



User Manual

Summary

1	Introduction.....	3
2	contents of the packaging.....	3
3	Product description.....	3
4	Technical specifications.....	3
4.1	minimum pc requirements.....	4
5	WORKING MODES.....	4
6	HANDLING AND STORAGE.....	4
7	Cleaning and maintenance.....	4
8	Disposal.....	5
9	POWER ON AND OFF.....	5
9.1	Significato luci led.....	5
10	Installation.....	5
11	carrying out the exam.....	9
12	CE declaration.....	9

1 INTRODUCTION

Beyond Inertial is a miniaturized inertial sensor capable of measuring accelerations and angular velocities.

Its application in the scientific field allows the goniometric evaluation of the joints, the analysis of jumping gestures, the monitoring of power with overloads and the stabilometric analysis of the COM.

Beyond Inertial is compact, wireless, highly accurate and with a long battery life.

The software to which Beyond Framework is associated allows the acquisition and evaluation of results by producing an automatic reporting.

2 CONTENTS OF THE PACKAGING

- Beyond Inertial
- Elastic abdominal band
- Magnetic containment pocket
- Two small bands of different lengths for positioning on the limbs
- Bluetooth key
- Magnetic USB charging cable

3 PRODUCT DESCRIPTION

Beyond inertial is a CE certified device.

4 TECHNICAL SPECIFICATIONS

Technical specifications of the inertial sensor:

Weight	28gr
Dimensions	65x45x18 mm
Operating Temperature	-10 °C to 50 °C
Processing unit	32 bit with floating point unit
Resolution:	
Accelerometer	±2G to ±16G
Gyroscope	±200°/s to ±2000°/s

Magnetometer	±4000μT
Sampling Frequency	Up to 1000Hz
Connections	Bluetooth 4.0 and 2.0 – USB connection 2.0
Power Supply	Lithium battery, 240mA rechargeable
Battery Life	Up to 4-5 working hours

4.1 MINIMUM PC REQUIREMENTS

Operation System	Windows 10 and later (64bit)
Hardware	<ul style="list-style-type: none"> • Intel i5 processor or higher • 128GB SSD • 8 GB RAM • Intel video card • Internet connection
PC-device interface	Bluetooth 4.0

5 WORKING MODES

For correct use of the device, the instructions in the Beyond Framework software manual must be followed and use must be made by an operator specially trained by the company.

The examination takes place indoors.

The working conditions to be respected are the following:

- Working temperature: between -5 and +40 degrees
- Relative humidity: between 0% and 90%

6 HANDLING AND STORAGE

Beyond inertial is shipped and delivered in a case with shock absorbing elements.

If the product is damaged in any way, the buyer must inform the seller by writing an email to info@motustech.it

ATTENTION: the device must NOT be opened!

7 CLEANING AND MAINTENANCE

Before cleaning the Beyond Inertial turn off the device.

For the surface of the instrument it is advisable to use a soft cloth with non-alcoholic and non-corrosive detergents, taking care not to let liquid penetrate inside the device.

8 DISPOSAL

The disposal of used equipment is the responsibility of the owner and must be carried out in accordance with the laws in force in each state.

9 POWER ON AND OFF

The sensor is started by pressing the button on the device. After pressing the button, the sensor will emit an acoustic signal and the LED will start flashing. To turn off the device, press and hold the button for two seconds.

9.1 SIGNIFICATO LUCI LED

When the device is switched on, the red-green-blue sequence flashes twice and emits a sound. At the end of the procedure, the flashing white LED remains on.

Azione	Led	Note
Acceso	Bianco lampeggiante	
Connesso	Blu lampeggiante	
Acquisizione in corso	Blu fisso	
Errore generico	Rosso lampeggiante	
Batteria scarica	Rosso lampeggiante, con frequenza variabile in base alla carica residua	Il valore della soglia per batteria scarica è impostato a 20%
In carica	Luce che varia gradualmente dal rosso al verde	

