LXNAVIGATION

# EOS 80

## User manual

# LX Eos 80


***Device manual***

- LX navigation -

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LXNAVIGATION

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# Document information

## 0.1 Abstract

This document represents the user manual for the LX Eos 80 variometer. The installation manual, dataport and additional info can be found on **www.lxnavigation.com**.

## 0.2 Document status

**Document status: PUBLIC**

| Document status | Explanation |
|---|---|
| Internal | Intended only for LX navigation staff |
| Public | Available publicly to all |
| Personal | Intended for a specific person and/or company, noted on this page |
| Dealer | Intended for a specific dealer, noted on this page |
| Manufacturer | Intended for a specific manufacturer, noted on this page |

## 0.3 List of applicable products

| Device | Version | Build |
|---|---|---|
| LX Eos 80 | V1.6 | 171 |

## 0.4 Revision history

| Document name | Document revision | SW version | Build | Date | Revised by | Approved by | Notes |
|---|---|---|---|---|---|---|---|
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# Important notices

## 1.1 Using this manual

This manual has been created in LaTeX, giving us the possibility of linking up everything we find linkable. You will find references to other parts of the manual, to other manuals, webpages, etc. throughout the manual.

Linkable content will be **bold and underlined**, i.e. you can find additional info on how to take care of your Eos 80 in the **Taking care of your Eos 80** section of this manual (click on the underlined text).

**NOTE**
The most recent version of this manual will always be available at
**https://lxnavigation.com/support/**

## 1.2 Device operating limits

This instrument may be used under VFR (Visual flight rules) only! Any navigational information is provided for reference only. The pilot takes all responsibility and risk associated with the use of this device.

Have a nice flight.

## 1.3 Limited warranty

This device is warranted to be free from defects in materials or workmanship for two years from the date of purchase. Within this period, LX navigation will, at its sole discretion, repair or replace any components that fail in normal use. Such repairs or replacements will be made at no charge to the customer for parts and labour, the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident, or unauthorized alterations or repairs.

THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM COUNTRY TO COUNTRY.IN NO

EVENT SHALL LX NAVIGATION BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE, OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT.

Some countries do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you. LX navigation retains the exclusive right to repair or replace the unit or software, or to offer a full refund of the purchase price, at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY. To obtain warranty service, contact your local LX navigation dealer or contact LX navigation directly.

The manufacturer does not take the responsibility for possible mistakes or misprints in this text and gives no guarantee for accuracy of this manual. This manual has been written with the greatest care and we have done our best to avoid any mistakes but with all respect please check any doubtful statement and let us know. We would be very grateful and we thank you in advance for any comment.

## 1.4 Sunburned display

Damages to the device, especially the display part, are not covered by the warranty and will be considered as misuse of the device. To learn how to take care of your display and device in whole, check the **Taking care of your Eos 80** section of this manual.

## 1.5 Disclaimer/EULA

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# What's in the box?

When you order an LX navigation device, you always receive all of the cables, dongles and antennae you need, to set up your device fully. There are no additional costs required for the full use of your device and we always try to emphasise this to our customers.

In order to make it clearer, this section lists everything you receive with your device.

Please note, that additional devices, like the LX Joy, LX AHRS, LX MOP IGC and similar are not included, as they are separate devices.

## 2.1 The Box

The Eos 80 comes in two types (front and back seat). The box content differs for the front/back seat devices.

### 2.1.1 Front seat Eos 80

The following items come with the device:

- **LX Eos 80 device -** your device
- **Speaker** with a 3.5 mm jack connector - to have your vario speak to you
- **microSD card -** a SanDisk Ultra 16GB to transfer your files
- **Inputs interface -** to connect your micro-switches
- **BT/WiFi antenna**
- **GPS antenna -** to know your position
- **OAT cable -** to know your temperature
- **LX Eos 80 - Oudie cable -** for your connectivity desires
- **Baro calibration -** for your comps and badges
- **LX Eos 80 sticker -** for propping up the image of your glider and sharing the tech you use
- **Power cable -** used to connect the Eos 80 power connector to a glider's power grid
- **CAN cable 30 cm -** only when sold as part of a Zeus system
- **Packing list -** just like this one

### 2.1.2 Back seat Eos 80

The following items come with the device:

- **LX Eos 80 device -** your device
- **CAN cable 4 m**

# Getting started

## 3.1 Device hardware overview

The **Eos 80** is a digital electronic variometer. It is a **highest level IGC certified logger with ENL** capability and is **expandable to MOP as well** (if the MOP IGC logger is connected). You can find the IGC approval **here**.

The Eos 80 was envisioned to be easy and intuitive to use, with a single command input (one push-rotary knob).

It provides the pilot with **four dedicated navigation pages**, enabling simultaneous navigation to a **Turnpoint**, **Airport**, **Task** or the **Nearest landable** point. Each page offers the pilot information of his position on a map, with Turnpoints, Airports and Airspaces graphically shown on the map.

The Eos 80 has a built-in voice module, offering the pilot voice warnings, voice pronounced airport frequencies and similar.

The Eos 80 features an internal battery, capable of powering the device for three to five hours, depending on the brightness level, sound level, use of connectivity features and similar. More info can be found in **A word on internal battery and flight mode** sub-section.

All Eos' have a built-in **connectivity module**, providing both **Bluetooth** and **WiFi** connectivity to the user.

The **Bluetooth** is mainly used for connecting 3rd party devices, like PDA/PNAs, Android phones, etc. The connection to these devices enables bi-directional communication. This communication includes sending of task declarations from third party devices to the Eos 80, communicating the MC, Ballast and Bugs parameters between the two devices, as well as the Eos 80 sharing it's information (includes but is not limited to: accurate GPS, altitude, vario value, Flarm, IAS, G-force, AHRS data, etc.) to the 3rd party device. Additional info on Bluetooth connectivity can be found in the **Bluetooth connectivity** section of this manual.

The **WiFi** is mainly used for giving the Eos 80 access to the internet. This can be done by connecting it to a mobile hot-spot or regular WiFi network. The Eos 80 has the capability of sending flights over emails and other functions, depicted in the **WiFi connectivity** section of this manual.

The Eos 80 has a dedicated **Flarm port** on the back of the device, providing the pilot the capability of connecting **any Flarm device**. The Eos 80 will use the data acquired from the Flarm device in two ways. Firstly, it will show the pilot all surrounding aircraft on the **Flarm radar screen**. Secondly, it will warn the pilots of upcoming threats with the **Flarm warning screen**. More info on this subject can be found in the **Flarm radar page** sub-section of this manual.

The Eos 80 has a dedicated **User port** on the back, used for providing bi-directional cabled communication to a 3rd party device using the **RS232** communication protocol. More information on this subject can be found in the **Connectivity** section of this manual.

The Eos 80 has a dedicated **Inputs port**, intended for the **Inputs interface**, used for connecting up to 5 **external micro-switches** for triggering different functions in the Eos 80. More info on this subject can be found in the **Inputs** sub-section of this manual.

The Eos 80 features an **OAT** (outside air temperature probe), a **3.5 mm audio-put jack** and **two antennae** connectors, for both the GPS and connectivity module.

The Eos 80 features high-precision digital sensors based on the latest MEMS technology for attitude, vario, speed, 3-axis gyros, 3-axis accelerometers. All sensors are sampled with at least 100Hz.

On the back side of the Eos 80, we can see the three **pressure connectors**, for connecting $P_{TOT}$, $P_{ST}$ and $TE$ / $P_{ST}$ pressures. The Eos 80 also has a separate, internal altitude pressure, used for logging flights.

The Eos 80 comes in the standard 80mm ($3\ 1/8$ inch) aviation instrument holes. It utilizes a transflective technology display. It is important to note, that the Eos 80 is much more similar in function to the Era varios, than the Eos 57.

The Eos 80 has an internal memory capacity of at least $8GB$, used for storing flights, settings and database files.

LX Eos 80 can be used in two different configurations:

- **Standalone configuration -** LX Eos 80 represents vario navigation system and has all options active. Unit will turn on when enter push/rotary knob is pressed.

- **Zeus configuration -** LX Eos 80 serves as vario system controlled from LX Zeus. Unit will turn on automatically when main switch (Zeus) is turned on. Flarm radar settings and thermal assistant settings are set on LX Eos 80 while all other settings are controlled by settings on the LX Zeus. Some options are disabled on the LX Eos 80 (setup, task edit) but all options become active when backup mode is detected.

The unit has the capability of being updated to any later firmware release free of charge. When paired with a Zeus, the Zeus will automatically update the Eos 80. For information on

how to update a standalone Eos 80, check the next sub-section.

You can find a list of functions listed below:

- **2.7 inch transflective technology display**
- **IGC certified with ENL**
- **WiFi module**
- **Bluetooth module**
- **Integrated G-meter -** G-force recorder
- **3-axis gyroscopes**
- **3-axis accelerometers**
- **50ch GNSS receiver**
- **User defined inputs -** for micro-switches
- **Internal beeper**
- **Voice module**
- **Push-rotary knob**
- **At least 8GB -** of internal memory
- **Flarm port**
- **User port**
- **CAN bus**
- **Front-facing microSD card reader**
- **Standalone or Zeus version**
- **Built-in rechargeable battery**
- **Pre-loaded polar database**
- **TE electronic or TE probe compensation**
- **Speed to fly function**
- **Final glide calculator -** on all navigation pages
- **Flarm radar screen -** with Flarm warnings
- **Thermal assistant**
- **LX Joy operation**
- **Logbook**
- **Flight information with an altitude graph**
- **Multi-pilot support**
- **Wind calculation in both circling and straight flight**
- **User warnings**

# Basic operation

We will go through the basic gestures and what they do on all pages of the Eos 80 variometer.

One important thing to keep in mind is that there are usually multiple ways of doing something on an Eos 80 and, although we will go through all of the possibilities, the Eos 80 is envisioned to be used single-handedly.

## 4.1 Turning the Eos 80 on

There are two different hardware versions of the Eos 80. A **standalone** and **Zeus** version.

**The standalone version** of the device is turned on by pressing and holding the push-rotary knob until the screen flashes. **The Zeus version** of the Eos 80 is being turned on automatically when the Zeus is powered on, or more precisely, when it receives power through the CAN port.

Once the device is turned on, a sequence of screens will appear in the following order:

- **LX navigation greeting screen**
- **Second screen** stating the device type, serial number, IGC number and firmware version
- **The initial setup** page will appear, where basic information is selected:
  - **Select pilot**, where a pilot profile should be selected, from which all user settings shall be imported
  - **Set elevation**, where the elevation of the take-off location should be selected
  - **Set QNH**, where the QNH pressure should be set for take-off location

**WARNING**

When the device is turning on, three types of warnings may appear, indicating limited operation capability to the pilot. In first two cases, recording is disabled and you should contact **LX support** as soon as possible. In all three cases, the system will still offer navigation, vario and other basic functions.

- **Seal not valid -** indicates the internal IGC seal of the device has been lost. Explained in detail in section **The internal battery**.
- **Internal memory error -** there is an issue with the internal memory of the device. Flights will not be saved and settings will not be loaded, but the device will operate.
- **Network module error -** indicating an issue with the internal network module.

## 4.2 Device interface

The Eos 80 features a single push-rotary knob for pilot-device communication. The front side of the device, represented by figure 1, shows the Eos 80's user interface. An example page shows how the first page on the Eos 80 looks in-flight.


Figure 1. Eos 80 front plate interface

The picture above explained:

1. M4x6 Phillips head screw
2. Current time
3. Numeric indicator 1
4. Numeric indicator 2
5. Analog needle indicator chosen
6. Numeric indicator 3
7. Numeric indicator 4
8. IAS tape
9. Battery status indicator
10. Wind indicator
11. Front plate
12. Status indicators
13. Colour coding of the speed tape
14. Push-rotary knob

## 4.3 Turning the Eos 80 off

The Eos 80 can be turned off in different ways, depending on the configuration you have.

All units will start the shutdown process once the power supply is cut from the main power lines or the CAN bus, the latter representing a shutdown of the Zeus, unless in flight mode.

There is a possibility of a manual shutdown by going to **Setup** > **Shutdown** and confirming by choosing 'Yes'.

In case a device requires a force shutdown, **there is a possibility of performing a hard shutdown by pressing and holding the push-rotary knob for 15 seconds**.

## 4.4 User input

The Eos 80 was envisioned to be simple and intuitive to use thanks to it's single push-rotary design.

The Eos 80 can also be commanded by an LX Joy, which expands the user interface greatly. Learn more in the **LX Joy** section of this manual.

The **push-rotary knob** is used for the following functions:

- **Scrolling**, turn clockwise for moving down, right or for choosing larger values, counter-clockwise for moving up, left or choosing smaller values.
- **Turning while being pressed**, acts as noted above, **by 10-fold**.
- **Short-Pressing**, acts as '**Confirm**', '**Enter**' or opens sub-page 1
- **Long-Pressing** opens sub-page 2, if available
- **Holding it for 15 seconds** will perform a **Hard Shutdown**.

## 4.5 Performing an update

In order to be on track with the latest software releases, be sure to regularly follow our **Database webpage**. Once you find an update, contact LX navigation support via the following email: **info@lxnavigation.com** with your contact details, device type, the software version you'd like to update to and the serial number of your device, and the support staff will provide you with an update code.
Once you have received the update code, follow these steps:

1. Copy the desired software update to the root of the microSD card. The update file should have the word Eos 80 within its name and an extension of .lxu
2. Turn the device on and insert the microSD card
3. Go to **Setup** $>$ **Service** $>$ **Software update**
4. Select the desired update file
5. When prompted, type in the update code supplied by LX support
6. The device will copy the file to the internal memory and perform the update. It may restart a couple of times.
7. Once the update has finished, verify that the update has been successful by going to **Setup** $>$ **Service** $>$ **Device info** and checking that the SW version has changed to the desired one

**NOTE**

While the Zeus version of the Eos 80 will restart automatically, a standalone Eos 80 requires the push-rotary knob to be pressed in order to turn them on, after the file has been copied, for the updating process to proceed.

