FLYBOX

INNOVATIVE AVIONICS

My-EMS

Engine Monitoring System

Installation Manual

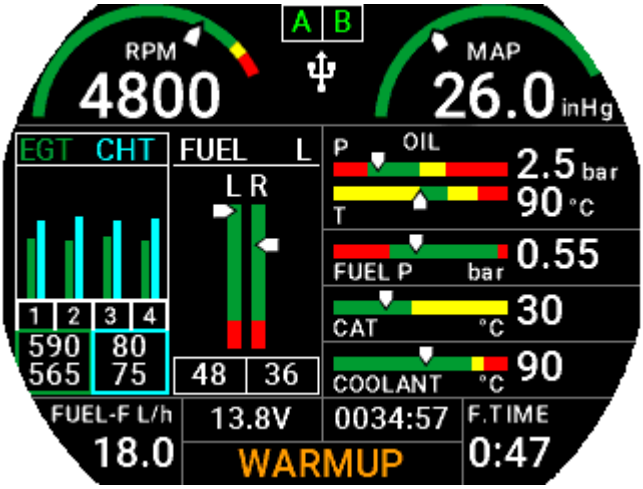
Installation Manual, Safety Instructions and Warning Booklet

This product is not TSO'd and cannot be installed into traditional FAA Part 23 and similarly Type-Certificate Aircraft

Document I2024MYEMS
Revision#1.1, 04/2024
For firmware version 1.0.0

This booklet is suitable for printing in A5 format.

Example of available screen



Thank you for purchasing a Flybox® **My-EMS** instrument.

Our intention in developing the **My-EMS** was to create a product that is light and compact, powerful and easy to use.

The **My-EMS** is equipped with a state-of-the-art highly visible display and a powerful 32-bit microcontroller.
The owner has the option of keeping the instrument software up-to-date by downloading the latest revision available on www.flyboxavionics.it and installing it via a USB pen drive.

We are confident that our products will be satisfactory and make your flying experience enjoyable.

Symbols used in the User Manual

NOTE: Used to highlight important information.

CAUTION: Used to warn the user, it indicates a potentially hazardous situation or improper use of the product.

WARNING: Used to indicate a dangerous situation that can cause personal injury or death if the instruction is disregarded.

FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH.

WARNING: These instructions must be read and respected by installers, and retained for ready reference. The installer must read, understand (or be explained) and heed all instructions and warnings supplied with this product and with those products intended for use in association with it. Always keep a copy of the Installation and User Manual, Safety Instructions and Warning Booklet on the aircraft. In case of change of ownership, the Installation and User Manual, Safety Instructions and Warning Booklet must be delivered together with all of the other papers.

WARNING: Read the Installation and User Manual, Safety Instructions and Warning Booklet before installing the device in the aircraft and follow the procedure described therein.

WARNING: This device is intended to be installed on NON-TYPE CERTIFIED AIRCRAFT ONLY, as it does NOT require any air operator's certificate. Refer to your national aviation authorities to check if this device can be installed on your aircraft.

WARNING: It is the owner's responsibility to test this device before operating the aircraft and to make sure nobody is using it unless properly instructed and authorized to do so.

WARNING: Once the installation process is completed, it is extremely important to test the device before taking off to make sure it works properly. Therefore, we strongly suggest to double check all of the electronic instruments available on the aircraft and to turn them on to verify they function correctly.

WARNING: This device is operated through a software which from time to time can be updated and/or subject to change. Please, always refer to the Installation and User Manual, Safety Instructions and Warning Booklet for the last updated version of the software available on www.flyboxavionics.it

WARNING: It is the responsibility of the installer to properly install the device on the aircraft. In case of calibration, or any technical or functional customization of the device, the responsibility lies with the individual who carried out such operation.

WARNING: If this product is not used correctly, or it is subjected to additions or alterations, the effectiveness of this device may be considerably reduced.

WARNING: Alterations, additions, or repairs not performed by the instrument manufacturer or by a person or organization authorized by the manufacturer shall negate any warranty.

WARNING: The unit isn't waterproof. Serious damage could occur if the unit is exposed to water or spray jets.

WARNING: My-EMS must be turned off in case of start with booster. Open the corresponding breaker before starting. Warranty shall not apply for damage to the instrument for this reason.

NOTE: The consumer decides of his own free will if the purchased product is suitable and safe for his need. If the consumer does not agree with the notices contained in this Installation and user Manual, Safety Instructions and Warning Booklet, do not install this instrument in his aircraft.

NOTE: Flybox Avionics reserves the right to change or improve its products as well as terms, conditions, and notices under which their products are offered without prior notice.

NOTE: The Installation and User Manual, Safety Instructions and Warning Booklet will be updated annually if needed.

All changes or updates will be published on our website www.flyboxavionics.com in the "support" section.

NOTE: Check the website www.flyboxavionics.it periodically for software and manual updates.

NOTE: For some products, registration may be required to receive important news or information on available firmware updates or to receive security information.

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1.0 System Overview

CONSTRUCTION FEATURES

The **My-EMS** front panel is built from solid aluminum alloy, CNC milled and powder coated to last a long time over the years always showing a new appearance. The other parts of the housing are made of corrosion-protected aluminium.

ELECTRONICS

The **My-EMS** use a powerful 32 bit microcontroller to ensure reliability and accuracy over time. Thanks to its feature, it can interface with all types of latest-generation engines.

ERGONOMICS

- Large 3.5 inch TFT display, 320x240 Pixels, 1000 nits, antiglare surface, sunlight readable, wide temperature range.
- A high quality knob encoder with push button for easy access to all features.
- Automatic backlight dimming function thanks to external light sensor.

EASY SOFTWARE UPDATE

The user can download any new firmware, when available from Flybox website, connect a USB pen drive to the instrument and freely update it with the last features.

