. The opening of the sensor or hand-held meter, adjustment and repair work, as well as all maintenance work other than the work described in the manual may only be carried out by a specialist authorized by IMKO. The sensor or the measuring system must be disconnected from the power supply before installation or maintenance work. Do not open or repair the hand-held unit and the power supply!



Hazard Warnings

Danger due to improper operation. The sensor or the measuring system may only be operated by instructed personnel. The operating personnel must have read and understood the operating instructions.



Danger by electricity

The hand-held meter must not be immersed in water or other liquids. The sensor is insensitive to moisture contained in the typically measured products. Only connect the hand-held meter to a properly installed outlet with the supplied voltage supply cable, the voltage of which corresponds to the technical data. Make sure that the power outlet is well accessible, so that you can unplug the power supply quickly if necessary. Use only the adapter that is suitable for your outlet.

Only operate the meter with the supplied original accessories. If you need additional accessories or replacement, please contact the manufacturer.

Do not use the meter in following case:

- if the measuring instrument, sensor, plug-in power supply or accessories are damaged,
- the sensor or the measuring system does not operate as intended,
- the power cord or plug is damaged,
- the sensor or the measuring system has fallen down.

Unplug the power supply from the wall outlet in following case:

- if you do not use the sensor or the measuring system for an extended period of time,
- before cleaning, unpacking or changing the sensor or the measuring system,
- if you are working inside the sensor or measuring instrument, e.g. connect devices,
- if a fault occurs during operation,
- during thunderstorms.



Caution - Property damage

Ensure that there is a sufficient distance to strong heat sources such as heating plates, heating pipes. Disconnect the sensor or handheld device from other devices before relocating or transporting it. Disconnect the connectors on the device.

Do not use aggressive chemical cleaning agents, scouring agents, hard sponges or the like.

Notes:

Precise Moisture Measurement

**in hydrology, forestry, agriculture, environmental and earth science,
civil engineering, as well as individual applications!**