

BITalino (r)evolution

Quick Start Guide

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STEP 1: POWER THE DEVICE

- > **Connect battery** to the JST socket on the PWR block
- > Switch the **button** on the PWR block to **the ON position** (a white LED should start fading on the MCU block indicating that the device is in idle mode).

BEWARE: The USB port on the PWR block is solely used for charging (not communication) and BITalino only charges with the button on the OFF position (USB charging cables should be disconnected while in use for maximum performance).

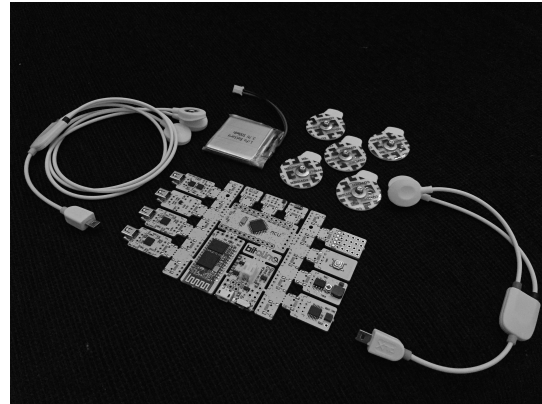


Fig. 1. Parts and accessories included in the kit.

STEP 2: PAIR THE DEVICE

- > Confirm that your **Bluetooth receiver is configured and turned on**
- > Access the Bluetooth manager and **browse for devices in range**
- > One or more devices named **“BITalino-XX-XX”** should be listed
- > Select the device where **“XX-XX”** match the last two pairs of digits on your BITalino MAC address¹ (Fig. 2).
- > **Pair** the computer with BITalino (PIN: 1234)

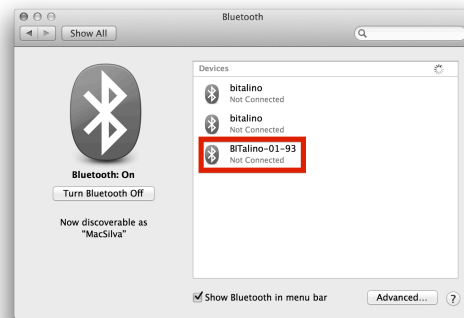


Fig. 2. BITalino with MAC address “XX:XX:XX:XX:01:93”.

BEWARE: Specifications and performance of Bluetooth interfaces great vary among computers, reason for which we have identified an adapter tested and known to work with BITalino².

¹ The MAC address of your device is the sequence “XX:XX:XX:XX:XX:XX” found on the barcode sticker attached to the back

² <https://store.plux.info/accessories/205-bitalino-proven-bluetooth-dongle-810121501.html>

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BEWARE: DIRECT OR INDIRECT COUPLING TO THE MAINS MAY RESULT IN SHOCKING HAZARD



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STEP 3: TEST YOUR SETUP

- > Download and install **OpenSignals**³
- > **Run** the OpenSignals software
- > Access the **magnifying glass icon** to find the devices paired your computer (Fig. 3).
- > Enable the device for data acquisition by **pressing the “Enable”** button (Fig. 4).
- > **Press the “Record”** button to start real-time data acquisition (a few seconds may pass until data starts to be displayed).
- > The **white LED on the device** will switch from fading to flashing (acquisition mode).
- > **Real-time data should start** to appear on screen (e.g. if you shake the board, this should be seen on channel number 5, which corresponds to an accelerometer).

BEWARE: To solve connectivity issues see our Bluetooth troubleshooting guide⁴.

BEWARE: The OpenSignals UI uses Google Chrome. In some Windows setups, our installer fails to detect that Chrome is available, thus blocking the installation of OpenSignals. If this was your case, use our installers without the Chrome verification⁵.

BEWARE: If you run the software but it is continuously loading (logo fading), please update your Chrome installation to the latest version in (Chrome > About > Update).

BEWARE: OpenSignals uses WebSockets technology to interface between the browser-based UI and the backend services accessing BITalino. In some cases OpenSignals fails to launch due to the fact that TCP/IP port 8888 is in use by another service. If you are experiencing such an issue please try the following:

- > Open the command line and type `netstat -a -b`
- > Search for port 8888 to see which process is using it and if possible terminate it.
- > If you can't terminate the process, go to the OpenSignals installation folder, edit code/main.py and static/_OpenSignals_websocket.js and replace 8888 by an available port number.

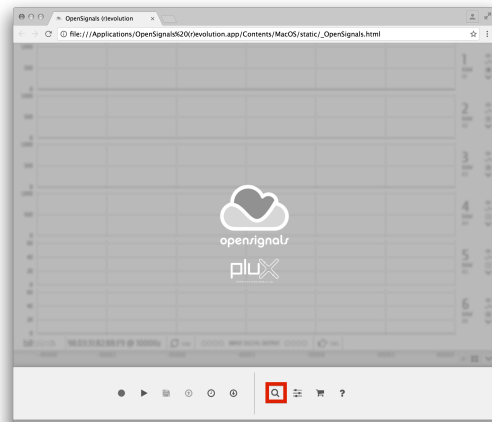


Fig. 3. OpenSignals main screen with “Magnifying Glass” (device search) button highlighted.