EASY DATALOG SAVING

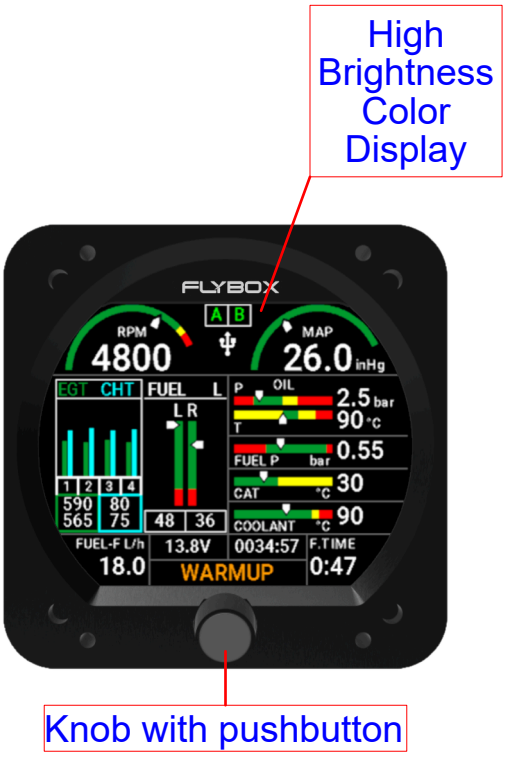
Easy logging of the data for debug purpose. If needed, the **My-EMS** unit can save the last 100 hours of the flight log on the internal memory, easely exportable to an USB pen drive. The user can then send the log via e-mail to the installer for a help/support request.

ABOUT SAFETY

My-EMS has been designed with safety in mind. Thanks to the processor's calculation speed, the user is quickly alerted in the event of engine faults.

NOTE: for easy access to the USB port, it is recommended to install a USB extension cable in the **My-EMS** instrument and store the free connection in an easily accessible part of the dashboard. It is not recommended to use extension cables longer than 50 CM.

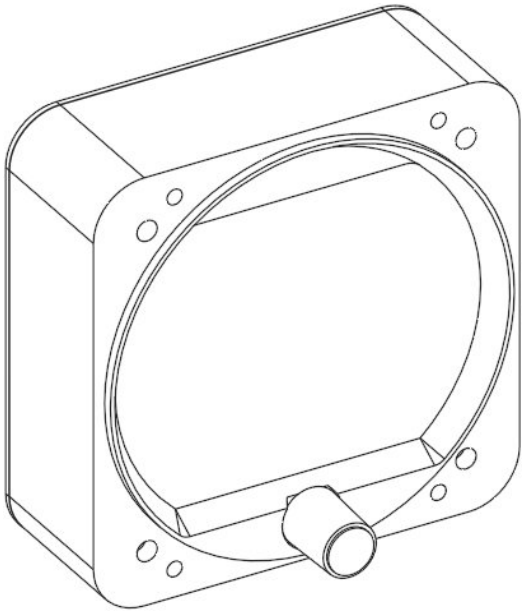
2.0 Panel Indicators & Commands

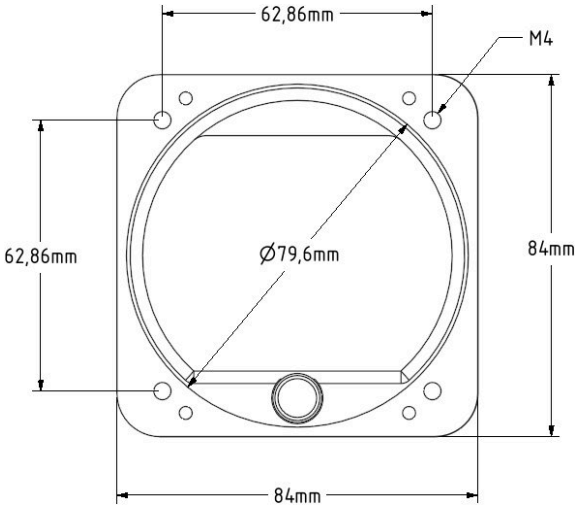


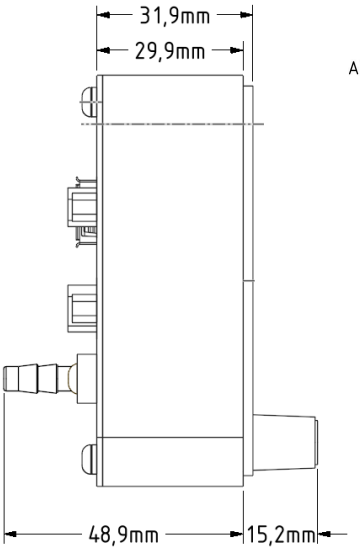
3.0 My-EMS Mechanical Installation

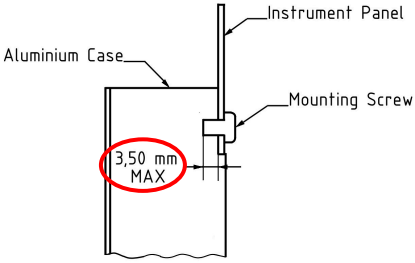
It's recommended to choose a position that permits optimal display visibility. The instrument is supplied with four M4X6mm screws to install it to the panel, if you use other screws consider that **the maximum thread length inside the instrument body is 3.5mm.**

Screws longer than 6 mm will damage the instrument and void the warranty.




62,86mm
M4
62,86mm
Ø79,6mm
84mm
84mm


31,9mm
29,9mm
48,9mm
15,2mm


Instrument Panel
Aluminium Case
Mounting Screw
3,50 mm
MAX

3.1 Panel Cut-Out

The **My-EMS** instrument fits in a standard 3 1/8” (80 mm) panel cutout.

NOTE: For an installation without interference, consider making a hole of at least 80.5 mm diameter.

4.0 Electrical Installation

POWER SPECIFICATIONS

My-EMS is capable of operating at either 14 or 28 VDC. On the following table are listed the power requirements for My-EMS; the specified current draw is measured with the My-EMS display backlight set to maximum brightness and without any sensor attached.

Power Supply	My-EMS
14 V	150 mA 2.1 W
28 V	80 mA 2.24 W

CAUTION: Voltage peaks on the supply line that exceeds the operating limits can damage the device.

General wiring hints:

- It is recommended that My-EMS be installed prior to constructing the wiring harnesses and cables.
- Use aeronautic cable for the wiring.
- Take care to properly insulate any exposed wire to avoid short circuits between them.
- All cable routing should be kept as short and as direct as possible.

● Do not solder thermocouple wires terminations. If it is necessary to split in separable harnesses the thermocouples connections, you must use proper cables and connectors, available also from Flybox® (see chap.5.11 for further details).

● Check that there is ample space for the cabling and mating connectors.

