



User Manual

MotoMonitor

Version 2.0

Thank you for choosing our company product. We would like to assure you, that we endeavor to make our product meeting your expectations. Furthermore, we are constantly working on improving its features. Feel free to visit our webpage and share your thoughts, leave comments and opinions there. None of your suggestions would be omitted and we are going to read and analyze carefully every new idea or suggested improvement. If you ever encounter an error in our software, do not hesitate to leave a post on <http://bug.flyelectronics.eu>.

All rights reserved

This manual is an integral part of device you have just purchased and can't be copied, duplicated, transmitted or distributed without prior approval of **FLYelectronics** Company. **FLYelectronics** hereby grants permission to download a copy of this manual to your hard drive or other electronic media and print it, maintaining the integrity of original content. Document contains information that can be changed without prior notice. Manufacturer reserves the rights to change or improve the product and introduce changes in manual's content without notifying outside individuals and organizations. To ensure you own the latest version of user's manual, please visit our website <http://flyelectronics.eu> and download the most recent document.

CAUTION!!!

Despite our best endeavors to make our products meet the highest quality standards, it must be noted, that it is the Pilot who bears the full responsibility for safe operation of aircraft, has complete information about weather forecasts and does not distract himself, operating **MotoMonitor**. **FLYelectronics** Company does not take the responsibility of any possible damages, caused by erroneous or lacking data from the device.

Safety of flight is a sole responsibility of the pilot, and operating **MotoMonitor** during the flight is not safe. Distracting pilot from observing current situation and weather conditions can cause accidents and damages on properties and health.

Additionally, please note we are constantly expanding our device's features, therefore description of some may be missing from this version of document. Please contact us in case of any doubts – we will clear all your doubts.

1. TABLE OF CONTENTS

<u>2.Introduction</u>	5
<u>3.Contents</u>	5
<u>4.Before first launch</u>	5
<u>5.MotoMonitor features</u>	6
<u>6.Launching the device</u>	7
<u>7.operating the device</u>	7
<u>8.Fields description</u>	8
<u>9.Device Configuration</u>	11
<u>11.1.1Adding new starting point</u>	11
<u>11.1.2Defining starting point parameters:</u>	12
<u>13.1.1General characteristics</u>	13
<u>13.1.2Graphic screen parameters</u>	13
<u>13.1.3First desktop on start (setting main screen)</u>	13
<u>13.1.4Setting desktops 1/2/3/4 (fields visible on desktops 1, 2, 3, 4)</u>	14
<u>13.1.5Name of input temperature</u>	14
<u>14.1.1Timezone (selecting current timezone)</u>	15
<u>14.1.2Include the summer time (setting daylight savings time)</u>	15
<u>14.1.3Automatic date setup using GPS signal</u>	15
<u>14.1.4Set time and date</u>	16
<u>14.1.5Set speed units</u>	16
<u>14.1.6Set altitude units</u>	16
<u>15.1.1 Alarm temp. of T1/T2/EGT/CHT (overheating alert)</u>	17
<u>15.1.2 Optimum temp. of T1/T2/EGT/CHT (optimal temperature)</u>	17
<u>15.1.3 Maximum RPM</u>	17
<u>15.1.4 Red area in RPM</u>	18
<u>15.1.5 Number of pulses per rotation</u>	18
<u>16.1.1 Back Light Power</u>	19
<u>16.1.2 Auto off time (automatic turn off after idle time)</u>	19
<u>16.1.3Fuel input settings</u>	20
<u>16.1.4Sensor characteristics</u>	20

<u>16.1.5</u> Paring with motor/transmitter.....	20
<u>16.1.6</u> Radio channel.....	21
<u>16.1.7</u> Color scheme.....	21
<u>16.1.8</u> Erase memory.....	21
<u>18.</u> Transmitter.....	23
<u>18.1</u> Connection description.....	23
<u>18.2</u> Transmitter connector:.....	24
<u>19.</u> Sensors connection.....	25
<u>24.</u> Software updates.....	29
<u>25.</u> Warranty.....	29
<u>1.2.1</u> Warranty Card.....	31

2. INTRODUCTION

Thank you for choosing **FLYelectronics** and purchasing our **MotoMonitor**. We are sure you made the right choice and will strive to convince you about it, should you still have any doubts.

Additionally, we would like to thank you on behalf of all customers – as your purchase allows us to develop this device further and add new features to it.

3. CONTENTS

Complete **MotoMonitor** set consist of:

- transmitter
- receiver
- probe connector
- charger
- micro-USB cable
- lanyard
- universal CHT probe (or one dedicated to your engine)
- universal 4mm EGT probe (or one dedicated to your engine)
- harness mount
- RPM measurement wire
- chassis ground wire
- manual/warranty card
- “quick start” guide
- transmitter protection
- Velcro



4. BEFORE FIRST LAUNCH

Before launching the device for the first time, follow below steps:

- a) Check if contents are in line with what is described in paragraph 3,
- b) Check if the warranty card is filled in,
- c) Charge the receiver,
- d) Charge the transmitter,

5. **MOTOMONITOR** FEATURES

Monitoring PPG parameters:

- RPM,
- EGT temperature (0-800°C with 1 degree accuracy),
- CHT temperature (0-800°C with 1 degree accuracy),
- Flight time,
- Total flight time,
- Fuel level (percentage or remaining, since v1.36),
- External temperature,

Extra functionalities:

- Current speed,
- Distance from starting point,
- Estimated time to return to starting point (at current speed),
- Altitude (measured by GPS and pressure sensor),
- Covered distance,
- Current direction,
- Direction to the start point or selected GPS coordinates,
- Stopwatch
- Variometer (climb/descent speed),
- Wind Direction and its indicator to the flight direction,
- Atmospheric pressure,
- Sunrise and sunset time at current coordinates,
- Start points map management using PC,
- Flight book management using PC or local www server
(online flight book available at <http://kl.4ppg.eu>),

