skyBeacon^{TM} TSO

User and Installation Guide

UAV-1001421-001
Rev H

1 Revision History

Revision	Date	Comments
A	8/8/2018	Initial release
B	8/22/2018	Update anonymous mode, limitations, and electrical information
C	8/31/2018	Add limitation for distance to transponder antenna
D	10/9/2018	Add limitation for transponder installation. Update part numbers. Update nameplate.
E	12/16/2018	Add wingtip adapter information.
F	8/10/2019	Add TSO-C96a coverage information. Update warranty.
G	4/13/2020	Update ADS-B version check language and correct error in TSO-C88b deviation table.
H	9/14/2020	Update annual checks screenshot, update transponder limitation, add Flight Plan ID deviation.

2 Warnings / Disclaimers

All device operational procedures must be learned on the ground.

uAvionix is not liable for damages arising from the use or misuse of this product.

This equipment is classified by the United States Department of Commerce's Bureau of Industry and Security (BIS) as Export Control Classification Number (ECCN) 7A994.

These items are controlled by the U.S. Government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by U.S. law and regulations.

3 Limited Warranty

uAvionix products are warranted to be free from defects in material and workmanship for two years from the installation of skyBeacon on the aircraft. For the duration of the warranty period, uAvionix, at its sole option, will repair or replace any product which fails in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost.

Restrictions: This warranty does not apply to cosmetic damage, consumable parts, damage caused by accident, abuse, misuse, fire or flood, theft, damage caused by unauthorized servicing, or product that has been modified or altered.

Disclaimer of Warranty: IN NO EVENT, SHALL UAVIONIX BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THE PRODUCT OR FROM DEFECTS IN THE PRODUCT. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

Warranty Service: Warranty repair service shall be provided directly by uAvionix. Proof of purchase for the product from uAvionix or authorized reseller is required to obtain and better expedite warranty service.

Please email or call uAvionix support with a description of the problem you are experiencing. Also, please provide the model, serial number, shipping address and a daytime contact number.

You will be promptly contacted with further troubleshooting steps or return instructions. It is recommended to use a shipping method with tracking and insurance.

4 Table of Contents

5 TSO and System Information

5.1 Certification

This installation manual provides mechanical and electrical information necessary to install skyBeacon. It is not equivalent to an approved airframe-specific maintenance manual, installation design drawing, or installation data package. The content of this manual assumes use by competent and qualified personnel using standard maintenance procedures in accordance with Title 14 of the Code of Federal Regulation and other related accepted procedures. The conditions and tests required for approval of this article are minimum performance standards. Those installing this article either on or within a specific type or class of aircraft must determine that the aircraft installation conditions are within the standards which include any accepted integrated functions not specified by the standards. TSO articles, articles approved with 14 CFR Part 21.8(d), and any accepted integrated function(s) not specified in the standard must have separate approval for installation in or on an aircraft. The article may be installed only according to 14 CFR Part 43 or the applicable airworthiness requirements. This is an incomplete system intended to provide the functions identified in, and when installed according to this installation manual.

5.2 TSO Authorization

Function	TSO/RTCA/SAE	Class/Type
Airborne Navigation Sensor Using the Global Position System (GPS) Augmented by the Satellite Based Augmentation System (SBAS)	TSO-C145d INCOMP RTCA/DO-229D	Beta 1
Universal Access Transmitter (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Equipment Operating on Frequency of 978MHz	TSO-C154c RTCA/DO-282B	B1S
Automatic Pressure Altitude Reporting Code-Generating Equipment	TSO-C88b SAE/AS8003	
Position Light (Red)	TSO-C30c SAE/AS8037	Type I
Anti-collision Light	TSO-C96a SAE/AS8017D	Class II

5.3 Applicable P/Ns

Description	P/Ns
skyBeacon PF007 Boot Program Firmware	UAV-1001758-( )
skyBeacon PF007 Operating Program (ADS-B) Firmware	UAV-1001759-( )
skyBeacon GNSS Operating Program Firmware	UAV-1002029-( )
skyBeacon Wi-Fi Operating Program Firmware	UAV-1001761-( )
skyBeacon Transponder Monitor Firmware	UAV-1001762-( )

5.4 System Functions

System Function	DO-178C DAL	DO-254 DAL
GPS/SBAS	C	C
UAT Transmission	C	C
Transponder Monitor	C	C
Altitude Encoder	C	C
Wi-Fi [1]	E	E

[1] Wi-Fi not intended for and disabled during airborne operation

5.5 TSO Deviations and Incomplete

TSO	Deviation
C154c	uAvionix was granted a deviation from TSO-C154c paragraphs 3.e and 6.h to use RTCA/DO-178C instead of RTCA/DO-178B.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.4.5.2.5.1.e to allow an algorithm with multiple sources of data to determine the Vertical Status of light aircraft.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.4.5.4.15 to not provide installers with the configuration option to enable or disable Call Sign Identification Logic. CSID Logic is hardcoded to Enabled.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.12 to not provide a suppression bus output.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.7.1.a Table 2-63 Line 1 to not provide a Barometric Vertical Rate Input.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.7.1.a Table 2-63 Line 24 to not provide a SIL Supplement Flag input.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.7.1.a Table 2-63 Line 29 to not provide a TCAS/ACAS Operational Input.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.4.5.4.2 and 2.2.7.2.5 to use an initial Flight Plan ID of 0000 prior to data availability, and update the Flight Plan ID data lifetime from 60 seconds to N/A.
C145d	uAvionix was granted a deviation from TSO-C145d Paragraph 3.e.(1) and Paragraph 6.g to use DO-178C instead of DO-178B.
C145d	uAvionix was granted a deviation from TSO-C145d Paragraph 3.d to use RTCA/DO-160G in place of RTCA/DO-160E.
C145d	uAvionix was granted a deviation from RTCA/DO-229D section 2.1.1.10 to use a GPS antenna that meets uAvionix minimum performance specifications instead of DO-301 qualified antennas.
C30c	uAvionix was granted a deviation from TSO-C30c Paragraph a.(2), TSO-C30c Paragraph c.(1).(viii), and SAE/AS8037 Section 4 to use RTCA/DO-160G in place of RTCA/DO-160B.

C96a	uAvionix was granted a deviation from TSO-C96a Paragraph a.(2) and Paragraph c.(1).(viii) to use RTCA/DO-160G in place of RTCA/DO-160B.
C96a	uAvionix was granted a deviation from TSO-C96a Paragraph a.(1) to use SAE/AS8017D in place of SAE/AS8017A.
C88b	uAvionix was granted a deviation from TSO-C88b Paragraph 3.e and 6.h to use RTCA/DO-178C instead of RTCA/DO-178B.
C88b	uAvionix was granted a deviation from TSO-C88b Paragraph 3.d to use RTCA/DO-160G in place of RTCA/DO-160E.

