

PowerMouse

The FlarmMouse successor

Version 1.02



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1 Important Notices

The LXNAV PowerMouse system is designed for VFR use only as an aid to prudent navigation. All information is presented for reference only.

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A Yellow triangle is shown for parts of the manual which should be read carefully and are important for operating the LXNAV PowerMouse system.



Notes with a red triangle describe procedures that are critical and may result in loss of data or any other critical situation.



A bulb icon is shown when a useful hint is provided to the reader.

1.1 Limited Warranty

This LXNAV PowerMouse product is warranted to be free from defects in materials or workmanship for two years from the date of purchase. Within this period, LXNAV will, at its sole option, repair or replace any components that fail in normal use. Such repairs or replacement 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 unauthorised alterations or repairs.

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To obtain warranty service, contact your local LXNAV dealer or contact LXNAV directly.

January 2013

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2 Packing Lists

- PowerMouse
- Dipole FlarmAntenna
- 2nd Dipole FlarmAntenna is optional
- USB stick
- Flarm power supply cable
- FlarmView/FlarmLED (Optional)

3 Basics

3.1 LXNAV PowerMouse at a Glance

PowerMouse is standalone PowerFlarm® with external GPS antenna, USB socket and internal Bluetooth module.

It's a collision avoidance device, designed for gliders as well as for other participants in the air. FLARM® is in widespread use and features include:

- Display of nearby Flarm traffic with warning visually and acoustically of approaching other aircraft or fixed obstacles (where database has been installed)
- intelligent motion prediction which minimizes nuisance alarms and supports situational awareness
- integration with over 50 compatible products by other manufacturers (e.g. PDA moving maps) through open serial port protocol
- USB socket for easy uploads and downloads, IGC-format flight recording and OLC-approval
- based on award-winning original FLARM® design, endorsed by FAI, IGC/OSTIV and EASA (AMC Part 21, Part M)
- optional diamond-level IGC-approval with/without engine noise sensor (ENL)
- a typical radio range that can be verified with online radio range analyzer
- powerful 72-channel high-precision uBlox NEO8-GPS module
- full compatibility with wide range of Flarm-licensed products
- operation on a license-free radio band, not based on transponder technology
- small size and simple installation

PowerMouse is available in 4 variants:

1. PowerMouse with Flight recorder (Not approved by IGC), with enabled SAR (search and rescue) function
2. PowerMouse with IGC approved Flight recorder (Up to Diamonds) and SAR function
3. PowerMouse with IGC approved Flight recorder (Up to Diamonds), Engine noise sensor and SAR function
4. RFB – second flarm antenna (dual antenna diversity) -available for all versions (Not IGC, IGC and IGC ENL)

3.1.1 LXNAV PowerMouse Features

- USB stick socket for configuration of Flarm, firmware update or storing IGC flights
- IGC flight recorder (Up To Diamond level)
- Optionally preloaded obstacles (where databases are available) – Obstacles are not any more free of charge.
- Expandable to all standard Flarm displays
- Designed for FlarmView
- Low current consumption
- Second flarm antenna

3.1.2 Interfaces

- Two Standard Flarm/IGC port on RJ45 with serial RS232 interface
- USB Port



Default baudrate of PowerMouse is set to 19200bps. In case, that you have any problems with flarm indicator (FlarmView), please check baudrate setting on it.

3.1.3 Options

One or more external Flarm Displays can be connected (FlarmView/FlarmLED)

3.1.4 Technical Data

- Power input 8-36 V DC
- Consumption 1.02W (85mA @12V) excl. power for USB stick
- Weight 160 g
- 55mm x 90mm x 25mm

4 System Description

4.1 Switching on the Unit

Unit is switched on automatically, when it gets valid power supply from either PORT1 or PORT2 RJ45 connector.

4.2 Normal operation

PowerMouse goes into normal operating mode, when it receives signals from enough GPS satellites. Then the device becomes visible to and receives data from other FLARM devices.

5 Installation

PowerMouse can be installed behind the instrument panel.



For better range, Flarm antennas must be positioned vertically.

5.1 Connecting LXNAV PowerMouse

LXNAV PowerMouse is connected to DC power supply using PF POWER 12 VDC cable. Red wire goes to + positive and blue wire goes to – ground.