● Avoid sharp bends in cabling.

● Avoid routing near aircraft control cables.

● Avoid routing cables near heat sources, RF sources, EMI interference sources, power sources and close to or parallel to spark plug cables

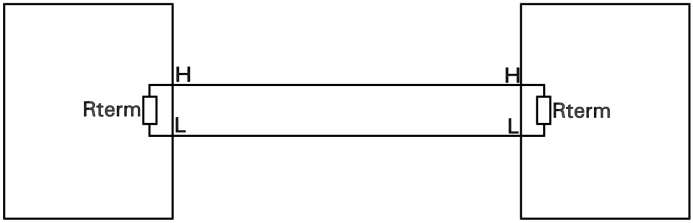
The installer shall supply and fabricate all of the cabes, unless a pre-wired cable has been ordered.
If no pre-wired cable has been ordered, the required connectors and associated crimp contacts are supplied with the optional My-EMS connector kit.
Contacts for the connectors must be crimped onto the individual wire of the wiring harness.

CAUTION: To avoid damage to the My-EMS take precautions to prevent Electro-Static Discharge (ESD) when handling connectors and associated wiring. ESD damage can be prevented by touching an object that is on the same electrical potential as the My-EMS before handling it.

CAUTION: Check wiring connections for errors before connecting any wiring harnesses. Incorrect wiring could cause internal component damage.

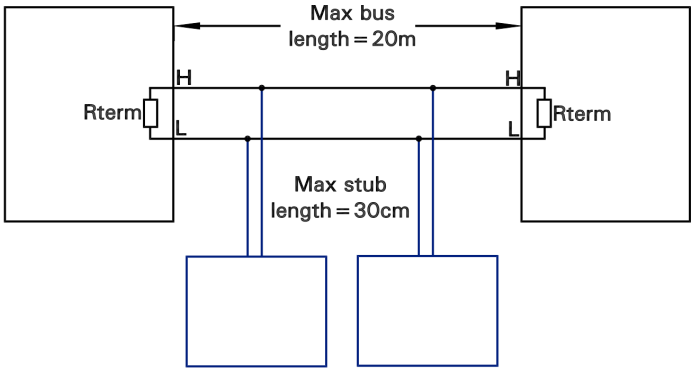
CAN-BUS INFORMATIONS

My-EMS has CAN bus (Controller Area Network) interfaces.
The basic electrical architecture of a CAN bus consists of a single twisted or shielded wire pair with a device connected at each end. Each end must be terminated with a 120 ohm resistor, that in the case of My-EMS is integrated inside the instruments so that the installer should simply connect together two pin on the connector to perform the required terminations.
The maximum length from end to end of the CAN bus is 20 meters.



Basic CAN bus architecture

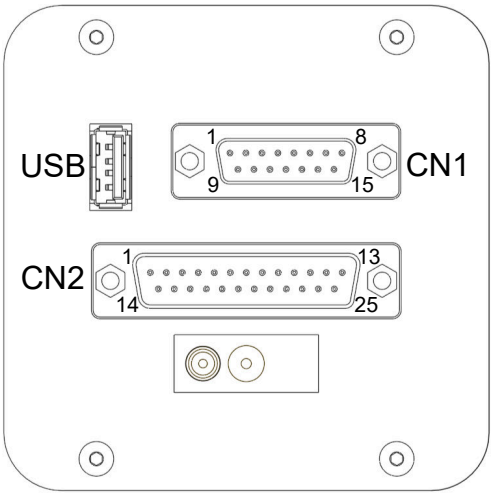
Other devices can be connected to the bus through short stub (also called “node”) connections. This device must not terminated with the resistor and the maximum length should not exceed 30cm.
One stub or node must serve to connect only one device; multiple devices must be connected to the bus in a daisy-chain configuration as in this examples picture:



CAN bus node connections

The wiring for the CAN bus connections can be twisted pair or shielded twisted-pair. We recommend the use of shielded wires for better performance, connecting the shield to the ground of both devices on the terminated ends of the bus. It’s important also that all the devices connected to a CAN bus share the same power ground reference. This means that the power ground of the various devices must be connected to a single ground point (do not use aircraft structure as a power ground).

4.1 My-EMS Electrical Installation

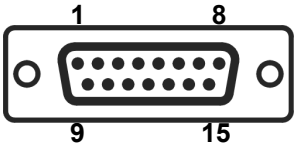


Rear view

The required connectors and terminals are supplied with the optional My-EMS connector kit:

D-Sub 15 solder terminals female connector
D-Sub 25 crimp terminals female connector
D-Sub female crimp terminals
D-Sub 15 pole cap
D-Sub 25 pole cap

4.1.1 CN1 15 Pole Connector



D-Sub 15 pin Plug Connector.
View from wires insertion side.

PIN #	Type	Description	Note
1	In	+Positive Main supply	Max 10-30 VDC
2	I/O	CAN 1 H	ECU Lane-A
3	-	CAN 1 termination	
4	I/O	CAN 2 H	ECU Lane-B
5	-	CAN 2 termination	
6	Out	NPN open collector Out	Max 300 mA (Not protected)
7	In	External switch	
8	-	Not Used / Reserved	
9	In	GND Main supply	
10	I/O	CAN 1 L	ECU Lane-A
11	-	CAN 1 termination	
12	I/O	CAN 2 L	ECU Lane-B
13	-	CAN 2 termination	
14	In	GPS Input	
15	In	RPM signal input	Rotax 912/914 5-100 Vpp Min 300 uS

Signals explanation

● **Power supply (PIN#1-9):**
The My-EMS is capable of operating at either 14 or 28 VDC, AWG22 wire is enough. It's recommended to insert a 1A circuit breaker on the positive wire that supply My-EMS.
To avoid errors in the measurements it is essential that the ground of the My-EMS share the same ground of all the engine sensors (so that there is virtually no measurable voltage between these grounds). Be sure that any ground wire of the My-EMS is routed to the engine block, and the engine block must have a connection to the negative of the battery.

● **CAN BUS (PIN#2-10 #4-12):**
CAN bus lines are used to read the engine data from Rotax 91x iS ECUs; use shielded or twisted wire pair, AWG24 is enough.
The CAN bus terminations are required (jump wire pin#3 with pin#11 for CAN1 and pin#5 with pin#13 for CAN2).