TSO-C145d Class Beta 1 functionality is incomplete. skyBeacon does not implement LNAV approach mode, instead operating in En Route/Terminal mode only, as appropriate for ADS-B Out applications.

5.6 FCC ID

Model	FCC ID
skyBeacon	2AFFTUAT016R
Contains	2AHMR-ESP12S

5.7 Device Marking

5.7.1 skyBeacon Hardware
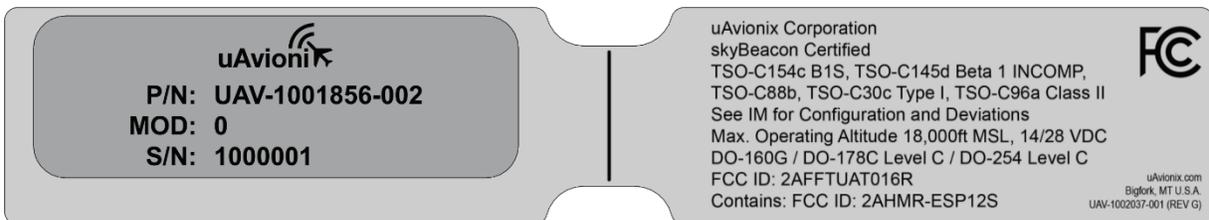
5.7.2 skyBeacon ADS-B Firmware
The ADS-B firmware contained in the skyBeacon is identified by electronic marking. Reference Section 10.4 for information on determining the ADS-B firmware part number.

5.7.3 skyBeacon Wingtip Adapters

An example skyBeacon wingtip adapter marking is shown below.

```
uAvionix Corporation
TSO-C30c Type I, INCOMP
UAV-1002301-001
2018-12-09
```

5.8 Environmental Qualification Form

Conditions	DO-160G Section	Description of Conducted Tests
Temperature and Altitude	4.0	Equipment tested to Category B2
Low temperature ground survival	4.5.1	-55°C
Low Temperature Short-Time Operating	4.5.1	-45°C
Low Temperature Operating	4.5.2	-45°C
High Temperature Operating	4.5.4	+70°C
High Temperature Short-Time Operating	4.5.3	+70°C
High Temperature Ground Survival	4.5.3	+85°C
Loss of Cooling	4.5.5	Cooling air not required (+70°C operating without cooling)
Altitude	4.6.1	25,000feet
Decompression	4.6.2	Equipment identified as Category B2 – no test
Overpressure	4.6.3	Equipment identified as Category B2 – no test
Temperature Variation	5.0	Equipment tested to Category A
Humidity	6.0	Equipment tested to Category C
Operation Shocks and Crash Safety	7.0	Equipment tested to Category B
Vibration	8.0	Aircraft zone 5: type 5 (Single Engine) to Category S level M
Explosion	9.0	Equipment identified as Category H
Waterproofness	10.0	Equipment identified as Category S
Fluids Susceptibility	11.0	Equipment identified as Category F
Sand and Dust	12.0	Equipment identified as Category D
Fungus	13.0	Equipment identified as Category X – no test
Salt Spray	14.0	Equipment identified as Category S
Magnetic Field	15.0	Equipment identified as Category A
Power Input	16.0	Equipment identified as Category BX
Voltage Spike	17.0	Equipment identified as Category B
AF Conducted Susceptibility	18.0	Equipment identified as Category B
Induced Signal Susceptibility	19.0	Equipment identified as Category AC
RF Susceptibility	20.0	Equipment identified as Category T
RF Emissions	21.0	Equipment identified as Category H
Lightning Induced Transient Susceptibility	22.0	Equipment identified as Category A2G2L2 with no loss of function, A3G3L3 with no incorrect broadcasts
Lightning Direct Effects	23.0	Equipment identified as Category X – no test
Icing	24.0	Equipment identified as Category X – no test
Electrostatic Discharge	25.0	Equipment identified as Category A
Fire, Flammability	26.0	Equipment identified as Category C

5.9 Continued Airworthiness

Maintenance of the skyBeacon is "on condition" only. For regulatory periodic functional checks, refer to the approved aircraft maintenance manuals or manual supplements. The aircraft must be returned to service in a means acceptable to the appropriate aviation authority.

The forward position light is designed with 3 red LEDs. The anti-collision light is designed with 4 white LEDs. If any one LED fails, the unit must be repaired or replaced.

Note: Use dark glasses or cover the device to ensure eye safety during LED inspection.

5.10 System Limitations

Installation

This article meets the minimum performance and quality control standards required by a technical standard order (TSO). If you are installing this article on or in a specific type or class of aircraft, you must obtain separate approval for installation.

TCAS II System

skyBeacon does not support installation on aircraft with an active TCAS II system.

SatCom

The skyBeacon GPS has not been demonstrated as compatible with SatCom equipment and should not be installed on SatCom equipped aircraft.

Transponder

A companion Mode A/C (not Mode S) altitude-reporting transponder is required to be installed for 14 CFR 91.225 and 91.227 compliance, unless installed on an aircraft excepted from the requirements of 14 CFR 91.215 and 91.225.

Location

skyBeacon must be installed at least 3 feet from any operating transponder antenna.

Anti-collision Lighting

skyBeacon must be evaluated as a system with other installed anti-collision lighting to ensure appropriate coverage. skyBeacon output intensities and coverage can be found in Section 6.7.5.

Current 14 CFR 23.2530 (Amdt. 64) requires that anti-collision lights, "if required by part 91 of this chapter, must have the intensities, flash rate, colors, field of coverage, and other characteristics to provide sufficient time for another aircraft to avoid a collision." Prior to this update, historical rules require that;

Aircraft originally certificated after March 31, 1957 and before August 11, 1971:

> *The system must produce a minimum of 100 effective candelas, with decreasing intensities to 30 degrees above and below the horizontal plane. Ref CAR 3-1 / 14 CFR 23.1401.*

Aircraft originally certificated after August 10, 1971 and before September 1, 1977:

> *The system must produce a minimum of 400 effective candelas, with decreasing intensities to 30 degrees above and below the horizontal plane. Ref 14 CFR 23.1401 Amdt. 11.*

Aircraft originally certificated after August 31, 1977:

> *The system must produce a minimum of 400 effective candelas, with decreasing intensities to 75 degrees above and below the horizontal plane. Ref 14 CFR 23.1401 Amdt. 20.*

6 System Specifications

6.1 System Functionality

skyBeacon is a wing-tip mounted unit that contains a 978 MHz transmitter, power line transponder monitor, GPS/SBAS receiver, barometric pressure sensor and altitude encoder, LED position light and LED anti-collision light. This device transmits ownship Automatic Dependent Surveillance-Broadcast (ADS-B) data through the UAT data link. It monitors an installed transponder for Mode A/C replies. skyBeacon includes an internal GPS/SBAS receiver. This receiver allows the unit to function as its own position source.

