STRATUS

3

PILOT'S GUIDE

APPAREO

Copyright Information

Stratus 3 Pilot's Guide, © 2018-21 Appareo Systems, LLC. All Rights Reserved. All content within is copyrighted by Appareo Systems, LLC and may not be reprinted without permission.

The content of this guide is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by the manufacturer. Appareo Systems, LLC assumes no responsibility or liability for any errors or inaccuracies that may appear in the content contained in this guide.

Appareo and the Appareo logo are trademarks or registered trademarks of Appareo Systems LLC. MITRE is a registered trademark of the MITRE Corporation. iPad is a registered trademark of Apple Inc. App Store is a service mark of Apple Inc.

To view the current pilot's guide, go to stratusbyappareo.com/resources.

Table of Contents

Warnings

Data

- Stratus portable receivers are ADS-B In only products and do not satisfy the FAA's 2020 ADS-B Out requirement.

- Use of personal electronic devices while in flight may be hazardous. Use of Stratus portable receivers in an operating aircraft is subject to approval by the Pilot in Command.

- Position information provided by Stratus portable receivers should be used for situational awareness only and should not be used as your primary navigation source.

- AHRS (attitude heading reference system) data provided by Stratus portable receivers should be used for supplemental purposes only.

Weather

- Weather information provided by Stratus portable receivers is delayed and may not always be available. Do not rely solely on the information provided by the receiver to make tactical decisions.

Traffic

- Stratus portable receivers do not replace the need for collision avoidance systems or see-and-avoid procedures. Many aircraft are not currently ADS-B Out equipped and therefore not detectable by Stratus portable receivers.

Quick Start Instructions

1. Charge Stratus 3 to 100% battery using the wall charger.
2. Place dash mount in aircraft.
3. Place unpowered receiver in mount.
4. Turn on Stratus 3 by pressing the power button.
5. Connect your tablet or phone to the Stratus Wi-Fi network from the **Settings** menu.
6. If you're flying with an app other than Stratus Insight, ForeFlight Mobile, or Stratus Horizon Pro, enable Open ADS-B mode in Stratus Horizon Pro.
7. Open a compatible flight app and confirm connection to receiver.

   NOTE: Because ADS-B signals are broadcast by ground stations, Stratus 3 will not receive weather and traffic information while it is on the ground.

Shipping Contents

- Stratus 3 portable receiver
- Dash mount
- Wall charger and charging cable
- Stratus 3 Pilot's Guide

About Stratus 3

Stratus 3 is a battery-operated portable receiver that works with Stratus Insight, Stratus Horizon Pro, ForeFlight Mobile, and other compatible flight apps. It provides pilots with subscription-free in-flight weather and traffic and is a source of accurate WAAS (Wide Area Augmentation System) GPS position. It receives ADS-B (Automatic Dependent Surveillance-Broadcast) FIS-B (weather information),TIS-B (traffic information), and other related data and broadcasts it to compatible flight apps via a Wi-Fi network.

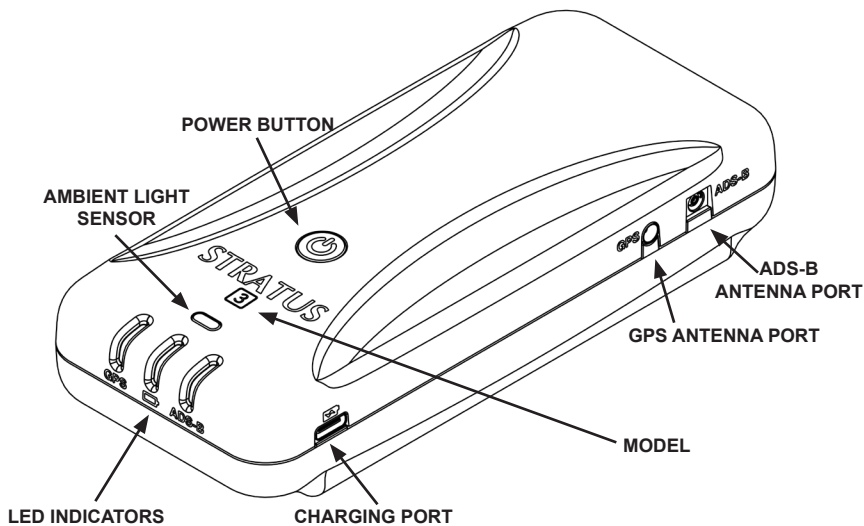Stratus 3 also includes AHRS (attitude heading reference system), a flight data recorder, and pressure altitude sensor. See pages 20 and 21 for more information about these features.