**WARNING**
**Once the Eos 80 has been updated, it will update all CAN-compatible devices (LX Joy, second seat device, etc). For this reason, the Eos 80 should be left ON for at least five minutes after the main unit has been successfully updated. If the update of CAN units is ongoing, an infobox will appear, notifying the pilot.**

**WARNING**
**Great care should be taken not to turn the device off while the updating process is running. Data corruption may occur. If something similar happens, contact LX support immediately, in order to recover your unit.**

## 4.6 A word on internal battery and flight mode

All Eos 80 devices have a built-in reserve battery, intended for supplying the unit with power in case your aircraft losses its main power supply. The reserve battery is not intended for use on the ground, which is why the device can not be turned on, on reserve battery alone.

Flight mode is a term describing a state in which the Eos 80 is, when the device detects it is flying. For getting into flight mode, one of the following parameters must be met:

- **GPS lock** is present, and
- **GPS speed** is above 10 m/s, or
- **airspeed** larger than 10 m/s is present, or
- **significant movement in vertical speed**

Once in flight mode, the Eos 80 will not turn off if the main power supply is cut, but continue operating as long as there is internal power, or until the main power supply is reestablished. The internal battery powers all of the internal features of the Eos 80, which means everything described in the manual. The Eos 80 will continue logging, with IGC seal intact, it will continue providing you vario information, sound warnings, complete navigation, etc.

External modules, such as Flarm, Flap sensor, Joy, etc. will not work, as they require the main power supply.

If you wish to turn the Eos 80 off, while in flight mode, you will have to exit the flight mode by going to **Logbook/Flight statistics page**, pressing the push-rotary knob and confirm the 'Finish flight' question. The Eos 80 will check the integrity and seal the flight and turn off, if no external power is present.

A sure way of knowing if the Eos 80 is in flight mode is to go to the Statistics/Logbook page. If the Statistics page is present, with the barograph present, the Eos 80 is in flight mode.

You can simulate flight mode, while on the ground, by receiving a GPS lock and applying slight dynamic pressure to the $P_{TOT}$ pressure port (or front entrance of Pitot tube), so the

IAS is above 10 m/s for about 5 seconds. You can keep the Eos 80 in flight mode by then disconnecting the GPS antenna, or by keeping the IAS constantly above 10 m/s.

For notes on how to take care of your Eos 80's reserve battery, check the **Taking care of your Eos 80** section of this manual.

**WARNING**

**Great caution should be exercised when applying pressure for IAS simulation, as the internal pressure sensor of the Eos 80, and other avionics, may get damaged if excessive pressure is applied, water is present in the Pitot-static system, or similar. LX navigation is in no case liable for any damages that may appear when simulating and strongly discourages simulating flight mode while grounded. However, if a simulation has to be done, the steps above are the safest.**

# Advanced operation

**Primary pages overview** This section will cover the complete specter of operations possible on Eos 80's primary pages.

There are 13 primary pages on the Eos 80. You can scroll between these pages by using the push-rotary knob. The pages are listed as follows:

1. **Main page**
2. **Thermal assistant page**
3. **Flarm radar page**
4. **Turnpoint navigation page**
5. **Airport navigation page**
6. **Task navigation page**
7. **Nearest landable navigation page**
8. **G-force page**
9. **AHRS page**
10. **Info page**
11. **Logbook/Flight statistics page**
12. **Airspace page**
13. **Setup page**

## 5.1 Main page

The main page holds primary flight information. It consists of an analog needle, a clock, either two or four user settable indicators, status indicators, IAS tape, a wind indicator and an OAT indicator.


Figure 2. Main page overview

### 5.1.1 Analog needle scale

The analog needle scale can be set in the **Indicators** menu to show one of the following flight parameters:

- **Vario**
- **SC**
- **Netto**
- **Relative**
- **G-force**

For more information on how to set the analog needle, check the **Indicators** part of the manual.

The value, which is being shown by the analog needle, is shown with three letters bellow the status indicators, shown as 'VAR' on figure 72.

The analog needle scale shows two additional parameters: **Speed to fly** and **MacCready** value set.

The first is represented with a **thin green line**, which moves along the inner edge of the analog needle scale. The idea is that the green arc should always be on zero. If it is showing a negative value, it means you are flying to slow for the current vertical speed value and

MacCready value set, and that you should speed up. Similarly, if the green arc is showing a positive value, it means you are flying too fast and you should slow down. When abiding to Speed-To-Fly rules in your flight, in ideal conditions, the green arc is not visible.

The latter shows the current MacCready value set and is represented with a **yellow dot** with black outline. If the dot is positioned on the 2 m/s value, it means your current MacCready value is set to 2 m/s.

### 5.1.2 Digital numeric indicators

The Eos 80's main page features either two or four numerical indicators. If two indicators are chosen, the info shown is twice as large, which is why this setting is recommended with pilots who have short-sightedness issues.


Figure 3. Four indicators


Figure 4. Two indicators

Each of these indicators is formatted in the same way. On the far-left, the name of the indicator is displayed, noting which flight parameter the indicator is showing. Next, with larger fonts, the actual value is shown, with the value unit to the right of the shown value. These indicators are the only pilot-adjustable fields on this page, apart from assigning the flight parameter the analog needle arc will show.

Pilots can choose between the number of indicators, which indicators will be shown, as well as a separate set of indicators for both **Flight mode indicators** (circling and straight flight).

For more info on how to set the numerical indicators, check the **Indicators** setup menu.

### 5.1.3 Current time and OAT

These indicators embody the central part of the screen from the top and bottom, respectively. The Current time indicator shows the current GPS time in regards to the timezone chosen in the **Localisation** setup menu. The OAT indicator shows current Outside Air Temperature, or more exactly, the temperature measured by the OAT probe. This item is non-configurable.

### 5.1.4 Wind indicator

The wind indicator shows three important wind parameters. Firstly, it shows the wind direction relative to our current track, with the black/green arrow indicator shown by figure 5. Right to the wind circle, wind absolute direction is shown, as well as the wind speed, along with the speed units. For info on how to set units, check the **Units** setup menu.

Figure 5. Wind relative direction indicator

The wind is being calculated both in circling and in straight flight. It will update at all times and no settings are required.

### 5.1.5 Status indicators

#### 5.1.5.1 Flarm status indicator

Is represented with a red Flarm symbol, depicted with **Flarm status indicator icon**. If the Flarm icon is present, the device has an established connection with a Flarm device. On how to get more info from the Flarm device, check the **Info page** section. For information about Flarm objects and the Flarm radar page, check the **Flarm radar page**.

Figure 6. Flarm status indicator icon

#### 5.1.5.2 Connectivity status indicator

The Eos 80 has both Bluetooth and WiFi capability. Both modes are depicted with an appropriate icon.

Figure 7. Bluetooth status indicator

Figure 8. WiFi is on indicator

Figure 9. WiFi is connected indicator

The Bluetooth icon indicates the current wireless mode is set to Bluetooth. The WiFi icon shows in two colours. A black WiFi icon indicates the wireless mode as set to WiFi, while the green WiFi icon indicates that we have established a connection. For more information on connectivity, check the **Connectivity** section.

#### 5.1.5.3 GPS status indicator

The GPS status indicator indicates whether or not the device has a valid GPS lock. Under valid GPS lock, a connection to at least four satellites is require.

Figure 10. GPS signal is not valid

Figure 11. GPS signal is valid

#### 5.1.5.4 Flight mode indicator

The flight mode indicator depicts whether the device is currently in straight flight, or circling mode. The common way to transition between the two modes is by activating the SC (Speed Command) button/switch, or by using one of the automatic ways, implemented into the device.

For additional information on how to setup different input switches, check the **Inputs** section. For additional info on how to change between flight modes automatically, check the **Vario/SC** setup menu.

Figure 12. Device is currently in circling mode

Figure 13. Device is currently in straight flight mode

#### 5.1.5.5 Battery status indicator

White battery outline indicates the device is running on external power, while a red battery outline indicates the device is running on internal power.

Figure 14. 1 red bar (less than 10.8V)

Figure 15. 2 yellow bars (more than 10.8V)

Figure 16. 3 green bars (more than 12.0V)

Figure 17. 1 red bar (less than 20 % backup battery left)

Figure 18. 2 yellow bars (21 - 80 % backup battery left)

Figure 19. 3 green bars (81 - 100 % backup battery left)

### 5.1.6 Volume sub-page

To open the Volume sub-page, press the push-rotary knob on the main page. Once the Volume sub-page is open, use the push-rotary to navigate and set values. You can turn the push-rotary to set any of the values and press it to transition to the next parameter.


Figure 20. Volume setting


Figure 21. MC setting supbage


Figure 22. Ballast setting


Figure 23. Bugs setting supbage


Figure 24. QNH setting supbage


Figure 25. Brightness setting

**NOTE**

Please note that changing the QNH prior to take-off will have no effect on the altitude displayed and the Eos 80 will continue to display the altitude set at initial setup. Once the Eos 80 is in flight mode, changing the QNH pressure will change the altitude appropriately.

## 5.2 Thermal assistant page

The Thermal assistant page is a pilot's best friend while thermalling. It is designed to provide the pilot with all relevant information while in a thermal.

The TA page incorporates four NavBoxes, showing the following parameters:

- **T AVG -** shows the average vertical speed for the whole thermal, since the device detected the start of circling, up to the current point in time
- **AVG -** shows the integrated vertical speed for the time duration set in the **Vario/SC** setup menu
- **MAX -** the maximum variometer value in the last circle (360 degree turn). This is the same value as is represented by white dot on TA page.
- **GAIN -** shows the accumulated altitude from the start of circling. The GAIN NavBox shows the difference between current altitude and altitude recorded at the start of circling, which means this value can also be negative.


Figure 26. Thermal assistant page overview

In the middle of the screen, we can see the actual **Thermal assistant**, embodying the **Wind indicator**. The Wind indicator works much the same as already noted in **Wind indicator**.

The **Thermal assistant** is an indicator, whose main function is to map the strength of the thermal in the last full circle and give the pilot an idea of his actual position in the thermal, thus helping him center.

A glider represents the pilot's current position in the thermal. The glider can be either on the left side (circling to the right), or the right side (circling to the left) of the Wind indicator.

Next we see dots forming a circle, at 18 degree intervals. These dots represent discretized parts of the thermal. The dots are either red or blue. Red indicates a lifting part of the thermal and blue a sinking part. The size of the dot indicates the intensity, larger dots representing greater vertical speeds, in either direction. A single dot (white when dark theme is used and white with a black edge when light theme is used) represents the strongest part of the thermal during your last circle.

To the right of the Thermal assistant, a speed tape, indicating IAS is present. The current IAS is framed, and behind it, a sliding colour tape can be seen. The colour tape boundaries can be set in the **Glider** section.


Figure 27. TA options overview

Pressing the push-rotary knob will open the TA options page. Here, we can choose to turn on different functions, such as:

- **Auto TA -** Ticking this option will make the Eos 80 turn to TA page when it detects circling has started. Once the Eos 80 detects it is no longer circling, it will revert back to the page you had before.
- **MC color -** When MC color scheme is ticked, red dots represent climb which is stronger than 1.2*MC value set. Yellow dots represent climb in range of 0.8*MC and 1.2*MC value set. Blue dots represent climb less than 0.8*MC value. If MC setting is less than 0.5m/s, default color scheme is used.
- **Max beep -** The device beeps when you are passing through the point at which the maximum thermal strength was recorded in your last turn.
- **Beep offset -** Offsets the beep by a set amount of seconds.

## 5.3 Flarm radar page

The Flarm radar page shows all surrounding objects reported to the Eos 80 by a Flarm device. If the said Flarm device has an ADS-B module, the Eos 80 will show ADS-B objects as well. Flarm objects are shown on a radar screen with track-up orientation.


Figure 28. Flarm radar screen


Figure 29. Flarm radar select circle

Gliders presented as a dot on the screen, are gliders where pilots have intentionally activated the PRIVACY mode on their Flarm unit. Gliders in privacy mode send limited data strings and can't be visualized completely. However, all warnings will appear regardless of privacy mode.

**Long-pressing** the push-rotary knob will invoke the selection of a Flarm object to follow. For a selected object, relative altitude and vertical speed of object will be displayed on the screen, as depicted on Flarm radar select circle.

**Short-pressing** the push-rotary knob, the Flarm radar sub-page will open. Here, we can find the Zoom setting and a list of all visible aircraft is shown. A green dot next to the name of the object shows which object has been select for additional info on the Flarm radar page. Object ID and distance is also shown.

By choosing an object and pressing the push-rotary knob, additional information can be seen and/or edited, for each object:

- **Callsign**
- **Pilot**
- **Airfield**
- **Registration number**
- **Frequency**
- **Flarm ID (always non-changeable)**

The Eos 80 supports FlarmNET database files, check **Flarm NET** section for additional information.


Figure 30. List of visible Flarm objects


Figure 31. Additional options for objects

An important safety feature of the Eos 80 is the Flarm warning page. This page pops-up whenever the Flarm device sends a warning sentence, regardless of the menu, page or setup you're currently in.


Figure 32. Flarm warning page

The Flarm warning screen shows the type of object the Flarm is warning you about, from the list of supported Flarm objects (Skydiver shown on figure). It's relative direction to your heading, relative altitude and distance, as well as an angle from the horizon, with the blue/brown scale on the left side of the screen. The relative direction of the object is also written in word with **HELICOPTER 12 O'CLOCK ABOVE**.