6.2 Altitude Encoder with Continuous Calibration™

The integrated altitude encoder does not require connection to the aircraft static pressure system. Instead, skyBeacon benefits from being mounted in an ideal altitude sensing location, and contains Continuous Calibration™ technology. This patent pending technology automatically and continuously calibrates the integrated altitude encoder for correspondence with the aircraft transponder's altitude encoder, allowing compliant operations in remote and challenging environments.

6.3 Power Line Transponder Monitor

skyBeacon utilizes uAvionix's Power Transcoder to ensure proper synchronization of data elements between Secondary Surveillance Radar (SSR) replies and ADS-B transmissions. These elements include Mode A squawk and IDENT status. In remote areas where you may not be interrogated by SSR, these data elements may at times be unavailable. The Power Transcoder additionally serves to provide Continuous Calibration™ data to the altitude encoder.

6.4 Anonymous Mode

In anonymous mode, skyBeacon transmits a randomized temporary address instead of the aircraft's assigned ICAO address code, and a non-identifying Call Sign. The temporary address and Call Sign are disabled if the operator selects a non-1200 squawk code on the transponder. When enabled, the operator will not be eligible to receive ATC services.

Anonymous Mode must not be enabled when skyBeacon is installed in an aircraft with a Mode S transponder. Doing so will present an ICAO code mismatch to ATC.

6.5 Wi-Fi

Wi-Fi is intended for on-ground configuration. It is disabled five minutes after startup, or when airborne, whichever occurs first. Connecting the skyBeacon Installer app to the device will prevent the five minute shutdown from occurring.

To restore Wi-Fi functionality after flight, power to the device must be cycled.

6.6 Call Sign

Your call sign may be adjusted on the ground using the skyBeacon Installer app. It may not be adjusted in flight. This allows your call sign to be configured to correspond with ATC communications and flight plans, for use during commercial, medical, or volunteer flight operations. When changing the call sign ensure no other installation parameters are adjusted. For typical operations, the call sign should be set to the aircraft registration (N-number), including the leading "N".

6.7 skyBeacon Specifications

6.7.1 Physical Specifications

Characteristics	Specifications
Width	3.665 in (93.10 mm)
Height	4.504 in (114.4 mm)
Depth	1.192 in (30.28 mm)
Weight	3.5 oz (100 grams)
Operating Temperature Range	-45°C to +70°C
Maximum Pressure Altitude [1]	18,000 ft
Input Voltage Range	9 to 33 VDC
14V Current	0.5A Max
28V Current	0.25A Max

[1] UAT usage is restricted to below 18,000 feet MSL (§91.225).
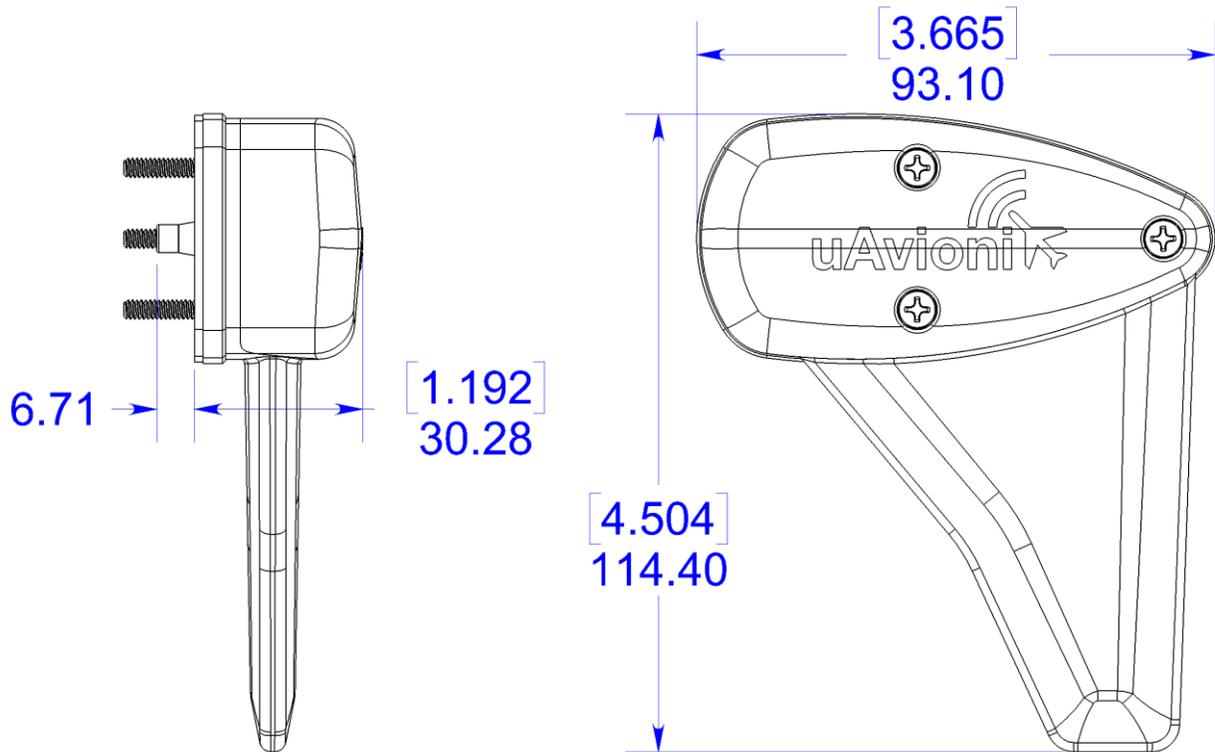
6.7.2 GPS/SBAS Specifications

Characteristics	Specifications
Number of Channels	15 (12 GPS and 3 GPS/SBAS)
Frequency	1575.42 MHz L1, C/A code
Sensitivity	
Tracking	-166 dBm
Reacquisition	-160 dBm
Cold Start	-148 dBm
Hot Start	-160 dBm
Horizontal position accuracy	6 m RMS with SBAS
Velocity accuracy	0.05 m/s
Heading accuracy	0.3 degrees
TTFF (Time to First Fix)	58 seconds typical with current almanac and position
Reacquisition	1 second typical
Position update interval	0.2 second (5 Hz)
Time Mark	±20 nSec of UTC
Datum	WGS-84

6.7.3 Altitude Encoder Specifications

Characteristics	Specifications
Altitude Range [1]	-1,000 to 18,000 feet

[1] UAT usage is restricted to below 18,000 feet MSL (§91.225).