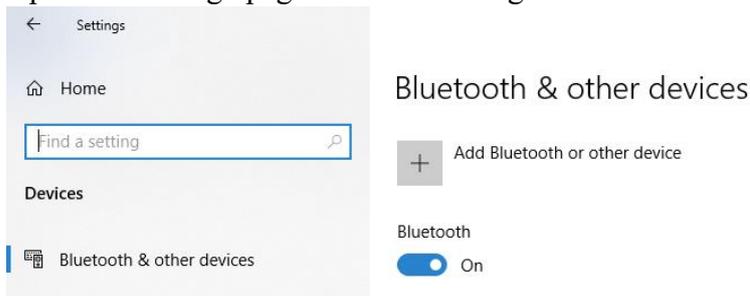
10 INSTALLATION

The Beyond inertial sensor can communicate with the PC via Bluetooth in two different ways, direct connection via the PC Bluetooth or via the Bluetooth key supplied with the kit.

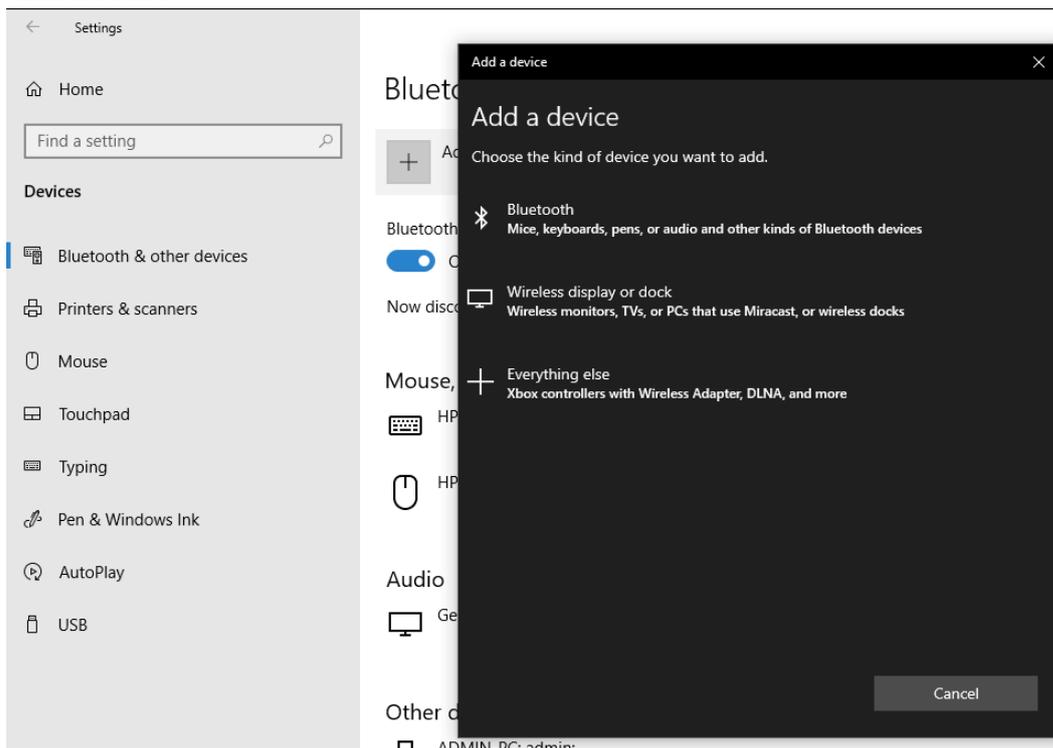
INSTALLATION VIA BLUETOOTH PC

- 1) Turn on the Beyond Inertial by pressing and holding the button on the device. The device will beep and should start blinking with the white LED.