The Eos 80 can show the following objects with appropriate graphics:

- **Glider -** 
- **Tow plane -** 
- **Helicopter -** 
- **Skydiver -** 
- **Drop plane -** 
- **Hang-glider -** 
- **Para-glider -** 
- **Powered aircraft -** 
- **Jet aircraft -** 
- **UFO -** 
- **Balloon -** 
- **Blimp, zeppelin -** 
- **UAV -** 
- **Obstacle -** 

**NOTE**

A lot of effort was put into the design of the Flarm Warning screen, shown by figure 34. It's sole purpose is to quickly familiarize the pilot with the potential danger. Flarm provides us with three distinctive levels of danger:

- **13 to 18 seconds to impact -** the Flarm Warning screen appears, the Eos 80's internal beeper and the flashing of the direction cone are in the same, steady frequency. The lady from the Eos 80's internal voice module notifies you of the location of the object.
- **9 to 12 seconds to impact -** same as previous level, both the internal beeper frequency and beeping interval, as well as the flashing interval, intensify (higher frequency)
- **0 to 8 seconds to impact -** as on previous level, with the highest frequency of beeping and flashing.

## 5.4 Turnpoint navigation page

This page is intended for navigating towards a single turnpoint, from the .cup file loaded into the Eos 80. The navigation screen shows turnpoints, airports and airspaces on the map area as well as a line towards the current navigation turnpoint and a line showing your current track.


Figure 33. Turnpoint page overview

It offers the pilot four NavBoxes:

- **FG -** Final glide to turnpoint altitude, important to note that reserve altitude set in the **Pilot** setup menu is calculated into this value.
- **BRG -** Absolute bearing to turnpoint
- **TRK -** Your current track, calculated on the basis of your last two GPS locations
- **DIST -** Distance to turnpoint

At the top of the screen, the name of the navigation page is noted (TP for turnpoint), next to the page name, the name of the turnpoint to which you are navigating to is shown. On the oposite side of the screen, below the map, the steering course **(relative bearing)** is shown.

The steering course **(relative bearing)** depicts by how many degrees you need to steer in the direction noted by the green arrow, in order to be moving towards your select turnpoint. Since the steering course is calculated from your track and bearing to the target, the **wind component is already calculated** into this value. When the steering course widget is showing zero degrees, you are in fact moving in the direction of the desired turnpoint.

On the left part of the navigation screen, a standard **Wind indicator** is shown, and to the right, a scale for distance is shown. The unit of the scale is the same as set in the **Units** setup page.

Two lines can be seen on the screen, first one is showing the direction of your movement, your track, and the second one is showing the direction to your chosen turnpoint, the destination line. Colours can be changed in the **Graphics** setup menu.

**Long-pressing** the push-rotary knob will open the TP info sub-page, showing Bearing, Distance, Final glide and Elevation, if available.


Figure 34. Turnpoint additional info on black theme

Above the Bearing, an arrow is shown. The arrow can be either green or red, green indicating the turnpoint is within final glide and red indicating it is out of final glide. The direction of the arrow indicates the steering course, relative to your current track.

If the arrow is red in colour and pointing directly to the right, it means the turnpoint is out of final glide and you should turn 90° to the right in order to be on track to the turnpoint. The same logic is used in other navigation pages, as well as in the select airport and select turnpoint menu.

Pressing the push-rotary knob, you will enter the 'Select turnpoint' sub-page, where the **zoom** setting is located as well. Here, a selection of turnpoints will be shown, along with distance and bearing, as well as steering course **(relative bearing)** as described earlier, with an arrow. These points can be sorted by either Distance, Name, or Code.


Figure 35. Turnpoint selection sub-page


Figure 36. Search by name

Choosing Name or Code will open up the Filter setting, where you can type the name or code lettering. Choosing a turnpoint will set the turnpoint as the navigation point for the turnpoint navigation page.

For additional info on how to install database files, check the **Transfer** section of this manual.

**NOTE**

In order to use navigation pages to their full extent, be sure to have airspace (.cub), turnpoint (.cup) and airport (.af) files installed. Some of these, like .cup and .cub files, are available on competitions, from club managers, or governing national air bodies (like DAeC), while other, like the .af file, are provided solely by LX navigation.

**NOTE**

Files provided by LX navigation (.cub and .af) can be found on **http://www.lxnavigation.com/support/database/**. LX navigation does not provide official .cup files, for unofficial turnpoint files, you can check with your club mates and webpages like **https://www.openflightmaps.org/**.

**NOTE**

All final glide calculations take into account the current wind speed and direction, as well as reserve altitude and selected MC value. On the **Task navigation page**, the final glide calculation takes into account your kinetic energy as well, as explained in the said page.

## 5.5 Airport navigation page

This page is intended for navigating towards a single airport, from the .af file loaded into the Eos 80. The navigation screen shows turnpoints, airports and airspaces on the map area.

The Airport navigation page is set up in much the same way as the **Turnpoint navigation page**, so be sure to check the previous section for additional information.

The layout of the Airport navigation page is identical to the Turnpoint navigation page. At the top, we have **APT** written, noting the page we're currently on, and the name of the chosen airport next to it.

Below the map is the steering course (relative bearing).


Figure 37. Airport navigation page overview

To the right of the central map display, the same NavBoxes are used as with the Turnpoint navigation page.

**Long-pressing** the push-rotary knob will open the APT info page, showing Bearing, Distance, Frequency, Final glide, Elevation and Runway direction.

Pressing the push-rotary knob, you will enter the 'Select airport' sub-page, where the zoom setting is located as well. Here, a selection of airports will be shown, along with distance and bearing, as well as steering course (relative bearing) as described earlier, with an arrow. These points can be sorted by either Distance, Name, or ICAO code.

Choosing Name or ICAO will open up the Filter setting, where you can type the name or

code lettering. Choosing an airport will set the airport as the navigation point for the airport navigation page.


Figure 38. Airport selection sub-page on white theme


Figure 39. Airport additional info sub-page on black theme

**NOTE**

If you have a radio transceiver connected to the Eos 80, and the proper settings enabled, choosing an airport on the Airport navigation page will automatically set the frequency of the said airport as the reserve frequency on your transceiver. For additional info on how to enable this option, check the **Connecting a Radio** section of this manual.

**NOTE**

When selecting an airport, the lady from the Eos 80's internal voice module will notify you over the speaker of the runway's direction and airport frequency.

## 5.6 Task navigation page

This page is intended for task navigation. A task can be made using turnpoints, airports or a combination of both. It can be **uploaded from the Zeus**, a **third party device via Bluetooth** as a declaration, **downloaded from the web**, **created on the device**, or **loaded from the .cup file**. On second seat devices, the task can be sent from the main (front seat) device.

In order to use this page to the fullest extent, be sure to have the latest .af and .cup files available. This navigation screen shows turnpoints, airports and airspaces on the map area, as well as the task, with task sectors and task lines, connecting the task sectors.


Figure 40. Task navigation page overview

Above the glider, on the map part of the screen, a box with either **'STAND BY', 'ARMED', 'FINISHED'** or no box can be shown. These show the current state of your task. **'STAND BY'** denotes that the task is in stand by mode, meaning that if you cross the start line, task navigation will not start. **'ARMED'** denotes that the task is armed, meaning task navigation will start, once the finish line is crossed. **'FINISHED'** indicates the task has been completed.

When checking a created task, the pilot has the option of invoking 'Task zoom'. Task zoom is invoked by zooming out fully. When zooming out beyond the point of 125 scale zoom, the device will zoom the map to such an extent, that the whole task can be seen on the screen.

Long-pressing the push-rotary knob will open the 'Task options' sub-page with the following settings:

- **Zoom -** Where the zoom on the task page can be set
- **Edit task -** Opens the 'Edit task' sub-page, explained in detail below
- **Delete task -** Deletes the task

- **Arm -** Will arm the task. If the task is not armed, crossing the start line will not start the task navigation
- **Reset -** Will reset the task to the state prior to crossing the start line
- **Next turnpoint -** Will change the navigation point to the next one in line
- **Previous turnpoint -** Will change the navigation to the previous one
- **Load task -** Will open the Load task setup menu
- **Export task -** Task will be exported to your external microSD card in a .cup file format, containing only the task, without any additional turnpoints, enabling easy sharing between devices.


Figure 41. Task options sub-page


Figure 42. Task settings sub-page

In this sub-page, we can see the task time (if set, the task type will be set to AAT), calculated distance between sector centres and a list of turnpoints used in the following order:

- **Take-off (T) -** Does not have to be set, is not taken into account for navigation, can not be deleted
- **Start (S) -** The starting point of your task
- **n-number of intermediate points**
- **Finish (F) -** Finish line
- **Landing (L) -** Does not have to be set, is navigated to after the finish line has been passed, can not be deleted

In this sub-page, we can see the task time (if set, the task type will be set to AAT), calculated distance between sector centres and a list of turnpoints used in the following order:

- **Take-off (T) -** Does not have to be set, is not taken into account for navigation, can not be deleted
- **Start (S) -** The starting point of your task
- **n-number of intermediate points**
- **Finish (F) -** Finish line
- **Landing (L) -** Does not have to be set, is navigated to after the finish line has been passed, can not be deleted

By default, the task edit page shows only four points: Take-off, Start, Finish and Landing. Selecting the Take-off and Landing point, will offer the option of choosing a point from the turnpoint or airport list, in the same way as described in the **Turnpoint navigation page**.


Figure 43. Navigation point action selection

Selecting the Start point will offer the option of choosing the navigation point, in the same manner as already noted for the Take-off and landing location before. Additionally, the options for Go to and Edit zone option are presented for the Start point.

If you wish to add additional navigation points, you need to select the Finish line point, where, in addition to the options offered for the start line, option for inserting a turnpoint or airport will be offered.

Choosing one of these options will insert an additional navigation point above the finish point. Similarly, when choosing one of the added navigation points, selecting the 'insert turnpoint' or airport will place the new navigation point above the chosen one.

Additionally, the finish line has the options of setting a finish altitude of 1000m below starting line, which, in case the finish point altitude is more than 1000m below the point of release from the tow plane, the device will navigate and calculate final glide to the altitude 1000m below the release from the tow plane. This condition is usually required for FAI record and badge flights.

**NOTE**

When choosing the 'Fin. 1000m below' option, keep in mind that the reserve altitude is also taken into account for final glide calculation, which means the final glide will be calculated higher than needed, as an additional layer of reserve.

The finish point has an additional option of setting the 'Finish altitude'. When set, this altitude will be used for calculating the final glide altitude (effectively raising or lowering the point).

**NOTE**

When setting the 'Finish altitude', keep in mind the reserve altitude is added to this value, when calculating final glide, meaning, if the reserve altitude is set to 200m and the Finish altitude is set to 50m above the turnpoint (294m for a 244m high point), the final glide will be calculated for the altitude of 250m above the said point.

**NOTE**

It is important to note that the Eos 80 is calculating **DYNAMIC FINAL GLIDE**, when flying towards the Finish Line of a task. Dynamic final glide means, that the Eos 80 expects you to fly through the finish line with a speed of 27 m/s (97.2 km/h). When flying faster than 97.2 km/h in your final glide, the Eos 80 will expect you to perform a pull-up and slow down immediately before the finish line, thus converting part of your kinetic energy into potential, or part of your speed into altitude. If you do not pull up, you will go **below the calculated final glide**. This feature optimizes your Final Glide calculation, as it uses your energy as well, rather than just your Final Glide information, thus giving you greater speed. Please note, that performing strong pull-ups near the Finish line is prohibited on some competitions and might be considered dangerous, so perform the pull-ups slowly, allowing aircraft behind you to react.

Opening 'Edit zone' will open the standard list of zone, or sector, settings:

- **Turnpoint name**
- **Type**
  - **Symmetric**
  - **Fixed**
  - **To next**
  - **To previous**
  - **To start**
- **A21**
- **A1**
- **R1**
- **A2**
- **R2**
- **Line option -** ticking this option will set the current sector type to line
- **View - shows** the sector, useful for checking with the sector shape shown on the task sheet
- **Next zone -** will change the current zone being edited to the next one in line
- **Previous zone -** will change the current zone being edited to the previous one in line

**NOTE**

Choosing the 'Go to' option in the Edit task sub-page on a navigation page will set the selected point as the current navigation point on your Task navigation page.


Figure 44. Zone direction options


Figure 45. View zone page

**NOTE**

The quickest way to set up the task on the Eos 80 is to first set the list of navigation points, and after this set the sectors for all of the points.

**NOTE**

Default sectors for start, intermediate and finish points can be set in the **Task** setup page. These sectors will be used whenever a new task is created on the Eos 80 as standard.

**NOTE**

The task must be armed, in order for task navigation to start, once the start line has been crossed. If you forget to arm the task, and remember once already on your task, choosing the 'Next turnpoint' option will start the task navigation. Choosing the 'Next turnpoint' multiple times will move through the task points. If the desired turnpoint is overshot, you can choose the 'Previous turnpoint' in order to revert. If you have started the task prematurely, you can choose the reset option to go to the state prior to starting the task.

## 5.7 Nearest landable navigation page

The Nearest landable navigation page (NRST) is the simplest of the four navigation pages. This page always navigates to the nearest landable point. This landable point can be either an airport from the .af file or a turnpoint, marked as a landable, from the active .cup file.


Figure 46. Nearest landable page overview

This page has no settings nor editable data. It's sole purpose is to provide the pilot with immediate, clear information on the nearest landable point, as in situations when a pilot is flying low, no additional pilot action is required.

For additional info on the point being shown, **long-press** the push-rotary knob, and the page noted by Fig. **42** will be shown.

**NOTE**

For proper functioning of the Nearest landable navigation page, it is paramount you have both the .af and .cup file loaded to the device and set as active.

## 5.8 G-force page

This page utilizes the Eos 80's internal inertial platform for showing the current, maximum and minimal G-loading during a flight, both numerically and graphically. The page also shows the IAS colour tape, in the same manner as depicted on the **Thermal assistant page**. Your current value is shown graphically with a red dot.


Figure 47. G-force page overview

Pressing the push-rotary knob will open the 'G-force options' sub-page, where you can reset the Min. and Max. values to zero and change the scale of the G-force cricles.

**NOTE**

1 G corresponds to the average acceleration of the Earth's gravity field on it's surface, or $\check{}9,81m/s^2$.

**NOTE**

It is important to note, that the Eos 80 shows accelerations in the Y-Z plane, as depicted by Fig. 48., meaning no longitudinal accelerations are shown. If the plane is experiencing an acceleration of 1 G in the X axis the Eos 80 will show 0 G.