6.7.4 978MHz UAT Specifications

Characteristics	Specifications
Frequency	978.00 MHz
Transmit Power	44 dBm (25 W)
Frequency Tolerance	±10 PPM
Modulation	Continuous phase FSK, h = 0.6, raised cosine, a = 0.5
Data Rate	1.041667 Mbps
99% Power Bandwidth	1.3 MHz
60dB bandwidth	3.3 MHz

6.7.5 Anti-collision Specifications

Characteristics	Specifications
Class II (400 candela) horizontal coverage [1] [2]	± 2 degrees from 90 degrees (perpendicular to fuselage)
Class III (100 candela) horizontal coverage [1] [2]	± 30 degrees from 90 degrees (perpendicular to fuselage)

[1] Horizontal coverage specified where 0 degrees is the nose of the aircraft, and 180 degrees is the tail

[2] These intensities are specified for devices running ADS-B firmware version 1.4.0 or higher. This includes all devices marked with MOD 5 or later; for earlier marked devices, the version can be verified using the "Monitor" tab of the "uAvionix skyBeacon Installer" application as shown in Section 10.4. Devices not running ADS-B firmware version 1.4.0 or higher must be updated in order to meet these specifications. Instructions (Service Bulletins) for doing so can be found at:

https://uavionix.com/support/skybeacon/

6.7.6 System Interfaces

Aircraft Power

Transponder

Position Light
Breaker

RED

Anti-collision
Light Breaker

YELLOW

uAvionix

Wi-Fi

iOS/
Android
Device

BLACK

Aircraft Ground
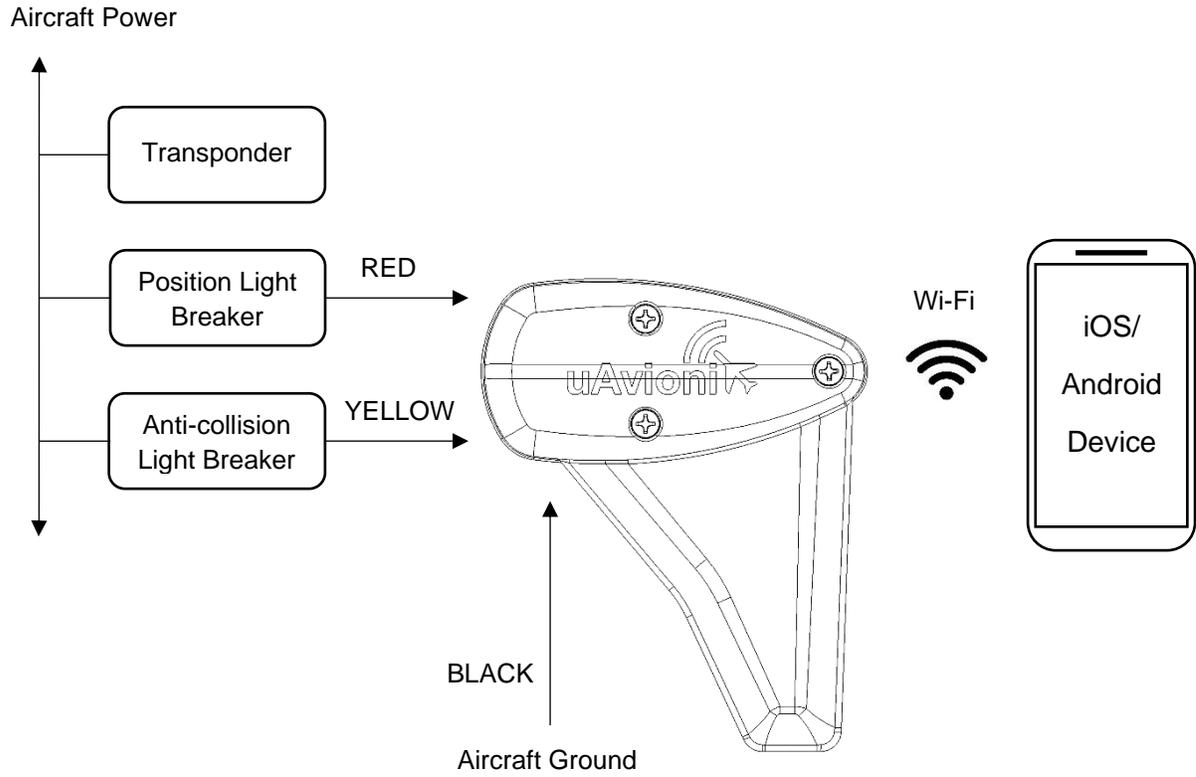
6.8 Wingtip Adapters

Wingtip adapters are available to allow or enhance fitment to selected aircraft.

6.8.1 UAV-1002301-( ) C150/C152

Characteristics	Specifications
Width	6.2 in (157 mm)
Height	2.9 in (74 mm)
Depth	1.8 in (45 mm)
Weight	0.6 oz (19 grams)
Intended Aircraft Application	Cessna 150L, 150M, 152, 185E, 180H, 182N
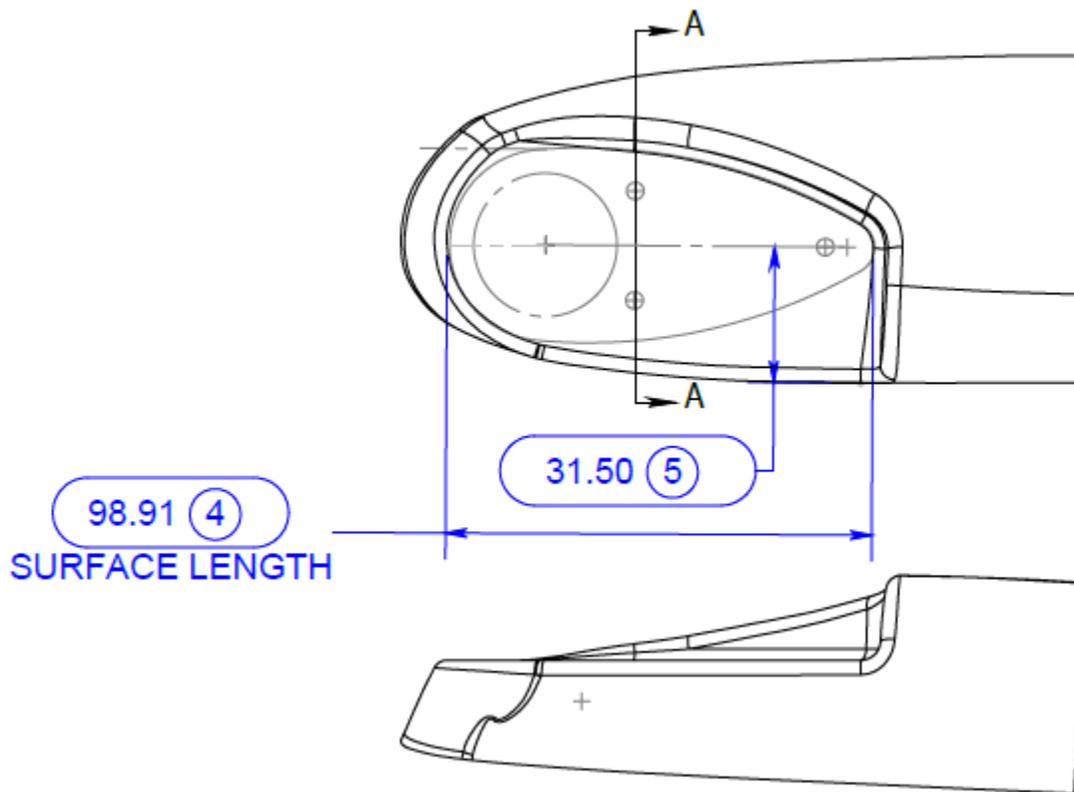
6.8.2 UAV-1002302-( ) C172/C182