● **Open collector out (PIN#6):**
Used to connect the negative pin of any external buzzers or LEDs. This output can also be used to send a tone in the intercom using the Flybox optional device cod.105899. This output is not protected against short circuits or overcurrents, which could permanently damage it.

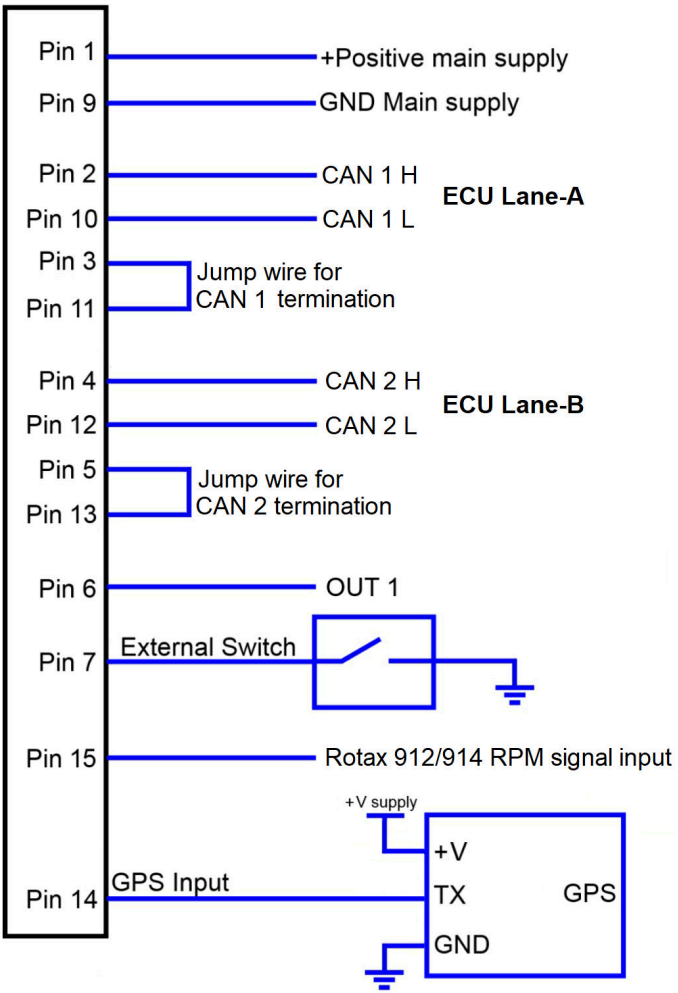
● **External switch (PIN#7):**
Connect an external switch between this pin and ground to be able to switch between pages and knowledge any alarm messages without using the knob.

● **GPS input (PIN#14):**
Connect this pin to the GPS “TX” signal of an external GPS. The GPS signal is used for displaying the actual time, for the “RANGE” and “RESERVE” functions on the optional fuel computer page and to have the date/time reference on the datalogger data. It’s required to use shielded cable, AWG24 is enough.
The My-EMS supports all GPS with *RS232* output and *NMEA183* sentecens (RMC, RMB, GGA).

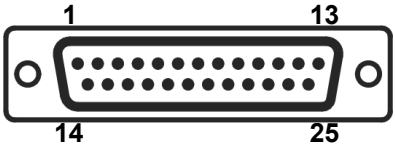
● **Rotax 912/914 RPM signal input (PIN#15):**
This RPM input support Rotax 912/914 pickup and other similar types of tachometer transducer.
Connect the transducer output to pin #15 of CN1 connector and transducer ground to aircraft ground (Rotax pickup has a single wire to be connected to pin #15 of CN1 connector).

NOTE: For Rotax 91x iS series, CAN 1 or CAN 2 or both can be connected, as indicated in the table. Connecting both CAN 1 and CAN 2 lines ensures that engine measurements are read in case one of the two CAN lines is disconnected.

CN1 Wiring Connections



4.1.2 CN2 25 Pole Connector



D-Sub 25 pin Plug Connector.
View from wires insertion side.

PIN #	Type	Description	Note
1	In	EGT1 thermocouple K (+)	Max 0 - 2.5 V
2	In	EGT2 thermocouple K (+)	Max 0 - 2.5 V
3	In	EGT3 thermocouple K (+)	Max 0 - 2.5 V
4	In	EGT4 thermocouple K (+)	Max 0 - 2.5 V
5	In	CHT1 sensor input: Rotax or thermocouple J (+)	
6	In	CHT2 sensor input: Rotax or thermocouple J (+)	
7	In	CHT3 sensor input: Rotax or thermocouple J (+)	
8	In	CHT4 sensor input / Coolant temperature sensor: Rotax or thermocouple J (+)	
9	In	Left tank fuel level sensor input	Res: max 300 Ω Volt: 0~5 V
10	In	Oil pressure sensor input	Res: max 10 kΩ Volt: 0~5 V Curr: 4~20 mA (internal 200 Ω)
11	In	CAT sensor input (PT1000)	Res: max 36 kΩ Volt: 0~5 V
12	In	Fuel flow sensor input	Max 5 - 30 Vpp
13	Out	+5V for sensor supply	Max 300 mA

PIN #	Type	Description	Note
14	In	EGT1 thermocouple K (-)	
15	In	EGT2 thermocouple K (-)	
16	In	EGT3 thermocouple K (-)	
17	In	EGT4 thermocouple K (-)	
18	In	CHT1 thermocouple J (-)	**connect to ground for other sensor types**
19	In	CHT2 thermocouple J (-)	**connect to ground for other sensor types**
20	In	CHT3 thermocouple J (-)	**connect to ground for other sensor types**
21	In	CHT4 / Coolant thermocouple J (-)	**connect to ground for other sensor types**
22	In	Right tank fuel level sensor input	Res: max 300 Ω Volt: 0~5 V
23	In	Oil temperature sensor input	Res: max 36 kΩ Volt: 0~5 V
24	In	Fuel pressure sensor input	Volt: 0~5 V
25	In	Ambient light sensor input	

Signals explanation

● **EGT positive inputs (PIN#1-2-3-4):**
Connect to these pins the positive wire of the thermocouples.

● **CHT positive inputs (PIN#5-6-7-8):**
Connect to these pins the single wire of the Rotax CHT sensors or the positive wire of the J-type thermocouple.

