STRATUS

2ND GENERATION

PILOT'S GUIDE

ForeFlight   APPAREO   Sporty's

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STRATUS

2ND GENERATION

QUICK START INSTRUCTIONS

1. Charge Stratus battery to 100% using wall adapter.
2. Place snap-in mount on glare shield or install suction cup mount.
3. Place Stratus in mount.
4. Power on Stratus by pressing the power button.
5. Connect your iPhone®, iPad®, or iPod touch® to the Stratus WiFi network from the device's **Settings** menu.
6. Open ForeFlight Mobile and confirm connection to Stratus.
   NOTE: As ADS-B signals are broadcast by ground towers, Stratus will not receive weather and traffic information while it is on the ground.

PACKAGE CONTENTS

• Stratus module
• Snap-in mount with gel base
• Wall charger and charging cable
• Stratus Pilot's Guide
• Travel pouch

ABOUT STRATUS

Stratus is a portable, battery-operated receiver that works in conjunction with ForeFlight Mobile. It provides pilots with free in-flight weather and traffic and is a source of accurate GPS WAAS position. Stratus receives Automatic Dependent Surveillance - Broadcast (ADS-B) weather information (FIS-B), traffic information (TIS-B), and other related data and broadcasts it to ForeFlight Mobile via a WiFi network created by Stratus.

Stratus is also an attitude heading reference system (AHRS). After downloading the free Stratus Horizon app to your iOS device, you can view your aircraft's heading, ground speed, and altitude.
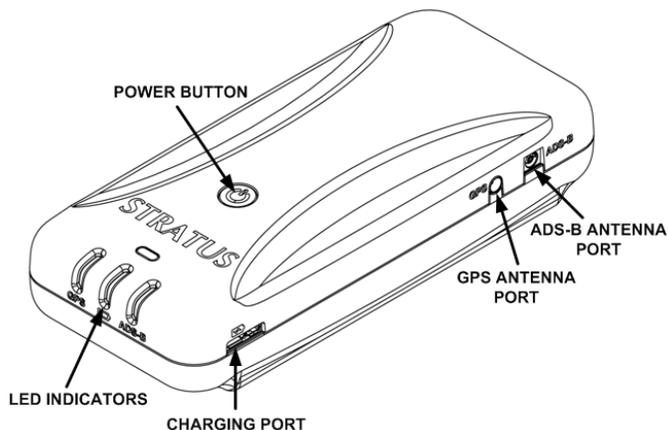
PRODUCT REGISTRATION

You do not need to perform any additional steps to register your Stratus unit; it will automatically be registered by your retailer at the time of purchase.

OPTIONAL ACCESSORIES

Visit www.sportys.com/stratus or www.appareo.com/stratus for a list of compatible Stratus accessories, including mounts and external antennas.

TURNING STRATUS ON OR OFF

To turn Stratus on, press the power button. All LED indicators will briefly illuminate red and then green as Stratus powers on.

CHARGING THE BATTERY

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

1. Insert the USB plug of the charging cord into the wall charger's port. When connected to an external power source, the Power LED will flash on and off once.

   NOTE: The Power LED will flash on and off again when Stratus is disconnected from the external power source.

2. Plug the micro USB plug into Stratus's charging port, as shown in the graphic on page 5.

   NOTE: The USB port of Stratus contains two parts. Insert the charging cable into the larger, left part of the port, which is marked with the battery symbol.

3. Plug the wall charger into an electric wall outlet. Refer to the LED Indicator table on page 10 to determine when the battery is fully charged.

WARNING: Use of non-approved battery chargers may result in decreased battery performance, permanent damage to the USB port, and/or inoperability of Stratus and voids the warranty.

Go to www.appareo.com/stratus for a list of compatible chargers. Stratus requires a 2.1 amp charger.
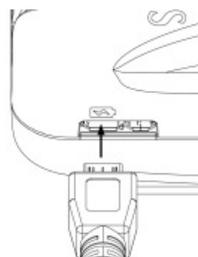
USING BATTERY POWER

If Stratus is not connected to an external power adapter, such as a wall charger or vehicle power adapter, it will automatically draw power from its internal battery.

POWER OPTION SETTINGS

You may select how Stratus is powered on: automatically whenever the device receives power, or only when the power button is pushed. This setting may be changed via the Stratus Status page in ForeFlight Mobile. To have Stratus automatically power on whenever it receives power, drag the "Turn on When Powered" switch to *ON*. More information about the Stratus Status page is given later on page 14.

NOTE: If Stratus is set to automatically power on and external power is removed, the device will power off within 30 seconds. To prevent Stratus from powering off, press the power button prior to Stratus powering down.

