

iLogger easy | User Manual

Advanced telemetry and data acquisition system

1. Foreword

Congratulations on your purchase of the iLogger easy (iLE). The iLogger easy represents a new generation of telemetry systems that is fundamentally different from the competition. It records data from multiple sensors while riding for subsequent analysis and evaluation. This is an invaluable tool for improving your riding both for race and road riders. The iLE is the only data acquisition and analyzer that is managed

wirelessly via Android and iOS devices, using our free and easy-to-use applications.

Quickly and easily alter settings with a finger tap. Download recorded data instantly, directly after your riding session. Via Wi-Fi, this takes only a few seconds.

For more information on this product, please visit: www.healtech-electronics.com/iLE

2. Device compatibility

➤ iOS devices:

Compatible with iPhone/iPad devices running iOS 11.0 or newer.

➤ Android devices:

Compatible with Android devices running Android 5.0 (Lollipop) or newer.

3. Features

➤ DATA ACQUISITION

The sensors' data is recorded to the large-capacity memory in the module. Hence a constant connection to your smart device is not necessary. The recorded data is subsequently transferred to the smart device via WiFi for analysis.

The other physical element of the system is the high accuracy, high-frequency GPS receiver using an external antenna. The GPS coordinates and the speed data are merged into the captured data stream, meaning that during analysis you get a complete record of status at every stage of the circuit.

The module can record five (5) analogue 0-5V channels (e.g. throttle position, gear position, etc.) and two RPM (pulse) signals (e.g. engine speed, wheel speed, etc.). An optional expansion port is also available if you wish to capture more data sources. A configurable output is also available; for instance, the dashboard display LED is controlled via this port.

The iLE can be used with any other HealTech products like the AR Assistant (ARA) and the QuickShifter easy (iQSE), other commonly used racing products.

➤ DATA ANALYZER

The Analyzer is integrated into the iLE app (available for both Android/iOS), so one app offers all features. The recorded data can be displayed as a graph/chart in the Analyzer, plotted against the elapsed time or the distance ridden. There's also a map view, displaying all the data accurately based on the GPS records. The app can also calculate precise lap times; a vital feature for closed course applications.

Previous sessions can be easily compared in the Analyzer. Additionally, the app can compare data recorded on other iLE modules, meaning sessions from different riders are also comparable. No more arguments, now there's solid proof, who was the fastest in that session/track day!

➤ LIVE DASHBOARD FUNCTION

The iLE app also offers a Dashboard function. Use your phone as a real-time display. In this case, a constant connection is required between the iLE unit and the device. You can choose from several dashboard layouts and designs that best suit your style of riding. There's a professional lap timer skin, a comprehensive dash with RPM and gear indication, drag racer mode and more. Let us know if you need a specific skin in the app!

4. Warranty

HealTech Electronics Ltd. guarantees this product against defects in material and workmanship for a period of two (2) years.

The warranty period starts from the date of the original purchase as shown on the invoice.

5. Specifications

- Supply voltage: +8V to +20V
- Max. supply current at 12V: 150 mA
- Operating temp: -40°C to +80°C (-40°F to +176°F)
- Waterproof (IP68)
- Unit size: 79 x 20 x 51 mm (3.11 x 0.78 x 2 inches)
- Reverse polarity and transient protection

6. Installation

Due to its sophisticated nature, both the installation and set-up of the iLogger easy require precision and patience for the best results. The following description is a generic installation guide.

To make installations as easy as possible, we also offer illustrated manuals/guides for bike-specific installations on our website, via this product's webpage in the Supplementary Manuals section.

Please check this link regularly, as new manuals are added regularly:

www.healtech-electronics.com/iLE

For basic operation, the unit only requires power. Connect the **PWR** to a key-switched +12V wire (e.g. brake/rear light feed) and the **GND** either to the battery negative terminal or to a solid metal connection (e.g. the frame of the bike).

Attention:

Some switched +12V wires may disconnect randomly in the case of a faulty side stand switch. In this case the current recording will terminate and a new one would begin immediately. If you experience this symptom, please check for a faulty switch or use another switched +12V wire.

The terminal with the **RPM** mark receives the RPM (pulsed) signal from the engine. This may come from various sources, like a crankshaft sensor, an ignition coil or the dashboard wiring harness. To get an accurate RPM capture/display data, the type RPM source must be configured in the app.

Attention:

If the RPM signal is being taken from an ignition coil, be careful to use the coil control wire from the ECU. Otherwise, the high voltage present on other wires may damage the unit.

