FLYBOX®

Oil P-T-CT
(Omnia57 family)

**Installation and User 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 A2019OIL P-T-CT
Revision#1.0, 02/2019
For firmware version 1.0

SECTIONS

Examples of available screens
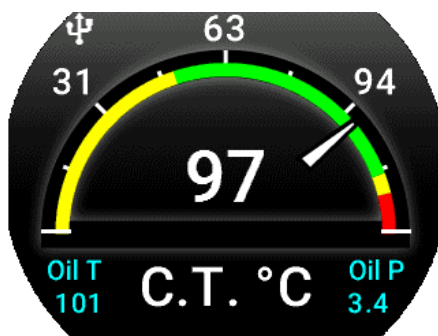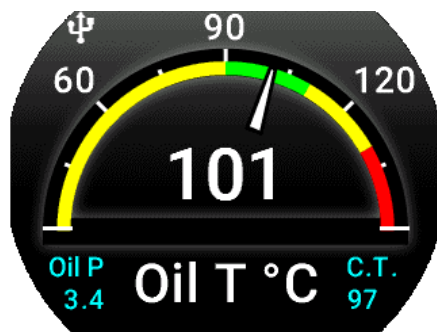
Thank you for purchasing a Flybox® **Omnia57** instrument.

Our intent in developing the **Omnia57** instrument family was to create a light and compact product, powerful and easy to install and use.

The **Omnia57** instrument family is equipped with a state-of-the-art highly visible display, a powerful 32 bit microcontroller and the latest generation of solid state sensors to ensure reliability and accuracy over time.

The owner has the possibility to keep the instrument software up-to-date by downloading the latest available revision from the www.flyboxavionics.it website and installing it using a USB pen drive.

We are confident our products will be satisfactory and will make your flying experience a pleasant one.

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Symbols used in the Installation and User Manual, Safety Instructions and Warning Booklet

 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.

⚠️ *WARNING:* These instructions must be provided to users before use, and retained for ready reference by the user.
The user must read, understand (or have 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 on your 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.

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

⚠️ **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:** Do NOT rely on the Omnia57 Fuel L-P device ONLY to determine the level of the fuel available in the tanks.

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

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⚠ *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:* Upon receipt of the instrument it is advisable to register on our website www.flyboxavionics.it in the "product registration" section.

The Registration data will be used only to send important news or information about available firmware updates or to communicate safety information about the instrument.

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OMNIA57 FAMILY SYSTEM OVERVIEW

The **Omnia57** instrument family has many innovative features, common to all models as described below.

1.1 CONSTRUCTION FEATURES

Omnia57 instrument family is built from solid aluminum alloy, CNC milled and powder coated to last a long time over the years always showing a new appearance.

1.2 ERGONOMICS

- Large 2.4 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.

- Backlight auto dimming feature with one optional sensor for all the Omnia57 installed in the panel.

1.3 INTERCONNECTION ABILITY

All the instruments of the **Omnia57** family can be connected together to form a communication network, making some data exchange operations simpler.

The software update of a **Omnia57** instrument connected in group takes place through the CAN bus communication with the instrument that has the USB pen drive connected. This means that the USB connection is made to a single instrument, and the information will be forwarded via CAN bus to or from all the others in the group.
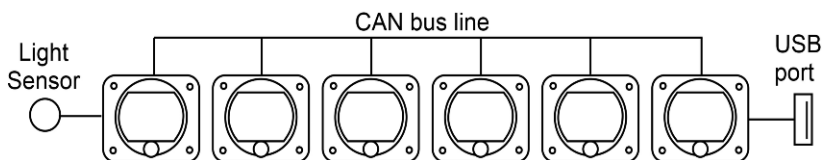
Up to 16 Omnia57 can be connected together through the CAN 1 bus.

The configuration data and the data logger of the interconnected instruments are saved or restored via CAN bus on the same USB pen drive. A single brightness sensor can provide information to all the connected instruments to automatically adjust the backlight intensity.

1.4 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.

With one USB connection only, it will be possible to update every instrument installed in the panel. If more Omnia57 are installed and properly connected, they will search for the right firmware through the CAN bus.

1.5 EASY DATALOG SAVING

Easy logging of the data for debug purpose. If needed, each **Omnia57** unit can save a last flight log on the USB pen drive. The user can then send the log via e-mail to Flybox support for a help/support request.

1.6 INTERFACES

All the **Omnia57** instruments have the following common interfaces:

2 separate CAN BUS: they can be used to connect the **Omnia57** instruments together, to interface them with other Flybox instruments or with external devices like Engines ECUs or new devices that will be possibly developed in the future.

2 RS232 serial ports: used to connect the **Omnia57** instruments to an external GPS (when applicable). This feature appears in some models only.

1 Sensor Light Input: if connected, it allows the automatic light intensity adjustment, one sensor for all the instruments.

2 Power outputs for sensors: one 12 V 500mA@60°C and the other 5 V 350 mA@60°C, both protected from short circuit.

If the current on one of the outputs is too high, a caution message will appear.

Caution!
High current PIN 2

1 Alarm output: all the **Omnia57** instruments can activate an external warning device like a lamp or a small relay through this NPN transistor output.

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MECHANICAL INSTALLATION

2.1 MECHANICAL DIMENSIONS

The **Omnia57 Oil P-T-CT** instrument fits in a standard 2 ¼" (57 mm) panel cutout; it's recommended to choose a position that permits optimal display visibility. It's furnished with four M4 screws to install it to the panel, if you use other screws consider that the maximum thread length inside the instrument body is 10mm (see the picture below).

26.0mm

10mm
MAX

29.8mm

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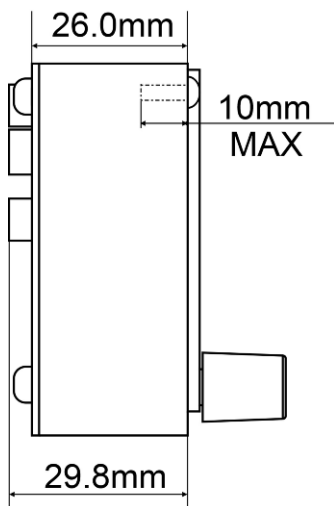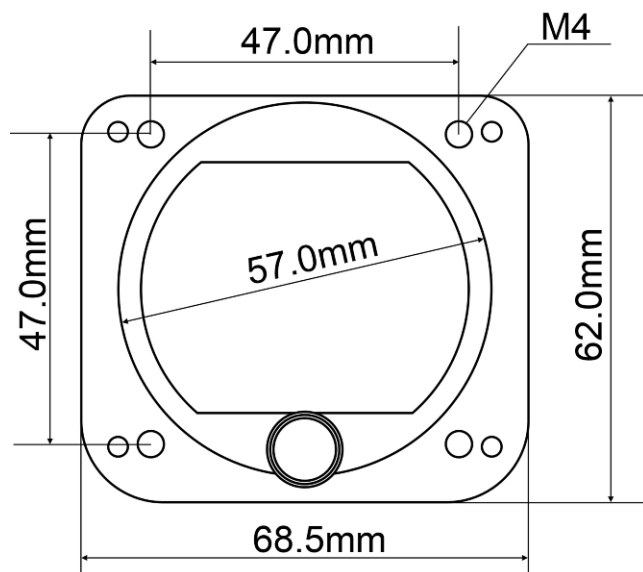
⚠️ **NOTE:** For an installation without interference, consider making a hole of at least 57.5 mm diameter

2.2 SENSORS INSTALLATION

Omnia57 Oil P-T-CT has 3 sensor inputs for:

- Oil Pressure **(P)**
- Oil Temperature **(T)**
- Coolant Temperature **(CT)**

See chapter **3.3÷3.11** for further details.