Characteristics	Specifications
Width	6.5 in (164 mm)
Height	3.2 in (81 mm)
Depth	2.1 in (53mm)
Weight	0.9 oz (25 grams)
Intended Aircraft Application	172L, 172M, 172N, 172Q, 172R, 172RG, 182Q, 182R, 182S, 182T, T182T, R182, 180J, 180K, A185K, U206G, TU206F, TU206G, 177B, 177RG
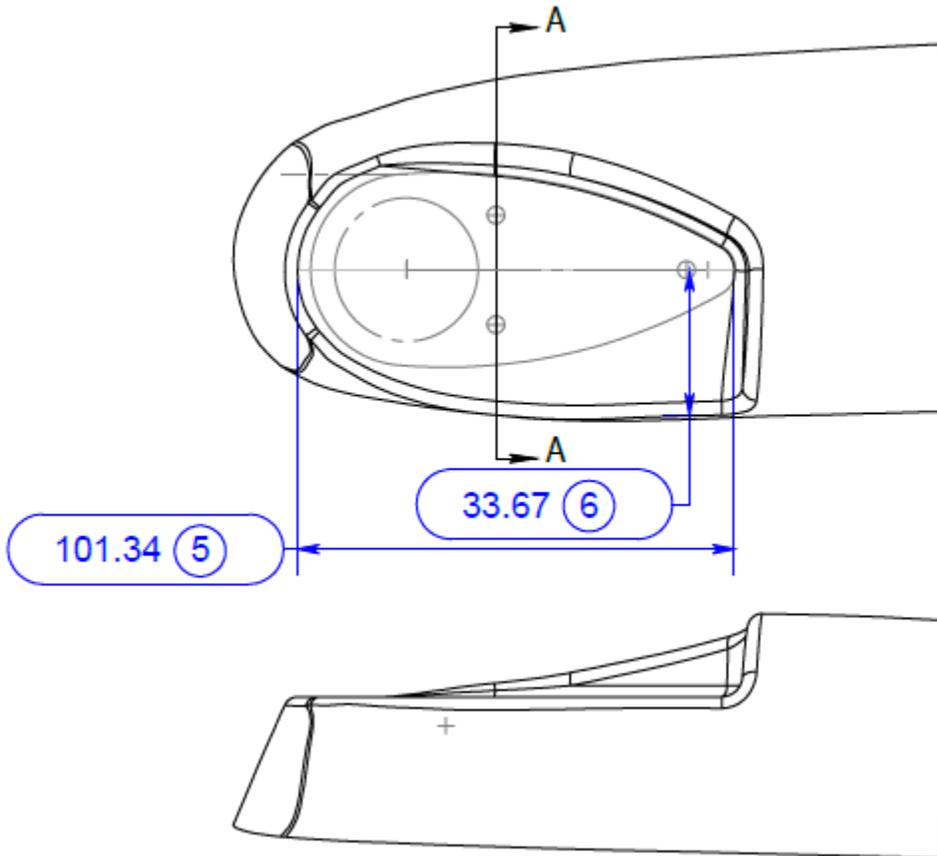
7 Installation

7.1 Part Numbers

Item	P/N
skyBeacon Hardware	UAV-1001856-( )
skyBeacon ADS-B Firmware	UAV-1001759-( )
6-32 x 1-1/4" Screw (3)	UAV-1001459-001
5mm x 1mm O-Ring (6)	UAV-1002038-001
Wire Splice (3)	UAV-1001487-001
Wingtip Adapters (as required)	UAV-1002301-( ) and UAV-1002302-( )

7.2 Unpacking and Inspecting

Carefully unpack the device and make a visual inspection of the unit for evidence of any damage incurred during shipment. If the unit is damaged, notify the shipping company to file a claim for the damage. To justify your claim, save the original shipping container and all packing materials.

7.3 Mounting

skyBeacon is a wingtip, forward, left position light. The assembly should be mounted as far outboard on the aircraft as practical, parallel to the vertical and horizontal centerlines of the aircraft. Ensure that when mounted, the fin and top of the assembly are free from obstructions. skyBeacon must be mounted with the fin pointing down to ensure proper performance. It must be installed at least 3 feet from any operating transponder antenna.

To ensure performance of the integrated altitude encoder, the wire bundle exiting the skyBeacon enclosure must not be further sealed. This area functions as the static pressure sensing port.

1. Remove the existing left position light.
2. Detach the power wire(s).
3. Connect the red wire to the switched position light power wire.
4. If replacing a position light with integrated anti-collision strobe, connect the yellow wire to the switched anti-collision power wire.

> ⚠ WARNING: The yellow wire must be connected directly to 14/28V aircraft power. It must NOT be connected to a high voltage anti-collision power supply.

5. skyBeacon may be grounded to the aircraft structure via the mounting screws. However, it is recommended to connect the black wire to the battery ground.
6. If skyBeacon fits without adaptation, mount skyBeacon using the three supplied 6-32 screws. See Section 7.5.
7. If skyBeacon requires adaptation to achieve proper fit and finish, see Section 7.6.
8. Changes to the existing position and anti-collision light circuit breaker rating are not required.

Note: Installation of the skyBeacon must be in accordance with AC 43.13-2B, Chapter 1.

