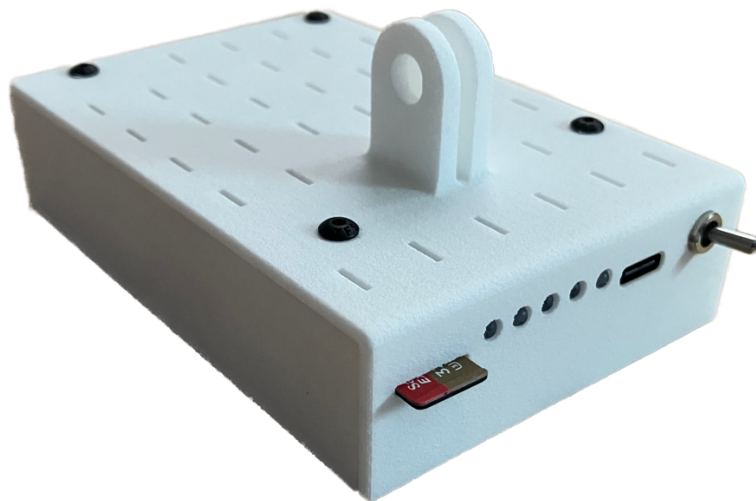


# Stadia Integration Manual

Firmware v3.0

Document Revision 1.0



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## 1 Technical Documentation

The following documentation and support software are included with OnFlight and available from our [website](#):

- **User Manual (this document):** describes the OnFlight Hub, specifications, and operations.
- **CSV Data Log Description:** describes the fields available in the CSV formatted data logs.
- **Binary Data Log Description:** describes the binary data log format that OnFlight Hub uses to write data. This is useful for application developers who would like to natively read and use these data logs.
- **UDP Broadcast Description:** describes the real-time UDP broadcast packet format that is sent by OnFlight Hub.
- **External Air Data Interface:** describes the interface to send OnFlight Hub data from an external air data system.
- **External AGL Altimeter Interface:** describes the interface to send OnFlight Hub data from an external Above Ground Level (AGL) altimeter.
- **Data Converter:** application for Windows or MacOS, which converts the data from OnFlight to CSV format.

## 2 Support

If you have technical problems or cannot find the information you need in the provided documents, please contact our technical support team by email at: [support@bolderflight.com](mailto:support@bolderflight.com). Our team is committed to providing the support necessary to ensure that you are successful using our products.

## 3 Introduction

[Skeeter Enterprises LLC](#) manufactures and sells a portable LIDAR altimeter for General Aviation called the Stadia. The Stadia can be easily mounted on a wing strut, wing tie down bolt, or tail tie down bolt and provides real-time measurement of the aircraft's height above the ground up to a range of 130 ft. Stadia has a battery life of 10 hours and transmits data over Bluetooth. Skeeter Enterprises is developing a RADAR altimeter for floatplane use as well.

OnFlight Hub with firmware v4.0 or higher supports the Stadia AGL altimeter out of the box and is capable of recording the altimeter data as well as displaying the data on our webpage and broadcasting real-time data over our UDP protocol.

## 4 Operations

### 4.1 Overview

To use Stadia with the OnFlight Hub, ensure that the Stadia is mounted to the aircraft, that the **Stadia is powered before OnFlight Hub is powered**, and that you don't have other devices connected to Stadia, such as a phone or tablet. During the first 10 seconds after boot, OnFlight Hub will search for Stadia and automatically connect to it. If the OnFlight Hub does not connect with Stadia on boot, it is assumed that a Stadia AGL altimeter is not present and no further connection attempts will be made. Once a connection with Stadia is established, the OnFlight Hub will collect 2 seconds of AGL altimeter data to estimate and remove bias due to the mounting location.

If the connection with Stadia is lost, the OnFlight Hub will attempt to re-acquire a connection over a period of 120 seconds.

Stadia reports its battery percentage remaining as well as the height above ground. OnFlight Hub records:

- The connection status with Stadia and whether a new message has been received.
- The Stadia battery status. The battery is reported as good above 30% life remaining, warning between 15% and 30% battery life remaining, and low below 15% battery life remaining.
- The AGL altitude data.

No information is available on the die temperature status of Stadia or whether the sensor is within range.

## 4.2 Configuration

The real-time data from Stadia can be viewed on the OnFlight Hub webpage at 192.168.23.1. Additionally, a button is available to re-zero the Stadia AGL altitude at any time.

**OnFlight Hub**

**System**  
 Serial Number: 349454A387B8 Version: 4  
 UTC Date: 2024-04-22 Time: 21:43:38

**TEMP (C)**

SYS TIME (S)	CPU	IMU	MAG	PRES
129.9	28	28	21	24

**STATUS**

BATT	IMU	MAG	PRES	GNSS
GOOD	HEALTHY	HEALTHY	HEALTHY	HEALTHY

---

**INS**

GNSS FIX	SATS	LAT (DEG)	LON (DEG)
3D	9	35.682987	-105.914875
PITCH (DEG)	ROLL (DEG)	HEADING (DEG)	MSL ALT (FT)
0.5	-0.8	305.2	7278
GND SPD (KTS)	GND TRACK (DEG)	LOAD FACTOR (G)	WGS84 ALT (FT)
0.0	173.1	1.0	7201
HORZ ACC (FT)	VERT ACC (FT)	VEL ACC (KTS)	CABIN PRES ALT (FT)
6.2	6.6	0.9	7047

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**Hub Config**

GDL90-Port:

Orientation:

<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="1"/>

IMU Bandwidth:

Input Voltage Cutoff Frequency (Hz):

Input Voltage Warning Threshold:

Input Voltage Low Threshold:

Load Factor Cutoff Frequency (Hz):

Climb Rate Cutoff Frequency (Hz):

Gyro Settings:

Cutoff Frequency (Hz):

Bias Motion Threshold (deg/s):

Accelerometer Settings:

Cutoff Frequency (Hz):

Bias (g):

<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
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Scale factor:

<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="1"/>

Magnetometer Settings:

Cutoff Frequency (Hz):

Bias (uT):

<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
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Scale factor:

<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="1"/>

GNSS Receiver Settings:

Navigation Rate:

Min Satellite Vehicles:

Static Pressure Sensor Settings:

Cutoff Frequency (Hz):

Oversampling Mode:

Filter Coefficient Setting:

UPDATE CONFIG
RESTORE DEFAULTS

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**Stadia AGL Altimeter**

**STATUS**

BATT	AGL ALT	AGL ALT (FT)
GOOD	HEALTHY	0.7

ZERO ALT

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