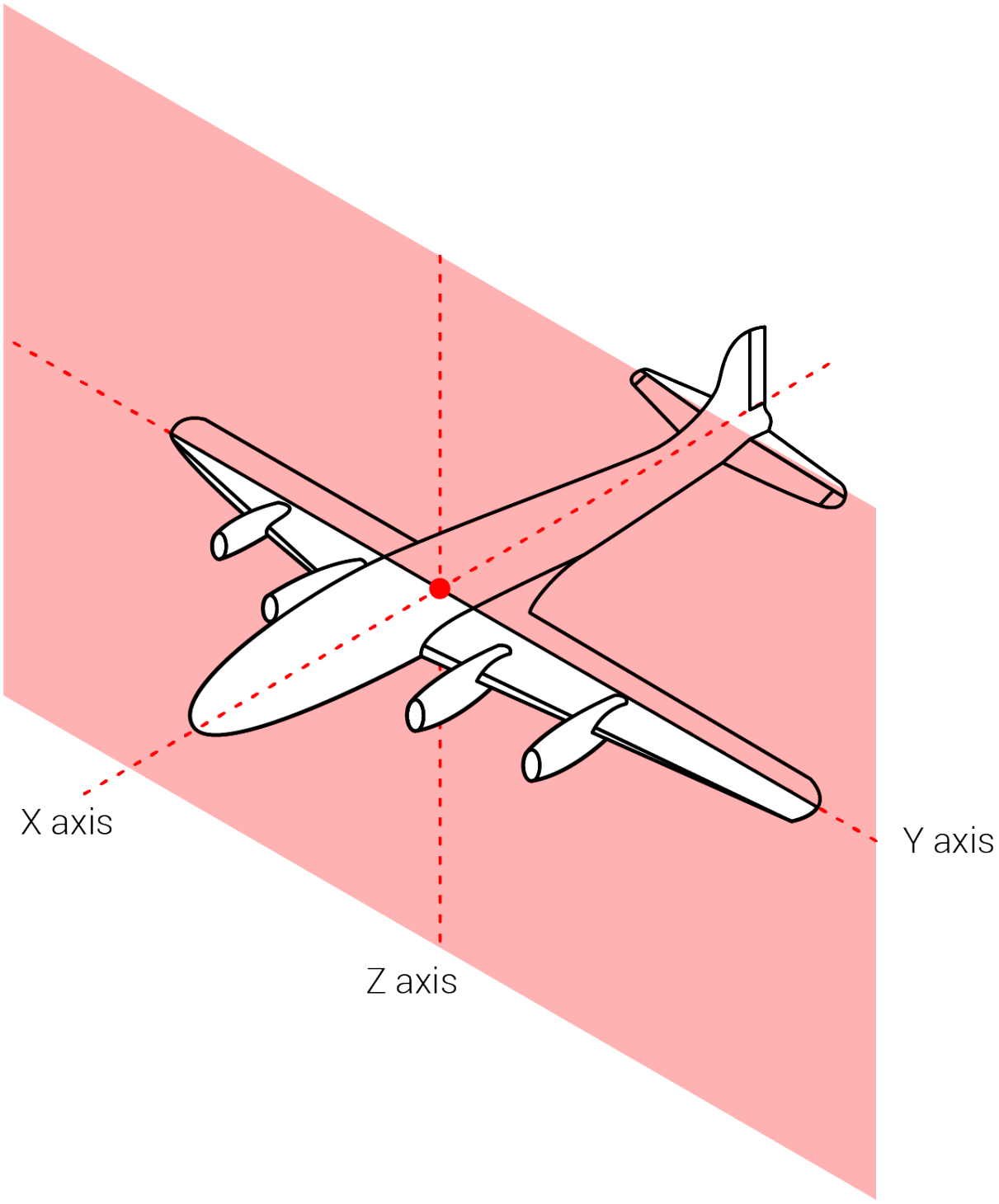


Figure 48. Airplane axis and the **Y-Z** plane

## 5.9 AHRS page

The AHRS page utilizes the LX AHRS module in order to provide the pilot with important flight parameters. The **LX AHRS module** is required for the use of AHRS page.


Figure 49. Attitude indicator on PFD page

The AHRS page offers the pilot the following flight parameters:

- **Attitude**
- **Pitch set**
- **Bank angle**

**Attitude and horizon** line are displayed as blue sky and brown ground. The border between the two is separated with a white line representing the horizon.

**The attitude indicator** displays the pitch (indicated by the yellow symbolic aircraft on the pitch scale), bank, and slip/skid information.

The horizon line is part of the **pitch** scale.

Pilot can see following pitch scale markings:

- **0°– pitch markings** Known also as "Horizon line"
- **2.5°– pitch markings** Found at the interval between 0° and +-20°–
- **5°– pitch markings** Found at the interval of +-50°
- **10°– pitch markings** Found at the interval between +-50° and +-90°

**Bank scale -** the inverted white triangle indicates zero on the bank scale. Major tick marks at 30° and 60° and minor tick marks 10°, 20°, and 45° are shown to the left and right of the zero.

Angle of bank is indicated by the position of the pointer on the bank scale.

**Turn coordinator**

Figure 50. Turn coordinator widget

**Standard rate turn indicator -** standard rate turn indicator is represented by two airplane silhouettes on the bank indicator. The silhouettes are hidden when IAS is less than 10 m/s.

The pilot performs standard rate turn when the bank indicator marker (yellow triangle) aligns with airplane silhouette.

The standard rate turn is defined as 3° per second turn (which gives a complete 360° turn in 2 minutes).

**Bank pointer -** bank pointer is displayed as a yellow triangle and is always fixed at its position. Underneath the yellow triangle we can find Slip/skid indicator.

**Slip/skid indicator** is displayed as a thin rectangle below the Bank pointer. The combination of the two is also referred to as "sailboat" due to its looks.

## 5.10 Info page

The info page shows the current GPS status and additional info, received from the GPS, like the GPS location, UTC time and date.

The device shows the battery voltage of both the Eos 80's internal battery and the external (airplane) battery.

Lastly, the page shows the Flarm connection status, and Flarm device ID, if a Flarm device is connected.


Figure 51. Info page overview

**NOTE**

The event function can be triggered by pressing the **push-rotary knob**, while on this page. The activation of the Event function will be accompanied by a notification box, as depicted by Fig. 66.

## 5.11 Logbook/Flight statistics page

This page can be either the 'Logbook' or 'Flight statistics page, based solely on if the device is in flight mode. Additional info on flight mode can be found in sub-section **A word on internal battery and flight mode**.

### 5.11.1 Logbook

When the device is not in flight mode, this page will be in Logbook mode.


Figure 52. Logbook page

Entering the Logbook page will show the list of all flights the Eos 80 has in its memory. Using the push-rotary knob will move down the list. Pressing the push-rotary knob will open additional info on flights, as well as the options for transferring flights to a microSD card or for sending a flight to an email address. For additional info on how to setup everything you need for sending flights to an email address, check the **WiFi connectivity** section.

You can press in the push-rotary knob, while rotating, for jumping through the list of flights by the order of 10.

**NOTE**

Even though the Eos 80 has a large amount of internal memory (8 GB on earlier models and 16 GB on new models), it is considered good practice to regularly download those flights and keep them on a separate drive, as a backup.


Figure 53. List of flights in the logbook


Figure 54. Flight details in the logbook

### 5.11.2 Flight statistics

Once the device enters flight mode, which is explained in detail in sub-section **A word on internal battery and flight mode**, the Flight statistics page appears.


Figure 55. Flight statistics page

We can see the take-off time, duration and maximum altitude, as well as an altitude graph.

**NOTE**

Once the Eos 80 determines that you are not in flight, it will start the 5 minute countdown to finishing your flight. Once the countdown has finished, it will calculate the security and save the .igc file to its internal memory.
The conditions for finishing a flight are:

- GPS lock
- Ground speed less than 10 m/s
- Indiacted airspeed less than 10 m/s
- Altitude less than 3000 m QNH

**NOTE**

If you wish to forcefully finish a flight, prior to the Eos 80 starting the finish procedure, you can do this by going to the 'Flight statistics' page and pressing the push-rotary knob and confirming the 'End flight?' question, as shown in figure 60.


Figure 56. 'End flight?' dialog box

**WARNING**

**If the Eos 80 turns off due to both the internal and external power supply being drained, the IGC flight might not get the IGC seal.**

## 5.12 Airspace page

The 'Airspace' page is intended for informing the pilot of the airspace surrounding him.

The Eos 80 looks up all airspace in the vicinity of the pilot's current location and lists them in regards to distance. The list shows airspace name, type and horizontal distance.


Figure 57. Airspace page

Selecting an airspace, a new screen with the airspace shown graphically, with your relative location shown, as well as type, vertical and horizontal distance and whether you're inside or out.


Figure 58. List of airspaces


Figure 59. Airspace detials

## 5.13 Setup page

The Setup page, or Setup menu will be processed in the **Device setup** section.


Figure 60. Setup page

# Device setup

This section will go through the complete setup process for the Eos 80 variometer. It is important to note that the Setup menu is divided into two sections - the **User** and **System** settings.

All of the settings in the User sub-part of the Setup menu are saved to a specific Pilot profile and change, when a pilot profile is changed. These settings should be tailored by each pilot to his own preferences.

The System part of settings embodies all of the glider and system related settings, which do not change with changing of the pilot, i.e. glider type, localisation, etc.

**NOTE**
User settings should be set only once for each pilot profile, while the System part of settings should be set only once.

## 6.1 User settings

The user part of setup incorporates the following sub-menus:

- **Pilot**
- **Vario/SC**
- **Task**
- **Indicators**
- **Voice**
- **Pages**
- **Graphics**
- **Warnings**
- **Logger**

### 6.1.1 Pilot

The Pilot setup sub-menu holds the following settings:

- **Active pilot**
- **Name**
- **Surname**
- **Mass**
- **Reserve**
- **Copilot name**
- **Copilot surname**
- **Copilot mass**
- **Club profile**
- **Import file**
- **Export file**
- **Delete pilot**

The Pilot sub-menu holds all of the pilot and copilot related information. Each pilot profile is at the same time the user profile to which all user settings are saved to, as discussed in the introductory part of the **Device setup sub-section**.

In order to create a new pilot profile, select the 'Active pilot' field and choose 'EMPTY'. Now, set the name, surname, mass and reserve values for your profile. As soon as you type in your name, your new pilot profile will be saved to the pilot list. You can choose the 'EMPTY' slot again to create yet a new pilot profile.

One can select a pilot profile either in the initial setup, as noted **Turning the Eos 80 on** sub-section, or by choosing it in this sub-menu. Once a pilot profile has been selected, all changes made will be saved to the selected pilot profile, unless **Club mode** is engaged, and this pilot's profile settings will be used for the current flight.

**NOTE**

Pilot and Copilot name and surname are written into the declaration of the IGC flight, so be sure to have the correct information if badge, record or competition flights are planned.

**NOTE**

The pilot and copilot masses are used for calculating wing-loading and the adjustments made to the aircraft polar, used for calculation of final glide, so great care should be taken to insert the correct information.

This page also houses the 'Club profile' checkbox (additional info in **Club mode** sub-section), as well as the options for Importing, Exporting and deleting a pilot profile. Exporting and Importing a pilot profile will save not only the information in this sub-menu, but all settings in the User part of the Setup menu.

**NOTE**

The reserve altitude is used for FG (Final Glide) calculation. If the device calculates an arrival altitude of 350m, and the reserve altitude is set to 200m, the FG, which will be displayed on all navigation pages and in the FG NavBox will be 150m.

**WARNING**

**Due to the direct impact of Reserve altitude on the final glide calculation, always make sure prior to take-off that the Reserve altitude is set to a value you are comfortable with. Pilot, copilot and ballast mass also influence the FG calculation, but to a comparatively lesser degree to the Reserve altitude setting.**

### 6.1.2 Vario/SC

The Vario/SC setup sub-menu is used for setting all vario-related parameters and holds the following settings:

- **Altitude Sensor -** lets you choose which sensor will be used for determining your current altitude. The Eos 80 has two static pressure sensor, an internal - the IGC pressure sensor, and an 'external' - the one connected to the TE/ST pressure port on the back of the device.
- **Zero frequency -** the frequency of the tone generated by the Eos 80, when the vario is showing 0 m/s.
- **Positive frequency -** the frequency of the tone generated by the Eos 80, when the vario is showing 5.0 m/s.
- **Negative frequency -** the frequency of the tone generated by the Eos 80, when the vario is showing -5.0 m/s.
- **Audio test -** this option will run the tone output from positive to negative frequency, which will allow you to hear your current frequency range and adjust if necessary.
- **Range -** lets you choose between 2.5, 5.0 and 10.0 m/s range on the vario scale (and appropriate value when other units are in use).
- **Filter -** sets the response of the variometer to changes in pressure. The smaller the value, the more responsive the vario is, but at a cost of showing all of the small vertical movement, whereas the higher levels are more slow to react, but level off minute vertical movements.
- **TE Level -** electronic TE (Total Energy) compensation. The Eos 80 is capable of electronic compensation of total energy, meaning the TE probe is not required for the instrument to be compensated.
- **Integration time** - used when calculating the average thermal strength for the past set amount of seconds.
- **Vario silence -** the value below which the vario will not produce any sound. Usually used for small negative or positive values, if not wanting to be distracted by small differences from the zero.
- **Max circling speed -** a set speed above which the variometer will be silent, if in SC mode.
- **SC mode -** sets how the device switches between Vario and SC modes:
  - **Manual -** the pilot switches between the two modes manually, by pressing the SC button on the stick.
  - **Circling -** the device switches automatically, when it detects circling, as depicted in the **Flight mode indicator** sub-section.
  - **Speed -** the device switches automatically, when a set speed is surpassed.
- **SC silence -** is an interval between 0 and a set value, inside of which the Vario will not produce any vario sounds, if in SC mode.