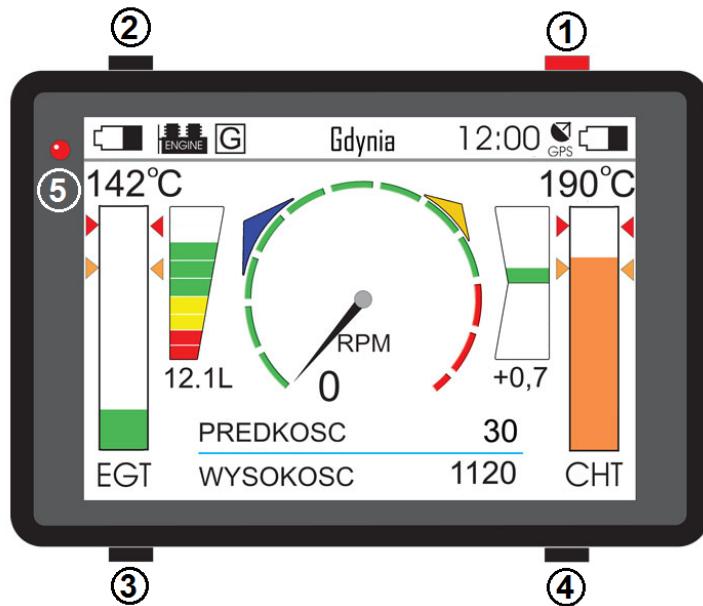
Additionally:

- Flight logbook with up to 500 logs, each flight can have starting point and wing name assigned,
- Energy saving option – device can turn off automatically after predefined time period,
- Alert in case of overheating EGT or CHT,
- Customized desktop (user can choose parameters that will be visible),

6. LAUNCHING THE DEVICE

To turn the device on, press the top right button. In the top left corner, a diode will start flashing – hold top right button pressed until the diode fades. When correctly launched, user should see the main screen.

7. OPERATING THE DEVICE



Turning on:

Press and hold button (1) until diode (5) fades.

Turning off:

When on one of main screens, press and hold button (4) until device vibrates.

When device is turned on:

Press (1) to switch to next screen

Pressing (2) switches to previous screen

Press and hold (2) to select location and start navigation

Press (3) to start/stop the stopwatch

Press and hold (3) to clear stopwatch

Press (4) to refresh the screen

Press and hold (4) to turn the device off

Press and hold both (2) and (3) to go to the settings menu.

8. FIELDS DESCRIPTION

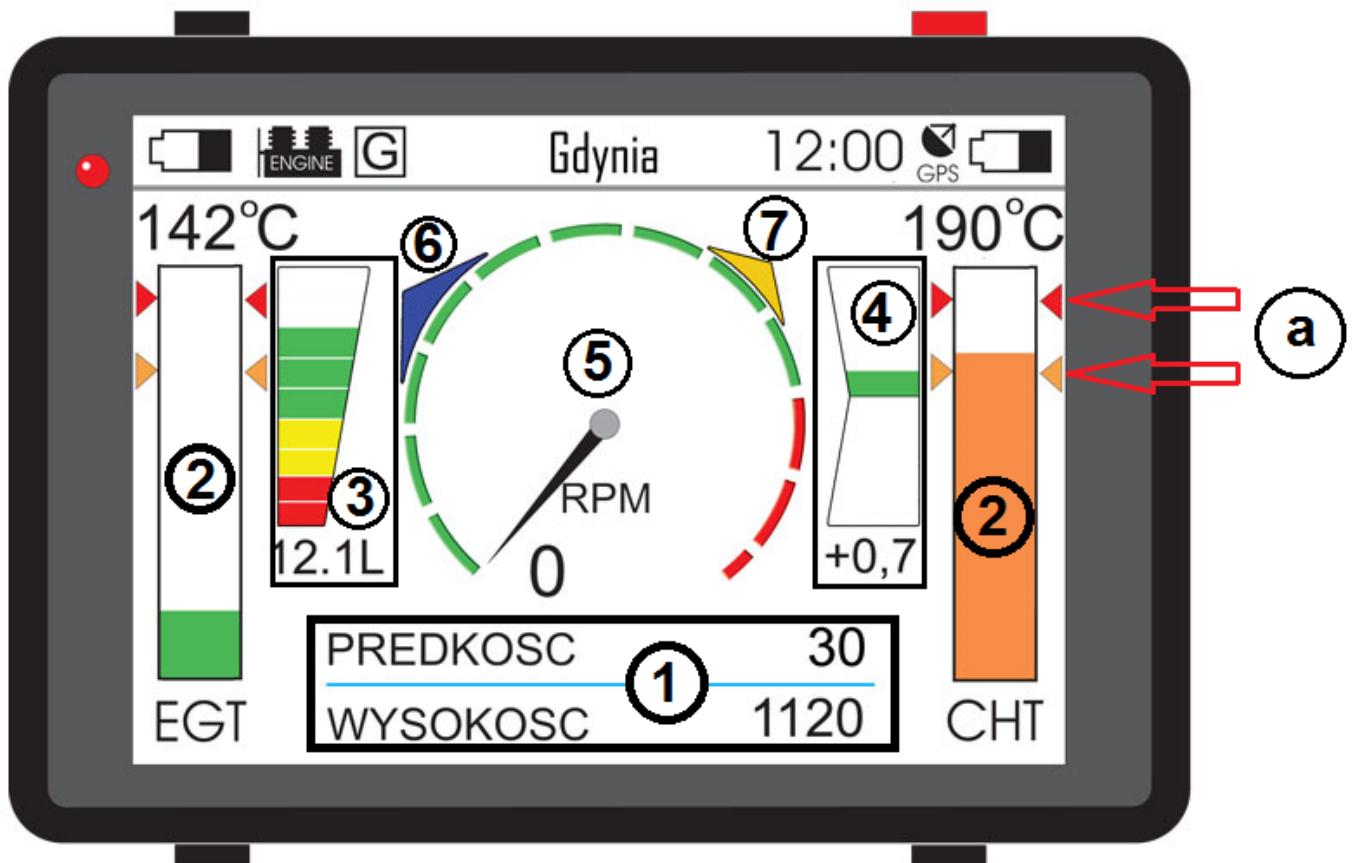
MotoMonitor has five customizable desktops, which show the flight parameters. One of the screens shows flight data graphically, while other presents text data.

