FAKOPP

Manual for Bluetooth Caliper



2019

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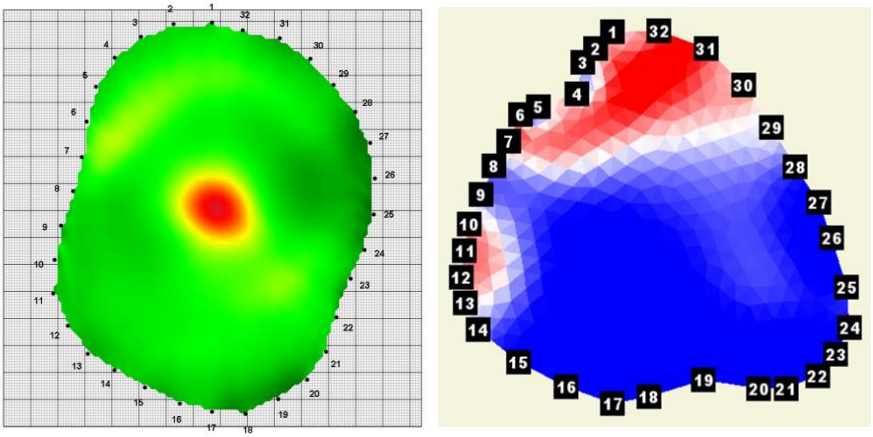
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Introduction

The Bluetooth Caliper is a tool that is able to quickly measure distance in millimetres between two points and transfer the value to PC via Bluetooth. This speeds up registering the irregular shape of the tree trunk and the position of sensors or electrodes for ArborSonic 3D and ArborElectro.

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Trunk shapes registered with caliper in ArborSonic 3D and in ArborElectro software.

Package content

- Display unit with screen, battery and electronics



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- Measuring arms ending in pins



- Extension arms (optional)



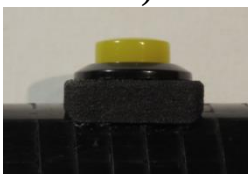
- Textile case
- Charging cable (USB)
- Manual

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Installation

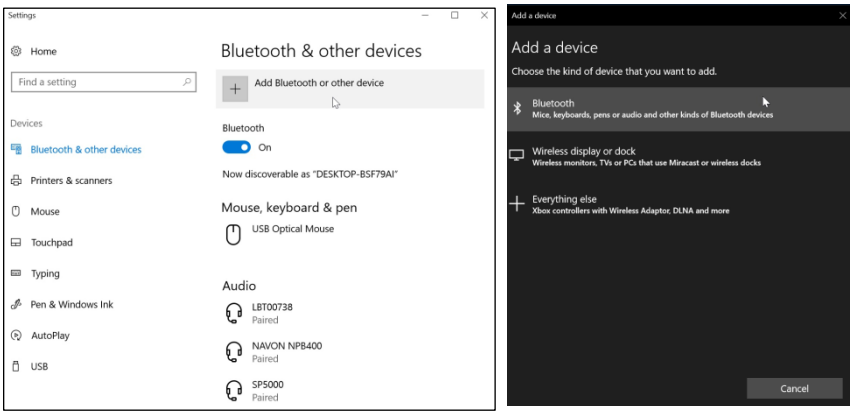
Installing the Bluetooth unit of the caliper is very similar to the installation of the Bluetooth unit of the ArborSonic 3D or ArborElectro. (There is help for this step in both manuals as well. The usage is also detailed in the devices' manuals.)

- Check if Bluetooth is enabled on your PC. (Some computers have an external button to turn Wireless communication on and off.)
- Turn on the caliper by pressing its single button once. For about 6 seconds '- - - -' is displayed which shows that booting up is in progress. If any numbers appear, the caliper is ready to be used. The current displayed value can be transmitted by pressing the button once.



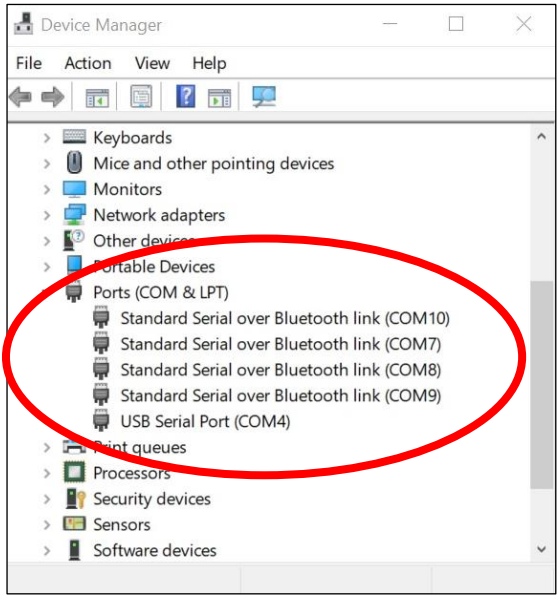
- Go to the control panel or taskbar of your Windows PC. Click the Bluetooth icon and select "Add Device", then select "Add Bluetooth or other device" and "Bluetooth – Mice, keyboards, pens or audio and other kinds of Bluetooth devices".