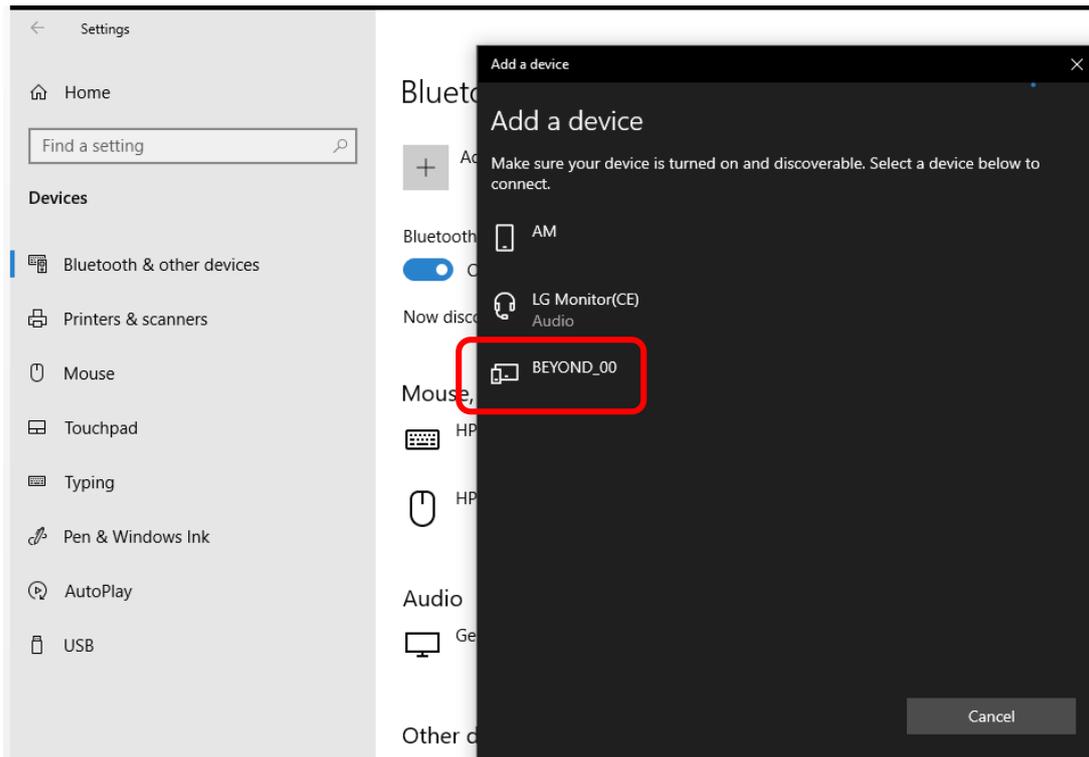
- 2) Open the settings page Start → Settings → Devices and check that Bluetooth is activated.



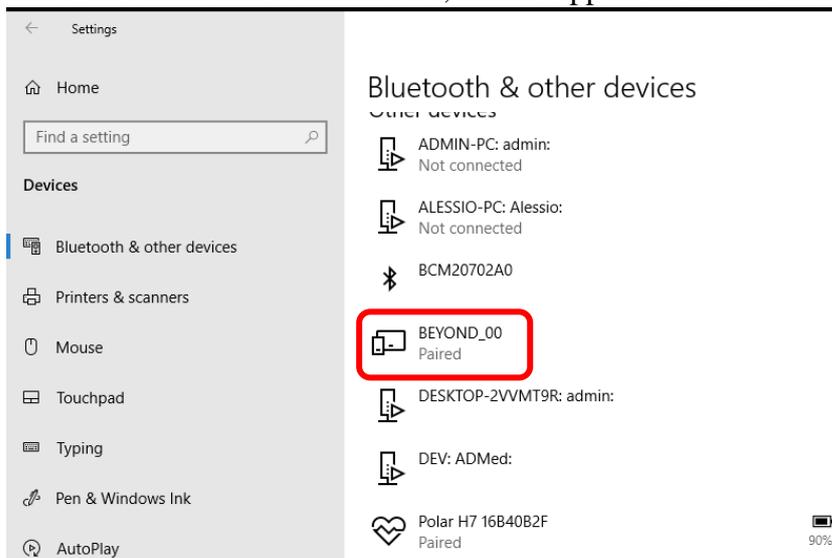
- 3) At this point click on the “+” button next to “Add Bluetooth or other device” and select “Bluetooth”.