**NOTE**

For the device to detect circling, you must have a constant change of 5° per second in your heading for at least 8 straight seconds. Turns usually last about 30 seconds, meaning your turn rate is around 12° per second, this means that circling will be detected after approx. a third of a circle has been made.

### 6.1.3 Task

The Task setup sub-menu is used for setting up the default sectors for turnpoints to be used, when a new task is created. The sub-menu holds the following settings:

- **Default start -** sets the default starting sector parameters
- **Default point -** sets the default turnpoint sector parameters
- **Default finish -** sets the default finish sector parameters

### 6.1.4 Indicators

The Indicators setup sub-menu holds the setup parameters for indicators on the **Main page**. Two different sets of indicators can be set for each flight mode.

The two flight modes - circling and straight flight are denoted as Vario (circling) and SC (straight flight). Different indicators can be assigned both to the analog needle as well as to numerical indicators. Pressing the SC switch will change between the two sets of indicators.

The following settings are available:

- **Vario needle**
- **4 NavBox items**
- **Vario NavBox 1**
- **Vario NavBox 2**
- **Vario NavBox 3**
- **Vario NavBox 4**
- **SC needle**
- **SC NavBox 1**
- **SC NavBox 2**
- **SC NavBox 3**
- **SC NavBox 4**

The pilot can also choose between two and four numerical indicators on the main page, offering a choice between more info and better legibility.


Figure 61. Four numeric indicators on white background


Figure 62. Two numeric indicators on black background

The following analog needle indicators are available:

- **Vario -** shows the current compensated vertical speed (vario value)
- **SC -** shows the current SC (Speed Command) value - same as the green arc, as described in **Main page** sub-section
- **Netto -** described below
- **Relative -** described below
- **G-force -** the current G-force, as described in the **G-force page** sub-section

The following digital numerical indicators are available:

- **Empty**
- **UTC time**
- **Local time**
- **Flight time**
- **Altitude**
- **IGC altitude**
- **Flight level**
- **Density altitude**
- **Alt. QNH [ft]**
- **Vario**
- **Vario AVG**
- **Vario netto**
- **Vario relative**
- **TAS**
- **IAS**
- **Ground speed**
- **True track**
- **Distance Tp**
- **Distance Apt**
- **Distance Tsk**
- **Distance Nrst**
- **Final glide Tp**
- **Final glide Apt**
- **Final glide Tsk**
- **Final glide Nrst**
- **Bearing Tp**
- **Bearing Apt**
- **Bearing Tsk**
- **Bearing Nrst**
- **Speed to fly**
- **Task time elapsed**
- **Task time left**
- **Current efficiency**
- **Req. efficiency Tp**
- **Req. efficiency Apt**
- **Req. efficiency Tsk**
- **Req. efficiency Nrst**
- **Thermal max**
- **Thermal average**
- **Eff. thermal avg.**
- **Thermal gain**
- **Circling radius**
- **OAT**
- **ENL**
- **G-force**
- **Flap position**
- **Rec. flap position**

Since most of the indicators are self-explanatory, we will cover the ones that are not.

**IGC altitude -** altitude displayed by the internal IGC pressure sensor, which is not offset by QNH changes.

**Density altitude -** the density altitude is the altitude relative to standard atmospheric conditions at which the air density would be equal to the indicated air density at the place of observation.

**Vario AVG -** average vario calculated by integration according to given settings (the same navbox is shown also on **Thermal assistant page** - AVG).

**Vario netto -** the actual vertical speed of the surrounding air mass. Is calculated by adding the current vertical speed indicated by the variometer, and the sink rate of the glider at that speed. Sink rate of the glider is calculated from the polar.

**Vario relative -** is Vario netto - 0.7 (sub-tracted for 0.7).

**True track -** true track based on GPS data.

**Task time elapsed -** shows elapsed time from starting a task.

**Task time left -** shows time left on task. Applicable only on AAT tasks.

**Current efficiency -** your current glide ratio, calculated by dividing your ground speed by your vertical speed.

**Req. efficiency -** required glide ratio for arriving on set navigation point (includes reserve altitude).

**Thermal max -** the maximum variometer value in the last circle (360 degree turn). This is the same value as is represented by white dot on TA page.

**Thermal average -** average vario calculated as: delta altitude / delta time in circling (same navbox on TA page - T AVG).

**Eff thermal avg. -** delta altitude drifted / delta time in circling, where drifted means, it takes into account drift due to wind.

**Thermal gain -** shows the accumulated altitude from the start of circling. The GAIN NavBox shows the difference between current altitude and altitude recorded at the start of circling, which means this value can also be negative.

**Flap position -** current flap position. Requires the **LX Flap sensor** for operation.

**Rec. flap position -** shows the recommended flap position, as defined by yourself in the **Glider** sub-section.

### 6.1.5 Voice

The Voice setup sub-menu holds the volume and mixer options for voice warnings, as well as a list of available voice warnings to choose from.

- **Volume**
- **Mixer**
- **Flarm traffic**
- **Flarm warning**
- **Flarm obstacle**
- **Flarm h. distance**
- **Flarm v. position**
- **Thermal vario avg.**

### 6.1.6 Pages

The pages setup sub-menu provides the pilot with a list of all primary pages. The pilot can choose to show or hide different pages, i.e. hiding the AHRS page if you lack the AHRS module.

- **Thermal assistant**
- **Flarm**
- **TP page**
- **APT page**
- **TSK page**
- **NRST page**
- **G-force**
- **AHRS**
- **GPS info**

### 6.1.7 Graphics

The Graphics sub-menu provides the pilot with options for personalizing the graphical appearance of the Eos 80.

The following sub-pages exist:

1. **Airspace**
2. **Map**
3. **Task**
4. **Theme**

#### 6.1.7.1 Airspace

The airspace sub-menu holds the settings for colour and transparency of the fill and outline for the following airspace types:

- **Controlled zone**
- **Prohibited**
- **Restricted**
- **Danger**
- **Terminal area**
- **Airway**
- **Glider**
- **Military**
- **Other**
- **Class A, B**
- **Class C**
- **Class D**
- **Class E**
- **Class F**

#### 6.1.7.2 Map

The Map sub-menu holds settings for the graphical appearance of the Map are on all navigation pages. The following settings are available.

- **Orientation -** offers the two common map orientations - 'North up' and 'Track up'.
- **TP/APT text size -** changes the size of airports and turnpoints names on the map.
- **Dest. line colour -** the colour of the line connecting your current position and your navigation point.
- **Track line colour -** the colour of the line showing your current true track.
- **Display APT names -** whether or not to display airport names (alongisde the icon) on the map.
- **Display TP names -** whether or not to display turnpoint names (alongside the icon) on the map.

**NOTE**

APT icons are shown on the map up to a zoom level of 25km. TP icons are shown up to a zoom level of 9km. At higher zoom levels we are only showing Airspace lines, due to the legibility.

#### 6.1.7.3 Task

The Task sub-menu holds settings for the graphical appearance of task features on the task navigation page map. The following settings are available.

- **Active zones -** outline, fill and start/finish line.
- **Inactive zones -** outline, fill and start/finish line.
- **Task legs**
  - **Legs yet to cover**
  - **Active leg**
  - **Course to TP**
  - **Covered leg**

#### 6.1.7.4 Theme

The Theme sub-menu offer the pilot to choose between 4 themes. The Eos 80 features has two areas for themes - the vario scale and the internal part (everything inside of the vario scale). For each of these two a white or black option is available, giving us four combinations.

The first colour indicates the colour of the central part of the display, and the second colour indicates the analog needle part of the display:

- **Black and white -** black center and white needle arc
- **Black and black -** black center and black needle arc
- **White and white -** white center and white needle arc
- **White and black -** white center and black needle arc


Figure 63. Black theme


Figure 64. White theme

**WARNING**

**Changing the theme will cause the unit to instantly restart. Due to this reason, changing the theme in flight is not possible.**

**NOTE**

Experience has shown that in high sunlight conditions, the 'White and white' colour theme is most visible, while the 'Black and black' colour theme is least straining for the eyes in low light conditions. Of course, sometimes it is just a matter of taste, which means **De gustibus non est disputandum**.

### 6.1.8 Warnings

The Warnings setup sub-menu gives the pilot an overview of which warnings are available. In the case of this sub-menu, warnings refer to a warning, that is given by the Eos 80 to the pilot in the shape of a red square as shown with the picture below:


Figure 65. A warning screen

The following warnings are available:

- **Audio -** whether or not to play audio warnings in general
- **Inputs -** inputs warnings include all warnings that depend on an external input, as depicted in the **Inputs** section of this manual
- **Flarm -** display warnings sent by Flarm devices
- **Airspace -** display warnings concerning airspace infringements
- **Stall -** display stall speed warning
- **Vne -** display $V_{NE}$ speed warning
- **AS vertical limit -** set vertical distance from airspace when the warning is shown
- **AS horizontal limit -** set horizontal distance from airspace when the warning is shown
- **AS button value -** set time value, how long an airspace warning for a particular airspace will be muted for
- **Max. altitude -** set a maximum altitude warning

### 6.1.9 Logger

The Logger setup sub-menu holds all IGC logging - relevant settings. The Event function is an IGC mandatory function which, for a set period of time, changes the logging interval from the regular 'Interval' value, to the 'Event interval' value, which is usually more frequent and writes a special line to the **.igc** file.

In the past, the event function was used because less internal memory was available for flight logging and consequently less frequent logging intervals were set as standard (5s). When the event button was triggered, the logging changed to the 'Event interval', thus ensuring your ticking of the sector was captured with a high enough resolution.

In present times, event buttons are frequently used in new types of competitions starts, where the pilot marks his intention on actually crossing the line.

The moment at which the Event button is pressed is captured in the .igc flight with an event sentence, which is why it is useful for all kinds of tests, when we wish to mark a certain point in time.

The following options are available in the Logger sub-menu setup:

- **Interval**
- **Event interval**
- **Event fixes**
- **Start speed**

The **Start speed** sets the IAS at which logging will begin, as depicted in **Flight mode indicator** section.


Figure 66. Event info box

**NOTE**

The event function can be triggered in two ways. Firstly, by having a dedicated external button connected to the **Inputs** interface and pressing it, or secondly, by going to the **Info page** page and pressing the push-rotary knob. Either way, the activation of the Event function will be accompanied by a notification box, as depicted by Fig. 66.

## 6.2 System settings

### 6.2.1 Glider

The following glider associated settings can be found in this sub-menu:

- **Polar -** sets the polar by which final glide is calculated. The Eos 80 has a large and ever-growing selection of glider polars. In case your glider polar is not listed, you can create a user specified polar.
- **Arispeed -** will open the airspeed sub-menu, where the specific airspeeds can be set. These airspeeds will be used for warnings, as well as for colouring the speed arcs on specific primary pages.
  - **VS1 -** represents the stall speed of the aircraft (beginning of green arc)
  - **VNO -** represents the maximum normal operating speed (end of green and beginning of yellow arc)
  - **VNE -** represents the never exceeded speed (red arc)
- **Registration nr -** the registration of the glider, is saved to the IGC declaration
- **Competition ID -** competition ID of the glider, is saved to the IGC declaration
- **Class -** competition class of the glider, is saved to the IGC declaration
- **Ballast dump rate -** sets the average dump rate when the ballast dump valve is opened. This is especially useful for glider which can close the valve again, as the amount of ballast will have changed. The ballast dump rate require a switch to be connected to the inputs interface and set up properly. When activated, it will start changing the amount of set ballast by the rate set in this setting. It should be noted, that the ballast dump rate is not constant in real-life circumstances, as it depends on a multitude of factors. We approximate a fix ballast dump rate.
- **SC switch -** sets the type of switch used for the Speed Command button. On or Off should be used for a lever switch and toggle for a push-button.
- **Category -** which category of aircraft does your aircraft belong to. Changing this will change the aircraft icon, as depicted with the aircraft icons selection below.
- **Flap positions -** Opens the flap positions setup menu. Adding a new flap position will record the current flap position (requires the **Flap sensor**), for which a pilot can assign the Name, Min. speed and Max. speed. Once set, these Flap positions will be used for current and recommended flap position indicators. If the Flap sensor is not connected, the pilot can still set the Flap airspeeds and positions and use the Flap rec. position NavBox. If the Flap sensor is connected, another info box appears in the setup page, with the percentage of Flap sensor extensions shown.

Aircraft icon selection:

- **Airplane** - 
- **Rotorcraft** - 
- **Jet** - 
- **Glider** - 
- **Gyrocopter** - 
- **Fighter** - 
- **Motor glider** - 
- **Airship** - 

**NOTE**
All glider polars are represented by a quadratic approximation.

**NOTE**
To create a User specified polar, go to Setup $>$ Glider $>$ Polar $>$ Select polar and choose the User polar. Once chosen, you can change the A, B and C parameters, as well as Empty mass, Reference mass, Maximal mass and Wing area. The A, B and C polar parameters are the coefficients located next to the square, linear and constant part of the quadratic function, as depicted in the following formula: $A * x^2 + B * x + C$. The reference mass is the mass, for which the polar has been calculated.

### 6.2.2 Units

Sets the units used for different parameters throughout the device. The following parameters and units are available:

- **Altitude -** meters [m] or feet [ft]
- **Climb rate -** meters per second [m/s], knots [kts] or feet per minute [fpm]
- **Speed -** kilometers per hour [km/h], miles per hour [mph] or knots [kts]
- **Wind speed -** kilometers per hour [km/h], miles per hour [mph], knots [kts] or meters per second [m/s]
- **Distance -** kilometers [km], nautical miles [nm] or statute miles [ml]
- **Pressure -** hectopascal [hPa], inches of mercury [inHg] or millibars [mb]
- **Temperature -** degrees Celsius [C] or degrees Fahrenheit [F]
- **Weight -** kilograms [kg] or pounds [lb]
- **Aera -** square meters [m2] or square feet [ft2]

### 6.2.3 NMEA

The NMEA sub-menu is used for determining which sentences are being sent out through the User port, Flarm port and the Bluetooth connection. This sub-menu will only explain in small detail what is available and what it is used for. For more information on connectivity, check the **Connectivity** section.

