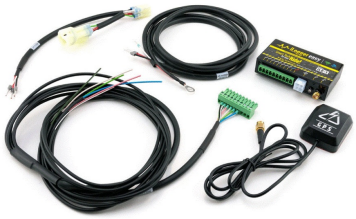

HEALTECH ELECTRONICS iLogger Easy Advanced Telemetry and Data Acquisition System User Manual

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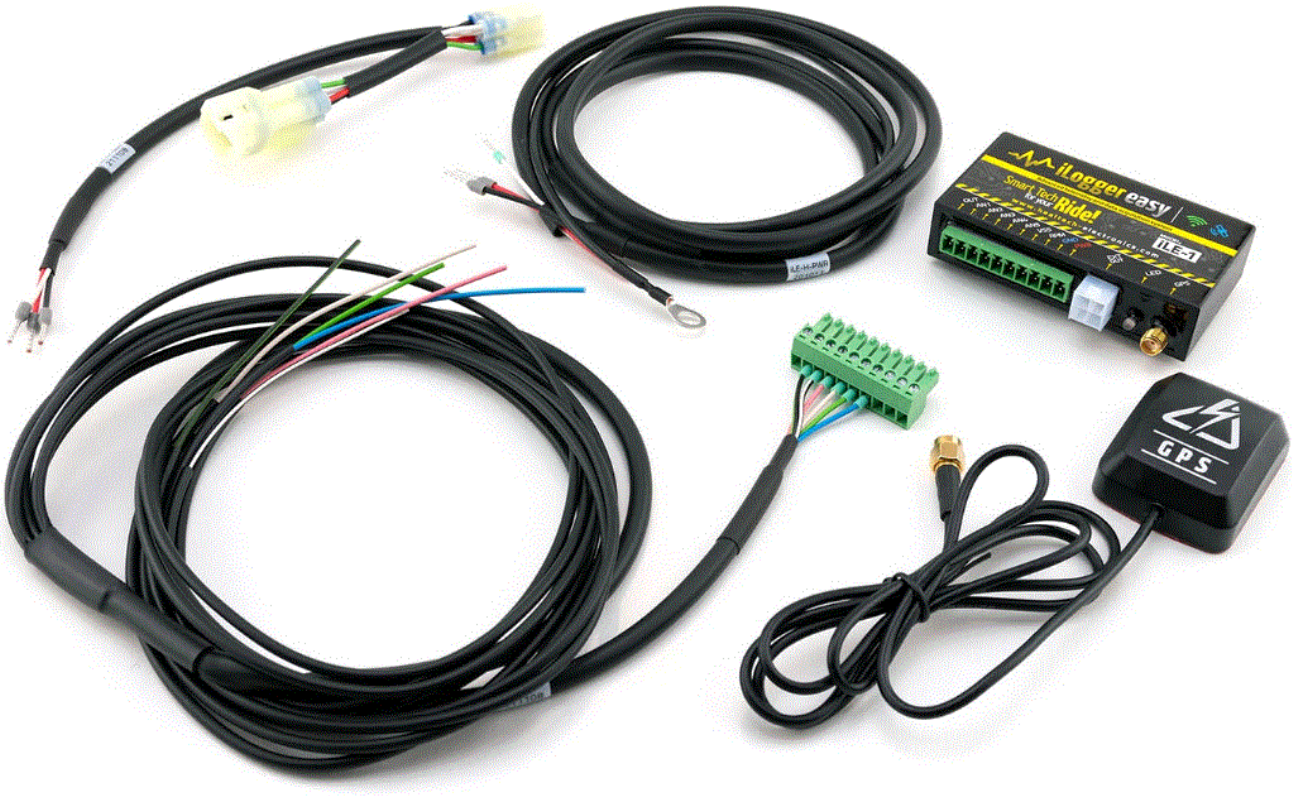

Foreword

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. You can capture and record various data during riding, and analyze and evaluate them afterwards. This can be a great help improving your riding, regardless you are doing it on racetracks or public roads. The iLE is the only data acquisition and analyzer product that is set-up and managed wireless via Android and iOS devices through our free and easy-to-use application.Alter settings with a tap effortlessly. Download the recorded data in an instant, right after your riding session. With the help of the Wi-Fi connection, this takes only a few seconds.
For more information on this product, please visit: **www.healtech-electronics.com/iLE**

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.