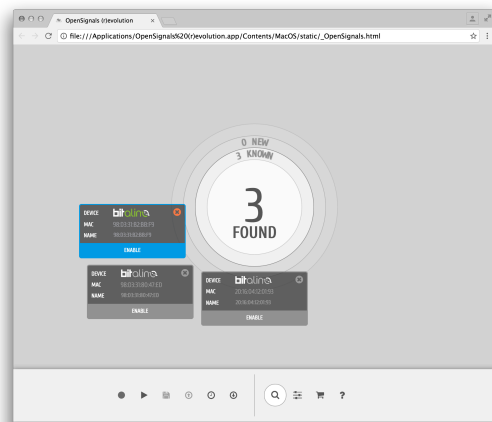


Fig. 4. Enable your device for acquisition (“Enable” button needs to be blue); your BITalino is automatically enabled by the software when a single BITalino device is found.

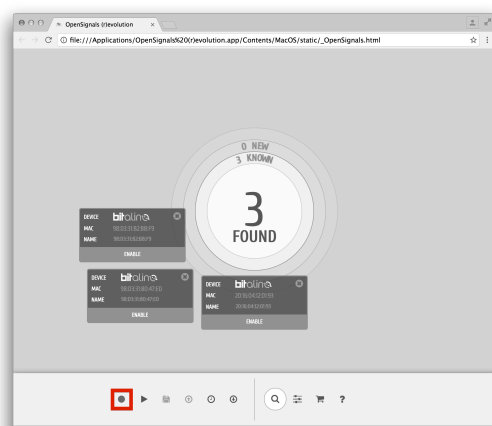


Fig. 5. Press the “Record” button to start data acquisition.

³ <http://bitalino.com/index.php/software>

⁴ http://www.bitalino.com/docs/Bluetooth_Troubleshoot.pdf

⁵ [http://www.downloads.plux.info/OpenSignals/OpenSignals_\(r\)evolution_win32_Beta_noChrome.exe](http://www.downloads.plux.info/OpenSignals/OpenSignals_(r)evolution_win32_Beta_noChrome.exe)
[http://www.downloads.plux.info/OpenSignals/OpenSignals_\(r\)evolution_win64_Beta_noChrome.exe](http://www.downloads.plux.info/OpenSignals/OpenSignals_(r)evolution_win64_Beta_noChrome.exe)

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STEP 4: START EXPLORING

- > See our **sensors tour video** for electrode placement and signal examples⁶ (Fig. 6).
- > Refer to the **datasheet of your sensors** of interest for additional information⁷.
- > **Python** and **C++** are the recommended and officially maintained APIs, although on our website you have several community-contributed options available⁸.
- > Most APIs have **example code snippets**, which should be the first thing to test (see recommendations below regarding the use of MAC address vs Virtual Serial Port to connect to the device).

BEWARE (Win): On most Windows APIs you connect to the device by using the MAC address (“XX:XX:XX:XX:XX:XX”). Some APIs (e.g. the Unity version) connect to BITalino using the Virtual Serial Port, in order to determine the COM port access the device manager, click the “Ports (COM & LPT”) and check the ports available on the list (BITalino uses a 115200kbps baud rate).

BEWARE (Mac OS): On the Mac BITalino connects using the Virtual Serial Port. You should be able to connect to your device through an address of the type “/dev/tty.BITalino-XX-XX-DevB” (“XX-XX” should match the last two pairs of digits on your BITalino MAC address).

BEWARE (Linux): On most Linux APIs you connect to the device by using the MAC address (“XX:XX:XX:XX:XX:XX”). Please confirm that the `bluez` drivers and binding (e.g. for Python) are installed.

BEWARE (Python): The Python API for BITalino has been designed for Python 2.7. It also has a number of dependencies in what concerns modules. As such, the most straightforward way to run Python code is to use the OpenSignals Python distribution, available on the installation folder. For custom installations the required modules should be `pyserial` (across platforms), `numpy` (across platforms), and `pybluez` (on Windows & Linux).

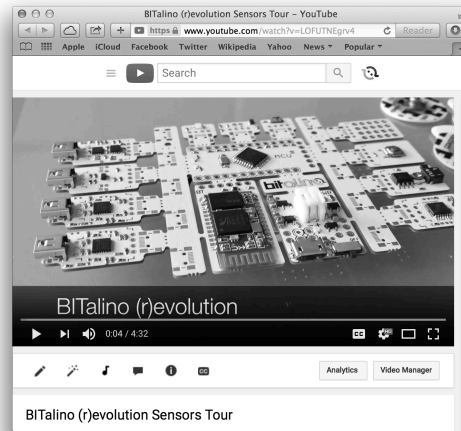


Fig. 6. Our [sensors tour video](#) shows the main features and sensor application examples.

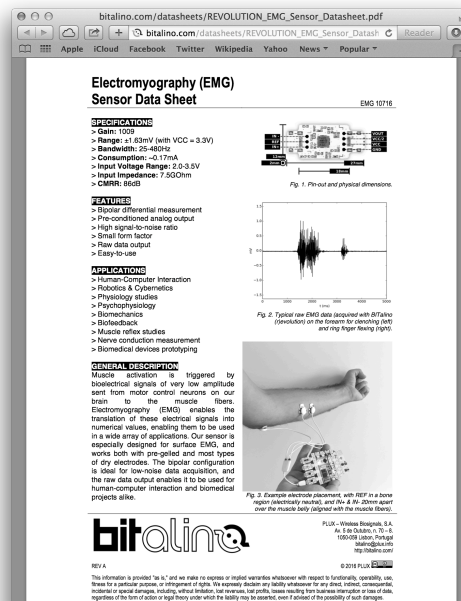


Fig. 7. Datasheets provide additional information about the sensor specifications and usage recommendations.

⁶ <https://www.youtube.com/watch?v=LOFUTNEgrv4>

⁷ <http://bitalino.com/index.php/learn/documentation>

⁸ <http://bitalino.com/index.php/development/apis>

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