The following settings are available:

- **Flarm -** sets the baudrate for the Flarm port. Default value is 19200.
- **User -** sets the baudrate fot the User port. Default value is 38400.
- **GPGGA -** forwards GPGGA (Fix information) sentences received from GNSS module.
- **GPRMC -** forwards GPRMC (Recommended minimum data for gps) sentences received from GNSS module.
- **GPRMB -** outputs Recommended minimum navigation info.
- **LXWPx -** outputs LXWP0 (flight data), LXWP1 (device info), LXWP2 (basic parameters), LXWP3 (detailed parameters) sentences.
- **LXDT -** enables LXDT (data transfer) communication (input and output)
- **LXBC -** outputs LXBC (broadcast) sentences (AHRS data, etc.)
- **PFLAx -** Flarm sentences, includes "PFLAU", "PFLAA", "PFLAC", "PFLAE", "PFLAL", "PFLAQ". For individual sentence specification check Flarm documentation.
- **Levil -** reserved for use with Levil devices.
- **Radio -** when Radio option is enabled - "On", all other outputs on "User" port are disabled, but are still present via "Bluetooth" port. The following radio transcievers are available:
  - **KRT2**
  - **ATR833**
  - **Becker -** special radio bridge required for communication
  - **Trig**
  - **AIR avionics**
- **Send APT freq -** confirms whether or not you wish the Eos 80 to send the frequency of the selected airport on **Airport navigation page** to the Radio.
- **Transponder -** if enabled - "On", baudrate on "Flarm" port will go to "BR9600" and GPS data will be transmitted on "Flarm" port.

**NOTE**

In normal use, it is recommended that the **GPGGA**, **GPRMC**, **GPRMB**, **LXWPx**, **LXDT**, **LXBC** and **PFLAx** sentences are checked, unless explicitly noted otherwise.

**NOTE**

For detailed description of LXWPx, LXDT and LXBC sentences refer to LX Navigation Data Port documentation (document name: LX_CP).

### 6.2.4 Inputs

The Input setup sub-menu refers to the functionalities of the Eos 80 closely dependant on existence and proper use of the Inputs interface. The inputs interface incorporates slots for 5 external micro-switches, connected to the Input port on the Eos 80. These micro-switches can trigger different functions and commands, as well as warnings.

The following functions are available:

- **SC -** when assigned and triggered, will change the current flight mode. Check **Flight mode indicator** sub-section for additional info.
- **VP -** changes to vario flight mode, no matter which settings are active
- **event -** triggers the event functions, check **Logger** section for additional info.
- **gear -** if any of the two gear inputs is selected (straight or inverse), the gear warning will be applied in the following sense:
  - gear is out detected 10min after take-off and height more than 500m above take-off location.
  - gear is not out and altitude is less than 200m in 5km circle of take-off location and flight time is more than 5min.
  - on outlanding (if airbrakes are out, elevation less than 600m QFE, distance from take-off more than 5km), and gear is not out. Requires the airbrakes switch to be used.
- **airbrake -** if any airbrake is selected (straight or inverse) gear warning will be announced as follows:
  - airbrake is out during first 10min of flight (take-off / aero tow time).
- **ballast -** triggers the ballast dump rate function, as depicted in **Glider** sub-section.

The Input page requires the use of the **Inputs interface**, shipped along with the Eos 80. We can see the inputs interface on the picture below.

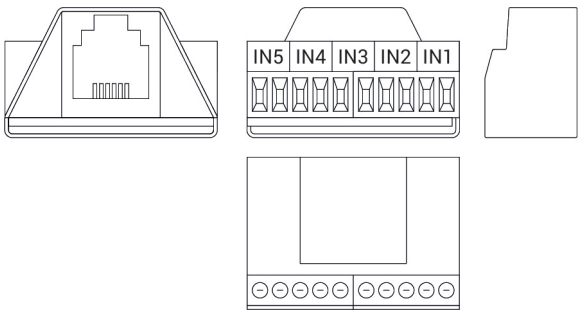


Figure 67. Inputs interface

**NOTE**

All input functions have an inverse function as well. Having a straight function will trigger once the button has been pressed. Utilizing an inverse function will trigger once the button has been released (useful for air brakes, etc.).

### 6.2.5 Transfer

The Transfer sub-menu setup page holds all microSD transfer related options. In this setup page, we will see how to transfer database files, load tasks and FlarmNET files.

**WARNING**

**LX navigation provides database files on an informative level and can in no way be held accountable implicitly, or otherwise, for and damage, be it material, personal or other, that may occur due to the use of this device. It is the pilot's responsibility to abide to all rules of air safety and to utilize good airmanship practice. In this sense, the information provided by the Eos 80 is of an informative nature only and should be taken with reserve. No guarantees are made on the accuracy of information found in databases released by LX navigation.**

**WARNING**

**It is important to note, that some microSD cards of lower quality may cause issues and not be read by the Eos 80. This is why we strongly recommend you use the supplied SanDisk Ultra red/grey micro SD card, supplied with the device, as depicted on the figure below. The microSD card should be formatted to the FAT32 file system. Cards of up to 32 GB of memory were successfully tested on the Eos 80.**


Figure 68. The correct type of microSD

**NOTE**

Pilots must be careful to not exceed the file size of 750 kB, except "FlarmNET" file can be max. 5 MB.

**NOTE**

If you have just inserted the microSD card into your LX Eos 80 unit and the files are not showing up, try leaving the transfer setup page and entering again.

#### 6.2.5.1 Turnpoints

Turnpoint files, in the .cup file format, are not supplied by LX navigation, but can usually be found at competitions, various webpages or from club manager and club mates. As a starting point, you can check the **Open flight maps**. You can even create your own turnpoint files either by hand, or using different software.

In order to use turnpoint files on your Eos 80, first you need to copy them to the device. In order to do this, you need to have the file saved to the **root of your microSD card**. Once the microSD card is inserted go to **Load** sub-menu and select the file you wish to transfer to the Eos 80's internal memory.

Now go to the **Select** sub-menu and select which of the files in the Eos 80's internal memory you wish to have active.

You can have multiple turnpoint files active at the same time.

**NOTE**
The Eos 80 requires turnpoints in the .cup file format.

#### 6.2.5.2 Airports

Airport files, in the .af file format, are supplied by LX navigation exclusively. For the latest available database files, check the downloads section of **LX navigation support page.** You will find the latest database in Eos folder.

The airports file holds the frequencies to all airports, which is why it is especially important to use the latest database files available. If inconsistencies are found in the files, please refer them to the **LX navigation support email**.

In order to use a certain airport file, first you need to copy it to the Eos 80's internal memory, through the **Load** sub-menu, and then select it as active through the **Select** sub-menu. Only one airports file can be active at a time.

**NOTE**
The Eos 80 requires airport files in the .af file format.

#### 6.2.5.3 Airspace

Airspace files, in the .cub file format, can be found on both the LX navigation page, as well as supplied by competition directors, club managers, club mates and other readily available database sources. For the latest available database files, check the downloads section of **LX navigation support page.** You will find the latest database in Eos folder.

In order to use a certain airspace file, first you need to copy it to the Eos 80's internal memory, through the **Load** sub-menu, and then select it as active through the **Select** sub-menu. Multiple airspace files can be selected at once.

**NOTE**
The Eos 80 requires airspace files in the .cub file format.

#### 6.2.5.4 Load task

Task files are stored into the .cup file usually, and consequently the same rules apply as for the turnpoint files.

Once opened, the Load task sub-menu will show all .cup files with internal tasks. You can select the desired turnpoint file and a selection of tasks saved to this file will be found. Choosing the task will set the selected task as the current active task.

**NOTE**
The Eos 80 is capable of sending task declarations to external devices (the MOP, Flarm, etc.). This happens when one of the following conditions is met:
- The Eos 80 receives a task from an external device through the User port
- The Eos 80 receives a task from an external device through Bluetooth
- The Eos 80 receives a task from a .cup file through the Load task menu
- Whenever we exit the task edit page in the **Task navigation page**.

**NOTE**
The Eos 80 requires task files in the .cup file format.

#### 6.2.5.5 Flarm NET

The Eos 80 allows the utilization of **Flarm NET databases**. If a database is used, and a Flarm object with a Flarm ID found in the database shows up, the Eos 80 will automatically use the info from the FlarmNET database and assign it to the said object.

### 6.2.6 Network

This part of the manual will only go through the settings available in the Network sub-menu part. For information on how to connect to different devices and utilize the Eos 80's connectivity capabilities, please check the **Connectivity** section of this manual.

The Eos 80 has a single module used for both Wifi and Bluetooth. The module has five different available states:

- **Off -** no connectivity options are available
- **Bluetooth server -** is used for transmitting data to an external device - like an Android phone or PDA/PNA device. The external device needs to connect to the Eos 80 in order to establish communication.
  - The wireless setup will show the device name and password.
- **Bluetooth client -** is currently not available for use. Once enabled, will give the Eos 80 the possibility to connect to an external Bluetooth device.
  - The wireless setup will show a list of available devices for connection.
- **WiFi Access point -** is currently not in use. Once enabled, will give the Eos 80 the possibility to stream data through the WiFi network.
  - The wireless setup will show the device information and offer the user to change WiFi name and password of the Eos 80's WiFi.
- **WiFi Client -** is used for connecting an Eos 80 to a WiFi network. Once connected, the Eos 80 is able to communicate with the world wide web and send flights via emails.
  - The wireless setup will show a list of available devices for connection.

This setup also includes the email setup page. Once opened, you are presented with a set of email-related options.

You can create and activate multiple emails at once. When a flight is chosen for sending over the email in the **Logbook/Flight statistics page**, it will be sent to all active emails.

When connecting to a device, either through Bluetooth, or WiFi, an icon to the right of the device names is shown. This icon shows what is the state of the device connection, or it's signal strength.

- **Strong signal** - 
- **Medium signal** - 
- **Weak signal** - 
- **Connecting** - 
- **Password required for network** - 

In general, all available devices are shown under the 'Available list'. If the Eos 80 is connected to a device, it will be shown under the 'Connected' list.

**NOTE**

If you are connected to a WiFi network, it is displayed under the 'Connected' list. Pressing on the connected network will make the device disconnect from this network.

### 6.2.7 Localisation

Contains information regarding the local settings of the LX Eos 80. In this setup menu the language of the device, timezone and a check box for daylight saving time can be set.

At this moment, the following languages are available:

- **English**
- **Dansk**
- **Deutsch**
- **Italiano**
- **Nederlands**
- **Norsk**
- **Slovenščina**

If you wish to contribute and add your language, contact us at **LX support**.

### 6.2.8 Synchronisation

The synchronisation setup is reserved for devices in double-seater configuration, when a front and back (main and repeater, also known as master and slave) unit exists.

This Setup page allows the pilot to utilize the following options:

- **Sync on change -** will sync all navigation points (TP, APT and TSK), whenever the front seat unit changes a navigation point, to the back seat unit. Is bidirectional (can also send from second seat unit to front seat unit, if selected on the second seat unit).
- **Sync TP now -** will send the current tunrpoint chosen on the main unit's TP navigation page to the repeater unit. Is bidirectional (can also send from second seat unit to front seat unit, if selected on the second seat unit).
- **Sync APT now -** will send the current airport chosen on the main unit's APT navigation page to the repeater unit. Is bidirectional (can also send from second seat unit to front seat unit, if selected on the second seat unit).
- **Sync task now -** will send the current task chosen on the main unit's TSK navigation page to the repeater unit. Is bidirectional (can also send from second seat unit to front seat unit, if selected on the second seat unit).
- **Sync database -** will send the **active** database files from the **Transfer** setup menu of the front to the back seat unit.

### 6.2.9 Service

The Service setup page contains various device and service related settings, as noted below:

- **Device info -** shows basic information regarding the Eos 80:
  - **Serial number**
  - **IGC number**
  - **Firmware version**
  - **Build**
  - **Hardware version**
  - **Battery -** voltage of internal battery
- **Flarm info -** shows additional info related to the connected Flarm device
  - **Hardware version**
  - **Serial number**
  - **Firmware version**
  - **Database**
  - **Database exp. date -** database expiration date
- **CAN unit Info -** shows a list of all device on the CAN line, with their appropriate software and hardware versions.
- **Password -** opens up the dialog for admin passwords, like the one for **Club mode**
- **Club mode -** explained separately below
- **Cage AHRS -** sets the current horizon and pitch angle as zero pitch and zero bank.
- **Software update -** used for updating the device. For further information, check the **Performing an update** sub-section for additional info.

The following passwords are at the pilot's disposal:

- **46486 -** Deletes all internal files (database files, pilot information, etc.) Can be considered as reverting the device to factory settings.
- **99999 -** Empty logbook
- **08658 -** Voltage offset setup
- **02582 -** Club manager setup database

#### 6.2.9.1 Club mode

The Club mode is used for setting up Club pilot profiles and editing them. By 'Club' we mean generic pilot profiles, which are password protected and can only be changed by a 'Club manager'. Regardless, the same procedure can be used to password protect any pilot profile.

Even thought a profile is set as a 'Club profile' changes will still be made, but not saved, if not in 'Club mode'. For a detailed explanation, check the text below.

Engaging the Club profile:

1. Go to Setup $>$ Service $>$ Password and type in '02582'
2. Mark 'Club mode' under 'Service'
3. Go to Pilot $>$ mark 'Club profile'

The logic behind the club profile is that with this procedure, you lock it as is. However, this does not mean that the profile can not be changed, but rather that no changes are permanent, and after restart the changes will revert to the state you had your profile in, when it was locked with the password.

Lets say you create your profile and set everything up. You lock it (set it as Club profile) with the procedure above. Then after a few days another pilot flies the plane and wants to use your profile, as it is a good one, but would like to change one thing, like the reserve altitude. He can go to the Setup and change the reserve altitude and the system will use his reserve altitude as long as it is turned on. This means he can go and fly and use the settings that he altered. After he lands, extracts the flight and turns the device off, the settings will revert to the ones you have set, so the next time you go flying, the reserve altitude will be the one you've set for yourself.