Follow the indications of the engine manufacturer to properly install the probes.

Different types of probes can be selected from the configuration menu. If you don't find your type of probe in the list, please contact the Flybox support service, we will find a solution together.

⚠️ *CAUTION:* All sensors connected to the **Omnia57 Oil P-T-CT** must not be connected to any other instrument.

Disconnect any previously used instrument.

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ELECTRICAL INSTALLATION

3.1 REAR PANEL CONNECTIONS

2 x 2 - p o l e connectors, Molex Micro-Fit for **CAN 1 bus**

2 x 2 - p o l e connectors, Molex Micro-Fit for **CAN 2 bus**

24 pole female connector, Molex Micro-Fit. See the table chapter 3.3

USB 2.0 port
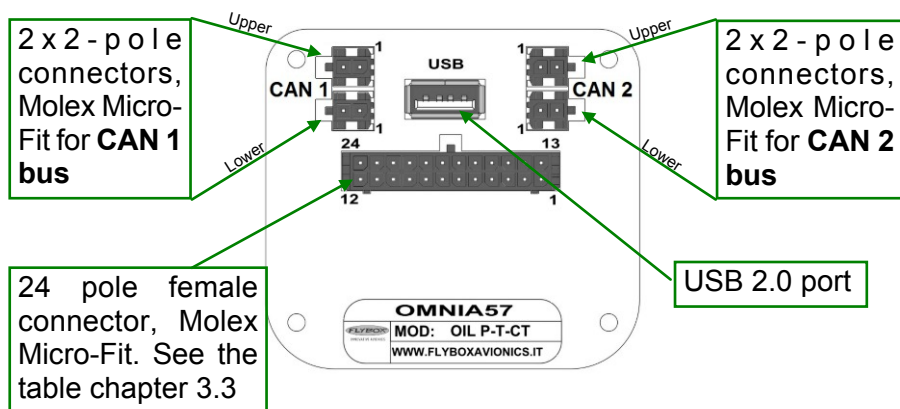
The required connectors and terminals are supplied with the instrument.

The manufacturer's codes are:

Molex P/N 43025-0200 (2 pole housing)
Molex P/N 43025-2400 (24 pole housing)
Molex P/N 43030-0007 (female crimp terminal)

The terminals can be crimped with:

- Flybox Professional Crimping Tool cod. 603000
- Molex tool P/N 63819-0000

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3.2 - (24 POLE) FEMALE CONNECTOR WIRING

PIN 1	+ V Main Supply
PIN 13	GND Main Supply
PIN 2	+ Vout for sensors
PIN 14	Alarm OUT
PIN 3	+ 5V OUT for sensors

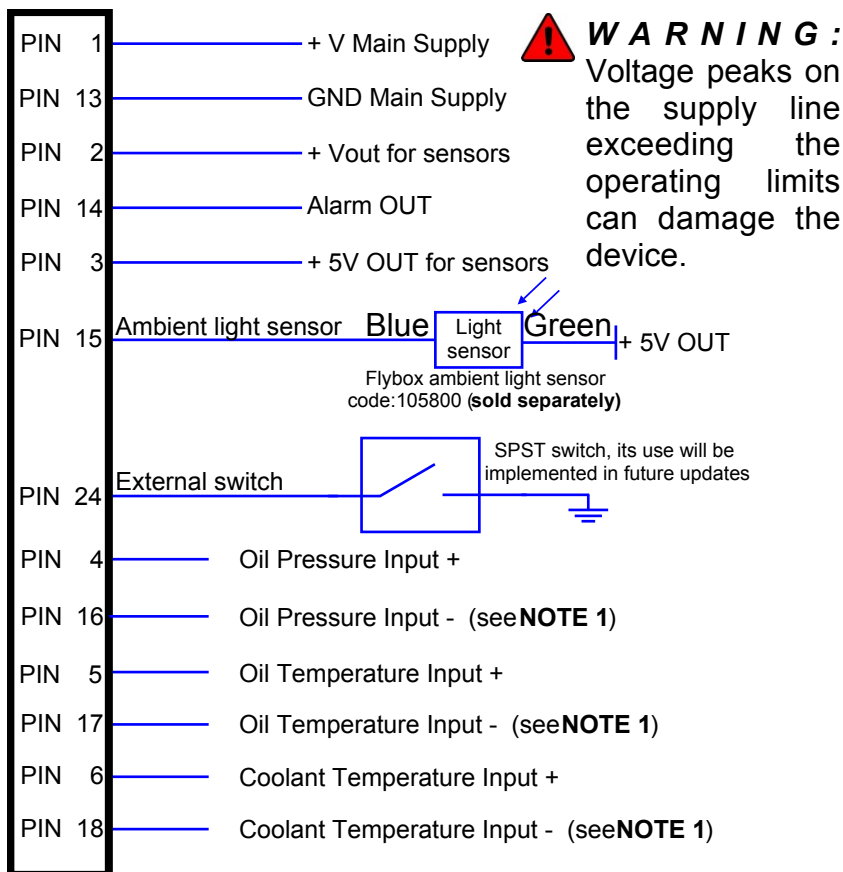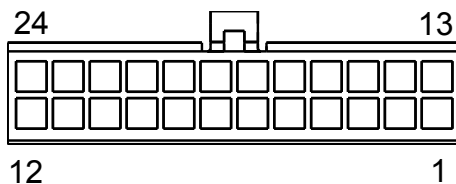**WARNING:** Voltage peaks on the supply line exceeding the operating limits can damage the device.

PIN 15 — Ambient light sensor — Blue [Light sensor] Green — + 5V OUT

Flybox ambient light sensor code:105800 (**sold separately)**

PIN 24 — External switch — SPST switch, its use will be implemented in future updates

PIN 4	Oil Pressure Input +
PIN 16	Oil Pressure Input - (see **NOTE 1**)
PIN 5	Oil Temperature Input +
PIN 17	Oil Temperature Input - (see **NOTE 1**)
PIN 6	Coolant Temperature Input +
PIN 18	Coolant Temperature Input - (see **NOTE 1**)

NOTE 1:
If a Resistive Probe is used, connect to GND or preferably directly on the engine block where the probes are installed.