● **EGT negative inputs (PIN#14-15-16-17):**
Connect to these pins the negative wire of the thermocouples.

● **CHT negative inputs (PIN#18-19-20-21):**
The negative inputs of the CHT is used only if using J-type thermocouples. For the other type of sensor, included Rotax standard sensors, these pins must be connected to ground (connect it to the same ground that supply power to the My-EMS).

● **Fuel level sensor inputs (PIN#9-22):**
This fuel level sensor inputs support resistive (with max resistance of 300 ohm) or capacitive (0-5V) sensors.
If you install only 1 tank fuel level sensor connect it to pin #9 or to pin #22 of CN2 and disable the unused pin via SW; if you install 2 tank fuel level sensors (Left and Right Tanks) connect the Left on pin #9 and the Right on pin #22 of CN2.

● **Oil pressure sensor input (PIN#10):**
Support Rotax and Flybox sensors. See chap.5.4 for further details.

● **CAT - Carburetor/Airbox temperature (PIN#11):**
Support PT1000 sensors. See chap.5.5 for further details.

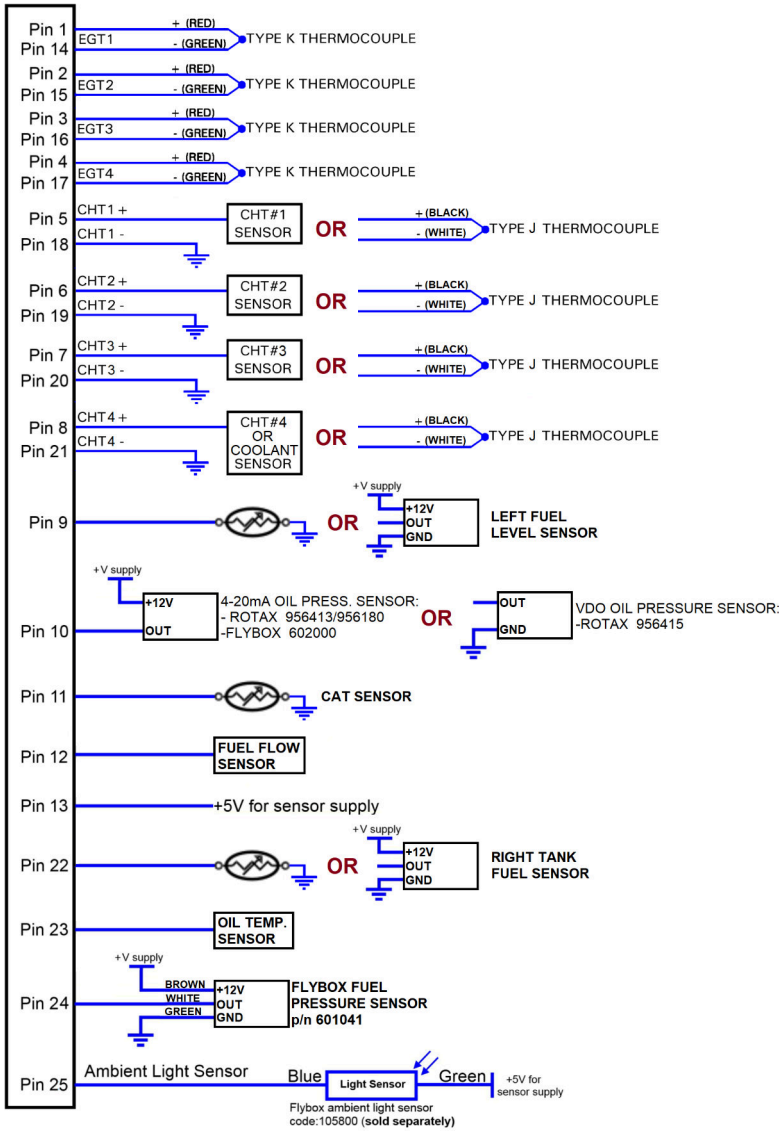
● **Fuel flow sensor input (PIN#12):**
Sensors with pulse output open-collector type. See chap.5.6 for sensor installation details.

● **Oil temperature sensor input (PIN#23):**
Support Rotax and PT1000 sensors. See chap.5.3 for further details.

● **Fuel pressure sensor input (PIN#24):**
Support Flybox 601041 sensor. See chap.5.8 for further details.

● **Ambient light sensor input (PIN#25):**
Support Flybox 105800 sensor. Not required if you want to manually adjust the instrument backlight.

CN2 Wiring Connections



5.0 Sensors Installation

Carefully follow the instructions in the following paragraphs for the correct installation of the sensors. Check the compatibility of your sensors prior to installation.

NOTE: It is essential that all the engine sensors and the My-EMS share the same ground, and that there is virtually no measurable voltage between these grounds. Be sure that any ground wire of the My-EMS is routed to the engine block, and the engine block must have a connection to the negative of the battery. Errors in the measurements are usually caused by points in the aircraft where there is insufficient grounding.

5.1 CHT Sensors

In the My-EMS up to 4 CHT sensors can be connected; the supported sensor types are:

● **ROTAX 912/914 preinstalled CHT sensors**
Rotax install 2 CHT sensors with a single wire each. Connect the first sensor to pin #5 of CN2; connect the second sensor to pin #6.

● **ROTAX 91x iS**
No additional sensors are required: with Rotax 91x iS the coolant temperature is measured by the ECU and sent, using the CAN bus connection, to the My-EMS.
Only if you need to install additional coolant or cylinder head temperature sensors you can use the free inputs CHT1-CHT2-CHT3-CHT4.

● **J-type thermocouples**
Thermocouple probes have a two wires connection: positive wire and negative wire. The positive wire are connected to pins #5 to #8 (CHT1 to CHT4) of CN2, the negative wires are connected to pins #18 to #21 (CHT1 to CHT4).
My-EMS accepts both insulated and grounded thermocouples.

NOTE: It's not possible to mix different type of CHT sensors (i.e. 2 Rotax + 2 thermocouples).