7. Setup

After successful installation a complete configuration is essential. First, connect to the module with your smart device (either phone or tablet) via Wi-Fi. Once connected, configuration and adjustments may be made from the **Setup** menu.

The **VSS** terminal is a dedicated speed signal terminal. It accepts signals from any wheel speed sensor, secondary/output shaft sensor (gearbox), ABS module or even from the dashboard wiring harness. To get an accurate speed capture/display data, the type of the speed signal source and its characteristics must be configured correctly (e.g. signal level, pulses per REV, etc.).

Terminals from **AN1** to **AN5** are 0-5V range analogue inputs. Each input is protected from over-voltage, meaning even a 12V signal could be connected to them (e.g. brake light switch). However, only the 0 to 5V part of the signal will be sampled/recorded. These are the dedicated inputs for all the sensors that generate analogue signals (e.g. throttle position, oil and coolant temperature, etc.). To get precise capture/display data, the type of the connected signal source must be configured correctly in the app.

The **OUT** terminal is a configurable output, for example to offer a switched **GND** circuit. This allows you to control an external device, e.g. the optional dashboard-mountable status/feedback LED. The output is configured and activated in the app.

The GPS antenna (included in the kit) must be connected to the gold-plated threaded connector. For the best possible reception, we recommend placing the antenna with the GPS sign facing upwards, while avoiding it being shielded by any metal objects or the rider itself. If the above conditions are met, the antenna may also be mounted under the fairing.

Attention:

Adjustments made in the app must be manually stored by tapping the 'Update module' button! This is to avoid unwanted changes being sent to the module automatically, which could compromise the proper operation of the iLogger.

7.1 Channel settings

Each channel has the following general parameters:

- **Name:**
An identifier (configurable) for the given channel. Subsequently in the Analyzer, the data that has been recorded on that channel is identified by this name.
- **Sample rate:**
This is the recording frequency of the channel. Sets how many samples are being captured per second.
- **Record:**
Toggles whether the channel is being recorded or not.

7.1.1 RPM CHANNEL

Channel specific parameters:

- **Sensor type:**
Configures the type of the **SPEED** sensor.
- **Pulses per revolution:**
Sets the sensor pulse per crankshaft revolution.
- **Noise filter:**
Filters/eliminates unwanted signal spikes. We recommend turning this function on in most cases!

7.1.2 VSS CHANNEL (VEHICLE SPEED SENSOR)

Channel specific parameters:

- **Sensor type:**
Configures the type of the speed sensor.

3W: three wire digital sensor, 0-5V pulse output. (E.g. the supplied wheel speed sensor with the AR Assistant is a 3W sensor.)

2W ind.: two wire inductive sensor, usually on older ABS bikes (until 2008).

2W curr.: two wire current sensor. Most common sensor type, most of the modern ABS bikes are equipped with it. This kind of sensor requires module calibration, full rotation of the wheel is required after choosing this option.
- **Sensor location:**
The physical location of the sensor (e.g. wheel, gearbox, etc.).
- **Pulses per revolution:**
Sets the sensor pulse per revolution.
- **Front/rear sprocket:**
Set the front/rear sprocket tooth count here. Please note, this setting is only necessary if the sensor is located in the gearbox.

- **Tyre circumference:**
The circumference of the wheel where the speed sensor is located (in millimeters). Always measure the center of the tire as accurately as possible.
- **Speed unit:**
Sets the speed unit (km/h or mph). The Analyzer displays the speed in this measure.
- **Noise filter:**
Filters/eliminates unwanted signal spikes. We recommend turning this function on in most cases!

7.1.3 BAT CHANNEL (BATTERY)

Monitors and records the battery voltage. It is recorded automatically through the **PWR** terminal input.

This channel has no other setting options beyond the general parameters.

7.1.4 GPS CHANNEL

Channel specific parameters:

- **Speed unit:**
Sets the speed unit (km/h or mph). The Analyzer displays the speed in this unit measure.

7.1.5 AN1 – AN5 (ANALOGUE) CHANNELS

Channel specific parameters:

- **Information/data:**
Set the type of signal that is being recorded on the channel.

Information/data that could be recorded on the analogue channels:
- **Voltage:**
The sampled voltage is recorded and not interpreted further.
- **Throttle position:**
The recorded voltage is being displayed between the minimum and maximum values (0-100%).
- **Gear position:**
By configuring the voltage values designated to each gear, the channel records the actual gear position.
- **Switch:**
The analogue signal is provided by a two-pole switch (ON and OFF). Phases are defined by a threshold.
- **Pressure / Temperature / Linear motion:**
To get a precise reading/display, the sensor voltage values can be configured in a total of five steps.