There are 22 possible fields:

- "RPM:" – Revolutions per minute,
- "CHT:" – Cylinder Head Temperature (°C),
- "EGT:" – Exhaust Gas Temperature (°C),
- "DISTANCE:" – Distance covered from start, in km (0.1 km precision),
- "DURATION:" – Time of flight from starting point (HH:MM),
- "SUMMARY:" - Total time of flights (HH:MM),
- "SPEED:" – Flight speed in km/h,
- "KM TO START:" – Distance from starting point (meters),
- "KM TO SELECTED:" – Distance from selected point (meters),
- "DIR START:" – Arrow showing starting point direction,
- "RETTIME:" – Estimated return time (at current speed),
- "ALTITUDE:" – Current altitude,
- "FUEL:" – Fuel Level¹,
- "WIND SPEED:" – Speed of wind²,
- "WIND DIR:" – Current wind direction (format - N,NNE,NE,NEE,E etc.),
- "WINDIND:" - Wind indicator, shows wind direction related to flight direction (*NOTE – for this functionality to work properly, MotoMonitor must be installed straight in the flight direction*),
- "OUT TEMP:" – External temperature,
- "COURSE:" - Course,
- "STOPWATCH" – Stopwatch (press bottom left button to start and stop, hold to clear value)
- "VARIO" – Ascent/Descent speed
- "SUNRISE" – Sunrise time
- "SUNSET" – Sunset time
- "PRESSURE" – Atmospheric pressure

¹*- Fuel level can be published in two manners:
% (percentage) – if PPG is fitted with WEMA fuel sensor,
Litres - if PPG is fitted with flowmeter,

Additionaly, on graphic desktop pilot can see following parameters:



- Two predefined parameters under the tachometer (from the list above)
- Two temperatures (EGT and CHT by default)
 - Optimal temperature level (orange) and critical level (red)
 - Column color changes depending on the temperature, from green to yellow (optimal temperature) and red (critical temperature)
- Fuel level in percentage or remaining amount (depending on preselected fuel sensor) – left side of tachometer
- Variometer
- Graphic tachometer with current RPM value
- Start point direction (big blue arrow)
- Wind direction (small yellow arrow) – we still working on that :)



At the notification bar above the main screen:

Right side: 12:00  (from left to right):

Current time, set according to GPS setting

GPS connection icon

Receiver battery level

Central: Gdynia

Name of starting point (if the device detects predefined starting point – it will display its name)

Left side:    (from left to right):

Transmitter battery level

Transmitter connection icon

Current screen (G – graphic, 1 – first desktop, 2 – second desktop etc.)

9. DEVICE CONFIGURATION

To enter the "Settings" menu, press both left hand side buttons. Hold until the requested menu shows on screen. Inside menu, particular button is described in blue square next to it.

Once inside the menu, navigate using buttons by which you see labels "Next" and "Previous". To enter particular setting, place an arrow next to it, and press button labeled as "ENTER".

10. FLYING LOGBOOK

In this menu you can see the flights log book. Each log consist of following information: ordinal, flight date and time, starting point, wing shortname and duration of flight.

Total flights duration can be found in right top corner.

To navigate Flying Logbook menu:

use top left button "Next Page" to see further flights,
use bottom left button "Prev. Page" to see previous flights.

To exit Flying LogBook and return to Settings menu, press bottom right button - "Back".

11. STARTING POINTS

To navigate Starting Points menu, use Up and Down buttons.

11.1.1 Adding new starting point.

To define new starting point, navigate to position **Add New Start Point** and press ENTER.

You will be asked to assign 4 characteristics of new starting point:

- a) Name
- b) Latitude,
- c) Longitude,
- d) Starting area - radius around the given point, which will be treated as start point terrain,



It is easier to add new starting point when we are on it. If **MotoMonitor** finds GPS signal while adding new starting point, it will automatically suggest current coordinates as start point characteristics.

11.1.2 Defining starting point parameters:

Defining name:

As **MotoMonitor** does not have a keyboard, user has to use next/previous buttons to set the name. Select **Point name** option in menu and then confirm, by clicking „**Set**”.

Then you can edit the starting point name. The letter you are currently editing is flashing.

You can select letters (a-z) and digits (0-9) by pushing buttons:

- top left (Change -) to go down the alphabet/digits,
- bottom left (Change +) to go up the alphabet/digits,
- top right (Next Char.): to switch to next character in start point name or save the name,
- bottom right (Back): to switch to previous character in the name or cancel the name editing (when we are at first character),

Once the name is confirmed, we can edit other characteristics:

- Latitude,
- Longitude,
- Area - radius around current starting point - between 500 and 5000 meters.

You can define up to 25 starting points.

To exit the menu, press bottom right button - Back.

12. WING NAME SHORTCUT

In this menu we can submit our wing short name with a restriction to 5 characters.

To set the name, use following buttons:

- top left (Change -) to go down the alphabet/digits,
- bottom left (Change +) to go up the alphabet/digits,
- top right (Next Char.): to switch to next character in start point name or save the name,
- bottom right (Back): to switch to previous character in the name or cancel the name editing (when we are at first character),

Once all characters are set, top right button will change it's label to "Save". Press this button to confirm the name and go back to main menu.

First letter of the name is always capital.

13. DESKTOPS

13.1.1 General characteristics

Device has 3 editable text desktops, allowing the pilot to see 6 flight characteristics on each of them. Besides, there is one, non customizable graphic desktop.

To navigate Desktops menu:

Top left button- Next - goes down the menu
Bottom left button- Previous - goes up the menu
Top right button- Set - confirms the choice
Bottom right button- Back - leaves Desktops menu

13.1.2 Graphic screen parameters

You can setup 2 parameters to be shown on main graphic screen of the device. Press **Change+** or **Change-** buttons to browse first parameter you want to show. After that, click **Next** and select second parameter. To confirm, click **Save**. To leave without saving changes, press **Back** until you leave this menu.

13.1.3 First desktop on start (setting main screen)

Pilot can define, which of the desktops should be presented, when **MotoMonitor** is turned on.

Navigation:

- **Next** (top left) – select next desktop,
- **Previous** (bottom left) – select previous desktop,
- **Save** (top right) – confirm choice,
- **Back** (bottom right) – cancel edition,

Possible options:

- 0 – main screen is graphic desktop,
- 1 – main screen is text desktop number 1,
- 2 – main screen is text desktop number 2,
- 3 – main screen is text desktop number 3,
- 4 – main screen is text desktop number 4,

13.1.4 Setting desktops 1/2/3/4 (fields visible on desktops 1, 2, 3, 4)

In this setting you can define fields that will be visible on **MotoMonitor** text desktops. You can change position of given fields on each screen.