PLACING STRATUS IN AIRCRAFT

The snap-in mount secures Stratus in place during flight.

To place the mount in the aircraft:

1. Remove the protector sheet from the gel base of the snap-in mount.

2. Place the gel base of the snap-in mount onto the aircraft's glare shield. Stratus should be mounted perpendicular to the back of the aircraft to ensure accurate AHRS data. It should also be placed as close as practical to the pilot and copilot seats to help prevent overheating.

3. Lay Stratus in the snap-in mount so that it is leaning against the longer arm of the mount's cradle, as shown in the graphic on page 7. The LEDs and Stratus logo should face the back of the aircraft. If Stratus is facing the wrong direction, AHRS data will be incorrect and the chance of overheating will be significantly increased.

    NOTE: Refer to the graphic on the bottom of Stratus for the correct mounting alignment with the aircraft.

4. Press the top of Stratus into the cradle until it is securely in place.

NOTE: An optional suction cup mount is available from your Stratus retailer. This mount may improve the internal antenna's ADS-B reception and provides an option for mounting Stratus off the glare shield.
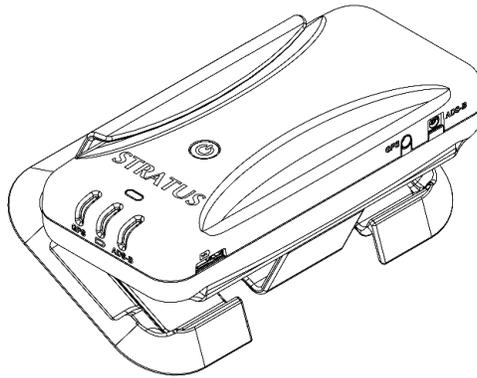
To remove Stratus from the mount:

1. Gently bend the longer arm of the mount's cradle away from Stratus.

2. Remove Stratus from the snap-in mount.

Store Stratus in its travel pouch to protect it when it is not in use.

If the gel base that surrounds the snap-mount loses its adhesiveness over time, remove the gel base from the mount and wash with water and a gentle soap. Allow it to air dry before placing back on the glare shield.

NOTE: Remember to disconnect all cables from Stratus before removing it from the mount. Permanent damage may occur to connecting ports if cables are yanked from Stratus.

ABOUT EXTERNAL ANTENNAS

Stratus contains internal GPS and ADS-B antennas; however, external GPS and ADS-B antennas are also available from your Stratus retailer. These antennas may improve Stratus's reception quality and provide more mounting options of Stratus.

PLACING EXTERNAL ANTENNAS IN AIRCRAFT

Place the external ADS-B antenna in a location of your aircraft that provides an unobstructed view of the ground (ADS-B towers).

The external GPS antenna requires a mounting location in the aircraft that allows for an unobstructed view of the sky (GPS satellites).

When mounting either external antenna type, ensure the connecting cable will be able to adequately reach from the external antenna to Stratus's mounting location.

CONNECTING AN EXTERNAL ANTENNA

To connect an external ADS-B or GPS antenna to Stratus, insert the antenna's cable into the respective antenna port. These ports are called out in the graphic below.

SIDE VIEW

ADS-B ANTENNA PORT

GPS ANTENNA PORT
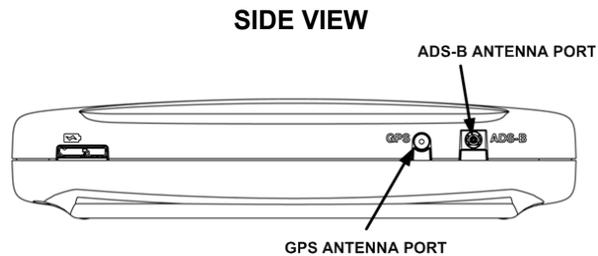
WARNING: Ensure you are connecting the antenna to the correct port. Inserting the antenna into an incorrect port may result in permanent damage to the ports or the antenna.