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## 3.3 - (24 POLE) CONNECTOR TABLE

PIN	I/O	Signal
1	I	+V Main supply, 10-30Vdc, with a proper breaker
2	O	V out for sensors, it delivers the same voltage supplied on the Pin 1, short circuit protected and limited to 500mA
3	O	5V out for sensor, short circuit protected and limited to 350mA
4	I	Oil Pressure input +
5	I	Oil Temperature input +
6	I	Coolant Temperature input +
13	I	GND main supply
14	O	Alarm Out, NPN 300 mA (not protected)
15	I	Ambient light sensor input
16	I	Oil Pressure Input -
17	I	Oil Temperature input -
18	I	Coolant Temperature input -
24	I	External Switch

24   13

12   1

Molex P/N 43025-2400 (24 pole housing). View from wire insertion side.

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SENSORS ELECTRICAL CONNECTIONS

3.4 VDO Resistive Oil Temperature Sensor

To Oil
Temperature
input +

VDO Oil Temperature
Resistive sensor:
- Rotax 965531
- Rotax 965530 (old)
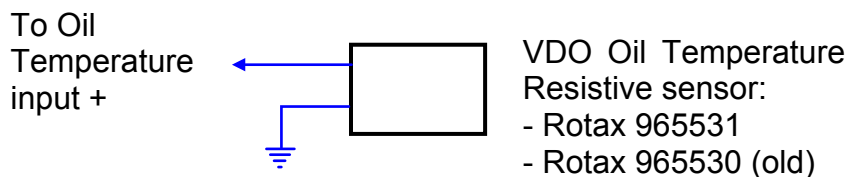
3.5 PT1000 Oil Temperature Sensor

To Oil
Temperature
input +

PT1000 (P1K) Oil
Temperature sensor

3.6 TCJ Oil Temperature Sensor

To Oil Temperature
input +

+

-

Type J
Thermocouple

To Oil Temperature
input -

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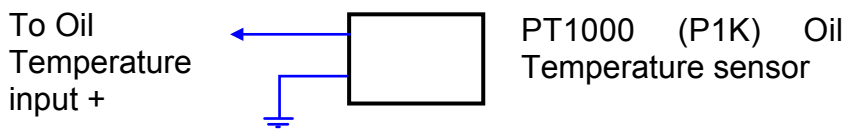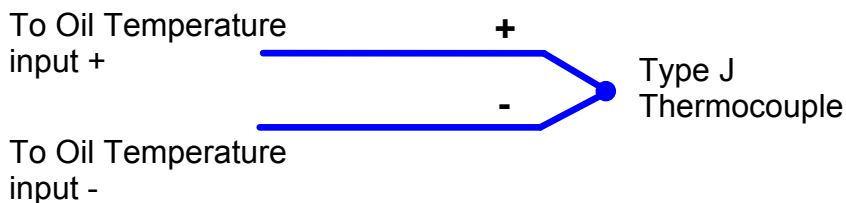
3.7 VDO Resistive Oil Pressure Sensor for Rotax and Jabiru

To Oil Pressure input +

VDO Oil Pressure resistive sensor:
- Rotax 956415

3.8 4-20 mA Oil Pressure Sensor

+Vout for sensors (see NOTE 1)

To Oil Pressure input +

4-20mA Oil Pressure sensor:
- Rotax 956413
- Rotax 456180
- Flybox 602000
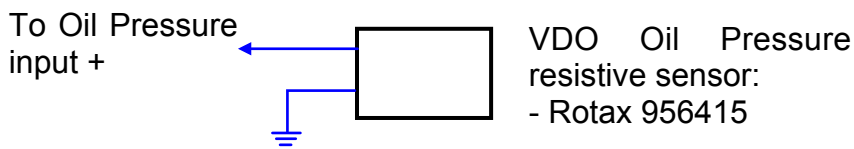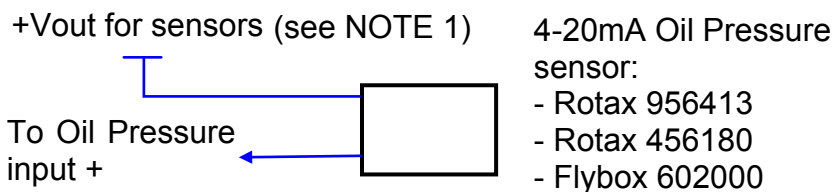
3.9 VDO Resistive Coolant Temperature Sensor

To Coolant Temperature input +

VDO Temperature Resistive sensor:
- Rotax 965531
- Rotax 965530 (old)
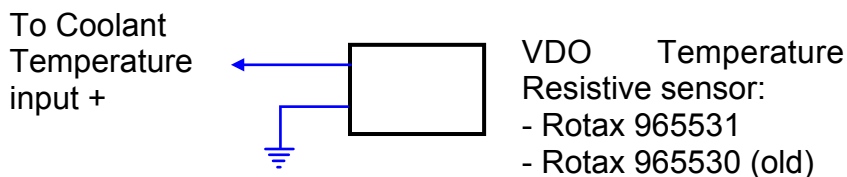
NOTE 1: use sensors which support the voltage supplied to PIN 1 only.

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3.10 PT1000 Coolant Temperature Sensor

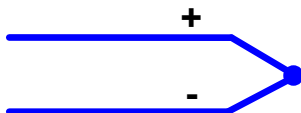To Coolant Temperature input +
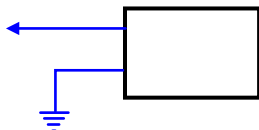
PT1000 (P1K) Oil Temperature sensor

3.11 TCJ Coolant Temperature

To Coolant Temperature input +

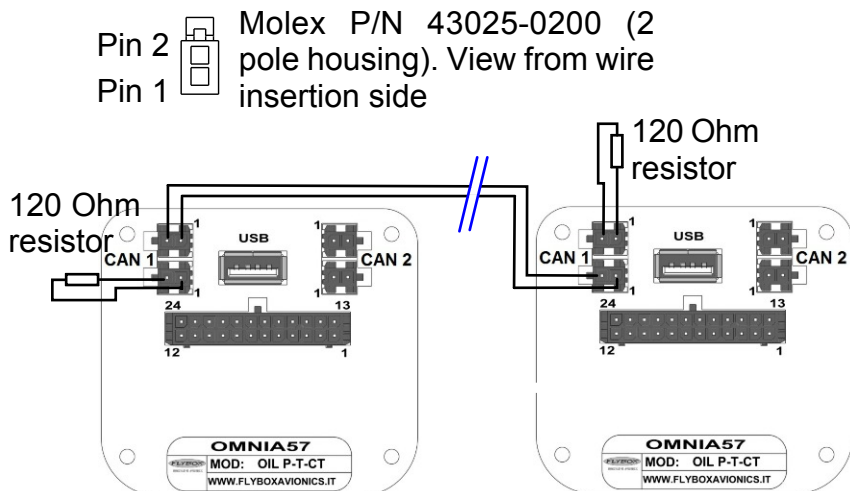**+**

To Coolant Temperature input -

-

Type J Thermocouple

3.14 CAN BUS CONNECTION WIRING

Pin 2
Pin 1

Molex P/N 43025-0200 (2 pole housing). View from wire insertion side

120 Ohm resistor

120 Ohm resistor

CAN bus Wiring Information

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, Flybox code 105810. Up to 16 Omnia57 can be connected together through CAN 1 bus. Ready-made termination resistors and wiring for connecting several Omnia57 together are available in different lengths: 25cm, 50cm, 100cm.
See the website www.flyboxavionics.it for details and how to order.