Each desktop can contain up to 6 information set in table (2 rows, 3 columns), as per below schema:

first-left	first-right
second-left	second-right
third-left	third-right

Use below fields to edit positions:

- **Change+** (top left) and **Change-** (bottom left) – change the field displayed on given position,
- **Next Pos.** (top right) and **Back** (bottom right) – go to another position/desktop,

User should navigate through the table using right hand side buttons to reach the position that is about to be changed. Then, use left hand side buttons to find the field that suits in particular place on desktop.

To save settings, press button labeled as **Save**. In case the changes should be cancelled, move back to the first position on the screen and press bottom right button - **Back**.

13.1.5 Name of input temperature

To help personalizing the device for each individual, default names of temperature fields (T1, T2) can be replaced with logical names - CHT, EGT. User can choose one of following options:

T1=T1,T2=T2 – default temperature names,

T1=EGT,T2=CHT – Temperature T1 will be labeled as EGT,
Temperature T2 will be labeled as CHT,

T1=CHT,T2=EGT – Temperature T1 will be labeled as CHT,
Temperature T2 will be labeled as EGT,

Use following buttons:

Next (top left) – next option,
Previous (bottom left) – previous option,
Save (top right) – save settings,
Back (bottom right) – exit,

14. TIME AND DATE, UNITS

Use left hand side buttons (Next/Previous) to navigate in the menu. Confirm selection with top right button - Set, use bottom right button Back to exit the menu.

14.1.1 Timezone (selecting current timezone)

Using top left button (+1) we add hours to adjust the device to our timezone. Bottom left button (-1) is used to deduct the hours. To confirm the changes - press top right button (Save), to cancel - bottom right button (Back).

14.1.2 Include the summer time (setting daylight savings time)

Following correct timezone setting, we can choose if our device should take into account daylight saving time changes, happening twice a year in most countries.

Navigate using keys:

Yes (top left) – turn DST on,
No (bottom left) – turn DST off,
Save (top right) – save current status,
Back (bottom right) – cancel changes and exit,

14.1.3 Automatic date setup using GPS signal

We can set **MotoMonitor** to use current date automatically, using GPS signal.

Use following keys :

Yes (top left) – turn automatic time setting on,
No (bottom left) – turn automatic time setting off,
Save (top right) – save current status,
Back (bottom right) – cancel changes and exit,

14.1.4 Set time and date

This setting allow user to manually set the date and current time.

When entered, we have to set up:

Set hour
Set minutes
Set day
Set month
Set year

To navigate between above values, use right hand side buttons (top for Next and bottom for Back).

When editing the year, top right button will change from **Next** to **Save**. This allows user to save current progress and setup date/time.

14.1.5 Set speed units

This setting allows you to set the speed unit. All parameters linked with speed will be displayed in one of following units:

- km/h (kilometers per hour)
- mph (miles per hour)
- knots

14.1.6 Set altitude units

This setting allows you to set the altitude unit. All parameters linked with altitude will be displayed in one of following units:

- m – meters
- FT – feet

15. MOTOR VALUES

Use left hand side buttons to navigate the menu - top left (Next position) and bottom left (Previous position). Confirm selection by clicking top right button (Set). To leave Motor Values menu, press bottom right button - Back.

15.1.1 *Alarm temp. of T1/T2/EGT/CHT (overheating alert)*

This setting defines maximum temperature for T1/T2 probe, over which the device will alert the pilot.

Use following buttons inside this setting:

+1/+10 (top left) – short pressing will add 1 grade Celsius to the limit value, press and hold to add 10 grades,

-1/-10 (bottom left) – analogically - short pressing will deduct 1 grade Celsius from the limit value, press and hold to deduct 10 grades at once,

Save (top right) – save settings,

Back (bottom right) – cancel changes and exit setup,

15.1.2 *Optimum temp. of T1/T2/EGT/CHT (optimal temperature)*

This setting allows user to set optimal value for T1/T2 input temperature. Optimal value is used as a reference on graphic desktop's bar chart, where temperatures below optimal value are colored green. Above it, change color to yellow and (in case of serious overheating over the predefined critical temperature) to red.

Use following buttons inside this setting:

+1/+10 (top left) – short pressing will add 1 grade Celsius to the limit value, press and hold to add 10 grades,

-1/-10 (bottom left) – analogically - short pressing will deduct 1 grade Celsius from the limit value, press and hold to deduct 10 grades at once,

Save (top right) – save settings,

Back (bottom right) – cancel changes and exit setup,

15.1.3 *Maximum RPM*

User can define maximum revolutions per minute value. This value is needed to correctly calibrate the graphic tachometer on main desktop.

Use following buttons to set up maximum value:

+500 (top left) – add 500 RPM to the value,

-500 (bottom left) – deduct 500 RPM from the value,

Save (top right) – save the settings,
Back (bottom right) – exit without saving,

15.1.4 Red area in RPM

Another setting needed to calibrate graphic screen's tachometer. This value defines start point of the "red area" on screen.

Use following buttons to set up beginning of red area:
+500 (top left) – add 500 RPM to the value,
-500 (bottom left) – deduct 500 RPM from the value,
Save (top right) – save the settings,
Back (bottom right) – exit without saving,

15.1.5 Number of pulses per rotation

This setting defines a number of ignition pulses occurring during one rotation of a crankshaft.

Changes to this setting can be applied using following buttons:
+1 (top left) – add 1 impulse,
-1 (bottom left) – deduct 1 impulse,
Save (top right) – save the value,
Back (bottom right) – exit without saving,

16. SYSTEM

Use left hand side buttons (Next/Previous) to navigate this menu. To enter a particular setting, press top right button (Set). To leave the menu, press bottom right button (Back).

16.1.1 *Back Light Power*

Select from 5 levels of backlight power:

Use following buttons to change backlight:

+1 (top left) – increase backlight,
-1 (bottom left) – decrease backlight,
Save (top right) – save setting,
Back (bottom right) – exit without saving,



Operating time of the receiver's battery depends largely from the backlight power.

16.1.2 *Auto off time (automatic turn off after idle time)*

To protect **MotoMonitor** from accidental battery draining, the device has been fitted with automatic turn off mechanism after given amount of minutes of idle time.