- **ARA +/- switch:**

This option is only available on the AN1 channel. With the help of two pushbuttons, the channel can be used to adjust the sensitivity of an ARA module that is connected to the iLE. The buttons need to be wired in a way to leave the AN1 input floating in a normal state, while the '+' button must pull the input to a high level (at least +5V) and the '-' button must drag the input to a low level (GND).

➔ **7.1.6 OUT CHANNEL**

The OUT channel has no configurable parameters (name, etc.).

Furthermore, this channel is not recorded, its sole purpose is to configure the OUT terminal.

Channel settings:

- **Information:** Set when the output control should be active.
- **Brightness control:** In case the optional feedback LED is being connected to the terminal, the LED brightness may be set here.

Possible sources for channel control:

- **None:** The output is not activated.
- **Recording running:** Active while the iLogger is recording.
- **GPS tracking:** Active while the GPS signal quality results in accurate positioning.
- **ARA connected:** Active while an AR Assistant module is connected to the iLogger unit.

7.2. Device settings

You can find non-channel related options in the third tab of the Settings menu. These are device-specific options:

- **WiFi name postfix:**

Here you can customize the WiFi access point name, as generated by the iLE unit. This is important in a group of iLE users!

- **Turn off WiFi:**

Turns off the WiFi according to the set condition. The WiFi is restored automatically, as soon as the unit restarts.

- **Start rec. automatically:**

The recording will start automatically if the set condition is met.

Attention:

In case the previously set condition is not valid (e.g. RPM or VSS drops), the recording will continue, i.e. will not stop.

- **Threshold:**

Used for the automatic recording in specific configurations.

7.3. Misc. settings

➔ **7.3.1 MANAGE CONFIGURATIONS**

Configurations can be saved and re-loaded, which makes changing configurations/bikes problem-free.

Attention:

Changes made in the app must be manually finalized by tapping the 'Update module' button!

Try to use a password that you can remember, as not even HealTech can read a personal security code. However, we can assign an unlock code (master password) to the unit, which we can supply to the owner on request. Should you need an unlock code for your iLE module, please contact us via email at support@healtech-electronics.com.

➔ **7.3.2 SECURITY**

You may set a personal security code, eliminating any unauthorized connections. The code must contain 4 digits. This code does not replace the default WiFi password, which is 'HealTech'.

➔ **7.3.3 LANGUAGE**

Choose the iLE app language. Please send us any comments or improvements via email at sales@healtech-electronics.com.

8. Transfer

Data recorded by the iLE is stored in the unit's built-in memory. Should you wish to view and analyze these recordings, they must first be downloaded from the module to your smart device (phone/tablet). To do so, use the **Transfer** button in the app's main menu.

The recorded data will be visible in the pop-up window. Recordings marked with a check-mark have been already downloaded from the module.

Attention:

Downloading a recording from the module does not mean automatic deletion. The user needs to delete recordings from the module manually. The module has limited storage space, so if no storage is available, the recording will stop and will not continue until space is available: recordings have been deleted. The actual state of the module storage can be checked in the application's main status tab, before the main menu under the 'Memory usage' section.

9. Analyzer

The recordings that have been previously transferred from the module to the device are ready to be analyzed by pressing the Analyzer button in the main menu. Transferred files will be visible in the pop-up window. By selecting one the Analyzer viewer is opened.

9.1 GRAPH VIEWER

The graphs associated with the active channels are displayed in the large graph viewer area. The graphs can be scrolled by swiping left and/or right with one finger while pinching with two fingers zooms in or out.

In the middle of the graph viewer is a yellow vertical line, 'the cursor', that displays the actual values of the selected channels and from the loaded session in the top bar of the window.



Additional analyzer functions could be reached by tapping the gear icon in the top right corner of the graph viewer.



By tapping the first drop-down button in that sub-menu, there's an option to switch the graph display from time-based to distance-based and vice-versa. The latter is required if you wish to compare two different laps.



The second drop-down button is also a handy feature when comparing two laps. This is the 'delay' button, which shows the time differences between the two laps. It shows the exact time difference between the two laps at that moment/location of the track.



By tapping the third drop-down button, the user can manually synchronize two different recordings (either files, sessions or laps). This might come in useful in case the app is unable to sync the data automatically (e.g. captured drag racing sessions).