5.2 EGT Sensors (not required for ROTAX 91x iS)

In the My-EMS up to 4 EGT sensors can be connected; the supported sensor type is:

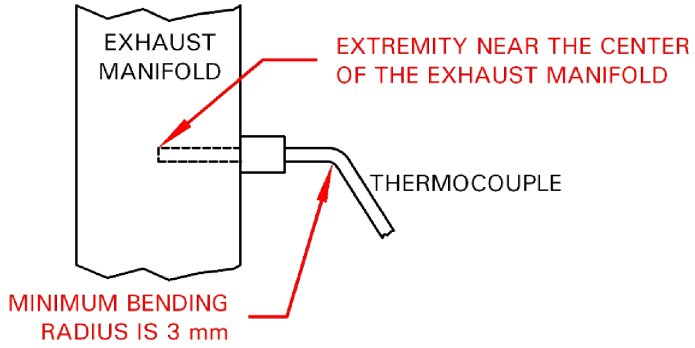
● **K-type thermocouples**
Thermocouple probes have a two wires connection: positive wire and negative wire. The positive wire are connected to pins #1 to #4 (EGT1 to EGT4) of CN2, the negative wires are connected to pins #14 to #17 (EGT1 to EGT4).
My-EMS accepts both insulated and grounded thermocouples.

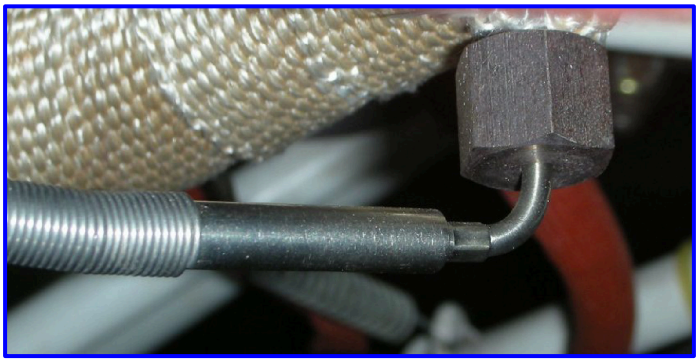
5.2.1 Flybox® EGT thermocouples

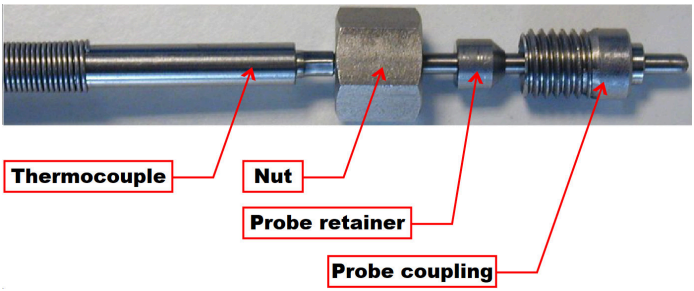
Flybox® EGT thermocouples (P/N 601008) are K-type; positive wire is RED, negative is GREEN.

INSTALLATION NOTES:

1. Drill a 6 mm diameter hole in the exhaust manifold (at the position indicated by the engine's manufacturer) and weld the furnished probe coupling.
2. Insert the thermocouple (with the nut and the probe retainer) in the probe coupling and position its extremity near the center of the exhaust manifold.
3. Fix the thermocouple in this position by blocking the nut. Note that if required the thermocouple can be bended but with a minimum radius of 3 mm.


EXHAUST
MANIFOLD
EXTREMITY NEAR THE CENTER
OF THE EXHAUST MANIFOLD
THERMOCOUPLE
MINIMUM BENDING
RADIUS IS 3 mm




Thermocouple
Nut
Probe retainer
Probe coupling

5.3 Oil Temp. Sensor (not required for ROTAX 91xiS)

The supported oil temperature sensor types are:

● **ROTAX preinstalled sensor**
Rotax oil temperature sensor has a single wire. Connect it to pin #23 of CN2.

● **PT1000 resistive sensor**
This two wire resistive sensor must be connected between aircraft ground (GND) and pin #23 of CN2.

5.4 Oil Press. Sensor (not required for ROTAX 91xiS)

The supported oil pressure sensor types are:

● **ROTAX 4-20mA (P/N 956413)**
Installed on 912/914 engines produced after 2008/05. Connect red wire to main power supply; connect white wire to pin#10 of CN2.

● **Flybox® P/N 602000**
Compatible with the Rotax 4-20mA sensors. Connect brown wire to main power supply; connect white wire to pin#10 of CN2.

● **ROTAX resistive sensors (ROTAX P/N 956415)**
Installed on 912/914 engines produced before 2008/05. Connect signal wire to pin#10 of CN2; connect ground wire (if present) to aircraft ground (GND).

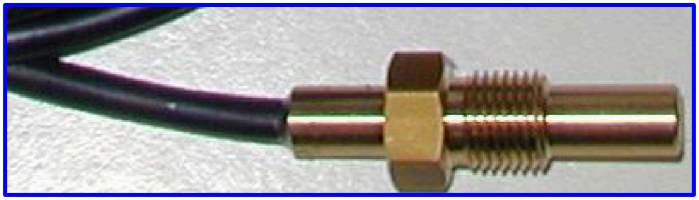
5.5 Airbox/Carburetor Temperature Sensor (CAT) (not required for ROTAX 91x iS)

The supported CAT sensor types are:

- **PT1000 resistive sensors**

Connect one wire to pin #11 of CN2 and the other wire to aircraft ground (GND).

- **Flybox® CAT sensor (P/N 601030)**



Flybox® CAT sensor is a PT1000 with a M10x1 thread.

5.6 Fuel Flow Sensor

The My-EMS has a fuel flow sensor inputs, dedicated to measuring fuel flowing from the tank to the engine .

My-EMS accepts all flow meters as long as they meet the following characteristics:

amplitude range: 5 - 30 Vpp
frequency range: 2 Hz - 10 Khz
min. pulse duration: 50 us

To install the fuel flow sensors, follow the manufacturer's instructions included in the sensor package, together with the general recommendations below.