Automatic turn off will happen, when:

- Receiver is disconnected from transmitter,
- None of the buttons have been pressed for a given amount of time,

The device will warn the pilot about being idle 30 seconds before planned turn off. To cancel the switch off, press any key.

Use following keys to define idle time:

+1 (top left) – increase idle time span for 1 minute,
-1 (bottom left) – decrease idle time span for 1 minute,
Save (top right) – save settings,
Back (bottom right) – exit without saving,

16.1.3 Fuel input settings

User can configure type of fuel sensor, connected to the device.

One of following options can be chosen:

OFF – no fuel sensor,

Flow Meter – flowmeter (additionally, when this option is chosen user should define amount of fuel measured by one impulse of flowmeter),

FEFS percentage – non-invasive fuel sensor introduced by **FLYelectronics**, shows percentage of remaining fuel

FEFS litres - non-invasive fuel sensor introduced by **FLYelectronics**, shows amount of remaining fuel in litres

Reserve sensor – bistable sensor – informs when the fuel crosses reserve level

WEMA 240-30 Ohm – floating fuel sensor (resistance 240-30 Ohm)

240-30 Ohm – other floating fuel sensors on given resistance,

To choose right option, use the keys:

Change+ (top left) – select next option,

Change- (bottom left) – select previous option,

Save (top right) – save settings,

Back (bottom right) – exit without saving,

16.1.4 Sensor characteristics

For the fuel sensor to be able to show correct amount in litres, you need to calibrate it first. Every tank can have a different form – you should inform the device, how many litres remain in the tank at 10%, 20% level etc.

16.1.5 Paring with motor/transmitter

When user purchases full set of MotoMoniotor device (transmitter + receiver), they are paired by default. However, in case user had purchased " **MotoMonitor Ready**" PPG and bought receiver from **FLYelectronics**, he has to pair the devices on his own.

To do this, go to "Pairing with motor" setting and press top right button - Start.

Device will start polling for the transmitter signal. At this moment, user should click and hold transmitter button until transmitter diode starts flashing.

After a short while, pairing sequence should be finished with success. User will be informed about successful pairing by on screen communicate **Pairing done**.

In case of failure, **MotoMonitor** will display warning:

Pairing failed – try again

In such case, user should start the pairing sequence once again.

16.1.6 Radio channel

MotoMonitor software allows multiple sets (transmitter + receiver) connecting to each other, at the same time and in the same area. However, in case of reaching the area with high level of signal disturbances (transmitter - receiver connection breaks very often), user can change working radio frequency.

Use following buttons to amend the frequency:

+1 (top left) – increase channel by 1,
-1 (bottom left) – decrease channel by 1,
Save (top right) – save settings,
Back (bottom right) – exit without saving,

IMPORTANT NOTE !

After changing the receiver's channel - it is required to reconnect (pair) receiver with transmitter once again.

It is recommended to use different channels, when there are many devices working in the same area.

16.1.7 Color scheme

To personalize **MotoMonitor**, manufacturer allows pilot to change the interface layout.

To change the color scheme, use buttons:

Previous (top left) – go to next color scheme,
Next (bottom left) – go to previous color scheme,
Save (top right) – save selected scheme,
Back (bottom right) – exit without saving,

16.1.8 Erase memory

To revert the device to default settings, it is possible to format **MotoMonitor** memory.

User should enter **Erase memory** setting and press button:

Yes (top left) – and then accept the choice by pressing
Save (top right).

To exit this menu without making any changes, press **Back**

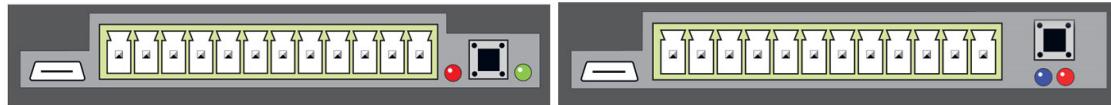
17. INFO

This menu consist of several parameters, such as:

- **Serial number,**
- **Hardware version,**
- **Software version,**
- **Battery voltage,**
- **Remote battery voltage,**
- **Maximum temperatures during last flight,**
- **Total flight time,**

18. TRANSMITTER

18.1 CONNECTION DESCRIPTION



Transmitter 1.0

Transmitter 1.1

Elements seen above (from left to right):

- microUSB plug to charge the connector Li-Ion battery,
- plugs to connect peripherals and sensors,
- switch/pairing button – device will automatically turn on when RPM are detected. If you want to turn it on while motor is off – use this button,
- information diodes

LED behavior:

	Transmitter 1.0	Transmitter 1.1
Red diode	Short flashes – charging (while device is on)	Short flashes – connecting with receiver
Green diode	Short flashes – connecting with receiver	Not available
Blue diode	Not available	Short flashes – charging (while device is on)

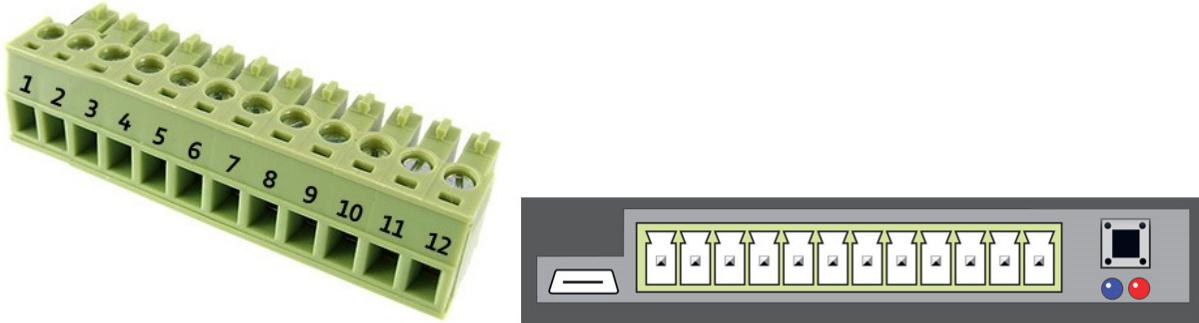
Both LEDs turned on is a sign of breakdown on the wire.

Should this ever happen – in case of version 1.0 you have to wait until battery wears off. If you have version 1.1, you can restart it by pressing restart button – in the rear left corner of the transmitter (by USB plug).

