



# Instruction manual for BLEvo

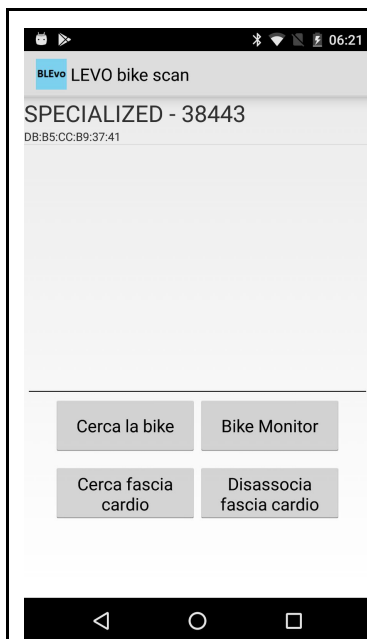
(updated on November 26, 2017 to version 2.6)

The application can be downloaded from Google Play at this address:

<https://play.google.com/store/apps/details?id=com.dopa.android.blevo>

The name BLEvo comes from the union of BLE, the acronym of Bluetooth Low Energy (the technology used for connection to the bike), and Levo is a 'well-known' electric bike model.

## 1. Start page



On the start page, you can search for the bike and any cardio band that you want to associate with the app. This will allow you to take advantage of the Smart HR feature.

The cardio band must be of the Bluetooth type (BLE or Bluetooth Smart). As BLEvo cannot connect with ANT + cardiac bands (Garmin and the like) for the time being.

Ensure the bike is nearby, then start the scan.

Once the scan is complete, you will be prompted to associate a name for this particular bike. This is so that you can recognise it among other bikes. You can rename the bike later if required, by simply holding down the name button.

At the next startup, however, the BLEvo app will automatically connect to the last bike it was connected to.

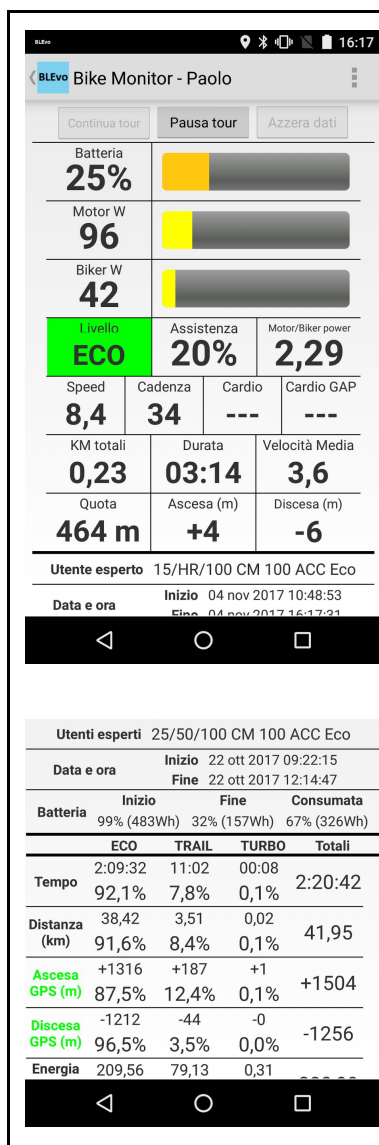
## 2. Settings page



In the settings screen you can;

- Select presets already set and programmed by Zeus
- Restore the bike's default settings
- Set up to 3 custom settings and save them
- Add your own comments on each of the settings to recall the impressions you had during the test setup
- Change the limited speed (to be used only in private areas)
- Set the actual circumference of the rear wheel (expressed in mm). (This circumference is important in order to correctly calculate the distance in kilometers, which enables the correct calculation of the limit speed).
- Run the Bike Monitor (when the Bike Monitor is run, the BLE cardio band is connected if it has been previously associated).

## 3. Bike Monitor



With the Bike Monitor you can record and display many types of data measured by your bike and smartphone during your activity. This information is automatically saved (if configured) every second to a CSV file

The CSV file name is automatically assigned based on the start date, time, archive and/or subsequent analysis.

Complete CSVs however, contain information saved approximately every 150 milliseconds for a more in-depth analysis of motor and biker power data.

BLEvo also lets you save the track in TCX and GPX format so you can import it directly into Strava, Garmin Connect or Sport Tracker. However, this type of export does not include all fields in the CSV.