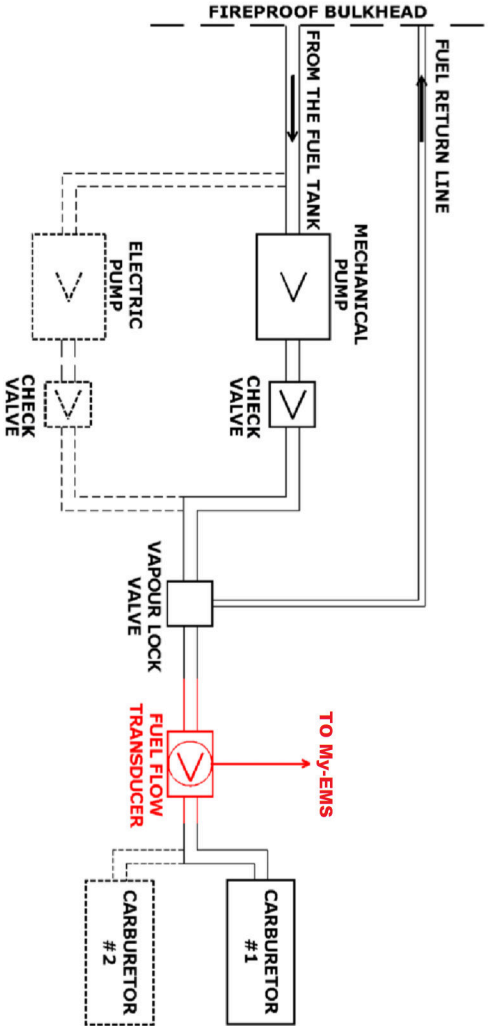
Recommendation of installation and use:

- Install the sensor with the wires pointing up.
- Respect the IN and OUT port labelled on the sensor body.
- Do not install the sensor close to high temperature objects like the exaust system or others and if needed protect the sensor with firesleeve material.
- Do not use teflon tape for the inlet and outled ports, use liquid sealant only.
- Never clean the sensor with compressed air.
- Install a filter in the fuel line before the sensor.
- The tubes before and after the sensor should be straight for at least 4/5 cm to avoid turbulence in the fuel and inaccurate flow data.
- Check for leakage after system starts.
- Do not clamp the sensor directly to the engine, vibrations could damage it.
- Follow the instructions supplied from the sensor manufacturer.

● Inspect the fuel sensor every year or every 100 hours of aircraft use for leakage and aging.
● The fuel flow transducer must be installed before the carburetor and after the eventual return line (Vapor lock).
● Install the transducer lower than the carburetor, or no more higher than 10 cm every 30.

WARNING: After completing the installation, verify that the engine is working properly at every RPM speed; verify also that at full RPM the fuel pressure after the fuel flow transducer never drop below the minimum pressure indicated in your engine's manual.

Typical example installation of the fuel flow transducer on carbureted engines:



5.7 Fuel Level Sensors

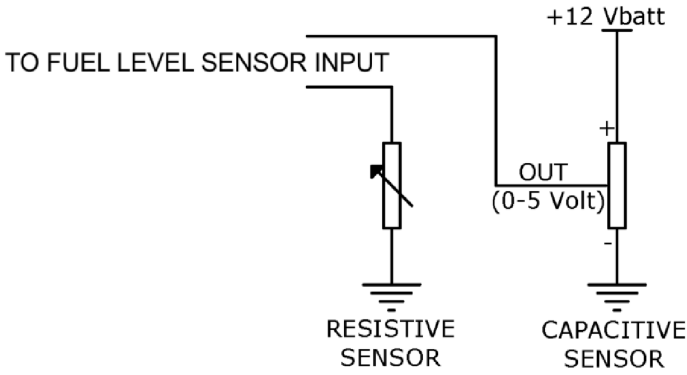
The My-EMS has 2 fuel level inputs that can be connected to both resistive sensors (with max resistance of 300 ohm) and capacitive sensors (with output voltage of 0~5 Volt).

Resistive sensors can be of two types, both supported by the My-EMS: resistive sensors that increase resistance as you add fuel and resistive sensors that decrease resistance as you add fuel.

It's also possible to install a mixed type of sensors (i.e. 1 resistive + 1 capacitive).

CAUTION: Resistive type fuel level sensors connected to My-EMS must not be connected to any other instrument. Disconnect any previously used instrument.

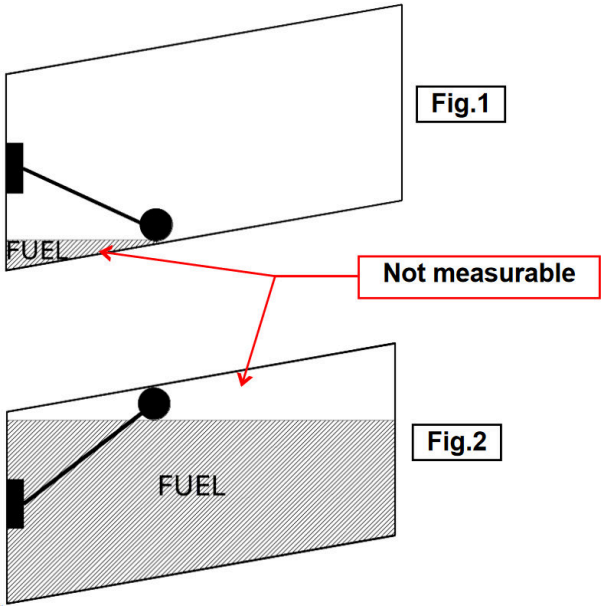
5.7.1 Fuel level sensors connections



NOTE: Refer to fuel level sensors manual for the detailed electrical and mechanical installation.
Make sure that the fuel level sensors are mounted so that all the fuel in the tank can be measured. If the fuel sensor cannot measure completely the fuel in the tank, the instrument will display inaccurate readings.

For example (**fig.1**) if a fuel sensor cannot measure the lowest part of the tank that contains 7 liters, the instrument will display “0” (zero) for fuel level of 7 liters and below.

Another example (**fig.2**) is if a tank can holds 40 liters of fuel but at 25 liters the fuel is at the top of the sensor, the maximum that the instrument will display is 25 liters.



5.8 Fuel Pressure Sensor

The fuel pressure transducer+fitting is supplied by Flybox® (P/N 601041); the electrical connections are:

BROWN WIRE: Positive supply voltage (connect to main power supply).

GREEN WIRE: GND (connect to aircraft ground).

WHITE WIRE: Signal out (connect to pin #24 of CN2).

The pressure range accepted is from 0 to 4 bar.

NOTE: an improper wiring can cause damage to the fuel pressure transducer.