Features

DATA ACQUISITION

The gathered data is being recorded to the large capacity built-in memory in the module. That is why a constant connection to your smart device is not necessary. The recorded data is being transferred to the device via WiFi for analysis and other purposes. The other important element of the kit is the high accuracy, high-frequency GPS receiver with the external antenna. The GPS coordinates and the speed values are merged into the gathered data stream, meaning that during the analysis process you get an all-around picture of what is going on at each part of the circuit/route you were riding. The module itself is able to record five (5) analogue 0-5V channels (e.g. throttle

position, gear position, etc.) and 2 RPM signals (engine speed, wheel speed, etc.). An optional expansion port is also available, should your needs exceed the number of built-in ports. A configurable output is also available; for instance, the dashboard display LED is being fed via this port as well. The iLE can be integrated with other HealTech products like the AR Assistant (ARA) and the QuickShifter easy (iQSE)

DATA ANALYZER

The Analyzer is conveniently bundled into the iLE app (both Android/iOS), so one app covers all its features. The recorded data can be displayed as a graph/chart in the Analyzer, in conjunction with either 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 is able to calculate precise lap times as well. This is a vital feature for closed course applications. The previously recorded sessions can be easily compared in the Analyzer. Furthermore, the app can compare data recorded on other iLE modules as well, meaning sessions from different riders are also comparable. No more jib-jab, now there's solid proof, who was the fastest in that session/track day!

LIVE DASHBOARD FUNCTION

The Dashboard function is part of the iLE app as well. 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 suit best for your actual riding. There's a professional lap timer skin, a full-on dash with RPM and gear indication, drag racer mode and so on. Let us know if you have any special skin in mind missing from the app!

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.

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

Installation

Due to its sophisticated nature, both the installation and set-up of the iLogger easy requires precision and patience. In the following, you can see a non-model-specific installation guide. To make installations as straightforward as possible, we supply supplementary manuals on our website at the product's sub-page in the Supplementary Manuals section. Please check this link regularly, as these manuals are uploaded from time to time:
www.healtech-electronics.com/iLE
Supplying power for the unit is enough for the very basic operation. Connect the PWR to a switched +12V wire (e.g. brake lamp switch) 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 could be shut off in case of a faulty side stand switch. Recording in progress will terminate and a new one would start right after in such cases. If you experience problems like that, please check the faulty switch or use another switched +12V wire. The terminal with the RPM mark receives the RPM signal

from the engine. This could come from various sources, like crankshaft sensor, ignition coil or dashboard wiring harness. In order to get valid RPM readings, display and recordings, the type of the connected RPM source must be configured later in the app.
Attention:
In case the RPM signal is being sent from the ignition coil, always make sure it is coming from the control wire connecting the ECU with the ignition coil. Otherwise, the high voltage could damage the unit.

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. In order to get valid readings/display and recordings, the type of the connected signal source and its characteristics must be configured properly (e.g. signal level, pulses per REV, etc.). Terminals from AN1 to AN5 are 0-5V range analogue inputs. Each are over-voltage protected terminals, 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 would be sampled/recorded. These are the dedicated inputs for all the sensors providing analogue signals (e.g. throttle position, oil and coolant temperature, etc.). In order to get valid display and recordings, the type of the connected signal source must be configured properly in the app. The OUT terminal is a controllable output, that could switch GND in some specific cases. This makes controlling specific devices, e.g. the optional dashboard mountable status/feedback LED. The output must be activated and configured in the app. The supplied GPS antenna must be connected to the golden, 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 could be mounted under the fairing as well.

Setup

After successful installation a complete configuration is mandatory. First, connect with your smart device (either phone or tablet) to the module. After successful connection, configuration and adjustments can be made under the Setup menu.

Attention:
Adjustments made in the app must be manually finalized by tapping the ‘Update module’ button! This is to avoid unwanted changes being sent to the module automatically, that could compromise proper operation of the iLogger.

Channel settings

Each and every channel has the following general parameters:

- **Name:**
  Customizable identifier for the given channel. Later, in the Analyzer, the same name would appear for the data that has been recorded on that channel.
- **Sample rate:**
  This is the recording frequency of the channel. Sets how many samples are being recorded per second.
- **Record:**
  Toggles whether the channel is being recorded or not.

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!

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 needs calibration, full rotation of the wheel is required after choosing this option.
- **Sensor location:**
  The location, from which the sensor signal is coming from (e.g. wheel, gearbox, etc.).
- **Pulses per revolution:**
  Sets the sensor pulse per revolution.
- **Front/rear sprocket:**
  Set the front/rear sprocket count here. Please note, this setting is only active in case the sensor location is set to gearbox.
- **Tyre circumference:**
  The circumference of the wheel the speed sensor is getting its signal from (in millimeters). Always measure at the very middle of the tyre as accurately as possible.
- **Speed unit:**
  Sets the speed unit (km/h or mph). The Analyzer displays the speed in this unit as well.
- **Noise filter:**
  Filters/eliminates unwanted signal spikes. We recommend turning this function on in most cases!