The only way to change your settings for good is to again type in the above password, and then change them. The password is meant for a club administrator ('admin').

**NOTE**
If a new pilot profile is added, while in Club mode, it will not be saved, after the device has been restarted.

### 6.2.10 Shutdown

Performs the shutdown sequence for the device.

**WARNING**
**If select while in flight, the Eos 80 will finish the flight and shut the device off.**

# Connectivity

This section will go through how to set up different types of connections. By connections, we mainly mean different means of communication between the Eos 80 and third party devices.

## 7.1 WiFi connectivity

At this moment, the WiFI connectivity option on the Eos 80 is used solely for sending .igc flights to emails. New features will be rolled out soon.

### 7.1.1 Flight transfer

In order to be able to send a flight, the following settings need to be set up:

1. **An e-mail address** needs to be set up
2. **A WiFi connection** needs to be established
3. **A flight** needs to be available in logbook
4. **You can not be in flight mode**

#### 7.1.1.1 Setting up an email address

To set up an email address, go to **Setup** > **Network** > **Mail** > **Add mail**. Use the alphanumeric keyboard to type in your email address (Caps lock insensitive). Multiple email addresses can be set up at once.

Once set, select which email addresses you wish to have active. Having them active means the flight will be sent to these addresses.

#### 7.1.1.2 Establishing a WiFi connection

To set up a WiFi connection, go to **Setup** > **Network** > **Wireless mode** and choose **WiFi Client**.

Exit the **Wireless mode** setup by going back and open the **Wireless setup** menu. You will find a list of WiFi networks listed under 'Available'. If the device is not connected to a WiFi network, there will not be a Wifi Network listed under 'Connected'.

Select the desired WiFi network and a new page will pop-up, giving us the option to type in the **Password**, **Forget** the network or **Connect**/**Disconnect**. Type in the password (Case-sensitive) and select the **Connect** option.

You will now see the icon symbolizing the connecting attempt -  and a the shift of the WiFi network name to the 'Connected' list, if the connection attempt is successful.

#### 7.1.1.3 Sending the flight

To send a flight, go to the **Logbook** page, and select the flight you wish to send. Once the 'Flight info' sub-page has popped up, scroll down and choose the **Send to email** option.

The Eos 80 will prepare the flight for sending, a 'Preparing data' infobox will appear, and a second infobox, showing an hourglass. Once the flight has been sent, an infobox notifying you of the successful upload will appear.

Now, **check your email**.

## 7.2 Bluetooth connectivity

Bluetooth connectivity is used mainly for the transfer of data. Data in the sense of NMEA sentences.

Practically, this means supplying data like wind information, IAS, vertical speed, altitude, etc. This data is then used by the 3rd party device for more exact calculations.

Also, a Bluetooth connection allows a third party device to send a declaration to the Eos 80, as well as changing different settings, like MC, ballast and bugs.

We will look over two cases, an Android phone (XC Soar) and an Oudie, as these represent Android applications and different PDA/PNA devices, respectively.

### 7.2.1 Connecting an Android device (XC soar)

In order to connect an Android phone, the following steps are required:

1. **Establishing a Bluetooth connection**
2. **Setting up the Eos 80**
3. **Setting up XC Soar**

#### 7.2.1.1 Establishing a Bluetooth connection

To set up a Bluetooth connection, go to **Setup** > **Network** > **Wireless mode** and choose **Bluetooth server**.

Exit the **Wireless mode** setup by going back and open the **Wireless setup** menu. You will find your device's Bluetooth name and password, needed fro establishing a Bluetooth connection.

Now take your Android phone, turn the Bluetooth on and check the 'Available devices' list. You should see your Eos 80. Select the Eos 80 and the connection will be established.

#### 7.2.1.2 Setting up the Eos 80

To set up Eos 80 NMEA communication, needed for the proper functioning of XC Soar, go to **Setup** > **NMEA** and check the following tick boxes:

- **GPGGA**
- **GPRMC**
- **GPRMB**
- **LXWPx**
- **LXDT**
- **LXBC**
- **PFLAx**

Your Eos 80 will now send the checked NMEA sentences to the Android phone.

#### 7.2.1.3 Setting up XC Soar

Open XC Soar on your phone, go to **Config** > **Devices** > **B:** > **Edit** and set up the following items:

- **Port -** select the port with the same name as your Eos 80's Bluetooth name (LX Eos 80 3xxxx)
- **Driver -** LX navigation (pending)
- **Passthrough device -** Off

Once done, you should see the connection state go from 'Not connected' to 'Connected; Baro; Airspeed; Vario; FLARM'.

**Now the two devices are communicating.**

### 7.2.2 Connecting an Oudie or other PNA/PDA device

In order to connect an Oudie, or similar PDA/PNA device, the following steps are required:

1. **Establishing a Bluetooth connection**
2. **Setting up the Eos 80**
3. **Setting up the Oudie**

#### 7.2.2.1 Establishing a Bluetooth connection

To set up a Bluetooth connection, go to **Setup** > **Network** > **Wireless mode** and choose **Bluetooth server**.

Exit the **Wireless mode** setup by going back and open the **Wireless setup** menu. You will find your device's Bluetooth name and password, needed fro establishing a Bluetooth connection.

Now take your Oudie, go to **Menu** > **Settings** > **Input** > **Bluetooth...** and press Lookup. The Oudie will now search for nearby Bluetooth devices. Once your Eos 80 appears (LX Eos 80 3xxxx), select it and press pair. When prompted for a password, type in '1234'.

The following settings should be set:

- **Port -** COM5: (Bluetooth)
- **Speed -** 38400
- **Parity -** None
- **Bits -** 8
- **Stop bit -** 1
- **Set DTR -** Checked
- **Set RTS -** Checked

Press OK and the Oudie will exit back to the main screen.

#### 7.2.2.2 Setting up the Eos 80

To set up Eos 80 NMEA communication, needed for the proper functioning of SeeYou mobile, go to **Setup** > **NMEA** and set the NMEA baude rate to **38400**.

Now check the following tick boxes:

- **GPGGA**
- **GPRMC**
- **GPRMB**
- **LXWPx**
- **LXDT**
- **LXBC**
- **PFLAx**

Now go to the Oudie's **Menu** > **Settings** > **Hardware** > **Device** and select 'LX navigation' (pending).

If you go to the Terminal, you should see communication flowing, in the form of NMEA sentences.

**Now your devices are communicating.**

The Oudie will receive various flight parameters (IAS, vario info, Flarm objects and warnings, GPS, etc.) from the Eos 80, and the Oudie will be able to send a flight declaration to the Eos 80 and control various flight parameters, like MC, bugs and ballast.

## 7.3 User port connectivity

Various devices can be connected to the Eos 80's User port. The User port is used for bidirectional NMEA communication, using the RS 232 protocol. Since the list of devices is long, we will go through two main examples, an Oudie and a KRT2 radio, representing PNA/PDA devices and radio transceivers, respectively.

### 7.3.1 Connecting an Oudie

The main benefit of a wired connection between the Oudie and Eos 80 is that the Eos 80 will charge the Oudie, for as long as the Eos 80 has an external power supply. Also, if you wish to connect two Oudies to an Eos 80, you can do this by connecting one device via Bluetooth and the second device via cable.

For a cabled connection, you will need an **LX Eos Power Data cable**. Connect the Power-Data cable to the Oudie, set the input on the Oudie to COM4, serial cable and set the same NMEA sentences as mentioned earlier for Bluetooth communication.

### 7.3.2 Connecting a Radio

When connected to an Eos 80, a radio transceiver can receive airport frequency information from the Eos 80 and set it as the reserve frequency.

The following radios are supported:

- **KRT2**
- **ATR933**
- **Becker -** special radio bridge required for communication
- **Trig**
- **AIR avionics**

The Radio transceiver needs to be connected to the Eos 80 User port, utilizing the RS232 communication protocol. Hardware installation will be explained in the '**Eos 80 installation manual**.

On the software side, the Eos 80 needs to have the correct radio chosen in the **Setup** $>$ **NMEA** $>$ **Radio**, and the 'Send APT freq.' checkbox checked.

# LX Joy

The **LX Joy** (short for Joystick) is a remote control unit for the Eos 80, which attaches to the aircraft's flight control stick. Using the Joy with the Eos 80, you can access all available settings, without touching the Eos 80 itself.

In case of the Eos 80 an its single push-rotary knob, the **LX Joy expands the user experience greatly**, as it allows a single-push access to more settings, as we'll see in this section.
Please note that the **LX Joy** is compatible with the LX Eos 80, LX Era and LX 10k units. Since not all of the buttons are required for the full operation of the Eos 80, some LX Joy buttons are without function.

In general, the Joy input interface consists of five front-facing push buttons, a central penta-directional (up, down, left, right and push) joy button, a front facing LED and a SC push button on the back side (facing the instrument panel).

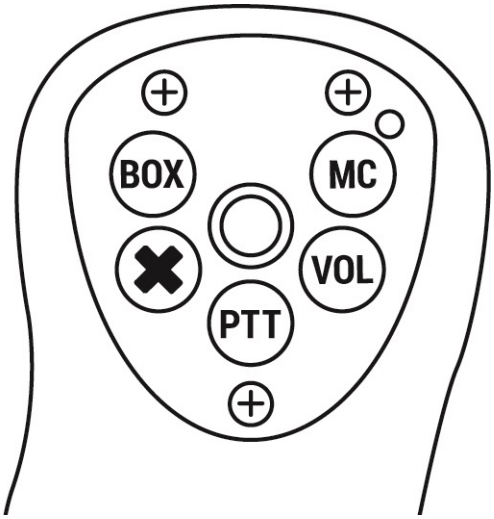


Figure 69.

**The central button** is used for main navigation throughout the Eos 80 OS. It mimics the turning of both the push-rotary knob and pressing the push-rotary knob, in the following way:

- **Left/Right -** mimics turning the push-rotary knob
- **Up/Down -** invokes zoom on all zoomable pages, changes pitch offset on the **AHRS page**, changes sets volume on the **Main page** and **Thermal assistant page**
- **Pressing -** mimics pressing the push-rotary knob **(Enter, Confirm)**

**The MC** opens the MacCready sub-page, where MC, Bugs, Ballast, QNH and Brightness can be set.

**The VOL** opens the Volume sub-page in any menu.

**The 'X'** button will mimic the long-pressing of the push-rotary knob on the Eos 80. It opens the 'Task options' sub-page on the **Task page** and the 'Flarm objects' sub-page on the **Flarm radar** page.

**The PTT** button is connected to the Radio and does not influence the Eos 80.

**NOTE**
The Eos 80 is not compatible with the legacy LX Remote Stick.

**NOTE**
The BOX push button and the LED are without function when in use with the Eos 80. The LED is reserved for use with a Zeus, while the BOX can be used either by an LX 10k or with a Zeus.

**NOTE**
Newer **LX Joys** feature a Vibra motor, giving the pilot not only audio and visual warnings, but vibration warnings as well.

**NOTE**
There are different HW iterations of the current **LX Joy**. Eos 80 is compatible with all of them, although older and Zeus-type **LX Joys** will have different button icons. Nevertheless, the functions of those buttons will stay the same as described in this section.

**NOTE**
New hardware versions of the LX Joy utilize SC switch communication over the CAN cable, and thus lack the two wires going from the Joy to the Eos 80's Inputs interface. Older hardware versions of the Eos 80 will require the SC command button be connected to the Inputs interface. For additional info, check the **Inputs** section

.

# Taking care of your Eos 80

If you were taken here by following the link from the introductory part of this manual, you can get back by clicking on the underlined text - **Using this manual**.

## 9.1 The internal battery

The Eos 80 has a Li-Ion internal battery, used for powering the unit, if the main power supply of the plane gets cut, during flight.

The internal battery can power the Eos 80 from **3 to 5 hours**, depending on the brightness level, whether wireless is on, volume and the state of the battery.

To extend the longevity of your Eos 80's battery a few key steps should be taken:

- **Avoid using the internal battery, when not needed -** Do not intentionally cut the power to the Eos 80, when there is still enough power from your main batteries. Do not intentionally leave it in flight mode.
- **Avoid draining the internal battery -** Draining the battery completely is a known culprit for reducing battery capacity. If you see the Eos 80 changed to its internal power supply, think about heading to your home airfield, unless on a competition of course!
- **Proper winter storage -** During periods of long inactivity, especially during winter, when cold temperatures are present, the battery capacity is lowered by cold temperatures and it can easily happen that the battery gets completely drained, causing the Eos 80 to lose its seal and the battery to lose part of its capacity. To avoid this from happening, it is recommended that, whenever the Eos 80 is in storage, it should be connected to an external power supply regularly, every 4 to 6 weeks, for at least 3 hours, for the internal battery to charge.

**NOTE**

The Eos 80 can not power external devices, while on internal power, meaning Flarms, User port connected PDA/PNA devices and CAN connected devices will stop working (unless they have an internal power supply of their own.

**NOTE**

The Eos 80 charges the internal battery automatically, when connected to an external power supply.

**WARNING**

**Draining the battery completely will cause the Eos 80 to lose its IGC seal. If this happens, the pilot will be prompted by a red warnings stating 'Seal not valid!', when powering up the device. All flights recorded without a valid seal will not be IGC valid, meaning they can not be used for badge flights, record flights, competition flights and webpages like OLC will not calculate them into your cumulative score. If this happens, contact LX support as soon as possible.**

## 9.2 Pressure sensors

The Eos 80 incorporates a variety of delicate pressure sensors. Since these are zero-flux sensors (there is no airflow through the sensors, only pressure differences), no air filters are required.

**Static pressure sensors** have an operating range of 0 to 1200 mbar, with a high resolution of 20cm of altitude. Any overpressure could damage the static pressure sensor permanently, which is why great caution should be exercised when setting up and testing the pitot-static system. If the total pressure were to be connected to the static port, and a pilot was to check the IAS reading by blowing into the pitot tube, damage could easily occur.

**The differential pressure sensor** has an operating speed of up to 325 km/h (50hPa). Flying over this speed, or applying the equivalent pressure, may damage the sensor permanently.