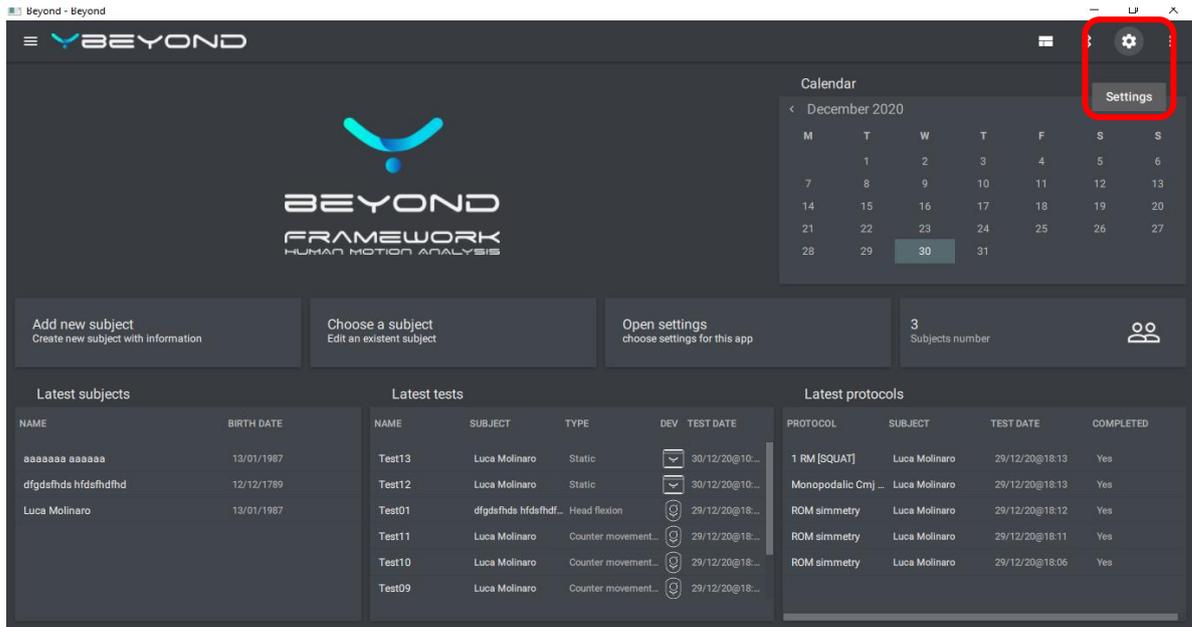
- 4) At this point the sensor name will appear and it will be necessary to select it.



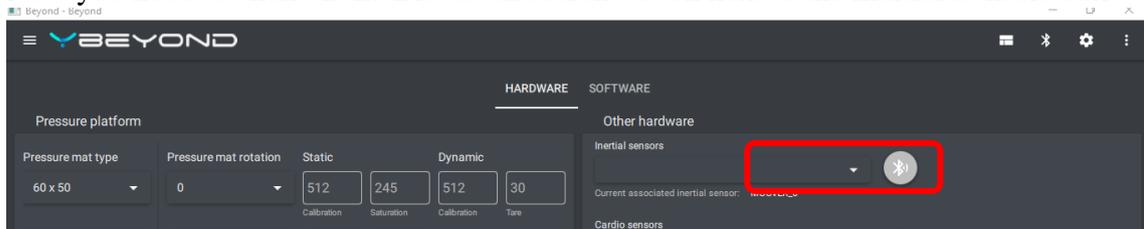
5) Once the sensor has been selected, it must appear in the list of associated devices.



6) At this point close the Windows settings window and start the Beyond software. From the dashboard click on the settings button at the top right.

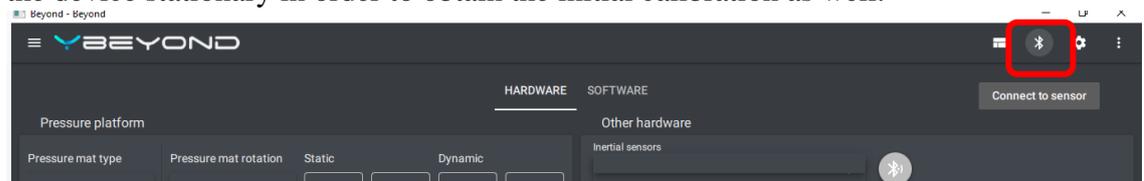


7) Now you need to click on the Bluetooth search button next to the Inertial Sensors box.