Mechanical installation hints:

- Screw tight the transducer to the fitting; no other seal materialis required because the sealing is ensured by the green fuel-resistant gasket of the transducer.
- To check that no screw out occur you must mark with a permanent pencil the transducer and fitting:

5.9 RPM Pickup Input (not required for ROTAX 91x iS)

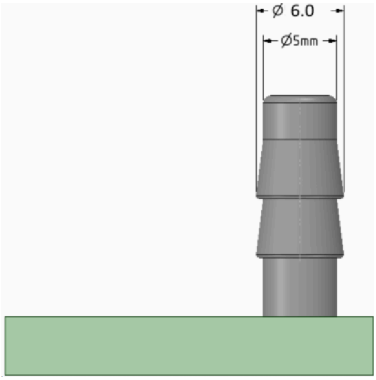
RPM input support Rotax 912/914 pickup and other similar types of tachometer transducer. Connect the transducer output to pin #15 of CN1 and transducer ground to aircraft ground (Rotax pickup has a single wire to be connected to pin #15 of CN1).

My-EMS accepts RPM Pickup that meet the following characteristics:

amplitude range: 5 - 100 Vpp
min. pulse duration: 300 us

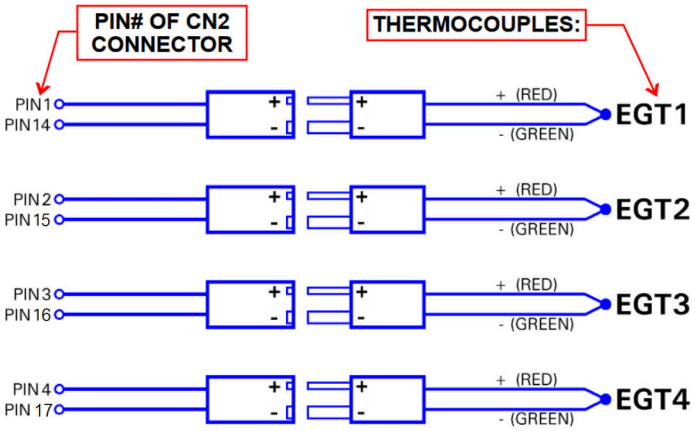
5.10 MAP Connection (not required for ROTAX 91xiS)

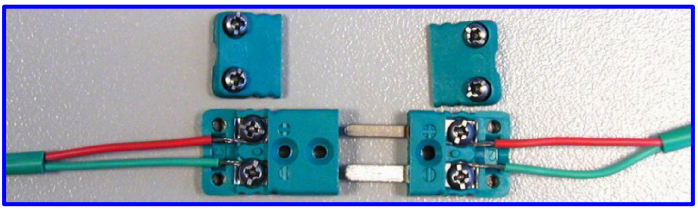
On the back of the instrument there is a 6mm brass fitting that must be connected to the engine by a rubber tube. Tighten the tube with a proper clamp.



5.11 Separable Connections for Thermocouples

If it is necessary to split the thermocouples connections in separable harnesses, you must use proper cables and connectors, available also from Flybox® with ord. cod.601012.
The connections are the following:





NOTE: Wires' color are referred to Flybox® supplied thermocouples, other thermocouples may have different colors coding. In case of wrong wiring the temperature indication will not be correct.

6.0 Instrument Use

Always refer to the Operating Manual for any information that is not related to the installation itself, e.g. how to navigate through the menus, how to make settings, how to perform backups and restores, how to update the software, etc. etc.

CLEANING

The screen is very sensitive to some cleaning materials and should be cleaned with a clean, damp cloth only.

Technical specifications

My-EMS

- Graphic 3.5” TFT LCD with backlight
- Standard mounting 3-1/8” 80mm
- Powder painted aluminium case
- Dimensions: 85 x 85 x 40 mm (body)
- Weight: 245 g
- Supply voltage: 10 ~ 30 V=
- Power supply: ~2 W
- Operating temperature range: -20 ~ +70°C
- Storage temperature range: -30 ~ +80°C
- Humidity: 90% max (without condensation)
- Communication through 2 CAN bus
- USB port: for USB 2.0
- Open-collector alarm output (max 300mA, active low)
- Internal storage for 100 hours of datalog

Technical specifications

Sensor Inputs:

- 4 Cylinder head temperature from ROTAX or J-type thermocouples
- 4 Exhaust gas temperature from K-type thermocouples
- Oil temperature inputs from ROTAX or PT1000 sensors
- Oil pressure from Flybox® or ROTAX sensors
- Carburetor/Airbox temperature from PT1000 sensor
- Fuel flow sensor input
- 2 Inputs for fuel level sensors: resistive (300 ohm max) or capacitive (0-5V)
- Fuel pressure from Flybox® transducer
- RPM tachometer input for ROTAX 912/914
- MAP sensor range: 0-60 inHg
- RS232 GPS input NMEA183

One Year Warranty:

Product support and warranty information can be found at www.flyboxavionics.it.
Flybox® warrants the registered Product to be free from defects in materials and workmanship for 12 months from date of delivery. The inactivity of the Products determined by periods of repair does not involve the extension of the warranty period.
This warranty covers only defects in material and workmanship found in the products under normal use and service when the product has been properly installed, maintained and registered. This warranty does not cover failures due to abuse, misuse, accident, improper maintenence, failures to follow improper instructions or due to unauthorized alterations or repairs or use with equipments with which the Products is not intended to be used. Flybox®, after verification of the complaint and confirmation that the defect is covered by warranty, at its sole discretion, will either replace or repair the Products at no costs for the customer. Alterations, additions, or repairs not performed by the manufactuter shall negate any warranty. This warranty doesn't cover cosmetic or incidental damages. Shipping costs, taxes, custom fee, any other duties and any costs incurred while removing, reinstalling or troubleshooting the Products, shall be at customer's charge.

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Date	Rev.	Description
February 2024	1.0	First release
April 2024	1.1	Correction of FUEL P schematic page 31

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Important

Do not send your instrument for repair until you have filled out the request form on the support page at www.flyboxavionics.it. After filling out the form you will receive an authorization email with the RMA number.

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www.flyboxavionics.it

MICROEL s.r.l.
Via Mortara 192-194
27038 Robbio (PV) - ITALY
Tel +39-0384-670602 - Fax +39-0384-671830

My-EMS - Installation Manual,
Safety Instructions and Warning Booklet