Charging can also be performed when device is turned off.

The transmitter should be mounted – connector to ground.

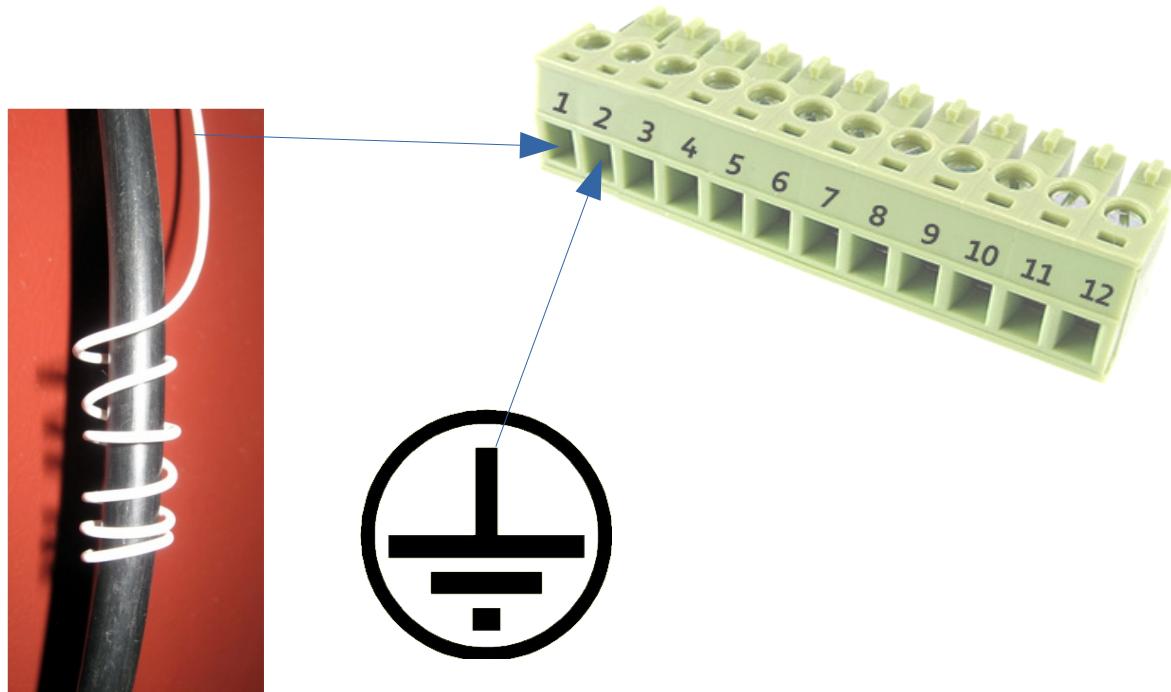
18.2 TRANSMITTER CONNECTOR:



Number	Functionality
1	Encoder input (RPM measurement)
2	PPG Ground
3	Power/charger input +12/+24V
4	Optional - LED- output
5	Optional - LED+ output or Fuel Sensor charge
6	Fuel sensor input
7	Fuel sensor ground
8	Unused
9	T1- input
10	T1+ input
11	T2- input
12	T2+ input

19. SENSORS CONNECTION

19.1 RPM SENSOR



RPM sensor does not require interference in PPG electrical system. For the device to work properly, user should wind a piece of isolated copper cable on PPG high-voltage cable, as shown above. The amount of rolls depends on individual PPG, but normally it is between 2 and 10. It is wise to isolate the coil, so that it does not unroll due to vibration. Then, connect the coil to first pin of connector.

It is also useful to connect PPG Ground (not frame ground) to pin number 2.



Please perform some tests in order to correctly choose the amount of rolls. We suggest use 4 first, and check if the device picks up RPMs. If the RPM is not picked up (or picked up on higher values only) – add one more roll.

In order for the device to work properly and pick up RPM, you need to use spark plug with resistor.

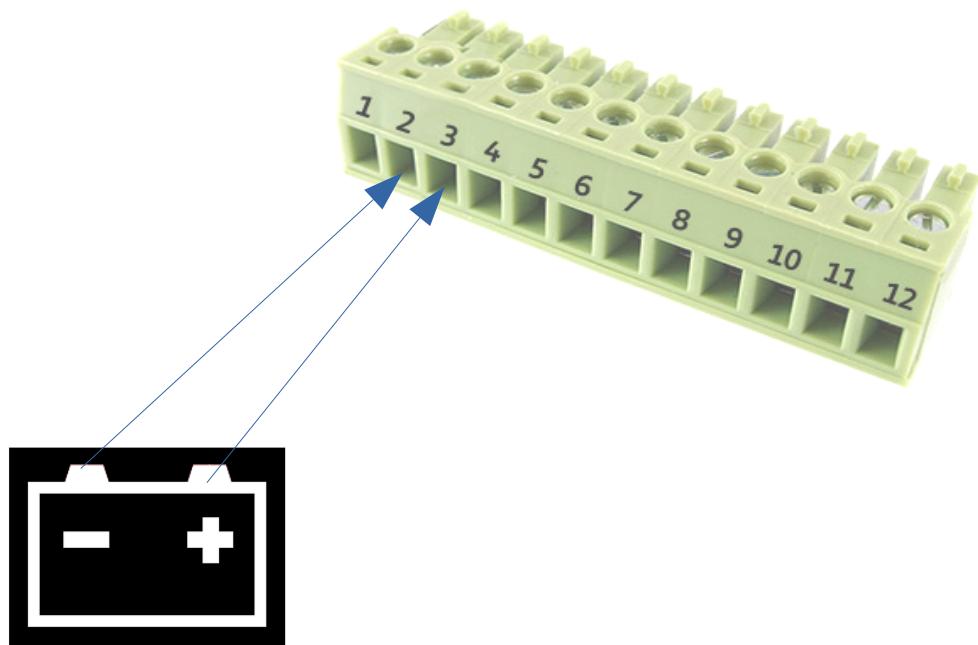
In case of intermittent connection between transmitter and receiver, you should change your spark plug to new one. Faulty resistor causes worse burning rate – it is not noticeable by user, but causes strong electromagnetic noise around the wire.

20. CONNECTING EXTERNAL POWER SUPPLY +12V

Transmitter can be easily charged by built in micro USB connector or by pin 3 in the transmitter connector.