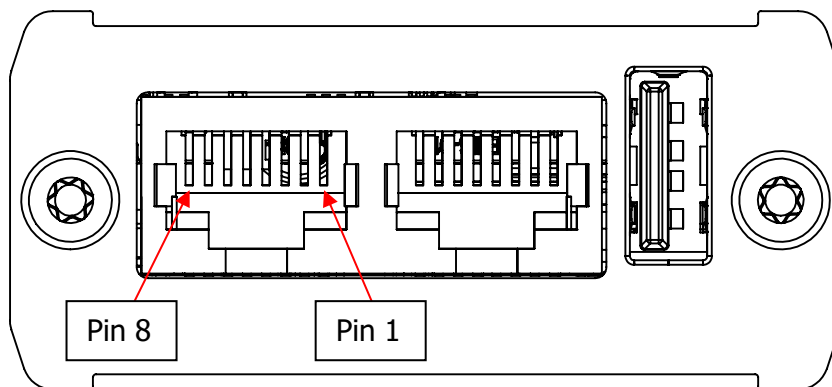
External indicator can be connected via a splitter or directly to the other port.



Instrument has no internal fuse. **3A external fuse is required!**

5.2 Wiring

5.2.1.1 PowerMouse PORT1 and PORT2 pinout (RJ45)



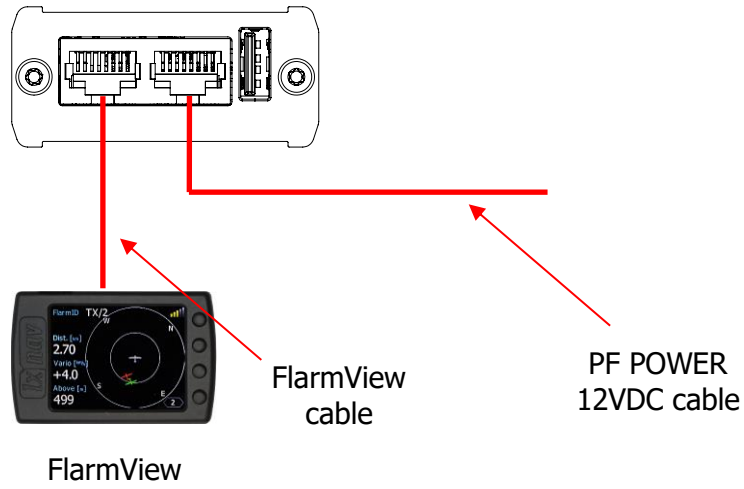
Pin number	Description
1	+ Power input
2	+ Power input
3	3.0V Indicator power output
4	Ground
5	Data output (TX)
6	Data input (RX)
7	- Power input
8	- Power input



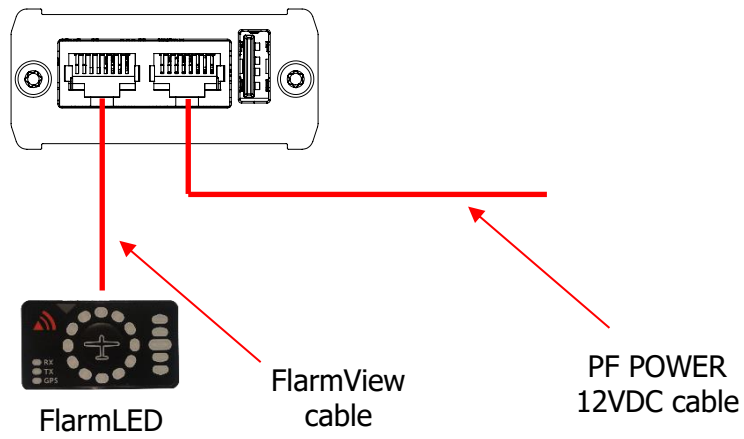
Pins 1 and 2 of PORT1 and PORT2 are connected together.

Pins 7 and 8 of PORT1 and PORT2 are connected together.