## 9.3 Display

Leaving the glider canopy open in the sun is known to have a magnifying glass effect, concentrating the sun rays to a smaller area. This can damage the internals of your cockpit, as well as the display of the Eos 80. Applying excessive heat will make the coating of the display start to become yellow and bubble (best case scenario), or destroy the device completely.

This is why it is prudent to always have your canopy, or your instrument panel, covered from direct sunlight.

## 9.4 Device housing

By FAI IGC rules, visible external damages to the housing of the Eos 80 can void your competition, record or badge flight, from being processed as valid. Care should be taken not to damage the housing and the 'Data not valid if seal is broken' stickers not to be torn up.

## 9.5 RJ connectors

RJ connectors (RJ12 and RJ45) on the back of the Eos 80 are used for connecting external devices. If the cable is pulled out, without pressing the plastic security pin, the internals of the Eos 80's connector may break and get ripped out. One should always be careful when taking the cable out, to press the security pin completely.

## 9.6 MicroSD card reader

The Eos 80 features a microSD card reader on the front of the device. The microSD should always be inserted carefully, not to miss the internal microSD card reader electronics.

## 9.7 Reverse polarity on power

Although the Eos 80 has diodes protecting it from reverse polarity on the main power lines, one should note the RJ connectors are not protected and internal electronics could still get damaged, if a power supply is connected to the wrong pins on the RJ connectors. Similarly, the Eos 80 can damage external devices, if a wrong cable is used for connection, as the Eos 80 provides a 12 VDC power supply to the CAN, Flarm and User ports.

# When connected to the Zeus

It is important to note that, when ordering a Zeus system with an Eos 80, the pilot receives a **Zeus version** of the Eos 80, which offers the pilot **all** functions and functionalities of the **standalone Eos 80**. The only difference is whether or not the device will power on when power is provided to the device's main power lines.

Due to this philosophy, Zeus owners are given much more than just a vario indicator for their main device. They are provided with a whole separate unit, which operates with the Zeus, but is perfectly capable of operating on its own. This feature is what differs LX navigation from other glider avionics manufacturers.

Once the Zeus is shut down, the Eos 80 will convert to the standalone version, incorporating all of the features and settings found in this manual.

The Eos 80 registers a Zeus is present over the CAN port and changes are made. These changes only include hiding some of the settings, which are already made on the Zeus, so as not to require the pilot to type in the same parameters twice.

The following settings **are hidden on the Eos 80, when connected to the Zeus**:

- **Initial setup -** Since initial setup parameters are sent from the Zeus.
- **Setup -** The following items are being set on the Zeus, and thus hidden on the Eos 80.
  - **User settings**
    - **Pilot**
    - **Vario/SC**
    - **Task**
    - **Indicators**
    - **Voice**
    - **Pages**
    - **Warnings**
    - **Logger**
  - **System settings**
    - **Glider**
    - **Units**
    - **NMEA**
    - **Inputs**
    - **Localisation**
    - **Shutdown**

Meaning the following settings **are available on the Eos 80, when connected to the Zeus:**

- **Setup -** The following item settings are left on the Eos 80:
  - **User settings**
    - **Graphic**
  - **System settings**
    - **Transfer**
    - **Network**
    - **Synchronization**
    - **Service**

Once the Zeus is disconnected, the Eos 80 will revert back to the standalone state, and all of the settings will again be available on the device itself.

# Cloud services

This section covers in detail everything regarding connectivity and cloud features of LX navigation.

To use LX cloud features, you will need to have a system or device that has access to the internet (a WiFi module inside). The following systems are capable of utilizing LX cloud features:

- Any **Zeus system** with the following variometers:
  - **Era 80**
  - **Era 57**
  - **Eos 80**
- **LX 10k -** with any vario unit
- **Era 80 -** standalone variometer
- **Era 57 -** standalone variometer
- **Eos 80 -** standalone variometer
- **Colibri X -** handheld flight logger
- **PowerFLARM Eagle 2022 -** FLARM transceiver (supports logbook syncronisation feature only)

If you have an older type **Zeus system** with a **USBD 60** or **Eos 57** variometers, you will need to acquire one of the variometers noted above. To get information on these units, feel free to contact **info@lxnavigation.com**.

The LX cloud system offers the following features to our pilots, depending on the system they have:

- **Database synchronisation**
- **Logbook synchronisation**
- **Automatic updates**
- **Weather information for the Zeus**
  - SkySight
  - Rain Radar
- **Mail**
- **OLC**
- **SeeYou Cloud**
- **Soaring spot**
- **WeGlide**

## 11.1 Cloud interface

**The LX cloud** is located under the following link: **https://cloud.lxnavigation.com/login**.

Once you've clicked on the link, you will be taken to the Login/Registration page. Fill out your registration or login if you've already registered.

We use a standard registration process, where you'll need to confirm your registration in an email we sent you. Be sure to check your SPAM folder if you can not find it.

Once registered, you will be greeted with the main page - the Dashboard.

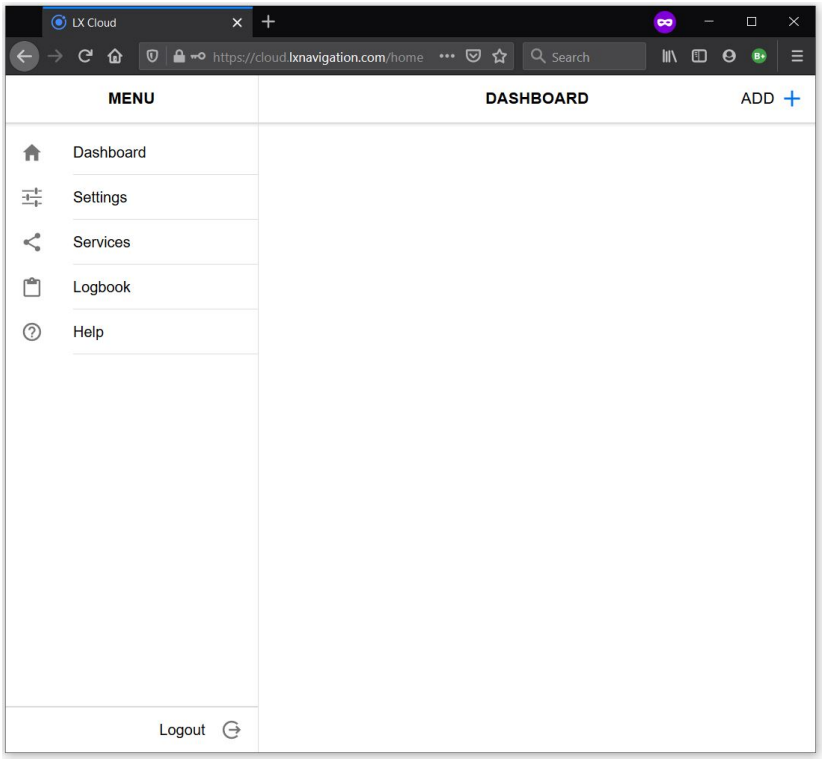


Figure 70. Dashboard overview

The Dashboard is used to display all devices you have registered to your name on the right and additional options and services to the left. Once you've added a device, it is displayed as pictured on the figure below.

### 11.1.1 Adding a device

It is important to note that the LX cloud recognizes two different types of users: *Administrators* and *Users*.

Here are the differences between **administrator** and **user** accounts: **Administrators can:**

- **Backup device files**, which can be used in case there is an issue with data corruption

- **Set glider number of hours and flights**, the LX cloud will then show the current total hour and flight count for the glider in question and choose device administrator email
- **Set which database files are in use**, these files will be automatically uploaded to the device, once online
- **Access ALL flights in the device's memory**, regardless of which pilots have actually flown the flight

**Users can:**

- **Backup device files**, which can be used in case there is an issue with data corruption
- **Remove device from LX cloud profile**
- **Access flights in the device's memory**, which have been made by the user's LX cloud profile (if the Cloud ID has been properly used)

In a club environment, the administrator would be the person designated by the club to keep all devices up to date and all database files current, as well as the person who needs to be able to check **all** flights flown on the glider. Each pilot still has the full freedom to choose in his own pilot profile on the device, which files is he going to use.

#### 11.1.1.1 Adding a device as Administrator

Firstly, we need to acquire the information required for adding a device. The following info is needed:

- **Cloud ID -** found in our LX cloud web-application under the following link: **https://cloud.lxnavigation.com/login**. It can be found under the Settings tab. Is different for every Cloud user account.
- **Cloud ownership ID -** found on device itself by going to **Setup** > **Service** > **Device info**. Is different for every device.
- **Serial number -** found on device itself by going to **Setup** > **Service** > **Device info**. Is different for every device.
- **Administrator email -** if you wish to add additional administrators.

In order to add a device as an administrator, click on the **ADD +** button in the upper right corner in LX cloud. On your device, go to **Setup** > **Service** > **Device Info**, where you will find the **Serial Number** and **Cloud Ownership ID** needed for registering your device.

If the device you're adding is part of a system (like a Zeus-Era system), you only need to add the Era and it will in turn now that a Zeus is connected and report it automatically. Both devices in a system (Zeus and Era) share the same Cloud ownership ID.

If the device is part of a club, the designated club administrator's email should be added. You can add as many administrators as you wish and they will all share the same administrator

privileges as noted above (useful for co-owned gliders).

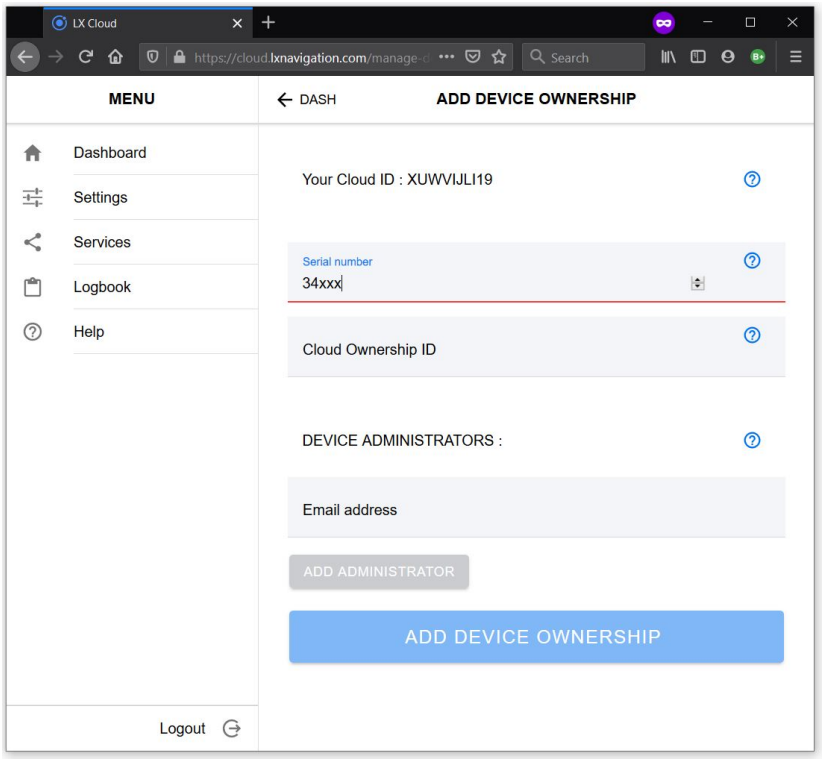


Figure 71. Adding a device as administrator

Once finished, press 'ADD DEVICE OWNERSHIP' and your unit will be added to your LX cloud pilot profile. Now, the unit is shown on your dashboard and additional options are available.

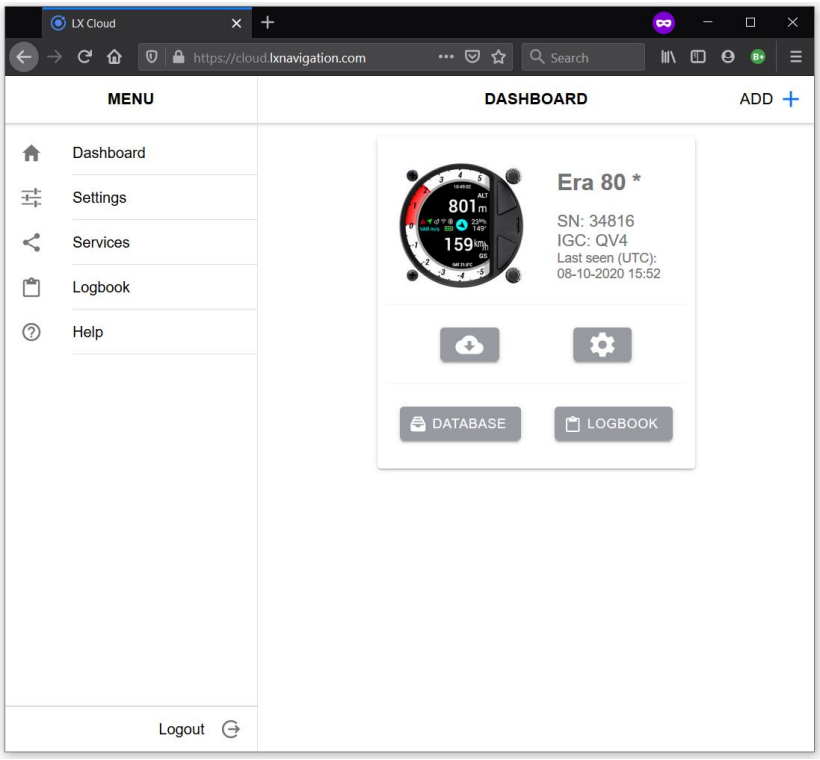


Figure 72. Dashboard overview with a device

#### 11.1.1.2 Adding a device as User

On your device (Era, 10k, Eos 80, Colibri X - the IGC logger in your system), go to Setup > Pilot and type in the Cloud ID found in the cloud web interface under Settings. The device will connect your pilot profile on the device with the cloud profile.

A device will appear on your dashboard.

# Contact

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