If PPG is fitted with 12V power supply, it can be used to charge the device. Then, **MotoMonitor** becomes totally maintenance-free and user does not have to disconnect it from the PPG for charging.

Please see below connection scheme for built-in power supply:

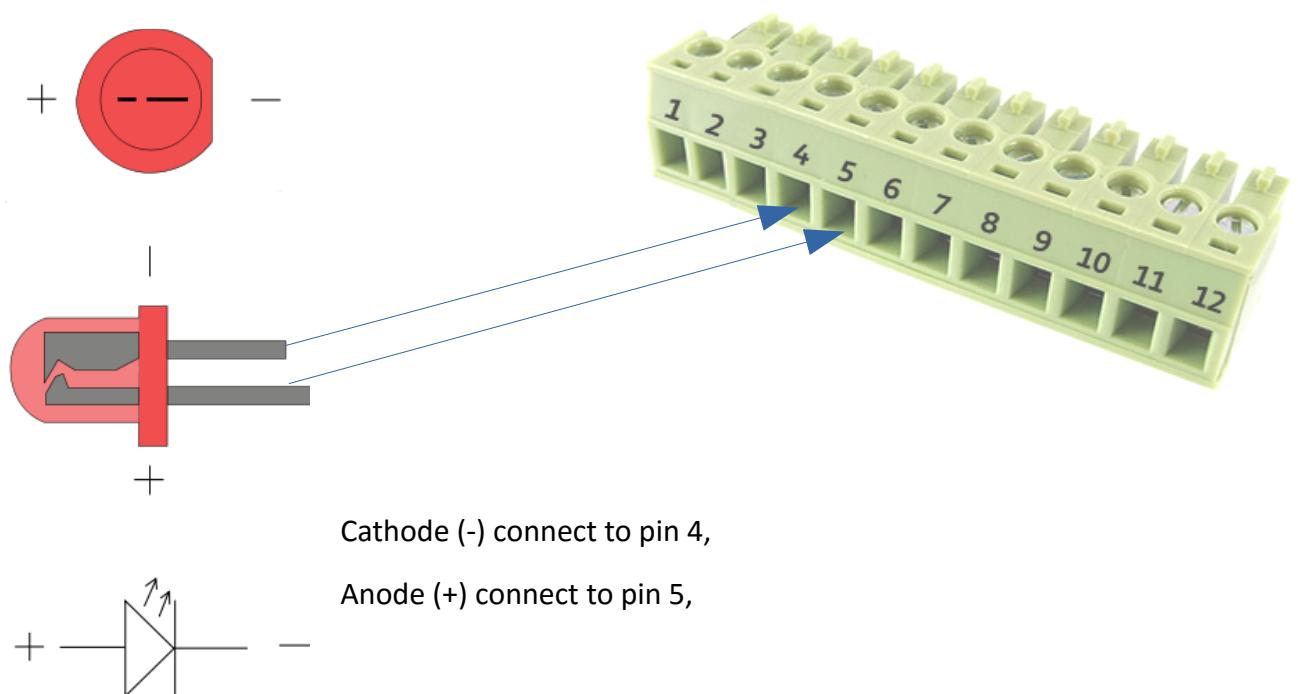


Connect battery's "+" with pin 3 and "-" with pin 2.

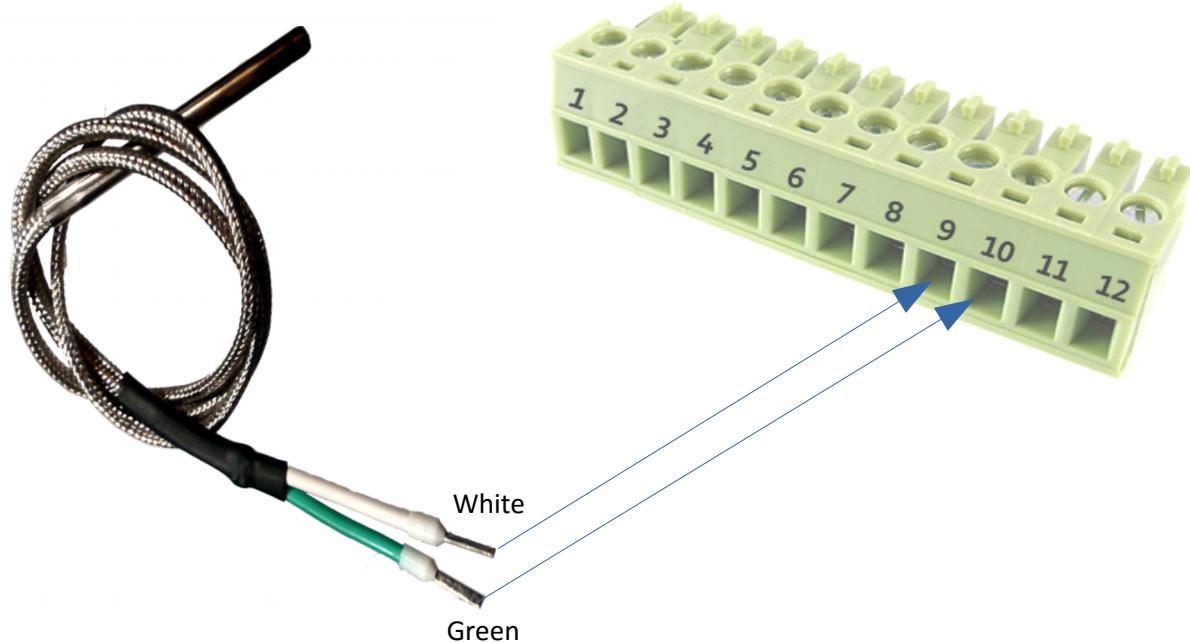
21. CONNECTING OPTIONAL LED DIODE

Transmitter can operate an additional alerting diode. It gives the user additional alerting source for overheating the motor. Nevertheless, transmitter alarms the user about overheating even without the presence of a receiver.