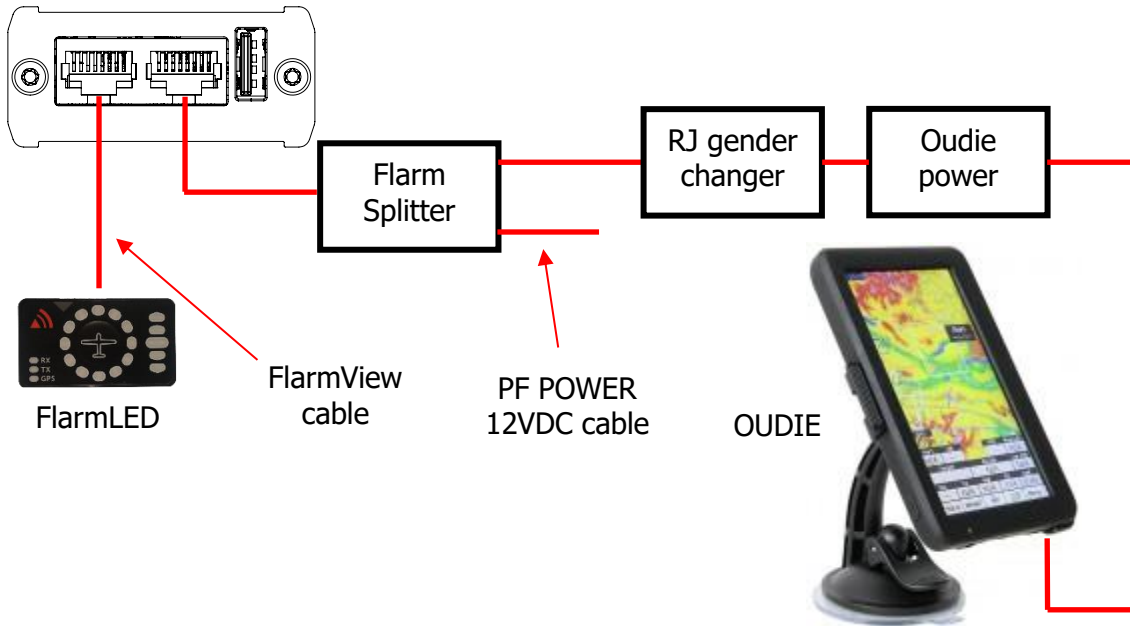
5.2.1.2 PowerMouse – FlarmView



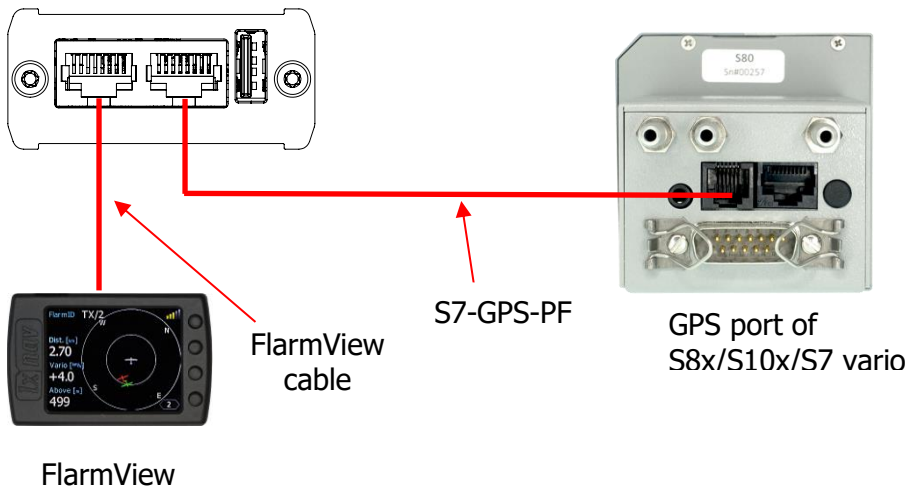
5.2.1.3 PowerMouse – FlarmLED



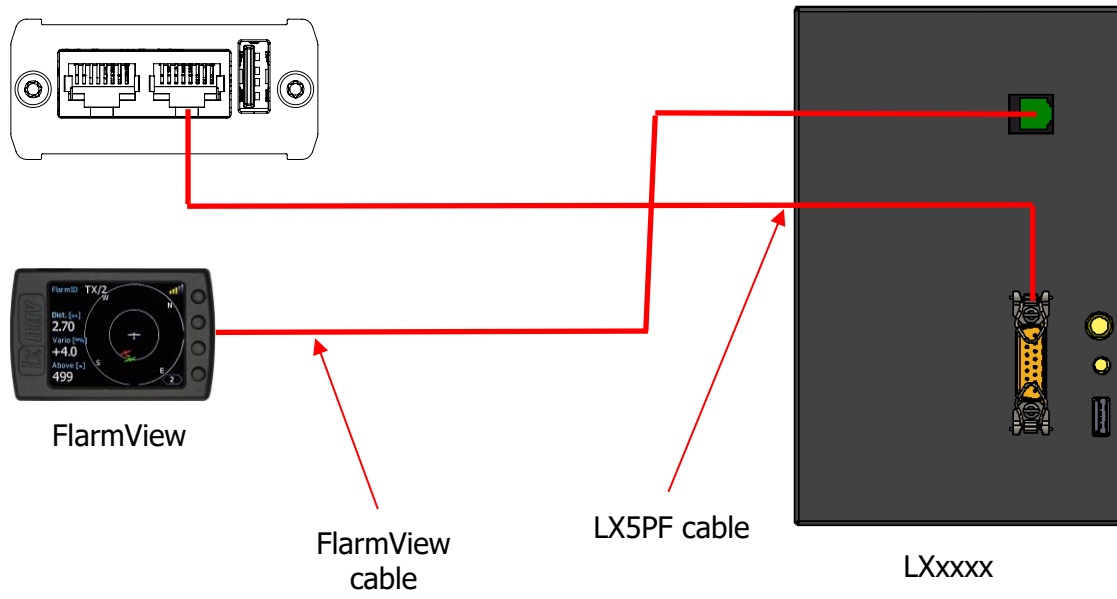
5.2.1.4 PowerMouse – FlarmLED – Oudie



5.2.1.5 PowerMouse – FlarmView – Sxxx Vario



5.2.1.6 PowerMouse – LX9xxx – FlarmView



6 Firmware Update

6.1 Firmware update via USB port (USB stick)

This Method is the easiest one and therefore preferred. The firmware update will be executed, when the system finds the file named `flarm_x*.fw` (x= version nr.) on the USB stick root. This file can be downloaded at www.flarm.com.

Update procedure:

- Switch off the Flarm and insert the USB stick.
- Now switch on the device
- The procedure will start automatically, it takes about one minute.
- When ready, switch off the Flarm
- Please delete the firmware file from the USB stick after the update