Stratus portable receivers are classified as PEDs (Personal Electronic Devices) and complement the instrument panel in your aircraft. If there is a discrepancy between the receiver and the instrument panel, use the readings on your instrument panel.

Stratus 3 Interface

POWER BUTTON

AMBIENT LIGHT SENSOR

ADS-B ANTENNA PORT

GPS ANTENNA PORT

MODEL

LED INDICATORS

CHARGING PORT

Product Registration

Your receiver is automatically registered with the retailer after purchase. The Stratus Portable Receiver Limited Warranty is valid two years after the receiver is shipped from the retailer and is non-transferable.

Compatible Flight Apps

Stratus 3 is optimized for Stratus Insight, Stratus Horizon Pro, and Foreflight Mobile, but also offers a GDL 90 interface for third-party apps when Open ADS-B mode is enabled in Stratus Horizon Pro.

Stratus Horizon Pro displays AHRS information when connected to Stratus 3. The app also provides ATC audio playback and transcription features to Stratus portable receivers and other devices.

Stratus Insight and ForeFlight Mobile display AHRS, ADS-B weather and ADS-B traffic. Other Stratus 3 compatible features include Synthetic Vision, pressure altitude, and flight data recording. For more information about Stratus Insight, refer to the Stratus Insight Pilot's Guide.

For a list of other compatible flight apps, visit stratusbyappareo.com/stratus-3-compatible-apps.

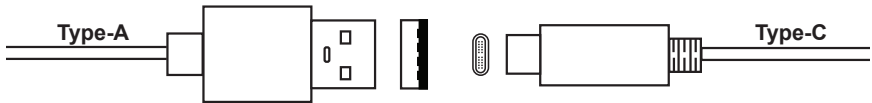**NOTE:** You must download Stratus Horizon Pro to apply Stratus 3 firmware updates and enable open ADS-B mode.

Charging the Battery

WARNING: Using other battery chargers voids the warranty and may result in decreased battery performance, permanent damage to the USB port, or inoperability of the receiver.

The receiver comes with a Type-A to Type-C USB charging cable.

Fully charge the receiver's battery prior to first use. To charge the battery:

1. Insert the charging cord's Type-A USB plug into the wall charger's USB port.

2. Plug the Type-C USB plug into the receiver's charging port. The plug can be plugged in with either side facing up.

3. Plug the wall charger into an electric wall outlet. The receiver requires a 2.0 amp charger, which most computer ports do not supply.

   When connected to an external power source, the power LED will flash. You can also view the battery level in Stratus Insight, Stratus Horizon Pro, or ForeFlight Mobile.

Using Stratus 3 at High Temperatures

Stratus 3 does not operate optimally if the temperature is higher than 95°F (35°C). The functionality of the receiver changes when the temperature exceeds 113°F (45°C), as shown in the table below.

Temperature	When unplugged	When plugged in
above 113°F (45°C)	functional	functional, but will not charge
above 140°F (60°C)	powers off	functional, but will not charge
152°F (67°C)	powers off	powers off

Extending iPad Battery Life

To extend your iPad battery life, enable Stratus Replay in ForeFlight Mobile. This allows the iPad to sleep or switch to a different app. Once you return to ForeFlight Mobile, the receiver will automatically send any missed ADS-B weather information to the app.

