

Author: Yann Baud  
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## EasyOne Air with Bluetooth

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### 1 Scope

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

The procedures described in this document apply to EasyOne Air firmware versions V1.14.0 and higher. You can download the latest firmware following this link: <https://www.ndd.ch/en/support/download/software.html>

### 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 is pairing the device to the PC.
- **Pairing** is the process through which two devices establish trust in each other in order to later establish secure communication. In this context, 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.
- **Bluetooth Power Save Mode** is a driver option on notebooks with a built-in Bluetooth interface that allows the computer to turn off the device to save power. If this mode is active (power save on), EasyOne Air loses the connection to EasyOne Connect every 30 – 40 seconds if no action is performed by the user.

### 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).

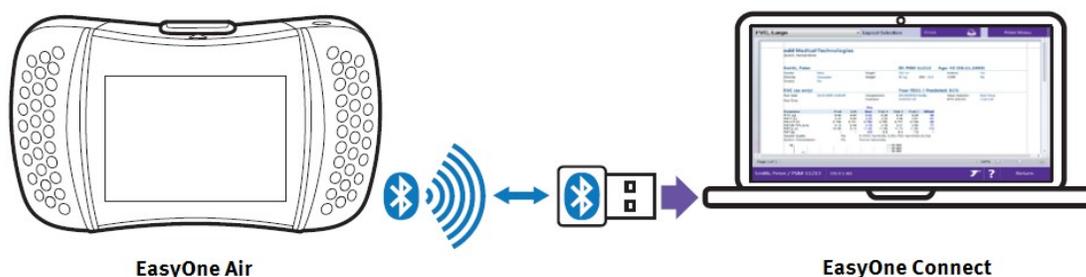
No Bluetooth indicator when Bluetooth has been disabled.

## 4 Setups

Before setting up a Bluetooth connection, the EasyOne Connect PC software must be installed. To test this installation, connect the USB cradle with the PC at least once, start EasyOne Connect and synchronize the EasyOne Air with the PC by putting the powered-up EasyOne Air device on the cradle. You should now see the EasyOne Air icon in the lower right-hand corner of EasyOne Connect with the USB icon within it.

### 4.1 Single PC operation

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



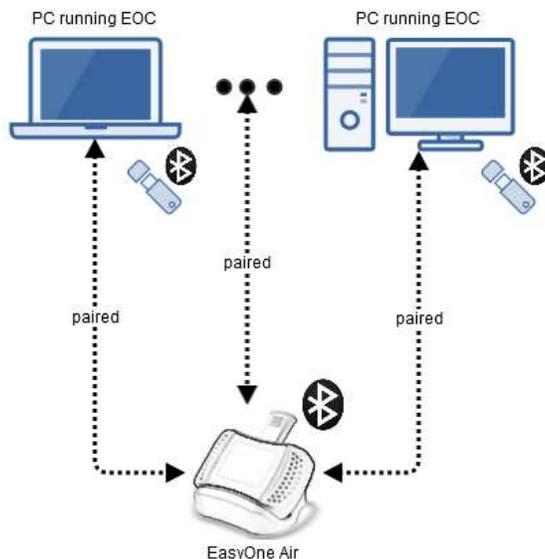
To connect EasyOne Air to EasyOne Connect via Bluetooth, follow these steps:

1. Close EasyOne Connect.
2. Use the PC's internal Bluetooth if available. Otherwise, connect the provided dongle to a USB port on the PC.
3. Enable Bluetooth on EasyOne Air (*Tools->Settings->Bluetooth->Bluetooth checkbox*)
4. Define a secret pairing key. The number must be at least 4 digits long (*Tools->Settings->Bluetooth->Bluetooth key*). Note: make sure to remember this key as a password.
5. 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*.
6. Select your device from the list. It presents itself as "EasyOne Air" followed by the device serial number, as displayed under *Tools->Settings->Bluetooth->Bluetooth Name*.
7. During pairing, **enter the secret pairing key** defined in point 4.
8. Windows proceeds with the setting up of the device and reports "the device is ready to use". This may take up to 30 seconds.
9. Start the EasyOne Connect software. A Bluetooth icon is shown on the right side of the status bar, indicating EasyOne Air is connected to PC via Bluetooth.

Please also refer to the section "Connecting EasyOne Air to EasyOne Connect" in 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 served*” basis.

The spirometer supports **only one connection** at a time.

## 5 Troubleshooting guide

Issues may arise at various 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

Term	Detail
Cause	The PC already has a built-in Bluetooth adapter which may conflict with the dongle provided with the device.
Solution	Remove the Bluetooth dongle and check if this resolves the recognition problem. If not, re-start the PC and EasyOne Air.
Term	Detail
Cause	No Bluetooth is available in Windows. There is no Bluetooth icon or section in the Windows <i>Settings</i> menu.
Solution	Plug in the Bluetooth dongle provided with EasyOne Air. After the installation, check that a Bluetooth section is available in the Windows <i>Settings</i> menu.