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3.15 - (2 POLE) CAN BUS CONNECTOR TABLES

2 Pole **CAN 1** Upper Connector

PIN	I/O	Signal
1	I/O	**CAN 1 H** Internally connected with the Pin 1-CAN 1 H (Lower connector)
2	I/O	**CAN 1 L** Internally connected with the Pin 2-CAN 1 L (Lower connector)

2 Pole **CAN 1** Lower Connector

PIN	I/O	Signal
1	I/O	**CAN 1 H** Internally connected with the Pin 1-CAN 1 H (Upper connector)
2	I/O	**CAN 1 L** Internally connected with the Pin 2-CAN 1 L (Upper connector)

2 Pole **CAN 2** Upper Connector

PIN	I/O	Signal
1	I/O	**CAN 2 L** Internally connected with the Pin 1 CAN 2 L (Lower connector)
2	I/O	**CAN 2 H** Internally connected with the Pin 2 CAN 2 H (Lower connector)

2 Pole **CAN 2** Lower Connector

PIN	I/O	Signal
1	I/O	**CAN 2 L** Internally connected with the Pin 1 CAN 2 L (Upper connector)
2	I/O	**CAN 2 H** Internally connected with the Pin 2 CAN 2 H (Upper connector)

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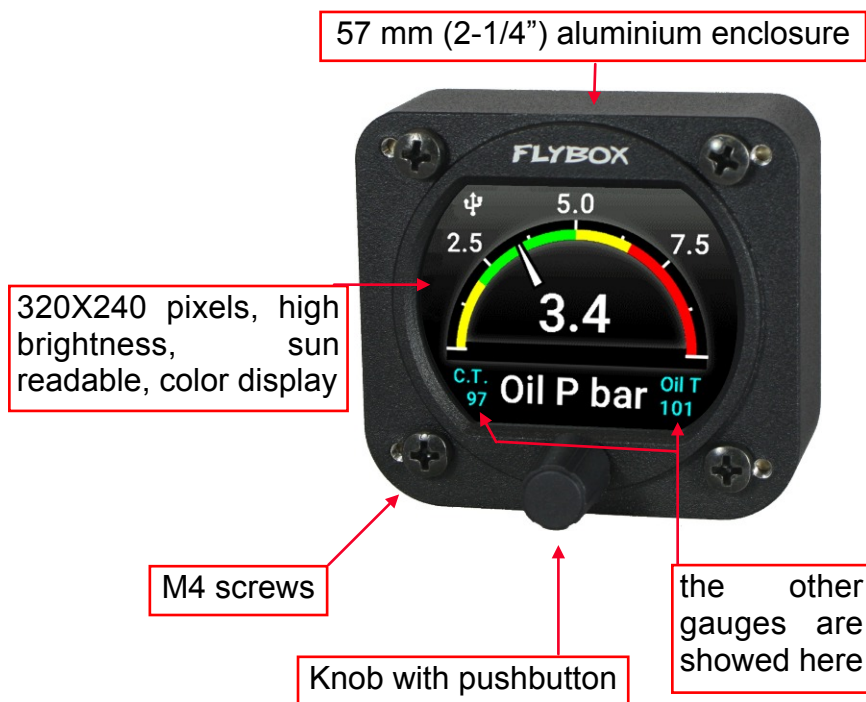# INSTRUMENT SETTINGS

4.1 MINIMUM SETTINGS BEFORE FIRST USE

⚠️ *CAUTION:* Before using the **Omnia57 Oil P-T-CT** in flight for the first time, you must set at least the following parameters, as explained in the instructions on the following pages:

- Set the Engine type

- Enable the gauges you want to activate.

- For each enabled gauge set the Sensor Type.

- For each enabled gauge set the Unit of Measure.

- For each enabled gauge set the Thresholds

- For each enabled gauge set the Alarm Parameters.

- Check if the indications are correct for all the enabled gauges.

🔺 *WARNING:* In the absence of the above operations, or if they are not performed correctly, you can not consider as reliable the indications of the instrument.

4.2 PANEL INDICATORS AND COMMANDS

57 mm (2-1/4") aluminium enclosure

320X240 pixels, high brightness, sun readable, color display

M4 screws

Knob with pushbutton

the other gauges are showed here

The knob can be rotated to select the functions and increment or decrement the values while pressing it to confirm.

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4.3 SETUP MENU NAVIGATION

Navigation through the menus is very simple and fast using the knob:

- Press the knob for 1 second to enter in the Setup Menu. The menu automatically disappears if you don't press or rotate the knob for 5 seconds.

- Rotate the knob to navigate through menus and submenus items.

- The setup system is organized in menus and submenus; a submenu is a term used to describe a menu that is contained within another menu.

- Press the knob to enter in the selected item.

- The knob can be rotated to select the functions and increment or decrement the values while pressing it to confirm. To exit without changing while editing a number or multiple choice, keep pressed the knob for 3 seconds.

- The first items on every menu are Exit or Back. "Exit" is used to quit the Setup and go directly to the main screen, "Back" is used to go back to the previous level.

4.4 MAIN SETUP MENU
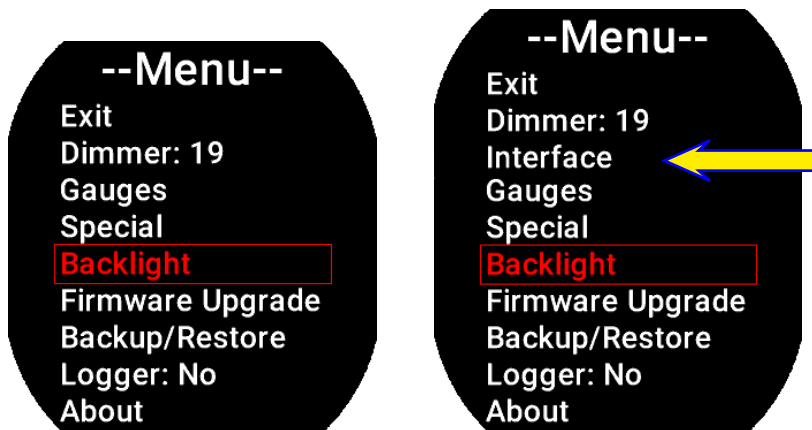
"Interface" parameter is not active because only 1 gauge is enabled.