9.2 CHANNELS

When opening the Analyzer, select the desired channels for display. The channels being displayed can be freely toggled by tapping the Chans. button in the left vertical menu.

All the recorded channels are displayed here. Channels can be transferred from non-visible to visible and vice-versa. To make a channel **visible**, just tap the empty square in front of the channel. The display of visible channels is limited. If the limit is reached, the last channel is automatically reverted to non-visible. To drop a channel manually, use a long tap and move it to the **non-visible** section.

The chosen channels can be sorted. Use a long tap and move the channel to the desired position. The sorting affects how the values are displayed in the upper menu bar. There's also the possibility to color the channels by tapping the square in front of them.

9.3 LAPS

The Analyzer has a lap-time evaluation feature. Based on the GPS data, it can calculate lap times with a high accuracy. To activate this feature, tap the second button in the left vertical menu named **LAPS**. If the records were captured at a location known by the app, the lap times are automatically calculated.

Laps in the recording can be seen in the right, sorted below each other chronologically. The first column shows the lap times, while the next ones show sector times (on smaller screens swipe right to see all the columns). The app analyzes all the sectors and selects the best from each of them. These are marked with a green background. The first row with the turquoise background shows the theoretical best lap, adding up the best sector times from the recording.

If the app does not recognize the track you were riding, there's a possibility to manually add the start/finish line. This makes automatic lap time calculations possible in the app. To mark the start/finish line, swipe the yellow cursor on the graph to the desired point and tap the header of the lap timer chart. A Lap timer window will pop up with various options. Tap the first one named '< **select track here** >'. A list with race track names will appear. Tap the first '**laps by cursor**' option. Now the start/finish line is marked in your recorded session.

There's the possibility to select a single lap from the lap times charts. By tapping on the given lap, a bright yellow background would appear in the graph viewer area marking the selected lap.

9.4 MAP

While the recorded session contains valid GPS data, the routes ridden are visible in a map view. Tap the **MAP** button in the left vertical menu to activate the map display feature.

The location of the red dot on the map corresponds to the position of the yellow cursor in the graph viewer. By swiping the graphs, the red dot will move accordingly. This is a great help to understand what is happening at a specific point of the track.

To help riders better understand their riding, we've added a coloring option to the map viewer. This colors the track according to one channels' values. To activate this, tap the header of the map viewer. By default **< no coloring >** is being displayed in the header. By tapping it you can select the

channel you would like to be presented on the track map. The deep blue color represents the lowest value of the selected channel. The higher the value, the color shifts first to green and finally to red.

In case a lap has been selected from the lap chart the coloring on the map represents only that lap.

9.5 ZOOM

By tapping the ZOOM button in the left vertical menu, the user can switch between the following zoom states in the graph viewer:

- **Whole session / complete view:** The whole length of the session is shown.
- **Cursor area:** 1 minute / 2 kilometers (1.25 miles) is shown in the graph area.
- **Selected lap:** The lap selected from the chart in the lap viewer is displayed.

By tapping the ZOOM button continuously, the view cycles through the three zoom states.

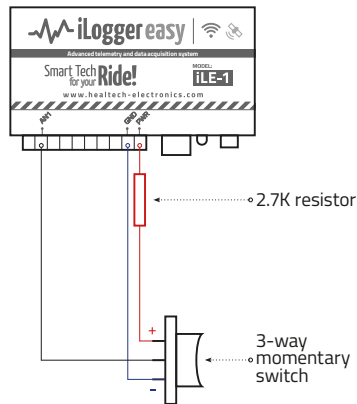
10. External switch for AR Assistant

It is possible to connect an external switch to the **AN1** input as shown on the right.

We recommend using a 3-way momentary switch, which makes contact to **+12V** when pushed upwards and makes contact to **GND** when pushed downwards. When you release the switch, it should revert to the default middle (off) position.

It is essential to use a limiting resistor of 2.7Kohms in the PWR connection, otherwise an accidental short circuit at the switch may cause severe problems.

After connecting the switch, configure the AN1 input in the app to be used as AW-TC sensitivity adjustment switch for the AR Assistant module. The actual AW-TC sensitivity value will be displayed on the iLE live dashboard.



11. LED statuses / error warnings

Explanations of the iLE module's built-in bi-color status LED (red/green) signals:

Continuous red:	Module in boot/startup phase.
Continuous green:	Module operating normally.
Flashing green:	Recording in progress.
Flashing red and green:	Malfunction / operation error.