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- Wait for “Caliper” to appear in the list and add it. You may have to enter the security PIN code which is 1234.
- The COM port numbers can be checked in Device Manager. Check the COM ports before and after the installation, the new COM port appearing after the installation belongs to the Caliper. Otherwise you can use the “Automatic serial port search” in ArborElectro software (at “Options…” on Sensor Layout tab) or the “Serial Port diagnostics” in ArborSonic program (at “Application Settings” / “Reader device” / “Port diagnostics”). Here you can see the raw data arriving from the caliper after pushing its button, and the sending COM port as well (above the black area).

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- Pairing the caliper into ArborSonic 3D
  - Start the software, go to the settings with the tool icon at the top and select „Bluetooth Caliper”. Allow time for the PC to list all the COM ports, this may take a minute. Select the port that appeared at the end of the Bluetooth installation procedure.
  - Save the settings, exit and then restart the software.

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- Pairing the caliper into ArborElectro
    - Start the software, go to Options… and wait as the program lists the COM ports. You can select the proper COM port manually or let the program find it. For this possibility, you have to start the caliper and push slowly the button a few times to send recognisable data to the program.
    - The port is selected and saved. You don't have to restart the software.

Using the Bluetooth Caliper

The two arms of the caliper need to be inserted to the slots on the main part. The arms and extension arms are signed with colour, left parts has no color, right parts marked yellow. Please attach the arms and extension arms to the corresponding slots, otherwise some parts may be damaged.

The Bluetooth caliper has two arms and can have two extension arms. The arms end in pins, the distance will be measured between them. The caliper with arms is capable to measure up to 1000 mm distance. The extension arms are 50 cm long used for measuring up to 1999 mm distance.

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When connecting the extension arms, put the dotted faces together and do not rotate the arms. Screw them with your bare hands until they are firmly in place. Always hold the other side of the connection by hand. Make sure to keep the screws clean, if needed apply grease.



Measurement with the Bluetooth caliper

1. Switch on the caliper by pressing the yellow button
2. Calibrate zero position by making the end pins touch and hold the yellow button for 5 seconds
   Zero calibration is done when the display shows C000
3. Calibrate end position by opening the caliper to the maximum. and hold the yellow button for 5 seconds. End calibration is done when the display shows C100 / C200 depending on the extension size used.
4. The calibration settings are saved and will be remembered by the device on the next time

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used. Recalibration is needed only when extension arms are changed.

Using caliper in ArborSonic 3D

Start the ArborSonic 3D software and go to the Geometry page. To use the caliper, select Irregular shape, for Circular or Elliptical shapes no caliper is neccessary. Turn the caliper on and click the „Start Bt Caliper" button.

"Please measure distance between 2 and 1" should be played through the loudspeakers of the PC. Place one of the caliper pins to the point where the nail of sensor 1 goes into the bark and the other pin to sensor 2 and press the button once, shortly. The data should be transmitted immediately, and you should hear the directions for the next sensor pair. Make sure to turn the speakers on and allow maximum volume.

Once all the points are registered, the shape of the trunk is shown on the screen which can be used to verify the results. If there were any mistakes during the measurement (for example the distance between different sensors was measured than expected by the software), then the image is either distorted or is not shown at all. In this case correct the incorrect data by

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selecting with the mouse the appropriate field on the PC or repeat the whole measurement.

Using in ArborElectro

Start the program and push “Start” on the left down corner on Sensor Layout tab. The button will turn into “Stop” and a green bar with the “Status: Caliper Connected (COM_)” should appear next to it.

Similar to ArborSonic 3D, “Please measure distance between 2 and 1” should be played through the loudspeakers of the PC.

Place one of the caliper pins to the point where the nail of sensor 1 goes into the bark and the other pin to sensor 2 and press the button once, shortly. The data should be transmitted immediately, and you should hear the directions for the next sensor pair. Make sure to turn the speakers on and allow maximum volume.

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selecting with the mouse the appropriate field on the PC or repeat the whole measurement.

Usage Notes

Apply short presses for the measurement. Do not push and hold the button during the measurement because it may recalibrate.

The caliper turns off automatically after 120 seconds since the last data transmission, the display will start to blink before this happens. To prevent it from turning off, press the button.

Maintenance

The caliper has integrated batteries that can be charged with the attached cable via USB port. The charging time is about 25 hours. During the charging process the red led will be lit. Battery is fully charged when the led light turns to green. You can monitor the battery condition at the ArborSonic software. Battery voltage appears on the Geometry screen. The actual voltage is shown when you press the caliper button. If voltage goes below 3.5V, please charge the battery.

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IMPORTANT:

- Deep discharge may destroy battery, to avoid this keep caliper charged. When not used for 3-4 month, please recharge the caliper.
- The caliper is not water resistant, do not use it in rain. However, it can take a couple of drops, water protection level is rated IP21.
- When removing the arms please make sure to pull them in the parallel direction and don't bend them, otherwise the join can be damaged.

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Caliper with the 2-meter setup

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Caliper with the 2-meter setup



Caliper with the 1-meter setup

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Caliper display up-close in the end-position

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