Updating the obstacle database:

The firmware update will be executed, when the system finds a file with the extension `*.obs.` on the USB stick root. The procedure runs identically to the firmware update and takes a few minutes. Please delete the obstacle file from the USB stick after the update.

All data must be in the USB stick root directory. Folders and subfolder are not allowed. Names of the files shall not be changed.

6.2 Firmware update with the PC – FLARM Tool

This method is necessary only, if the updating through the USB stick fails. In this case you will need the Flarm update cable (does not belong to the standard scope of delivery).

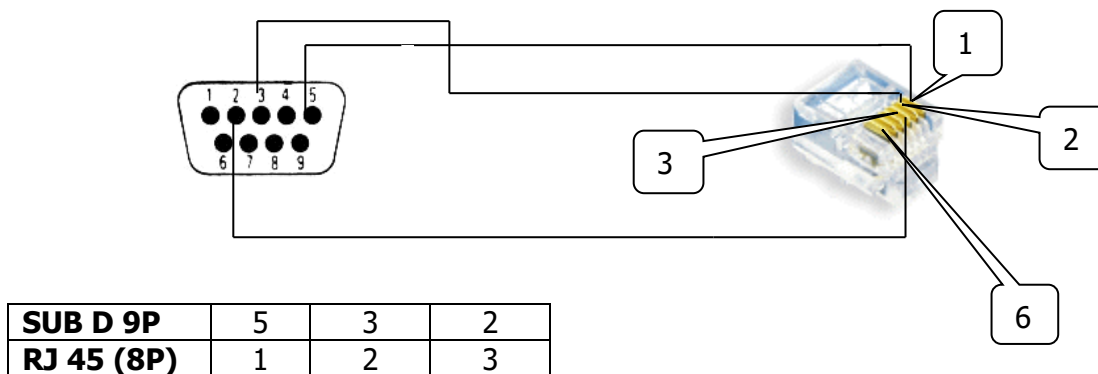


Figure 1: Flarm update cable



The update cable does not belong to the standard scope of delivery.

Current version of FLARM Tool is V3.6.4, containing Flarm firmware V6.42.