From version 2.5 you can save the GPS track even when the bike is switched off or with Bluetooth disconnected. Of course, the information displayed and recorded by the Bike Monitor will be reduced. All data will be taken from the GPS, so you must activate it before beginning recording.

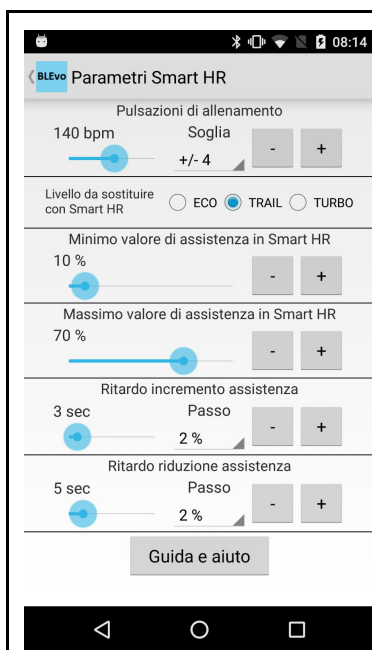
Also, from version 2.5 you can send a message (via Whatsapp, email, sms, etc) with a help request in case of an accident. The message will be automatically composed and the recipient will receive your GPS location with a link to Google Maps!

#### Note:

- When using a Garmin (or similar) device that records the activities track, it is preferable to use the Bike Monitor without activating the altitude calculation with the GPS. This is because the altitude data detected by the GPS is not as accurate as the barometric altimeter of a Garmin (or similar), it also saves a lot of battery consumption of the smartphone
- If you want to record the track with a smartphone app (Strava type), you must leave the GPS flag in the bike monitor active
- To have a precise calculation of the distance traveled, the actual wheel size (eg 2255 mm for the Levo Expert 2017) must be indicated in BLEvo.
- You can export data in CSV format and then import this into Excel spreadsheets and possibly combine them with those generated by other devices. For example, to extract all the data from the .fit files generated by Garmin devices, you can use the <http://fitfilerepairtool.info/> tool and that data can be added to those generated by BLEvo, using the "Timestamp" as a common field.
- The Bike Monitor pauses automatically if it does not detect the speed sensor and / or the speed remains zero for 5 seconds. As soon as the Bike Monitor pauses, instantaneous speed, cadence and power information is removed from the screen to leave room for other stored information.
- When the Bike Monitor is recording, the screen is kept on, so there is no need to change the device configuration to increase standby time on the display.
- The battery consumption in Wh is higher than the total energy delivered by the motor, the ratio between the power supplied by the motor and that supplied by the battery represents the motor's performance. It should be noted that the more time you have a constant cadence of around 70/80 rpm, the more motor consumption is constant and the performance improves.
- WARNING: if you are away from the bike (for example, for lunch), restart and check again that the bike (and a possible BLE cardio band) is connected to the Bike Monitor. Otherwise you risk losing track of part of the track.

## 4. Smart HR

Assistance adjusted automatically according to the cardio frequency meter



Once you've associated the BLE Heart Rate Monitor (from the start page), you will be able to take advantage of this new feature

The operation of this mode is easily explained by an example;

If the training heart rate is set to 140 bpm, the BLEvo app analyzes the current pulses and if they are lower than 140 bpm, the assistance decreases to the minimum you configured (eg 10%). A delay is given by the set reduction delay (for example, every 5 seconds reduces the 2% assistance or the decreasing pitch that has been chosen).

If the current pulses are higher than 140 bpm, the app increases the assistance up to the maximum configured (eg 70%) with a delay given by the set increment delay (eg every 3 seconds increases the 2% or the increment step chosen).

Attention: These automatic variations occur only in the assisted setup mode, which can be either ECO, TRAIL or TURBO.

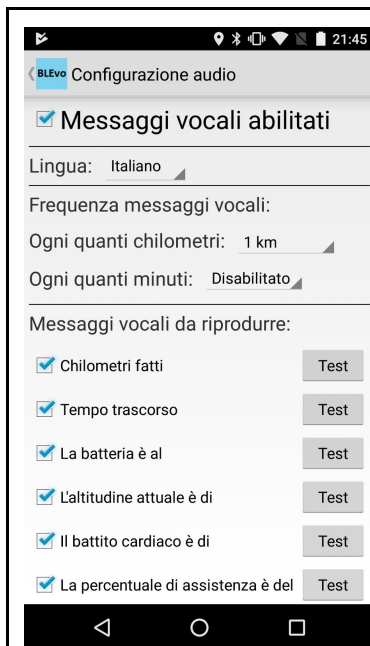
At around the threshold (in the example 4 bpm) from the set training frequency (in the above example, between 136 and 144 bpm), the power level is not changed to avoid continuing power corrections when you are in the training zone.