BAT CHANNEL (BATTERY)
Monitors and records the battery voltage. It's being recorded automatically through the PWR terminal input. This channel has no other setting options beyond the general parameters.

GPS CHANNEL
Channel specific parameters:

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

AN1 – AN5 (ANALOGUE) CHANNELS Channel specific parameters:

- **Information/data:**
  Sets 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 being recorded. Won't be interpreted otherwise.

- **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 provided by a two-phase switch (ON and OFF). Phases are defined by a threshold.
- **Pressure** / **Temperature** / **Linear motion:**

  In order to get a proper reading/display, the sensor voltage values can be configured in a total of five steps.

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:
You can customize the WiFi network name here, which is created by the iLE unit. Makes finding and identifying your network easier.
Turn off WiFi:
Turns off the WiFi according to the set condition. The WiFi is being 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 isn't valid anymore (RPM or VSS drops), the recording will continue, i.e. won't stop.
Limit: The required value for the automatic recording to start in case of some specific settings.

Misc. settings

MANAGE CONFIGURATIONS

Configurations can be saved and loaded back freely, which makes changing configurations/bikes hassle-free.
Attention:
Changes made in the app must be manually finalized by tapping the 'Update module' button!

SECURITY

You can set a personal security code, eliminating any unwanted, unauthorized connections. The code must contain 4 digits. This code won't replace the default WiFi password, which is 'HealTech' in each case. Try to give a password that you can remember, as not even we, the manufacturer of the iLogger module can read your previously set personal security code. However, we can assign an unlock code (master password) to the unit, which we submit to the owner at request. Should you need an unlock code to your iLE module, please contact us via email at **support@healtech-electronics.com**.

LANGUAGE

Choose the preferred language of the iLE app here. Should you have a translation / language related request or remark, please contact us via email at **sales@healtech-electronics.com**.

Transfer

Data being recorded by the iLE is stored in the unit's built-in memory. Should you wish to view and analyze these

recordings, they must be downloaded from the module to your smart device (phone/tablet) first. In order to do so, find the Transfer button in the app's main menu. The previously recorded data will be visible in the pop-up window. Recordings marked with a check-mark has been already downloaded from the module.

Attention:
Downloading a recording from the module does not mean automatic deletion. The user needs to delete these recordings from the module manually. As the module has a limited storage space, if no storage is available, the recording will stop and won't continue as long as space is not freed up. 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.

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 could be opened.

GRAPH VIEWER

The graphs associated with the active channels are displayed in the large graph viewer area. The graphs could be scrolled by swiping left and/or right with one finger while pinching with two fingers zooms in or out. Right 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 for that very moment/location of the track. By tapping the third drop-down button, the user has the ability to manually synchronize two different recordings (either files, sessions or laps). This might come in handy in cases when the app is unable to sync these data automatically (e.g. captured drag racing sessions).

CHANNELS

When opening the Analyzer, select the desired channels to display them. 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 could be transferred from non-visible to visible and vice-versa. To make a channel visible, just tap the empty square in front of them. The amount of visible channels is limited. If the limit is reached, the last channel is automatically dropped back to non-visible. To drop a channel manually, long tap and move it to the non-visible section. The chosen channels can be freely sorted. Long tap and move the channel to the desired position. The sorting has an effect on how the values are displayed in the upper menu bar. There's a possibility to color the channels too by tapping the square in front of them.

LAPS

The Analyzer has a lap time evaluation feature as well. Based on the GPS data, it can calculate lap times with high accuracy. To activate this feature, tap the second button in the left vertical menu named LAPS. In case the records were captured on a location known by the app, the lap times are automatically calculated. Laps in the recording can be seen in the right, below each other sorted chronologically. The first column shows the lap times, while the next ones show sector times (on smaller screens you have to 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. In case the app does not recognize the track you were riding on there's a possibility to manually add the start/finish line. This makes automatic lap time calculation possible for 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 racetrack 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.

MAP

In case the recorded session contains valid GPS data, the routes rode 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 helps a great deal for the rider to understand, what is happening in a specific area of the track. To help riders better understand their riding more, 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 its data 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.

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

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

By tapping the ZOOM button continuously, the three zoom states cycle one after the other.

LED statuses/error warnings

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

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

Documents / Resources

	HEALTECH ELECTRONICS iLogger Easy Advanced Telemetry and Data Acquisition System [pdf] User Manual iLogger Easy, Advanced Telemetry and Data Acquisition System, iLogger Easy Advanced Telemetry and Data Acquisition System

References

- electronics.com
- iLogger easy (new) - HealTech Electronics Ltd. %