## 5.2 EasyOne Connect does not connect

Term	Detail
Cause	There is an issue related to the Bluetooth dongle.
Solution	<ul style="list-style-type: none"> <li>– Disconnect and reconnect the dongle. Try to connect again.</li> <li>– Unpair the spirometer and pair it again (Windows-&gt;Settings-&gt;Bluetooth-&gt;Remove Device/Add a Device). Enter the secret pairing key. Try to connect again.</li> </ul>

Term	Detail
Cause	The pairing information is not valid anymore because <ol style="list-style-type: none"> <li>It has been deleted on EasyOne Air (e.g. by restoring the factory defaults or deleting the database).</li> <li>The Bluetooth device has been removed in Windows.</li> <li>A Windows update invalidated the information.</li> </ol>
Solution	<p>On PC: Remove the Bluetooth device (<i>Settings-&gt;Bluetooth-&gt;Remove Device</i>).</p> <p>On EasyOne Air: Remove the PC connection (Under <i>Tools-&gt;Settings-&gt;Bluetooth</i>, long click on <i>BT Connections</i> at the bottom of the list).</p> <p>On PC: Pair EasyOne Air again (<i>Windows-&gt;Settings-&gt;Bluetooth-&gt;Add a Device</i>).</p>

Term	Detail
Cause	EasyOne Air is out of range.
Solution	<ul style="list-style-type: none"> <li>– Make sure the device is within about 10 meters, or 33 feet, of the PC.</li> <li>– 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.</li> </ul>

Term	Detail
Cause	The spirometer is already connected to another PC (Bluetooth icon  visible on spirometer, EasyOne Connect displays no Bluetooth connection).
Solution	<ul style="list-style-type: none"> <li>– Close EasyOne Connect on the other PC(s).</li> <li>– On the other PCs, unpair the spirometer (<i>Windows-&gt;Settings-&gt;Bluetooth-&gt;Remove Device</i>).</li> </ul>

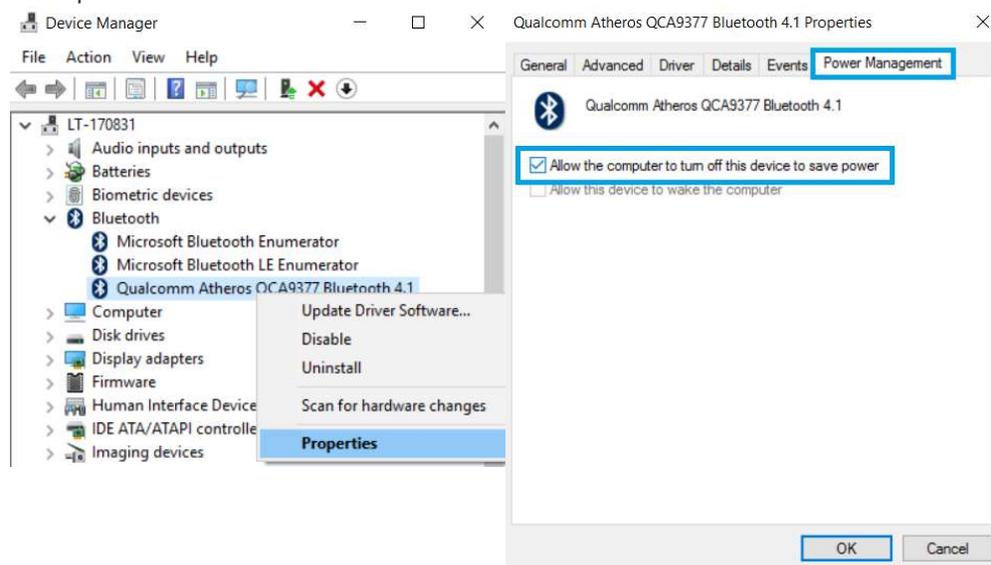
Term	Detail
Cause	Bluetooth has been disabled on spirometer (no  icon present in status bar).
Solution	Under <i>Tools-&gt;Settings-&gt;Bluetooth</i> , activate Bluetooth.

Term	Detail
Cause	There is an unrecognized device in the Windows device manager. Example: a missing "ASMedia XHCI" controller (in fact a USB3 driver) can prevent PC from connecting via Bluetooth.
Solution	Install the device driver from the mainboard manufacturer's website.

Term	Detail
Cause	There is no connection or a faulty connection between EasyOne Connect and the spirometer after a firmware upgrade of the spirometer or the PC software.
Solution	On PC: Remove the Bluetooth device (Settings->Bluetooth->Remove Device). On PC: Pair EasyOne Air again (Windows->Settings->Bluetooth->Add a Device).

### 5.3 Connection between EasyOne Air and EasyOne Connect intermittently drops

Term	Detail
Cause	The spirometer is already connected to a notebook (Bluetooth icon  visible on spirometer, EasyOne Connect displays EasyOne Air icon). 30 – 40 seconds later the Bluetooth icon on EasyOne Air changes to  and 10 seconds later the EasyOne Air icon on EasyOne Connect disappears. After a few seconds, the EasyOne Air and EasyOne Connect automatically connect again and EasyOne Air shows  (connected).
Solution	Log-in to your computer as administrator. Disable power save mode on Bluetooth driver ( <i>Windows-&gt;Device Manager</i> ). Select Bluetooth and then either go to properties of Generic Bluetooth Radio (USB dongle) or to the built-in Bluetooth interface (e.g. Qualcomm Atheros QCA61x4 Bluetooth 4.1). Go to Power Management and disable “Allow the computer to turn off this device to save power”.



## 6 References

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