Aircraft port (left-hand) side
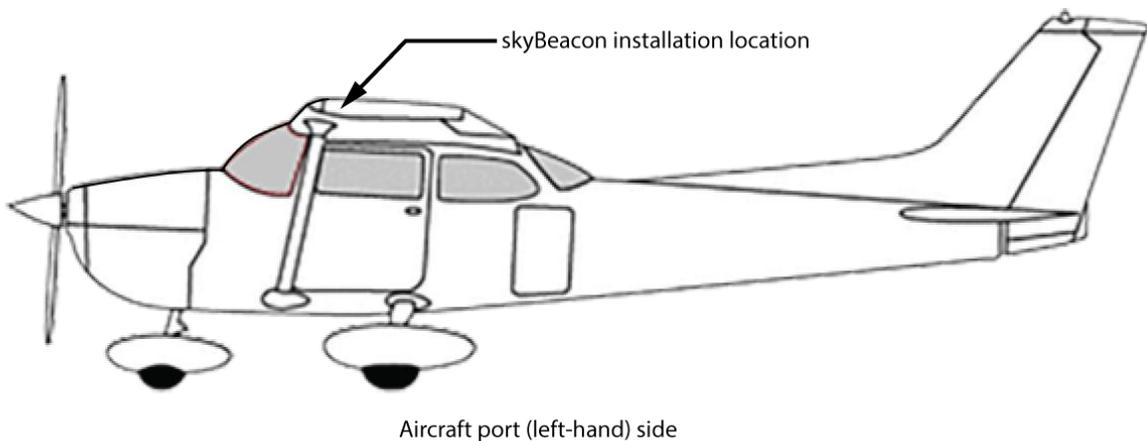
7.4 Wiring

skyBeacon is designed to use existing position and/or anti-collision light wiring. If new wiring is required, refer to AC 43.13-1B Chapter 11 for guidance. The wiring should present an impedance of less than 0.5ohm. The following table provides guidance for typical aircraft hook-up wire.

Gauge	ohm/km	Maximum Length for 0.5ohm
20 AWG	35	14.2m
22 AWG	64	7.8m

7.5 Unit Installation without Wingtip Adapter

skyBeacon is mounted with three 6-32-inch screws to the existing holes and nut plates in the end of the wing. Two O-rings per screw must be used between the screw and skyBeacon assembly.

Note: the O-ring nearest the head of the screw must be replaced if the screw is tightened and subsequently removed.

WIRE LEAD 22AWG
RED + BLACK + YELLOW

skyBeacon

MOUNTING
GASKET

6X O-RING
SEALS

3X (6-32 X 1-1/4IN)
BUTTON HEAD
MACHINE SCREWS
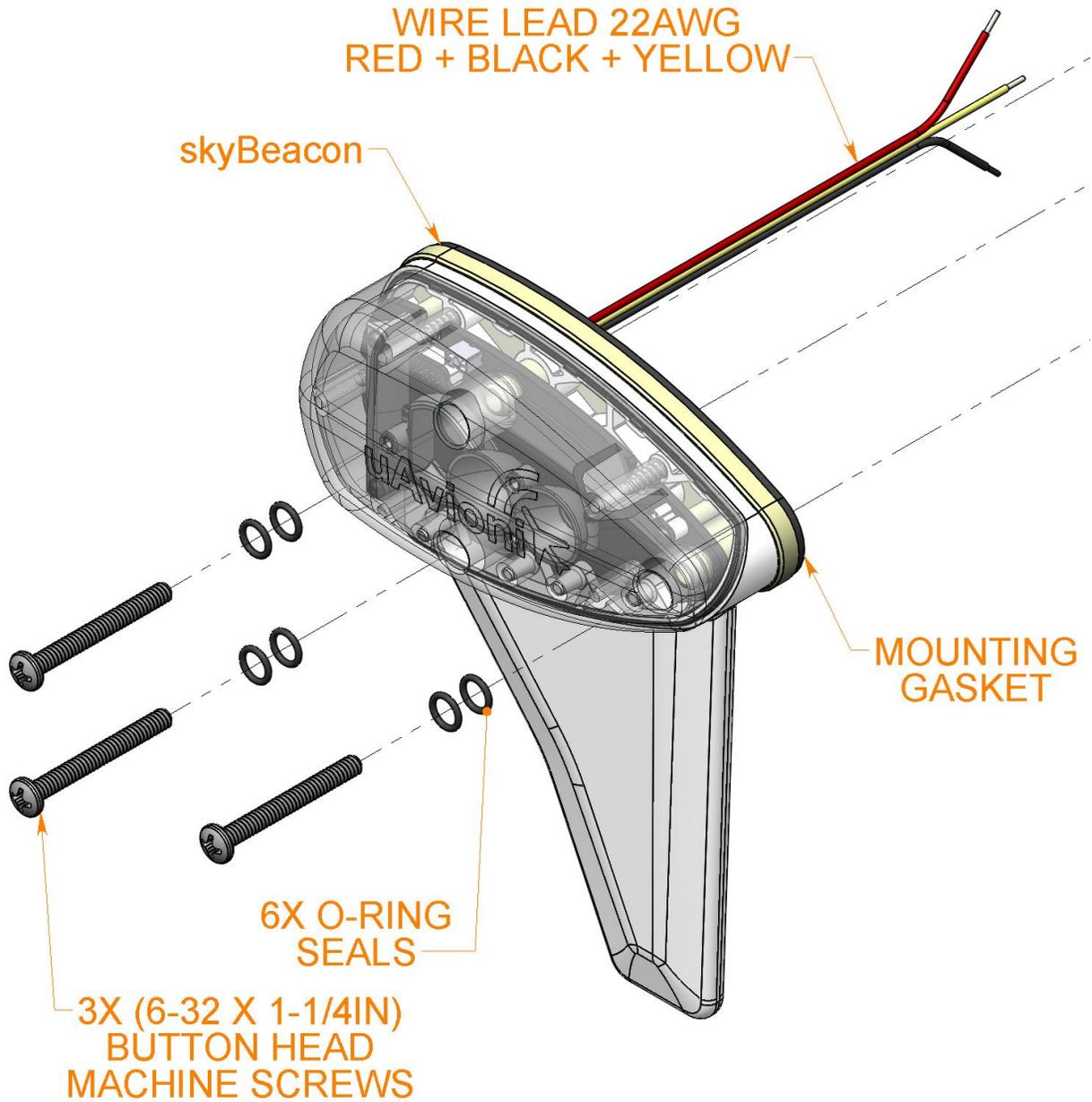
7.6 Unit Installation with Wingtip Adapter

The following procedure is generalized for all wingtip adapter models. Wingtip adapters allow or refine the fit of the installation.
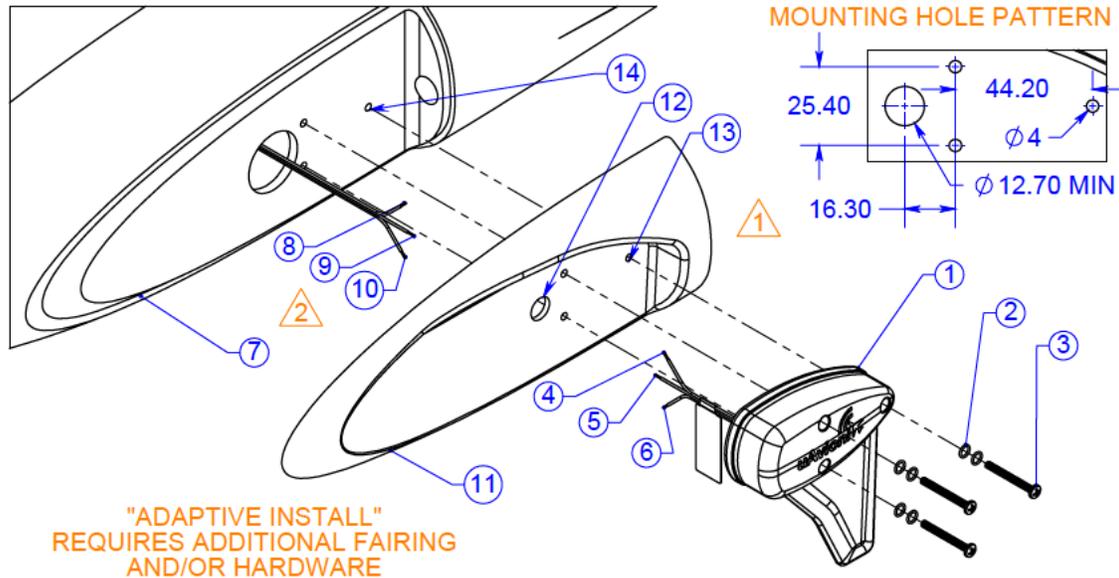