Procedure for updating the PowerMouse via FLARM Tool:

- Switch on Flarm (Connect to power)
- Start the FLARM Tool on your PC/Notebook (contains current firmware)
- Now connect the PowerMouse with PC /Notebook. (via splitter)

- Connection will establish automatically
- After confirming license agreements, the update will start.
- When finished, switch off the PowerMouse

Under the menu item „Flarm“ you will also find the possibility to update the obstacle database and to change settings in your PowerMouse.



The FLARM firmware expires periodically. Performing an upgrade is obligatory then. Information about this you will find under www.flarm.com

6.3 Change PowerMouse settings

6.3.1 Changing settings via PC Flarmtools

Click on the settings icon as shown in Figure 2. Besides other settings you will find the possibility to set the baud rate of the PowerMouse (e.g. if you connect it to a V7, you might use a higher baud rate than the default 19200bps).

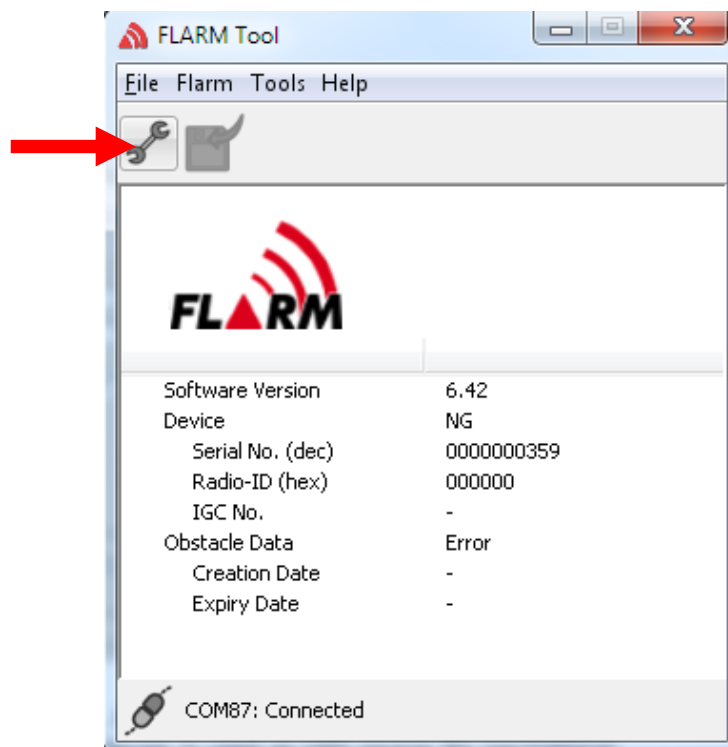


Figure 2: Click Settings icon to access the settings on your PowerMouse

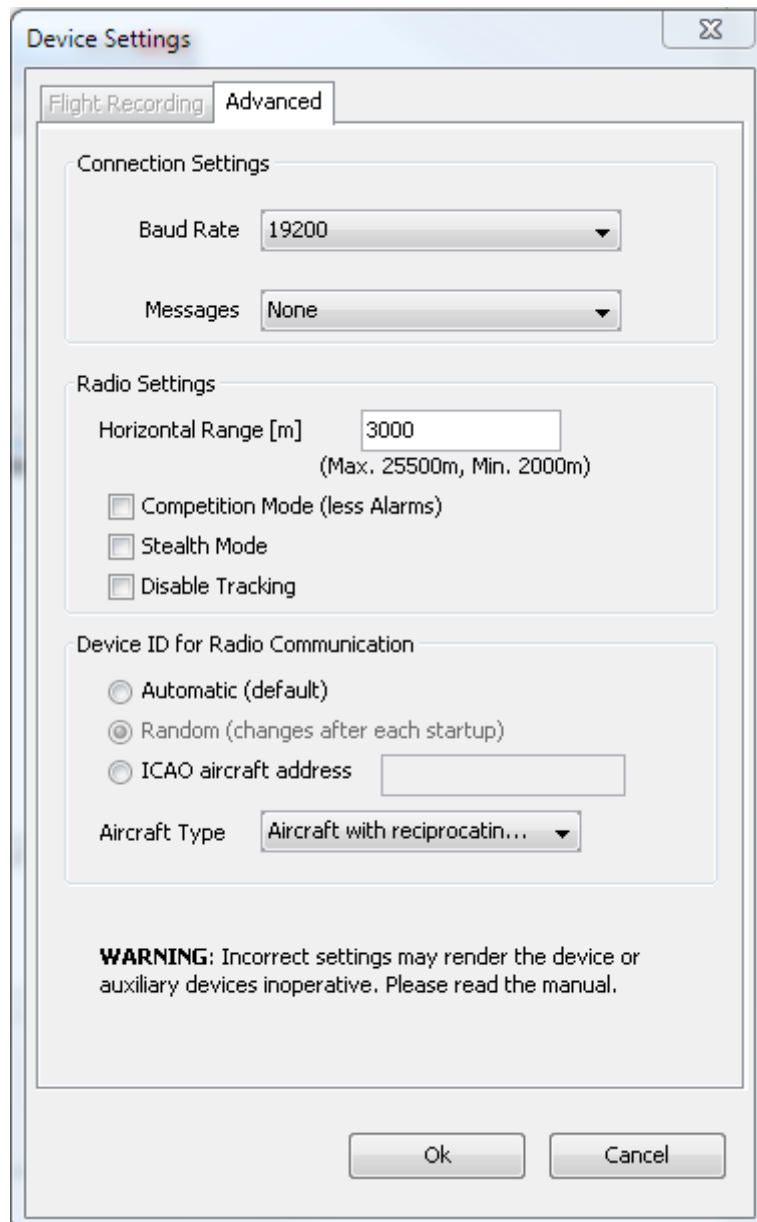
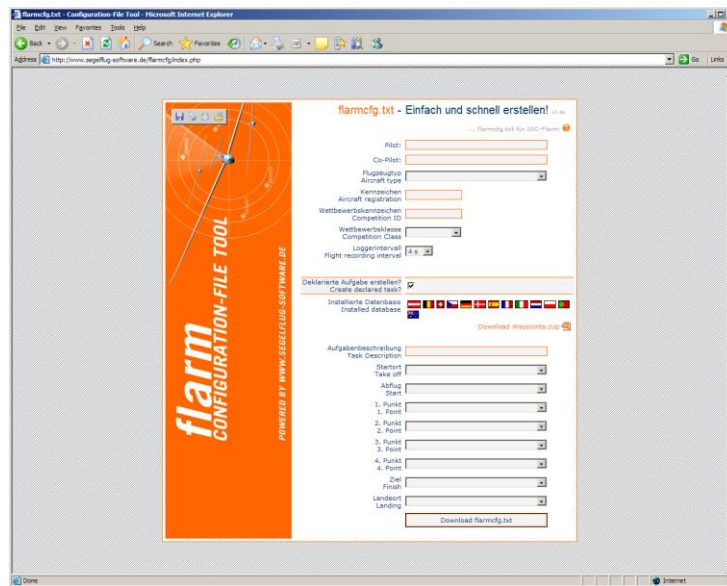


Figure 3: Example of default settings of the PowerMouse

Choose **“Navigation and Flarm”** under Messages, if you like to have NMEA-data additionally to the Flarm data. This is necessary, when the PowerMouse is used as GPS source for navigational systems (V7, LX8xxx simple,...), graphical flarmdisplays (FlarmView,...) or PDA/PNA (Oudie,...). For the PowerMouse this setting is default..

6.3.2 Settings via configuration file



Settings of you PowerMouse and declaration of flights can easily be performed by using a configuration file, which is read by the Flarm during the boot process (flarmcfg.txt). Some tools for a simple writing of such configuration files can be found in the web, here one example: **www.segelflug-software.de/flarmcfg/**.

The configuration can also be performed with PC programs like SeeYou or PDA solutions like ConnectME and Pocket StrePla.

6.4 Saving flight on the USB stick

The last 20 flights will be downloaded at every switching on (only if the USB stick is inserted). If there are already some of the 20 flights on the USB stick, they will not be downloaded again. That means: if you have been flying a lot without downloading flights, the download procedure will take some time, so don't switch off. To download one flight after landing perform the following procedure: Wait a 3 minutes after landing. Then switch off power for at least 5 sec. Insert the USB stick (in case its not already inside) and switch on again.



The collision avoidance functionality does not depend on the status of the USB stick (inserted or not)

7 Revision History

November 2017	Initial release of this manual
January 2017	New chapter 0