LED INDICATOR STATUS

Label	Color	Condition Indicated
Power (battery symbol)	Green	If connected to external power, battery is 100% charge If not connected to external power, battery is at 20% to 100% charge
	Yellow	If connected to external power, battery is charging If not connected to external power, battery is at 5% to 19% charge
	Red, continuous	No external power is being received, battery is at 1% to 4% charge
	Red flashing	Connected to an incompatible charger, or charger is unable to provide sufficient power
	Red flashing for five seconds	Stratus attempted to power on but did not have sufficient battery power
	Off	No external power is being received, device is powered off
ADS-B signal	Green	ADS-B signal has been received in the past three seconds
	Off	ADS-B signal has not been received in the past three seconds

Label	Color	Condition Indicated
GPS signal	Green	3-D lock
	Yellow	2-D lock
	Yellow flashing	No lock, searching for signal
	Off	Stratus is powered off
All indicators	Briefly red and then green	Stratus is powering on
	Red flashing	Built-in-Test failure. Contact support for assistance
	Yellow flashing	Installing firmware update
	Yellow	Applying firmware update
	Green for two seconds	Firmware update complete
	Off for five seconds, then flashing green	Power button is being continuously pressed. After 30 seconds, factory reset process will begin.
	Green to yellow to green	Factory reset process is complete

CONNECTING TO AN AVIATION APP

Your iPhone, iPad, or iPod touch must be connected to the Stratus wireless network for Stratus to communicate with ForeFlight Mobile or Stratus Horizon. All iOS devices in the cockpit may be connected to Stratus simultaneously.

1. Tap the **Settings** icon on your device's home screen.

2. Tap **WiFi**.

3. Ensure that WiFi is enabled (the WiFi switch should reveal *ON*). Tap the Stratus wireless network, displayed under *Choose a Network...* to connect.

   Stratus's wireless network name will be displayed as "Stratus2XXXXX," where the X's represent your Stratus's unique six digit serial number.

   Once your iOS device is connected to the Stratus wireless network, a checkmark will appear next to the network name.

4. Confirm that Stratus is connected in the Stratus Status page of ForeFlight Mobile or Stratus Horizon. See the Stratus Status Page section on page 14 for more information on this feature.

ABOUT STRATUS HORIZON (AHRS)

Stratus Horizon™ is an app that works in conjunction with Stratus and ForeFlight Mobile. Stratus Horizon shows the real-time AHRS (attitude, heading, and reference system) data of your aircraft, as measured by your Stratus device.

Stratus Horizon may be downloaded for free from the App Store℠. Type "Stratus Horizon" in the App Store search field to download.

For the most accurate AHRS information, ensure Stratus is mounted correctly. The Stratus should be mounted parallel with the centerline of the aircraft and the logo and LEDs on the device should face the back. Refer to the graphic on the bottom of Stratus for the correct mounting alignment with the aircraft. Mounting Stratus as level as feasible will also help to achieve the most accurate AHRS results.

An error (red X's over the applicable section) will display if Stratus does not currently have GPS lock or is not sensing movement. An error will also temporarily display if Stratus senses movement that is not typical in a general aviation aircraft.

For more information about Stratus Horizon and instructions for use, refer to its pilot's guide, accessible by tapping the information button within the app.

STRATUS STATUS PAGE

Once Stratus is connected to ForeFlight Mobile or Stratus Horizon, you may view information about your device and adjust settings via the Stratus Status page. To access the Stratus Status page in ForeFlight Mobile, tap Devices while in the More view. Then tap the "Stratus, Connected" box. To access the Stratus Status page in Stratus Horizon, tap the information button.

The Stratus Status page displays general information about Stratus in both apps, such as its current battery charge, serial number, and firmware version. The Stratus Status page in ForeFlight Mobile also displays the number of ADS-B towers Stratus is receiving data from, allows you to adjust the LED brightness and turn on power savings mode.

Please refer to the pilot's guides for ForeFlight Mobile and Stratus Horizon for more information about the Stratus Status page and interacting with Stratus.

LED AUTO-DIMMING

Stratus contains an ambient light sensor that will brighten or dim the LEDs in response to the ambient light level. You may also manually change the LED brightness settings using the LED Brightness slider on the ForeFlight Mobile Stratus Status page.

ABOUT ADS-B WEATHER

Stratus receives ADS-B weather data and relays this information to ForeFlight Mobile. The table below lists the weather information that is available from ADS-B broadcasts. See the FAA's Aeronautical Information Manual, Section 7.1.11 for more information.

Product	Range	Update intervals
NEXRAD composite reflectivity	Contiguous US 250 NM	15 minutes 2.5 minutes
AIRMETs	100 NM, airport surface 500 NM en route/terminal	5 minutes
SIGMETs and Convective SIGMETs	100 NM airport surface 500 NM en route/terminal	5 minutes
METARs	100 NM airport surface 500 NM en route/terminal	5 minutes
NOTAM(D) and FDC NOTAM (including TFR)	100 NM	10 minutes
PIREPs	500 NM en route/terminal	10 minutes
Special Use Airspace	500 NM en route/terminal	10 minutes
TAF	100 NM airport surface 500 NM en route/terminal	10 minutes
Wind/temperature aloft	1000 NM	10 minutes

ABOUT ADS-B TRAFFIC

Stratus receives UAT and 1090 ES traffic information from ADS-B ground towers and ADS-B transmitter-equipped (ADS-B "Out") aircraft and relays it to ForeFlight Mobile.