Battery Care

The receiver contains a lithium battery and can run off of battery power for about eight hours when it is new. Use the following guidelines for maximum battery lifespan and safe operation.

- Do not store the receiver in direct sunlight or environments where temperatures are more than 113°F (45°C) or are lower than -4°F (-20°C). Remove unit from aircraft when not in use.

- Do not store the receiver for long periods of time without charging. This can permanently damage the overall battery capacity.

- The receiver contains a fan inside the battery compartment that will turn on if the battery reaches a high temperature. The fan draws ambient air in through vents on the front of the receiver and pushes out warm air through vents on the back.

- Do not incinerate or puncture the receiver or the battery.

- Dispose of the receiver in accordance with local requirements for the recycling of electronic appliances and batteries.

- Check with current Federal Aviation Administration (FAA) rules before carrying the receiver on checked luggage.

Batteries are consumables and will need to be replaced over time. It is normal for a lithium battery to lose capacity after many charge and discharge cycles or if it is subjected to high temperatures. A battery replacement kit can be purchased from Appareo or Sporty's.

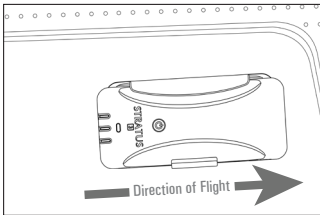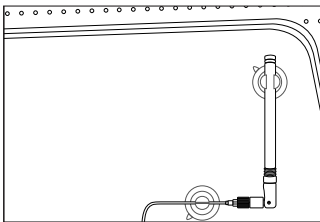# Mounting Stratus 3

You can mount Stratus 3 with a dash mount, window mount, or connect it to an external antenna.
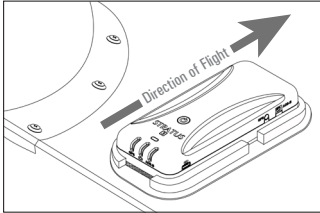
Dash mounted

Window mounted*

Connected to a remote ADS-B antenna*

*Available from your Stratus retailer

Placing Stratus 3 in Aircraft

Do not turn on Stratus 3 until it has been mounted so that it can calibrate correctly.

Using the dash mount

1. Place the dash mount on the aircraft dash.

2. Place Stratus 3 in the dash mount so that the arrow on the bottom of the receiver points in the direction of flight. The front of the receiver should be as close to the pilot as possible so that it can draw air from the cabin.

Using a window mount

1. Install the mount on a window inside the aircraft.

2. Orient Stratus 3 so that the arrow on the bottom of the receiver points in the direction of flight. Lean Stratus 3 against the longer arm of the mount's cradle.

   If the receiver is facing the wrong direction, AHRS data will be incorrect and the chance of overheating will be significantly increased.

3. Press on the top of the receiver until it snaps into place in the cradle, as shown in the figure on the following page.

Direction of Flight
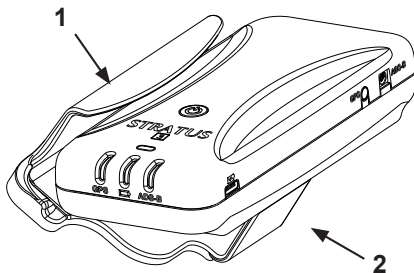
Inserting receiver into window mount

Using a remote antenna

Place Stratus 3 in a location where the arrow on the bottom of the receiver points in the direction of flight. When used with an optional remote antenna, the receiver can be placed in any part of the aircraft that allows the antenna cables to reach the receiver.

Refer to the following pages for instructions to install and connect remote GPS and ADS-B antennas.

Installing Remote Antennas

Stratus 3 has internal ADS-B and GPS antennas; however, remote ADS-B and GPS antennas are also available from your Stratus retailer. These antennas may improve the receiver's reception quality and provide more receiver mounting options.

Installing a remote GPS antenna

Place the remote GPS antenna in a location inside your aircraft that provides an unobstructed view of the sky (GPS satellites). Secure the antenna to the aircraft with the magnet on the antenna.