"Interface" parameter is active because more then 1 gauges are enabled.

Exit: confirm to "exit" from the setup menu and go back to the main screen.

Dimmer: adjust display brigtness from 1 (min brightness) to 19 (max brightness). Default value=19. The adjustment works both in Manual or in Automatic mode.

Interface: this parameter will only be displayed if at least 2 or more gauges are enabled. Go to chapter **4.5.1** for a full description.

Gauges: select to enable and set the required gauges. Go to chapter **4.5.2** for a full description.

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Special: enter to restore the default settings. **Caution:** this operation returns the instrument to the factory settings. All settings, except calibration data, will be erased. **It will require double confirmation**.

Backlight: set the backlight in "Manual" or "Automatic" mode. Go to chapter **4.6** for a full description.

Firmware Upgrade: enter to upgrade the firmware. Go to chapter **5.1** for a full description.

Backup/Restore: enter to save and load settings. Go to chapter **5.2** for a full description.

Logger: enable to save a flight session data. Go to chapter **5.4** for a full description.
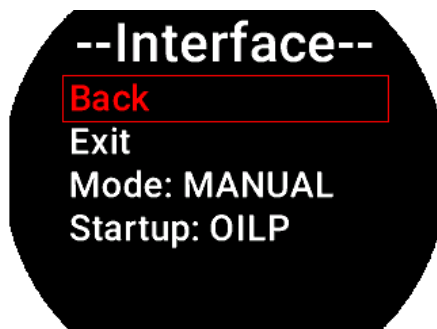
About: enter to see instrument information.

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OIL-P-T-CT
Fw Ver. v1.0.0
ID 061B692F

About Page Example

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4.5.1 Interface Submenu

```
--Interface--
Back
Exit
Mode: MANUAL
Startup: OILP
```

Back: confirm to go back to previous menu.

Exit: confirm to go directly to the main screen.

Mode: set this parameter to "Manual" or "Limit" mode. When in "Manual" mode, the displayed page will be chosen by the pilot by turning the knob. When in "Limit" mode, the gauge which is the closest to its high limit will be displayed. You can select the display of one of the other indicators by turning the knob and the display will remain stuck on it for the number of seconds indicated in the parameter "Hold. Time".

Startup: choose which indicator to display when the power is switched-on when in "Manual" mode. This parameter will be hidden if in "Limit" mode.

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Hold.Time: set the Holding Time, in seconds, of the page chosen manually when in "Limit" mode.

Default: 3s
Min: 1s
Max: 10s

The "Hold.Time" parameter is hidden when in "Manual" mode.

4.5.2 Gauges Submenu

--Gauges--
Back
Exit
Eng: Rotax 912
Oil Temp
Oil Press
Cool Temp

Back: confirm to go back to previous menu.

Exit: confirm to go directly to the main screen.

Eng: choose the type of engine from: Lycoming, Continental, Rotax 912, Rotax, 914, Rotax 912iS, Rotax 915 iS. If your engine is not in the list, choose "Other".

Oil Temp: set the "Oil Temp" parameters. Go to chapter **4.5.3** for a full description.

Oil Press: set the "Oil Press" parameters. Go to chapter **4.5.4** for a full description.

Cool Temp: set the "Cool Temp" parameters. Go to chapter **4.5.5** for a full description.

4.5.3 Oil Temp Submenu

```
--Oil T--
Back
Exit
Enable: Yes
Source: CAN
Unit: °C
Filter: 60
Thresholds
Alarms
```

Back: confirm to go back to previous menu.

Exit: confirm to go directly to the main screen.

Enable: select "Yes" to enable this gauge, "No" to disable it.

Source: set "SENS" to read the data from the probe, or "CAN" to read the data from the CAN bus. This parameter will only be displayed if you have chosen an engine with CAN communication in the "Eng" parameter.

⚠️ *NOTE:* When "Sens" is selected, the parameter **"Type"** will appear. Choose the type of sensor installed between VDO, P1K and TCJ.

Unit: set the unit of measure in Celsius (**°C**) or Fahrenheit (**°F**), default one is Celsius.

Filter: set the fluctuation speed of the Oil Temp readings.

Default = 60
Min = 1 (faster)
Max = 100 (slower)

Thresholds: set all the thresholds for the Oil T gauge.

Back: confirm to go back to previous menu.

Exit: confirm to go directly to the main screen.

Rotate the knob to highlight the threshold you want to change, push and change the value, push again to confirm. Default thresholds are at 0.
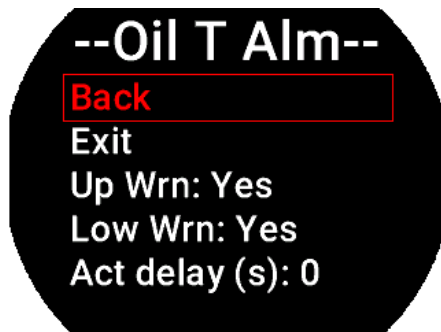
⚠ *NOTE:* Start to change the maximum thresholds and then, gradually, the lower thresholds.

⚠ *NOTE:* To make a colored portion disappear, give the same value to the low and high thresholds of that color.

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Alarms: enter to go to the Oil T Alarm menu.

```
--Oil T Alm--
Back
Exit
Up Wrn: Yes
Low Wrn: Yes
Act delay (s): 0
```

Back: go back to previous menu.

Exit: confirm to go directly to the main screen.

Up Wrn: select "Yes" to enable or select "No" to disable the High threshold alarm output.

Low Wrn: select "Yes" to enable or select "No" to disable the Low threshold alarm output.
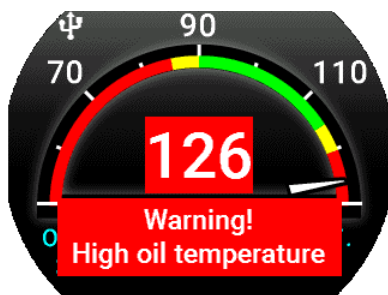
Act delay: Select a delay in seconds before the alarm is triggered. When the Low or the High thresholds are reached, the alarm output will be activated after the set time. This option can be useful to avoid continuous alarms when the measure is stationary at values close to the set threshold.
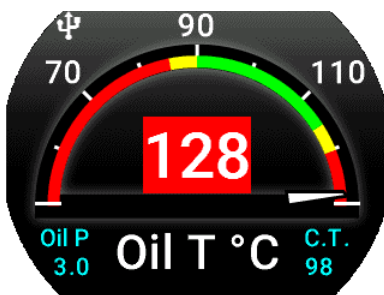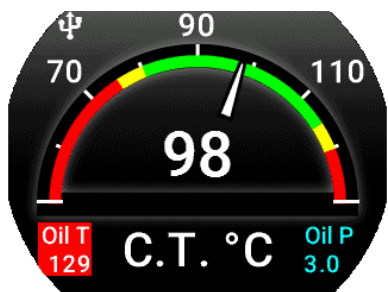
Default = 0s
Min = 0s (faster)
Max = 10s (slower)

The alarm is only triggered if the Warning parameter is set to "Yes". The alarm event triggers both the flashing message on the screen and the alarm output. Both of them can be reset by pressing the knob but the rectangle behind number remains in red.