skyBeacon is mounted with three 6-32-inch screws to the existing holes and nut plates in the end of the wing, with the wingtip adapter sitting between the wing and skyBeacon.

1) Locate mounting holes (Item 13) and wire pass through holes (Item 12) to match the wingtip.
2) Drill clearance holes for #6 screws through the wingtip adapter (Item 11) for the mounting holes and a 0.5-1" hole for the wire pass through.
3) Wire the skyBeacon according to Section 7.3.
4) Position skyBeacon and skyBeacon wingtip adapter onto the wingtip and confirm alignment with existing mounting holes (Item 14).
5) Install 2 O-ring seals (Item 2) onto each screw (Item 3).

> Note: the O-ring nearest the head of the screw must be replaced if the screw is tightened and subsequently removed.

6) Use appropriate length mounting screws (Item 3) to attach skyBeacon to the wingtip adapter. Tighten screws to 8-10 in-lbs or until screw is properly seated.

7.7 Mounting Surface Dimensions

WING SURFACE

$\begin{bmatrix} .642in \end{bmatrix}$
16.30mm

$\begin{bmatrix} 1.740in \end{bmatrix}$
44.20mm

$\begin{bmatrix} 1.000in \end{bmatrix}$
25.40mm

$\begin{bmatrix} .500in \end{bmatrix}$
$\emptyset$ 12.70mm MIN

3x 6-32
NUT PLATES
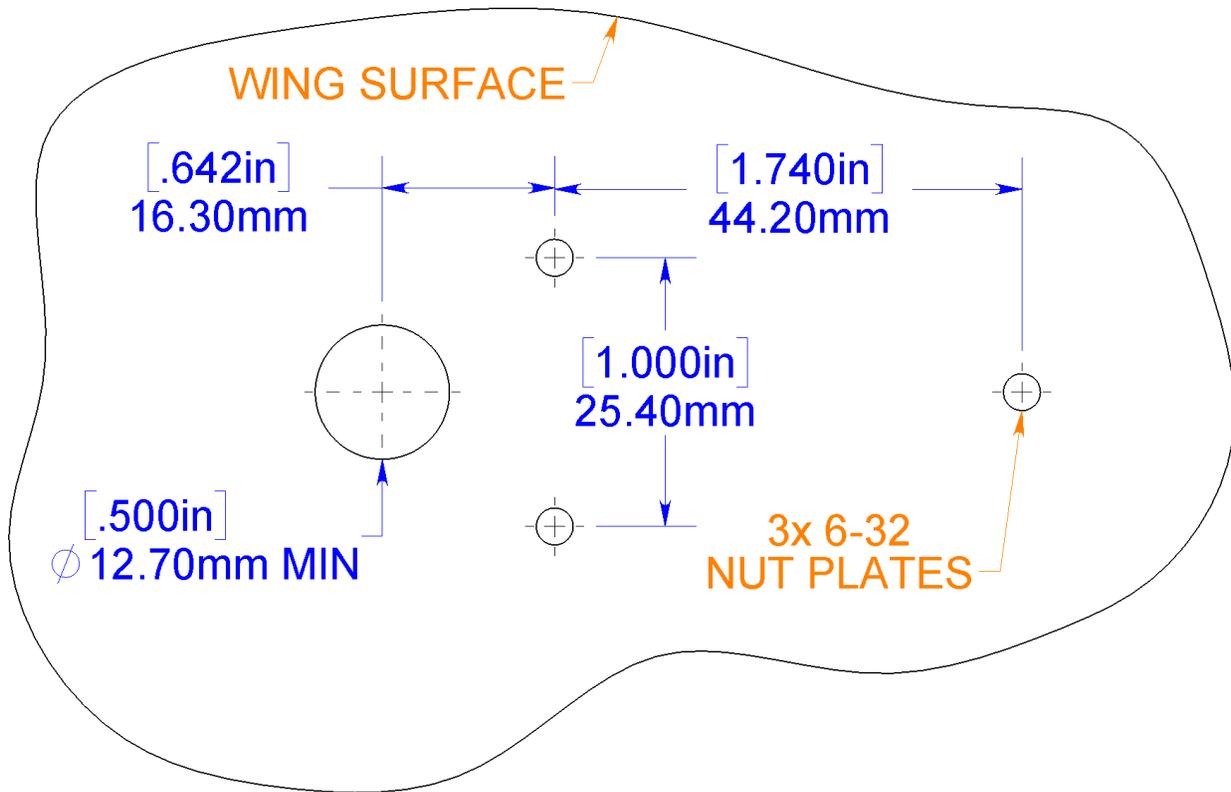
8 Maintenance

The skyBeacon is not a user serviceable product. All service must be performed either by uAvionix or an authorized uAvionix repair center.

9 Care and Cautions

The skyBeacon should be regularly cleaned with warm soapy water and a soft cloth micro-fiber rag. Use of chemical cleaners and degreasers should be avoided. If the skyBeacon is exposed to cleaning chemicals, you should promptly wash off all residue.

DO NOT wax, buff, paint or attempt to polish any part of the skyBeacon assembly. Doing so may damage the housing. Avoid any contact with abrasive materials including scrubbing pads.

Never hit, tap on or flex the fin portion of a properly mounted skyBeacon assembly. Doing so will cause undue stress in the assembly and could void your warranty.

The wingtip adapter may be painted.

10 System Configuration

Download the "uAvionix skyBeacon Installer" app from the iOS App Store or Google Play Store. Note: DO NOT use the "uAvionix Ping® Installer" or "uAvionix Echo Installer" apps. The app will guide you through the configuration process.

10.1 Connect to skyBeacon Wi-Fi

Launch the skyBeacon Installer app and follow instructions to connect to the skyBeacon for configuration.