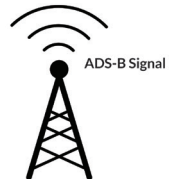**Installing a remote ADS-B antenna**

Place the remote ADS-B antenna in a location inside your aircraft that provides an unobstructed view of the ground (ADS-B ground stations). Secure the antenna to the aircraft with the included suction cups.

Connecting Remote Antennas to Stratus 3

WARNING: Make sure that you connect the antenna to the correct Stratus 3 port. Inserting an antenna connector into an incorrect port may result in permanent damage to the port or the antenna.

WARNING: Do not pinch or bend the external GPS cable, especially near the antenna. This could damage the cable and cause interference between the antenna and other on-board GPS receivers. The cable's minimum bend radius is 1 inch.

Remote antenna ports
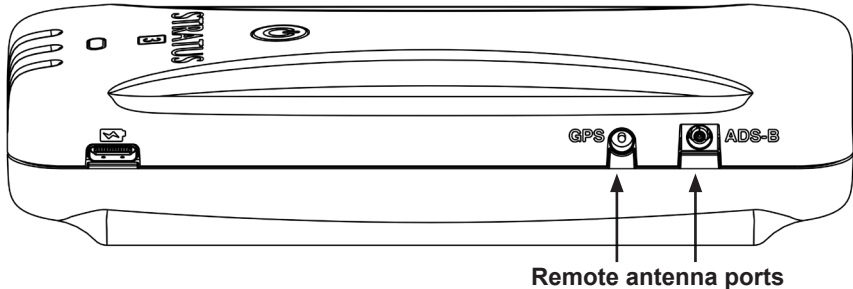
The ports labeled **GPS** and **ADS-B** on the side of Stratus 3 are for remote antennas. Insert the remote antenna cable connector into its respective receiver port.

Turning Receiver On or Off

After mounting, press the power button to power on the receiver. All LED indicators will briefly illuminate red and then green as the receiver powers on and auto-calibrates. If Stratus 3 is moved after being powered on, it must be re-calibrated in Stratus Horizon Pro or ForeFlight Mobile.

Using Auto Power-On and Power-Off

By default, Stratus 3 will power on only when the power button is pushed. It will automatically power off after 30 minutes of no movement or GPS signal. This can be disabled in Stratus Horizon Pro or ForeFlight Mobile.

You can enable Stratus 3 to automatically power-on whenever the receiver receives power by enabling the **Turn on When Plugged In** switch in the Stratus Horizon Pro settings page or ForeFlight Mobile Stratus Status page. For more information about adjusting receiver settings, see page 19.

NOTE: If the receiver automatically powered on but you removed external power, the receiver functions differently depending on your aircraft speed.

- **Traveling under 5 knots:** receiver powers off after 30 seconds.
- **Traveling over 5 knots:** receiver stays on and uses battery power.

To override the automatic power-off, press the power button after removing external power.

Reading LED Indicators

Label	LED Color	LED Status	Meaning
GPS	Green	Solid	3-D GPS lock achieved
	Yellow	Solid	2-D GPS lock achieved
		Flashing	No GPS lock, searching for signal
	Off	Off	Receiver is powered off
Power ▭	Green	Flashing	100% battery; plugged in
		Solid	20% to 99% battery; not charging
	Yellow	Flashing	Battery is charging
		Solid	5% to 19% battery; not charging
	Red	Solid	1% to 4% battery; not charging
		Flashing	Connected to an incompatible charger, or charger is unable to provide sufficient power
		Flashing for five seconds	Receiver does not have sufficient battery power to power on or stay on
	Off	Off	No external power is being received, receiver is powered off