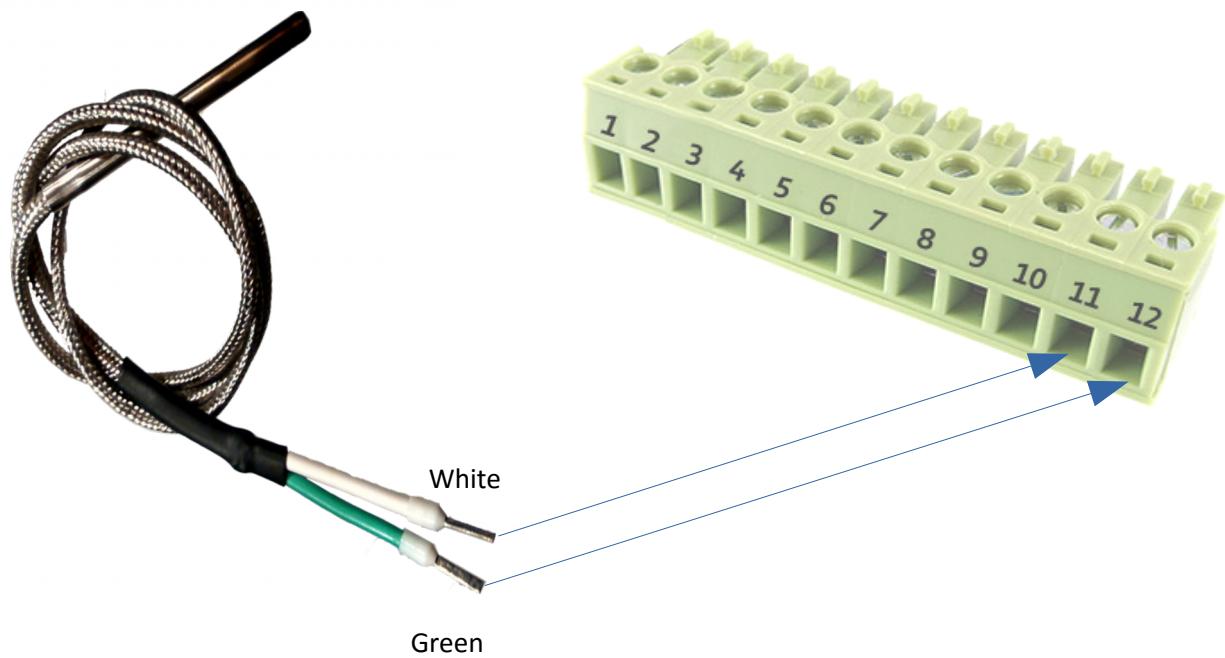
Please see below connection scheme for additional LED diode.



22. CONNECTING T1 SENSOR (EG. EGT)



23. CONNECTING T2 SENSOR (EG. CHT)



24. SOFTWARE UPDATES

To update the device's software, follow below steps:

- a) Connect switched off receiver to the PC using micro USB cable,
- b) Run updating software,
- c) Select Tools --> Firmware update,
- d) Browse for a new firmware file,
- e) New window will appear „Device's firmware will get updated with file”
- f) Press and hold (device should remain switched off) top left and then top right button,
- g) Hold the buttons and wait for the operating system to install the device (should last about 30 seconds when we connect the device to PC for first time). In case we already had connected the device to PC, waiting is not required,
- h) Select **YES** in the window „Device's firmware will get updated with file”,
- i) Wait (approx 60 seconds) for installing new software and communicate, that it was finished with success,
- j) Disconnect the device from PC and enjoy new functionalities ☺

25. WARRANTY³

26. WARRANTY PERIOD

Warranty period starts on the date of sale. Bill issued by the retailer and warranty card are the only proofs of purchase.

Warranty periods differ for particular products:

- a) 12 (twelve) months for **MotoMonitor** Transmitter and **MotoMonitor** Receiver
- b) 6 (six) months for following parts and accessories: batteries, chargers, sensors (CHT, EGT)

To the extent permitted by the national laws, the warranty period shall not be extended or renewed or otherwise affected due to subsequent resale, repair or replacement of the Product.

1.1 WHAT DOES THE WARRANTY NOT COVER

Warranty covers only manufacturing defects of the device. It does not cover additional accessories like cord, stand etc.

Warranty does not cover damage caused by rough handling and misusing the product. It does not cover damage caused by random events (e.g. flood, fire, overvoltage).

³Please note Polish text of warranty should prevail over any translation

Pixel defects, that are within the scope of industry standards, are also not covered by **FLYelectronics** warranty.

This warranty becomes invalid in case **MotoMonitor** has been opened, modified or repaired by third party outside manufacturer. **FLYelectronics** is the only authorized party to interfere in the product's setting and inside.

1.2 SERVICE

For the complaint to be handled correctly by our customer support, buyer should make sure below conditions are met:

- fill a complaint order, including: product name, serial number, purchase date, warranty card number, detailed description of the issue including additional information about the source of the problem (if known). Order form can be found on our webpage www.flyelectronics.eu or in our office.
- deliver original invoice,
- deliver the product with above mentioned documents to the manufacturer. Correct address can be found on www.flyelectronics.eu in Contact section, labeled as Shipping Address,

Any defect should be immediately raised with manufacturer. The delay between noticing a defect and informing **FLYelectronics** should not be longer than 14 days.

Once a buyer notices an issue with the product he purchased, he shall immediately stop using it. Otherwise, the warranty can be lost.

Any cost and risk of correct shipping the product to manufacturer shall be borne by the purchaser of the product. If the problem is confirmed, the device shall be amended/replaced immediately and sent back to the buyer. Cost of sending amended/replaced device back to the purchaser is borne by manufacturer. If the complaint is invalid, the device is sent back to the buyer at his cost.

Products sent to the manufacturer without prior notification and confirmation will not be accepted. They can be accepted exceptionally with a restriction, that the service procedure should not commence, until adequate documentation is provided.

Product that is subject of a complaint should be packed and secured properly for the transport. The buyer bears all the risk of any damage in the transport process. Manufacturer does not agree to bear responsibility for damages during transport.



It is the manufacturer's decision to confirm or reject buyer's complaint. Manufacturer also decides about the means taken to fulfill client's request - either to amend or replace the device.

Any damaged products that were subject of complaint, replaced by manufacturer - become the property of **FLYelectronics**.

FLYelectronics grants all rights to charge the buyer with additional costs of examining the subject of complaint. Such steps can be taken only in case the device turns out to be fully operational, or the damage is not covered by the warranty.

1.2.1 Warranty Card

Seller stamp and signature:	Date of sale and serial number
-----------------------------	--------------------------------