8) The software will start the search for devices and once completed by clicking on the drop-down menu it will be possible to select the device for association.

9) At this point click on the Bluetooth connection button at the top right making sure to leave the device stationary in order to obtain the initial calibration as well.

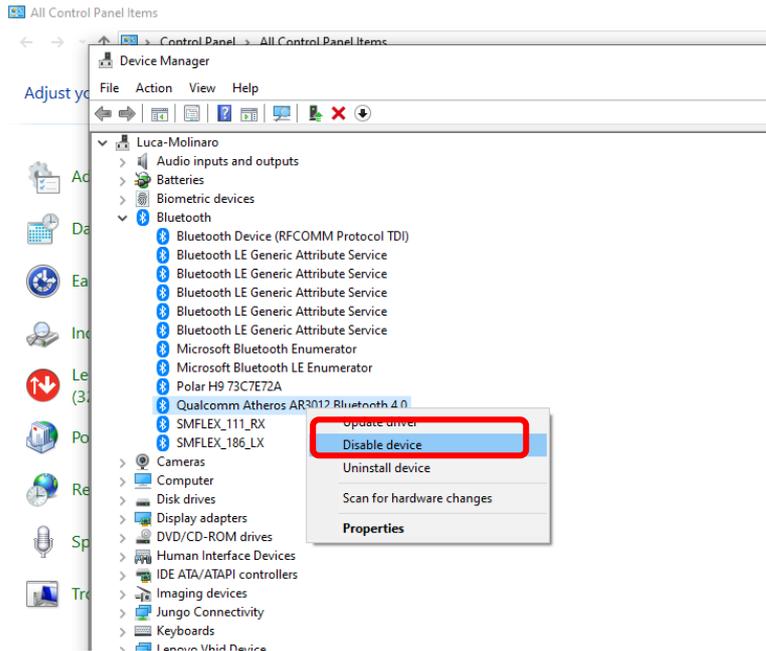


10) Once the device is connected, it will emit an acoustic warning and start blinking with the blue LED.

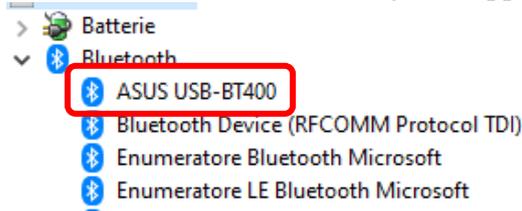
At this point it will be possible to start using the Beyond Inertial.

INSTALLATION VIA EXTERNAL BLUETOOTH KEY

- 1) The use of the external key instead of the PC's Bluetooth occurs if it is not possible to use the latter for connection or if there is no Bluetooth system inside the PC.
- 2) Turn on the Beyond Inertial by pressing and holding the button on the device. The device will beep and should start blinking with the white LED.
- 3) If an internal Bluetooth device is not already present, go to point (3), otherwise you must disable the Bluetooth of the PC. To do this, go to "Device Manager" from the Windows search bar and, right-clicking on the Bluetooth device of the PC, select "Disable Device".



- 4) Now connect the external Bluetooth key. The key drivers can be installed during the installation of the Beyond software.
- 5) If the installation was successful, you can check it from the "Device Management" window where the active Bluetooth key will appear.



- 1) At this point it is sufficient to follow the same points from point (2) of INSTALLATION VIA BLUETOOTH OF THE PC.

11 CARRYING OUT THE EXAM

Refer to the Beyond Framework software manual.

12 CE DECLARATION

DECLARATION OF CONFORMITY



Manufacturer: Motustech Srl, Viale dei Romagnoli 755, 00119 Roma

Product: 3D Inertial Sensor of Movement

Model: BEYOND INERTIAL

Declares under its responsibility that the above-mentioned devices are compliant with the European Directive:

2014/35/EU – Low Voltage Directive

2014/30/EU – EMC Directive

Applied standards:

EN 60601-1-2

EN 60601-1

EN 55011

EN 61000-4-2

EN 61000-4-3

EN 61000-4-8

The Bluetooth device:

Class B Digital device

Bluetooth SIG Qualified design, QD ID: D023116

FCC ID: SQGBT900

CE Certified



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