Application Note

new diagnostic design

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Version   1

EasyOne Air with Bluetooth

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1   Scope

This document describes how to connect EasyOne Air to EasyOne Connect PC software via Bluetooth. It also provides some basic information about Bluetooth and contains a troubleshooting guide.

2   Basic information

- **Bluetooth** is a wireless technology for exchanging data over short distances.
- **Discovery** is the process through which a PC scans for Bluetooth devices available for communication. The next step consists in pairing the device to the PC.
- **Pairing** is the process through which two devices establish trust with each other in order to later establish secure communication. In this application, pairing is initiated from the PC and involves entering a PIN code configurable in EasyOne Air. Once paired, EasyOne Connect can connect to EasyOne Air.
- **Connecting** is the process through which a secure communication link is established between two paired devices. Once connected, EasyOne Connect can synchronize data with EasyOne Air and online tests can be performed.

3   Indicators

On the upper status bar, EasyOne Air indicates:

When Bluetooth is enabled.

When connected to EasyOne Connect (not to be confused with paired).
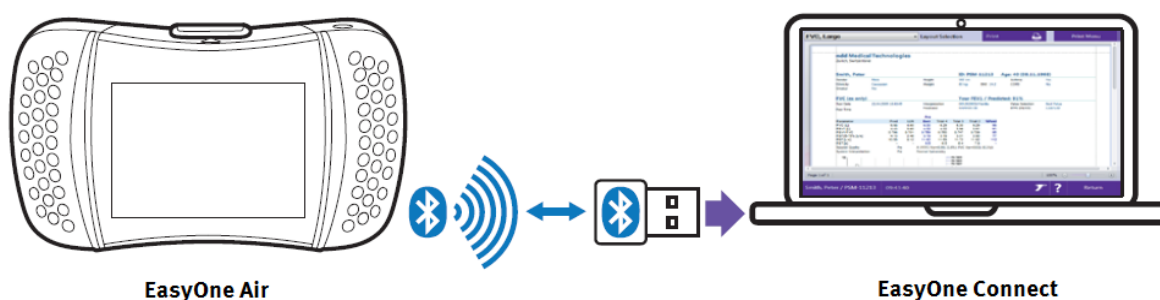
No Bluetooth indicator when Bluetooth is disabled.

4   Setups

Before setting up a Bluetooth connection, the EasyOne Connect PC software must be installed. To test this installation, please connect the USB cradle with the PC at least once, start EasyOne Connect and synch the EasyOne Air with the PC by putting the powered EasyOne Air device to the cradle. You should see the EasyOne Air icon in the lower right corner of EasyOne Connect with an USB sign.

4.1   Single PC operation

This is the basic and most common application. The spirometer is paired to a PC which either uses a built-in Bluetooth interface or the Bluetooth dongle delivered with the device.

EasyOne Air   **EasyOne Connect**
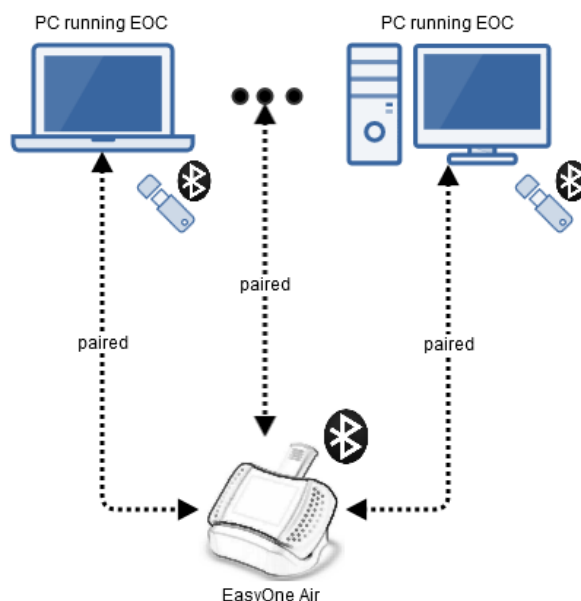
To connect EasyOne Air to EasyOne Connect via Bluetooth, follow these steps:

1. Close EasyOne Connect.
2. Use the PC's internal Bluetooth if available, otherwise connect the provided dongle to a USB port on PC.
3. Enable Bluetooth on EasyOne Air (*Tools-›Settings-›Device-›Bluetooth checkbox*)
4. On Windows 8, under *Device and Printers* click *Add a device*.
    On Windows 10, under *Windows-Settings-›Device-›Bluetooth- and other devices* click *Add Bluetooth- or other device* and click *Bluetooth*.
5. Select your device from the list. It presents itself as "EasyOne Air" followed by the device serial number, as displayed under *Tools-›Device-›Bluetooth Name*.
6. During pairing, **enter the PIN code**, found within the device configuration (*Tools-›Settings-›Device-›Bluetooth key*).
7. Windows proceeds with setting up the device and reports "the device is ready to use". This may take up to 30 seconds.
8. Start EasyOne Connect. A Bluetooth icon shows on the right side of the status bar, indicating EasyOne Air is connected to PC via Bluetooth.

Refer also to the section "Connecting EasyOne Air to EasyOne Connect" of the Operator's Manual [1].

4.2   Multiple PCs operation

It is possible to pair the device to multiple PCs.

If several PCs are within the range of the spirometer and running EasyOne Connect, the connection will be established on a first come first serve basis.

The spirometer supports **only one connection**.

5   Troubleshooting guide

Issues may arise at different points while setting up or operating Bluetooth. This section provides a list of common issues and potential solutions.

5.1   PC does not recognize the Bluetooth dongle

Cause   PC already has a built-in Bluetooth adapter which may conflict with the delivered dongle.

Solution   Remove the Bluetooth dongle and check if it then works. If not, re-start the PC and EasyOne Air.

Cause   No Bluetooth is available in Windows. There is no Bluetooth icon or section in the Windows *Settings* menu.

Solution   Plug in the Bluetooth dongle provided with EasyOne Air. After the installation, check that a Bluetooth section is available in the Windows *Settings* menu.

5.2   EasyOne Connect does not connect

Cause   There is some issue related with the Bluetooth dongle.

Solution   Disconnect and reconnect the dongle. Try to connect again.

Solution   Unpair the spirometer and pair it again (*Windows->Settings->Bluetooth->Remove Device/Add a Device*). Enter the correct pin code (*Tools->Settings->Device->Bluetooth key*). Try to connect again.

Cause	The pairing information is not valid anymore because a) It has been deleted on EOA (e.g. by restoring the factory defaults or deleting the database). b) The Bluetooth device has been removed in Windows. c) A Windows update invalidated the information.
Solution	- On PC, remove the Bluetooth device (*Settings->Bluetooth->Remove Device*). - On EasyOne Air, remove the PC connection (*Tools->Settings->Factory Defaults*). - On PC, pair EasyOne Air again (*Windows->Settings->Bluetooth->Add a Device*).
Cause	EasyOne Air is out of range.
Solution	Make sure the device is within about 10 meters, or 33 feet of the PC.
Solution	Reduce the number of obstacles between both devices (thick walls, metal planes or grids, etc.). Also check that the Bluetooth dongle is mounted in a way that it can transmit and receive easily.
Cause	The spirometer is already connected to another PC (Bluetooth icon ⁜ visible on spirometer, EasyOne Connect displays no Bluetooth connection).
Solution	Close EasyOne Connect on other PC(s).
Solution	Move the PC that shall connect to the spirometer out of reach of other PCs.
Solution	On the other PCs, unpair the spirometer (*Windows->Settings->Bluetooth-> Remove Device*).
Cause	Bluetooth has been disabled on spirometer (No ⁜ icon present in status bar).
Solution	Under *Tools->Settings->Device,* activate Bluetooth.
Cause	There is an unrecognized device in the Windows device manager. Example: a missing "ASMedia XHCI" controller (in fact an USB3 driver) can prevent PC from connecting via Bluetooth.
Solution	Install the device driver from the mainboard manufacturer's website.

6   References

[1] ndd. 2017. *EasyOne Air Operator's Manual.* Zürich.