Before resetting

After resetting with the knob

The values over the thresholds are also shown on the other screens. In this example the Oil Temperature alarm is shown in red in the Coolant temperature screen.

4.5.4 Oil Press Submenu

```
--Oil P--
Back
Exit
Enable: Yes
Source: CAN
Unit: °C
Filter: 60
Thresholds
Alarms
```

Back: confirm to go back to previous menu.

Exit: confirm to go directly to the main screen.

Enable: select "Yes" to enable this gauge, "No" to disable it.

Source: set "SENS" to read the data from the probe, or "CAN" to read the data from the CAN bus. This parameter will only be displayed if you have chosen an engine with CAN communication in the "Eng" parameter.

⚠️ *NOTE:* When "Sens" is selected, the parameter "**Type**" will appear. Choose the type of sensor installed between VDO and 4-20.

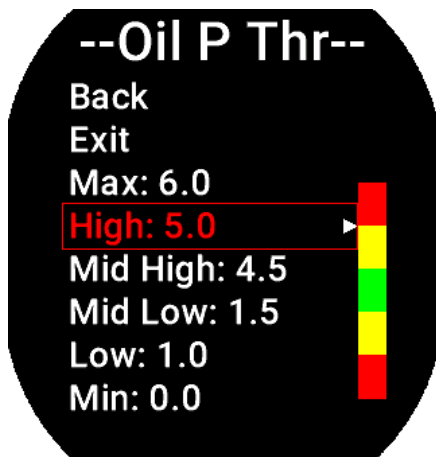**Unit:** set the unit of measure in (**bar**) or (**psi**), the default one is "**bar**".

Filter: set the fluctuation speed of the Oil Temp readings.

Default = 60
Min = 1 (faster)
Max = 100 (slower)

Thresholds: set all the thresholds for the Oil P gauge.

--Oil P Thr--
Back
Exit
Max: 6.0
High: 5.0 ▶
Mid High: 4.5
Mid Low: 1.5
Low: 1.0
Min: 0.0

Back: confirm to go back to previous menu.

Exit: confirm to go directly to the main screen.

Rotate the knob to highlight the threshold you want to change, push and change the value, push again to confirm. Default thresholds are at 0.

⚠ *NOTE:* Start to change the maximum thresholds and then, gradually, the lower thresholds.

⚠ *NOTE:* To make a colored portion disappear, give the same value to the low and high thresholds of that color.

Alarms: enter to go to the Oil P Alarm menu.

```
--Oil P Alm--
Back
Exit
Up Wrn: Yes
Low Wrn: Yes
Act delay (s): 0
```

Back: go back to previous menu.

Exit: confirm to go directly to the main screen.

Up Wrn: select "Yes" to enable or select "No" to disable the High threshold alarm output.

Low Wrn: select "Yes" to enable or select "No" to disable the Low threshold alarm output.

Act delay: Select a delay in seconds before the alarm is triggered. When the Low or the High thresholds are reached, the alarm output will be activated after the set time. This option can be useful to avoid continuous alarms when the measure is stationary at values close to the set threshold.
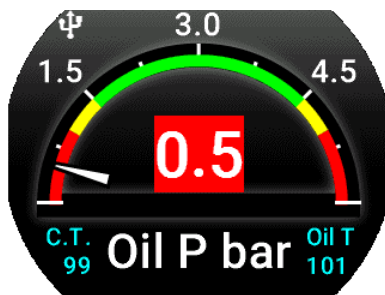
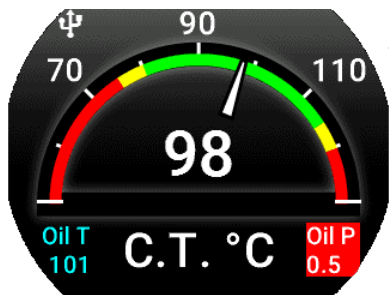Default = 0s
Min = 0s (faster)
Max = 10s (slower)

The alarm is only triggered if the Warning parameter is set to "Yes". The alarm event triggers both the flashing message on the screen and the alarm output. Both of them can be reset by pressing the knob but the rectangle behind number remains in red.
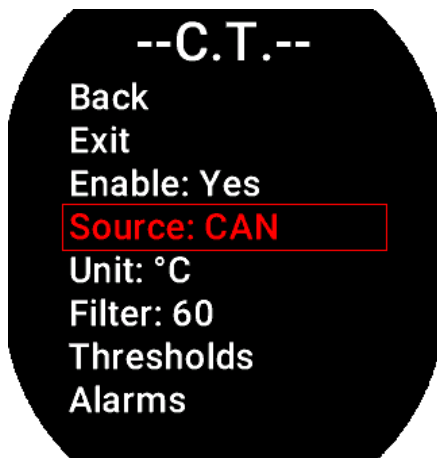

Before resetting

After resetting with the knob

The values over the thresholds are also shown on the other screens. In this example the Oil Pressure alarm is shown in red in the Coolant temperature screen.

4.5.5 Cool Temp Submenu

```
--C.T.--
Back
Exit
Enable: Yes
Source: CAN
Unit: °C
Filter: 60
Thresholds
Alarms
```

Back: confirm to go back to previous menu.

Exit: confirm to go directly to the main screen.

Enable: select "Yes" to enable this gauge, "No" to disable it.

Source: set "SENS" to read the data from the probe, or "CAN" to read the data from the CAN bus. This parameter will only be displayed if you have chosen an engine with CAN communication in the "Eng" parameter.

⚠️ *NOTE:* When "Sens" is selected, the parameter **"Type"** will appear. Choose the type of sensor installed between VDO, P1K and TCJ.

Unit: set the unit of measure in Celsius (**°C**) or Fahrenheit (**°F**), default one is Celsius.
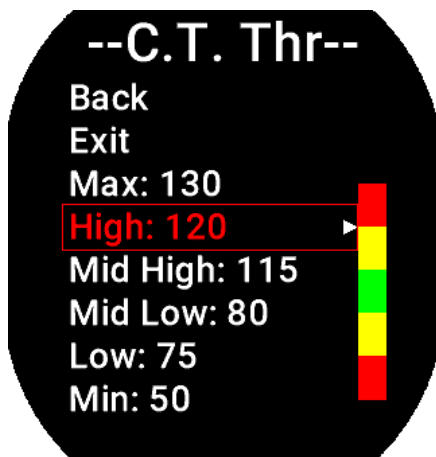
Filter: set the fluctuation speed of the Coolant Temperature readings.

Default = 60
Min = 1 (faster)
Max = 100 (slower)

Thresholds: set all the thresholds for the C.T. gauge.