If air traffic is detected by Stratus, it will display in ForeFlight Mobile relative to your aircraft. Refer to the Pilot's Guide for ForeFlight Mobile for more information on how traffic data is displayed within the app.

Air-to-Air Traffic

Please be aware that Stratus will only receive air-to-air broadcasts from other aircraft if they are ADS-B Out equipped and within range of Stratus. Air traffic that is not equipped with a Mode ES or UAT ADS-B Out transmitter will not be detected by Stratus 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 3500 feet in altitude of the traffic activity. If your aircraft is not ADS-B Out equipped, it will not receive rebroadcast traffic unless it happens to 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 Stratus does not preclude pilots from having to perform see-and-avoid procedures.

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

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

UPDATING FIRMWARE

Occasionally, Stratus firmware updates will be released. These updates may activate new capabilities or address known issues. If a firmware update is available, it will be sent to your iOS device as an update to ForeFlight Mobile in the App Store. You may be notified of an update to ForeFlight Mobile via an update badge, push notification, or banner, depending on your iOS device's Notification settings.

NOTE: Not all updates to ForeFlight Mobile will contain firmware updates for Stratus.

Once you have updated ForeFlight Mobile, you may apply the Stratus firmware update, if one is available, from the Stratus Status page. If a firmware update is available, the firmware version on Stratus Status page will be followed by the text "Tap to Update."

To apply the update, tap the firmware version number in the Stratus Status page and follow the on-screen instructions. It may take several minutes to update Stratus's firmware. Do not power off your Stratus or iOS device during a firmware update or close ForeFlight Mobile.

NOTE: You may need to reconnect to ForeFlight Mobile after your Stratus's firmware has been updated.

WARNINGS

Data

- Stratus is an ADS-B In only product and does not satisfy the FAA's 2020 ADS-B Out requirement.

- Use of personal electronic devices while in-flight may pose a safety hazard. Use of Stratus on an operating aircraft is subject to approval by the Pilot in Command.

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

- AHRS data provided by Stratus would be used for supplemental purposes only and should not be used for IFR flying.

Weather

- ADS-B weather information is provided within the United States only.

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

Traffic

- Stratus does not replace the need for collision avoidance systems or see-and-avoid procedures! Most aircraft are not currently ADS-B Out equipped and therefore not detectable by Stratus.

Battery

- Do not store Stratus in environments where temperatures exceed 45°C (113°F) or are lower than -20°C (-4°F). Do not operate Stratus in environments where temperatures exceed 35°C (95°F) or are lower than 0°C (32°F) Battery performance will be negatively affected if these temperature thresholds are exceeded.

- Stratus contains a fan inside the battery compartment that will turn on if the battery reaches a predetermined high temperature. The fan draws cool air in through vents located on the front of the device and exhausts warm air through vents located on the back. For this reason, it is important to position the front of Stratus as close to the pilot as possible so that it can draw cool air from the cabin.

- To prevent permanent damage to the device, Stratus will automatically power off if the battery reaches a temperature at which it is unsafe to operate.

- Stratus contains a lithium battery. Do not disassemble the device. Do not incinerate or puncture the device or the battery.

- Ensure that disposal of Stratus is in accordance with local requirements for the recycling of electronic appliances and batteries.

- Check with current FAA rules before carrying device on checked luggage.

600890-000038 Rev 1.0

RESETTING TO FACTORY SETTINGS

To return Stratus to its default factory settings, press and hold the power button for 30 seconds while the device is on. Once the factory reset is complete, all of the LED indicators will cycle from green to yellow to green. The factory reset will change the LED dimming and power mode settings back to default.

SERVICING

Stratus is not field-serviceable. If you believe your Stratus unit requires repair or maintenance, please contact the retailer you purchased your Stratus from for further instruction. Contact information for Stratus retailers may be found on the back cover of this Pilot's Guide.

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 one year after Stratus is shipped from the retailer. To view the full warranty, go to www.appareo.com/stratus

SUPPORT

Sporty's
513-735-9000
stratus@sportys.com
www.sportys.com/stratus

Appareo Systems
701-356-2200
support@appareo.com
www.appareo.com/stratus

ForeFlight
team@foreflight.com
www.foreflight.com/stratus

FAQs
Answers to your frequently asked questions and a map of current national ADS-B coverage
may be found on any of our websites.

This system incorporates elements of the UBR
technology developed by the Mitre Corporation
on behalf of the U.S. Government.

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