Label	LED Color	LED Status	Meaning
ADS-B	Green	Solid	ADS-B FIS-B signal has been received from **multiple** towers in the past three seconds
	Yellow	Solid	ADS-B FIS-B signal has been received from **one** tower in the past three seconds
	Off	Off	ADS-B FIS-B signal has **not** been received in the past three seconds
All indicators	Briefly red then green	Solid	Receiver is powering on and calibrating
	Red	Flashing	Built-in-test failure. Contact your original retailer for assistance
	Yellow	Flashing	Installing firmware update
		Solid	Applying firmware update
	Green	Solid for two seconds	Firmware update complete
		Off for five seconds, then flashing	Power button is pressed. After 30 seconds, factory reset process begins
	Green to yellow to green	Solid	Factory reset is complete

Connecting to Stratus 3

Your tablet or phone must be connected to the Stratus Wi-Fi network (not Bluetooth) for the receiver to communicate with the app. Multiple devices in the cockpit may be connected to the receiver at the same time. Receiver Wi-Fi network security can be configured in Stratus Horizon Pro or ForeFlight Mobile.

NOTE: The Stratus Wi-Fi network provides a wireless connection between the receiver and flight apps. It does not provide an internet connection.

1. Tap the **Settings** icon on your tablet or phone's home screen.

2. Tap **Wi-Fi**.

3. Make sure that Wi-Fi is enabled. Tap the Stratus wireless network, displayed under **Choose a Network,** to connect. Your Wi-Fi network name is on the label on the back of your receiver.

   When your tablet or phone is connected to the Stratus wireless network, a checkmark will appear next to the network name.

4. If you're flying with an app other than Stratus Insight, ForeFlight Mobile, or Stratus Horizon Pro, enable Open ADS-B mode in Stratus Horizon Pro.

5. Verify that the receiver is connected in the settings page of Stratus Insight, Stratus Horizon Pro, or the Stratus Status page of ForeFlight Mobile.

Adjusting Receiver Settings

The settings page in Stratus Horizon Pro and the Stratus Status page in ForeFlight Mobile display general information about the receiver, such as its current battery charge, serial number, and firmware version. You can also adjust receiver settings such as auto power-on and LED brightness on these pages.

- To access the settings page in Stratus Horizon Pro, tap ⚙ in the lower left corner.

- To access the Stratus Status page in ForeFlight Mobile, tap the **More** tab, then tap **Devices**. Tap the **Stratus Connected** box.

Calibrating Stratus 3

Stratus 3 is automatically calibrated to its mounting position a few seconds after being powered on. Do not power on Stratus 3 until it has been mounted.

If Stratus 3 is moved after being powered on, it can be re-calibrated to straight and level in Stratus Horizon Pro or ForeFlight Mobile. If your aircraft isn't straight and level, the alignment can be manually adjusted in either app.

Using AHRS

Stratus 3 can be used for backup AHRS (attitude, heading, and reference system) in Stratus Insight, Stratus Horizon Pro, or ForeFlight Mobile to enhance situational awareness.

For the most accurate AHRS information, ensure that the receiver is mounted parallel with the centerline of the aircraft running front to back, and the arrow on the bottom of the receiver points in the direction of flight.

WARNING: AHRS data provided by the receiver should be used for supplemental purposes only.

Using Stratus Insight and ForeFlight Mobile

Using Stratus 3 with Status Insight or ForeFlight Mobile allows maximum functionality and features. Some compatible features are listed below.

Weather

Stratus 3 receives ADS-B weather data and relays this information to your app.

Flight Data Recording

Stratus 3's flight data recorder records position, speed, attitude, and barometric altitude data during each flight. You can manually record a flight or enable automatic flight recording in your app. Flights can be exported and viewed in Stratus Insight or ForeFlight Mobile. About 20 hours of data can be stored in Stratus 3's built-in memory.

Pressure Altitude Sensing

Stratus 3 has a pressure altitude sensor that sends uncorrected barometric pressure information to your app. This information is viewable while using the app and is also recorded in the flight data log.

Synthetic Vision

Using the altitude information provided by Stratus 3, Synthetic Vision shows a 3-D picture of terrain and obstacles where you are flying.