--C.T. Thr--
Back
Exit
Max: 130
High: 120 ▸
Mid High: 115
Mid Low: 80
Low: 75
Min: 50

Back: confirm to go back to previous menu.

Exit: confirm to go directly to the main screen.

Rotate the knob to highlight the threshold you want to change, push and change the value, push again to confirm. Default thresholds are at 0.
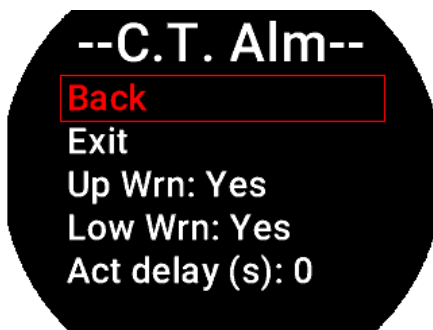
⚠ *NOTE:* Start to change the maximum thresholds and then, gradually, the lower thresholds.

⚠ *NOTE:* To make a colored portion disappear, give the same value to the low and high thresholds of that color.

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Alarms: enter to go to the Cool Temp Alarm menu.

```
--C.T. Alm--
Back
Exit
Up Wrn: Yes
Low Wrn: Yes
Act delay (s): 0
```

Back: go back to previous menu.

Exit: confirm to go directly to the main screen.

Up Wrn: select "Yes" to enable or select "No" to disable the High threshold alarm output.

Low Wrn: select "Yes" to enable or select "No" to disable the Low threshold alarm output.
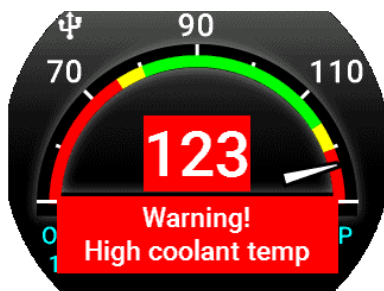
Act delay: Select a delay in seconds before the alarm is triggered. When the Low or the High thresholds are reached, the alarm output will be activated after the set time. This option can be useful to avoid continuous alarms when the measure is stationary at values close to the set threshold.
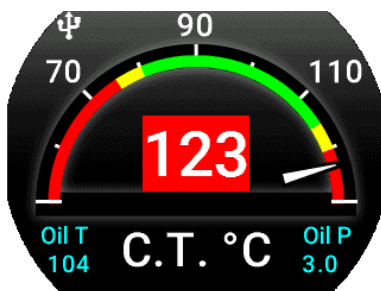
Default = 0s
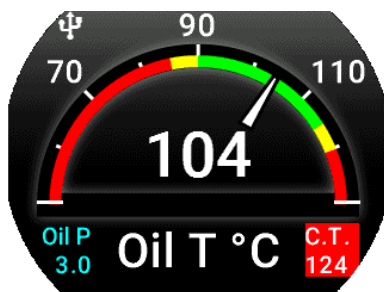Min = 0s (faster)
Max = 10s (slower)

The alarm is only triggered if the Warning parameter is set to "Yes". The alarm event triggers both the flashing message on the screen and the alarm output. Both of them can be reset by pressing the knob but the rectangle behind number remains in red.
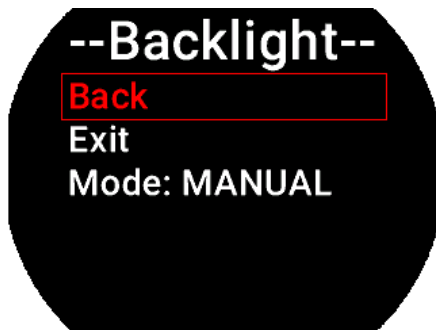

Before resetting

After resetting with the knob

The values over the thresholds are also shown on the other screens. In this example the Cool Temp alarm is shown in red in the Oil Temperature screen.
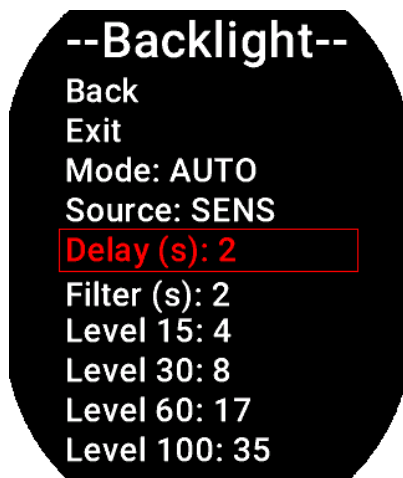
4.6 Backlight Submenu

Back: go back to previous menu.

Exit: confirm to go directly to the main screen.

Mode: select to chose from "Manual" and "Auto". When in "Manual" mode, the brightness can be changed with the dimmer function from the main menu, from 1 (min brightness) to 19 (max brightness). Default value=19. Selecting "Auto" new parameters will appear in the list:

Source: set how the instrument reads the ambient brightness. Choose "Sens" to read the brightness from the sensor connected to the instrument itself or "CAN" to read the ambient brightness from the CAN bus if the brightness sensor is connected to another Omnia57 instrument connected in cluster.

--Backlight--
Back
Exit
Mode: AUTO
Source: SENS
Delay (s): 2
Filter (s): 2
Level 15: 4
Level 30: 8
Level 60: 17
Level 100: 35

Delay (s): It introduces a delay to the variation of the backlight, it can be useful to avoid continuous changes in brightness when the sensor is hit by light and shadow alternately.

Default= 2s
Min= 1s (faster)
Max= 10s (slower)

Filter (s): The filter slows down the response to changes in external brightness, it raises the value to slow down, lower it to speed them up.

Default = 2s
Min = 1s (faster)
Max 30s (slower)

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This function assigns the amount of light read by the sensor to the target brightness (Level 15 = 15% brightness).

Once all 4 points have an assigned value, the brightness will change according to the amount of light read, interpolating it between the segments that are created.
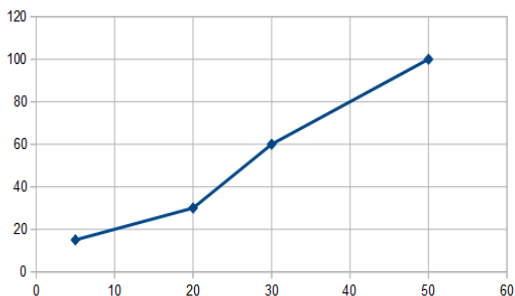
Level 15: 4

Level 30: 8

Level 60: 17

Level 100: 35

Defaults values

OPERATING INSTRUCTIONS

5.1 FIRMWARE UPGRADE

The **Omnia57 Oil P-T-CT** software can be easily updated with new versions, when available. To check if a new software version is available, see www.flyboxavionics.it under support > software page.

Download the new version and after unpacking it, copy it to a USB stick, possibly free from other files.

To update the instrument it is necessary to connect the USB stick to the instrument you want to update or to any other instrument of the Omnia57 series installed and clustered via the CAN bus, following the procedure below:

- connect the usb stick to the instrument

- From the main menu of the instrument you want to upgrade select "Firmware Upgrade".