The Smart HR can be configured by the Bike Monitor by pressing the button on the top right. This screen will appear;

You can choose which level of support the Smart HR needs to replace. So you can have for example these 3 scenarios:

- Level replaced **ECO**: Smart HR adjusts for example between 5% and 50%, TRAIL at 50% and TURBO at 100%. This way you can count on 2 levels of assistance besides Smart HR when dealing with particularly demanding trails.
- Level replaced **TRAIL**: You can set ECO to 0% and TURBO to 100% and Smart HR between 0% and 100%. This way, you can completely turn off assistance by putting the bike in ECO to save battery (eg downhill) but still keep track of active data. Instead, on demand you go to TURBO when you encounter short but more demanding trails
- Level replaced **TURBO**: you use the bike normally in ECO and TRAIL and if you want you can turn on Smart HR mode by putting it in TURBO

## 5. Voice feedback



From the Bike Monitor page you can open the voice message setup menu.

In this menu, you can configure the language of the messages and the frequency with which the messages are played.

Also, you can choose which messages to play.

There is also a facility to listen to these messages.

## 6. Notes

WARNING: The user of the BLEvo app is solely responsible for any modifications made or attempted to be made to your e-bike.

WARNING: Please note that the Road Code (Highway Code in UK) only allows bicycle motor support for up to a maximum speed of 25 km / h (15.5mph in UK) for e-bikes. In private closed traffic areas, the Road Code does not apply.

WARNING: Zeus and Z-Works Settings in BLEvo work only with the X.22 battery firmware, then 4.22 for the Comp and generally 2.22 or 10.22 for the Expert, S-Works and Kenevo. The speed release (which makes the bike usable exclusively in private areas), the Bike Monitor and the Smart HR will work with any battery firmware.

WARNING: Whenever you connect BLEvo, ensure to first turn off apps such as Mission Control, nRF, or LightBlue that use a Bluetooth connection between smartphones and powered bikes.

WARNING: It is not always necessary, but when you modify some parameters such as acceleration or wheel circumference, it is best to turn the bike off and on again to make the changes are really effective. The BLE app however warns you when you need to restart the bike.

WARNING: Changing the wheel circumference is only saved correctly if the battery is connected to the motor.

WARNING: Even if you turn off the battery, BLEvo may still find the battery of the Levo. It has been found that the battery disables the Bluetooth connection after 2 hours after it is turned off.

WARNING: The BLEvo app requires that you have the rights to GPS (for trace track tracking), Bluetooth (for bike connection), and write to disk (for export to CSV, TCX, and GPX files ).

## 7. FAQ

### **Q1. By clicking the SEARCH button the bike is not found. What should I do?**

For Android

Try to:

- Place the smartphone close to the bike
- Close the Mission Control app
- Enable GPS
- Deactivate and then turn Bluetooth back on
- Restart BLEvo
- The bike must not be connected to any other Bluetooth device
- Have you been given all the permissions at the first start of BLEvo? Try checking out app permissions settings
- Restart the smartphone

For iOS

Try to:

- Close the Mission Control app completely
- Deactivate and then turn Bluetooth back on
- Completely close BLEvo and restart it
- The bike must not be connected to any Bluetooth device
- Restart the smartphone

### **Q2. I can no longer choose the circumference of the wheel less than 2000 mm. Why?**

In BLEvo we have entered 2 parameters. The actual circumference and the limit speed.

The limit speed is a consequence of the REAL wheel circumference and the circumference set in Mission Control. With a wheel of 2255 mm circumference in BLE, you must set 2255 and depending on the selected speed limit, BLEvo will set the correct circumference in Mission Control to bring the service speed to that limit.

In BLEvo the REAL wheel circumference must always be set.

### **Q3. How do I rename the name of the bike?**

On the home screen, you can name the bike while holding down the bike to rename. You will be provided with the name to enter and / or change.

### **Q4. Why is the total energy delivered by the engine less than the energy consumed by the battery?**

They are different because it depends on the motor's performance. The more you maintain a constant steady cadence greater than 70/80 rpm, the more the motor has a better efficiency and the energy consumed by the battery approaches close to the energy delivered by the engine.