Viewing ADS–B Traffic

Stratus 3 receives 978 MHz and 1090 MHz traffic information from ADS-B ground stations and ADS-B Out-equipped aircraft and relays it to Stratus Insight and other compatible apps.

If air traffic data is detected by the receiver, it will display in your app relative to your aircraft.

Air-to-Air Traffic

Stratus 3 will only receive air-to-air broadcasts from other aircraft if they are ADS-B Out equipped and within range of the receiver. Air traffic that is not equipped with a UAT ADS-B Out or Mode S Extended Squitter transmitter will not be detected by the receiver air-to-air.

Rebroadcast Traffic

Using its network of ADS-B ground stations, the FAA can rebroadcast a custom traffic report to ADS-B Out equipped aircraft that are within a 15 nautical mile radius and within 3500 feet in altitude of the ADS-B Out aircraft. If your aircraft is not ADS-B Out equipped, it will not receive rebroadcast traffic unless it is within range of an ADS-B Out equipped aircraft that triggers it. If your aircraft is ADS-B Out equipped but is not in contact with an ADS-B ground station, it will not receive rebroadcast traffic.

The FAA can rebroadcast traffic information about aircraft equipped with the following transponder types: Mode C, Mode S, Mode ES, and UAT. Mode A transponders and primary radar targets detected by the FAA are not included in rebroadcasted traffic reports.

Since not all aircraft are ADS-B Out equipped and not all traffic is rebroadcast, the use of the receiver does not eliminate the need for "see-and-avoid" procedures.

Stratus 3 is not an active traffic interrogation system or ADS-B Out device.

NOTE: Stratus 3 is not likely to receive weather or rebroadcast traffic information on the ground because ADS-B information is broadcast by ground stations. The altitude at which Stratus 3 begins to receive weather and rebroadcast traffic information will vary depending on the distance to nearby towers and terrain and other obstacles that may be between the receiver and a tower.

Updating Firmware

WARNING: Do not attempt to apply firmware updates while in flight.

Receiver firmware updates will be released through Stratus Horizon Pro in-app updates. These updates may enable new capabilities or address known issues. When you are connected to your receiver and open the Stratus Horizon Pro app, a message will alert you that there is a firmware update.

To apply the update, follow the on-screen instructions. It may take several minutes to update the receiver's firmware. During the update, do not power off your receiver or device running the app, and do not close the app. You may need to reconnect to the app after the update is complete.

Resetting to Factory Settings

Press and hold the power button for 30 seconds while the receiver is on to return it to its default factory settings. When the factory reset is complete, all of the LED indicators change from green to yellow to green. The factory reset auto-calibrates Stratus 3 and reconfigures it to its default settings. If you're flying with an app other than Stratus Insight, ForeFlight Mobile, or Stratus Horizon Pro, re-enable Open ADS-B mode in Stratus Horizon Pro.

NOTE: Resetting to factory settings will **not** delete flight data recorder logs.

FCC Declaration

This device complies with Part 15 of the FCC limits for Class B digital devices. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Furthermore, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference, the user is encouraged to try to correct the interference by relocating the equipment or connecting the equipment to a different circuit than the affected equipment. Consult an authorized dealer or other qualified avionics technician for additional help if these remedies do not correct the problem.

Operation of this device is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Notes

Notes

Notes

Servicing

A battery replacement kit for Stratus receivers can be purchased from Appareo.

Other issues are not field-serviceable. If you believe your receiver requires repair or maintenance, contact the retailer you purchased your receiver from for further instruction.

Repairs made outside of a Stratus-approved repair center could void the warranty and may result in further damage to the device.

Warranty

The Stratus Limited Warranty is valid two years after your receiver is shipped from the retailer. To view the full warranty, visit stratusbyappareo.com/resources.

Support

For product support, contact your dealer or original retailer.

Appareo
support@appareo.com
stratusbyappareo.com/support

FAQs & Troubleshooting
Answers to frequently asked questions and troubleshooting are found at
stratusbyappareo.com/receiver-faqs.

APPAREO