If the USB stick is not yet plugged-in, a message advising you to insert it will appear:

Firmware Upgrade

Insert Flash Drive!

Back

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If already plugged-in, a message indicating the file and the version will appear:

Firmware Upgrade
Back
DEV. NAME>1.00

Select and confirm the software you want to write, the following screen will appear:

Firmware Upgrade
(DEV. NAME)
Current version 1.00
Available version 1.01
Continue upgrade ?
No   Yes

In case you are installing a version prior to the installed one, a different message will inform that you are **downgrading** and not upgrading the software. Confirm "Yes" to proceed, "No" to exit without writing any software.

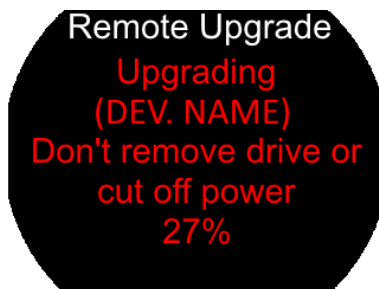(DEV. NAME) is the name of the instrument being update.

Wait until this message will appear and then remove the USB stick. The instrument will reboot with the new software.

> Omnia57
>
> Write complete!
> Remove flash drive
>
> Loader v1.0

⚠️ **Note:** if the USB stick is installed on a device other than the one you are updating, the following messages will appear on the 2 devices:

> Omnia57
>
> Writing flash!
> Don't cut off power
>
> Loader v1.00
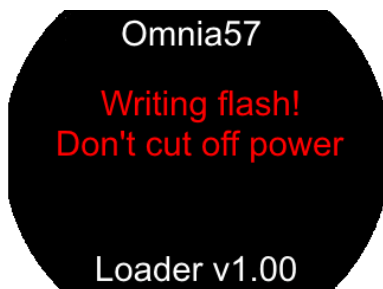
Device is being Update

> Remote Upgrade
>
> Upgrading
> (DEV. NAME)
> Don't remove drive or
> cut off power
> 27%

Remote device where the USB is connected

5.2 Backup / Restore

All set parameters and calibrations made in the instrument can be saved in a backup file. This can be useful if you need to restore all the parameters in a new instrument, for example in case of replacement, or if you need help from the instrument manufacturer. In this case, simply send the backup file saved on the USB stick to the Flybox support service. To backup or restore the parameters it is necessary to connect a USB stick to the instrument you want to backup/restore or to any other instrument of the Omnia57 series installed and clustered via the CAN bus.

From the main menu of the instrument you want to backup or restore the parameters, choose "Backup/Restore". If the USB stick is not plugged-in yet , a message advising you to insert it will appear

Select "Backup" and push the knob to write the file on the USB stick. When the file is written, this message will appear:

Select "Restore" and push the knob to load the previously saved parameters into the instrument.

Push the knob to reboot, the new parameters are now loaded in the instrument.

5.3 USE OF THE INSTRUMENT

When switched-ON, the display will immediately show the main page with the first of the enabled gauges.

⚠️ *NOTE*: The first time you switch-ON the **Omnia57 Oil P-T-CT**, there will not be enabled gauges. You need to enable and customize them as explained in chapter **4.1**.

The example below refers to the installation comprising of all the three gauges. If your setting is different, the indication of the display might be different.
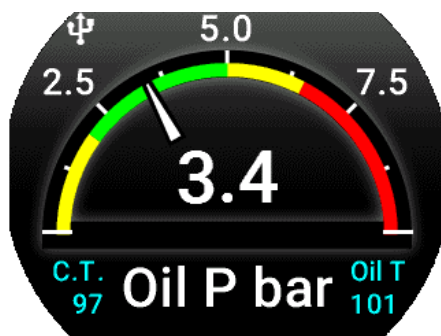
The gauge values not shown in the actual screen are always represented in the bottom left and right corners.

In the example, the main screen is showing the Oil Pressure and in the corners the other 2 readings are available.

Turn the knob to see another gauge (the Interface>mode parameter must be set on "Manual"), go to chapter **4.5.1** for a full description.

If the Interface>mode parameter is set to "Limit" mode, automatically the gauge which is the closest to its high limit will be displayed. You can select the display of one of the other indicators by turning the knob and the display will remain stuck on it for the number of seconds indicated in the parameter "Hold. Time".

When a gauge is showed it will be possible to read the other gauge values at the left and right corners at the bottom.

When the measurement of any of the enabled gauges exceeds a threshold, the display jumps to that instrument.
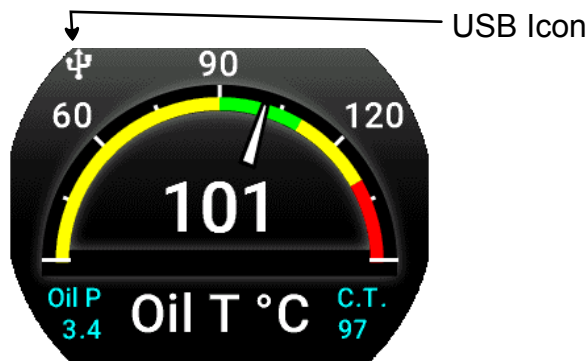
5.4 Logger

The Logger can be useful for storing flight data on the USB stick, for example to ask for assistance in case of problems.

The data will be stored at 1 second samples and written on a file with some information of the instrument that generated them.

When the USB flash drive is plugged-in to the device to be logged or to any other instrument of the Omnia57 series installed and clustered via the CAN bus, a white icon will appear on the display indicating that the flash drive is connected.

USB Icon

To activate the Logger choose "Yes" from the Main Menu>Logger. The icon will turn **green** when the file is being written and **red** when the Logger is enabled but the USB stick is not connected.

TECHNICAL SPECIFICATIONS

- Graphic TFT LCD with backlight and coated glass, dimensions 29x18mm.
- Standard mounting 2 1/4" (57mm).
- Powder painted aluminium case.
- Dimensions: 60 x 60 x 40 mm.
- Weight: 140g.
- 3 analog input for probes.
- Supply voltage: 10 ~ 30 V=.
- Supply current: 60mA.
- Open-collector alarm output (max 300mA, active low). This output can also be used to send a tone in the intercom, using the Flybox optional device code 105899.
- Operating temperature range: -20 ~ +70°C.
- Humidity: 90% max (without condensation).
- Communication through 2 CAN bus.
- USB port: for USB 2.0

CLEANING

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

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One Year Warranty:

Product support and warranty information can be found at www.flyboxavionics.it.
Flybox® warrants this 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 and maintained. 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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Products that can not be repaired under warranty as out of the maximum term or that do not work for reasons that would have been covered by warranty, can be repaired at a flat rate as described on the site. For out-of-warranty eligible damages, the repair must be assessed for each individual case.

Omnia57 Oil **P-T-CT -** Installation and User Manual,
Safety Instructions and Warning Booklet

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Date	Revision	Description
02/2019	1.0	First release

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