The SSID of the skyBeacon is in the form Beacon-xxxx, for example Beacon-7782.

The skyBeacon Wi-Fi connection is secure. The WPA2 passphrase is written on an inclusion in your package, and should be entered exactly as printed. WPA2 passphrases are case sensitive.

Keep the inclusion containing Wi-Fi information in a safe place, preferably with your aircraft records.

3:06 ⬀   .ıl LTE ▇

Connect to skyBeacon

⏻ Turn on power to your skyBeacon

📶 Connect to the skyBeacon Wi-Fi network (Beacon-xxxx)

   Open Wi-Fi Settings

👍 Return to this app to continue
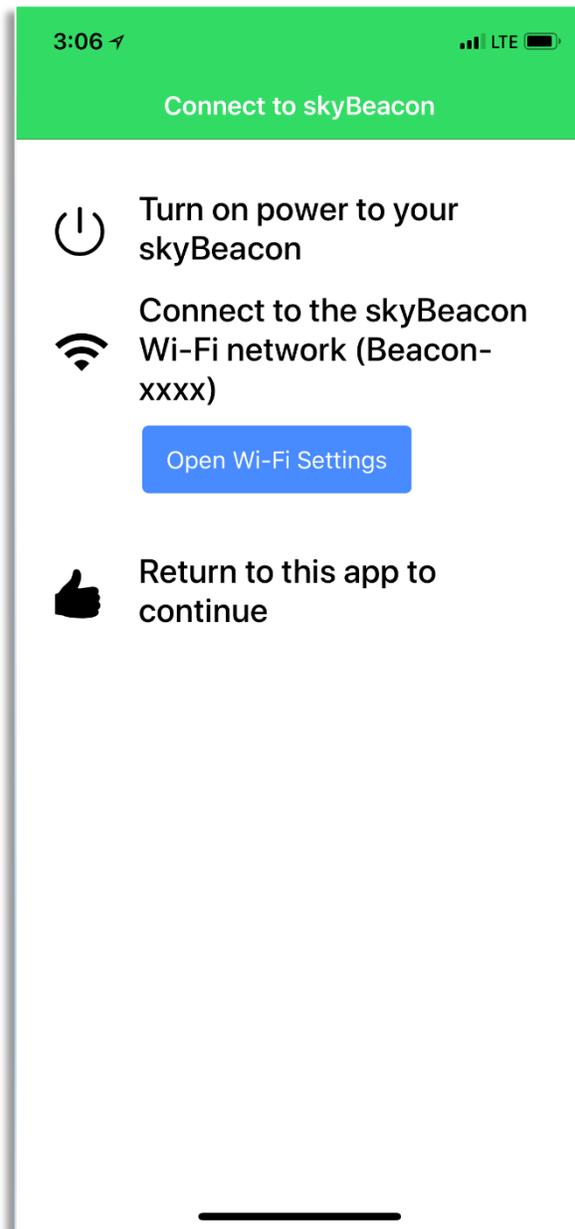
10.2 Configuration

10.2.1 Configure

The configure screen provides all configuration options.

Anonymous Mode:
When checked, this enables the skyBeacon to transmit a self-assigned (random) ICAO and non-identifying Call Sign when the squawk code matches the defined VFR squawk code (1200). When enabled, the operator will not be eligible to receive ATC services.

Call Sign:
The CALL SIGN can be up to an 8 digit code that corresponds to the tail number of the aircraft. (0-9, A-Z). Note: This is typically your aircraft N-number (e.g. N8644B), unless otherwise advised by the FAA or ATC.

ICAO Number:
The ICAO address is a 24-bit number issued to the aircraft by the registration authority of the aircraft. These addresses are usually written as a 6-digit hexadecimal number.

Vso (knots):
This parameter allows skyBeacon to automatically switch between airborne and ground modes and should be set to the aircraft stall speed.

ADS-B In Capability:
Sets the ADS-B In equipment capability reporting. This is used to indicate the current aircraft configuration.

Tap "Update" when complete.
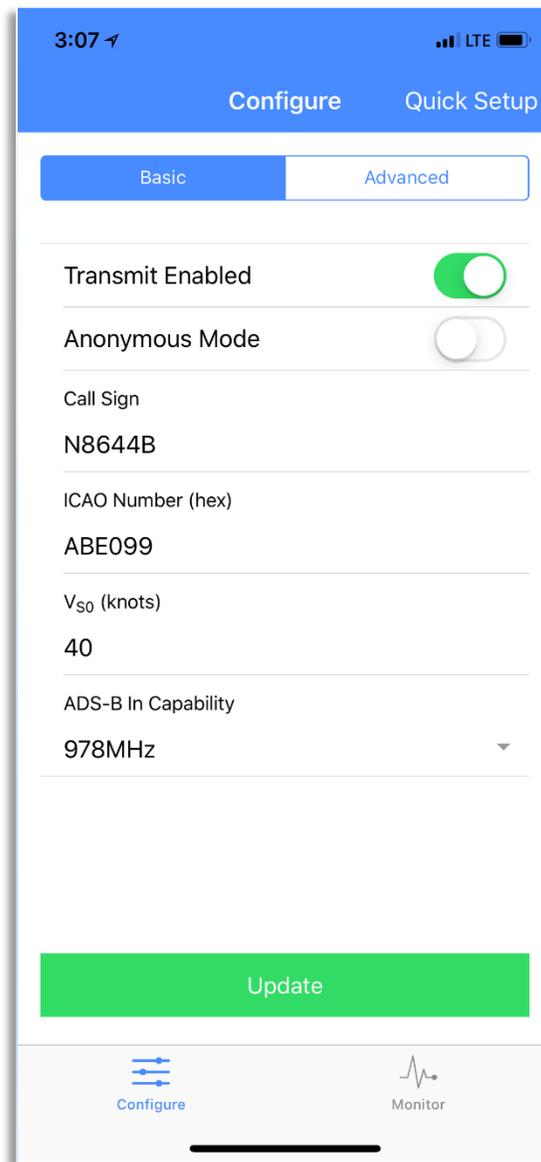
Position Light:
Sets the position light on or off.

Anti-collision Light:
Sets the anti-collision light on or off.

Emitter Type:
To assist ATC tracking of aircraft, an aircraft category can be transmitted. Select the aircraft category that most closely matches the aircraft.

Aircraft Length:
Enter the aircraft Length in Meters.

Aircraft Width:
Enter the aircraft width in Meters.

GPS Antenna Offset (Lateral):
Enter the position of skyBeacon relative to the center of the aircraft Roll axis in Meters.

GPS Antenna Offset (Longitudinal):
Enter the position of skyBeacon relative to the nose of the aircraft in Meters.

Transponder Monitor Threshold:
Adjust this value only if experiencing difficulties with the transponder monitor (squawk and barometric altitude) function, and at the direction of uAvionix Support.

Tap "Update" when complete.
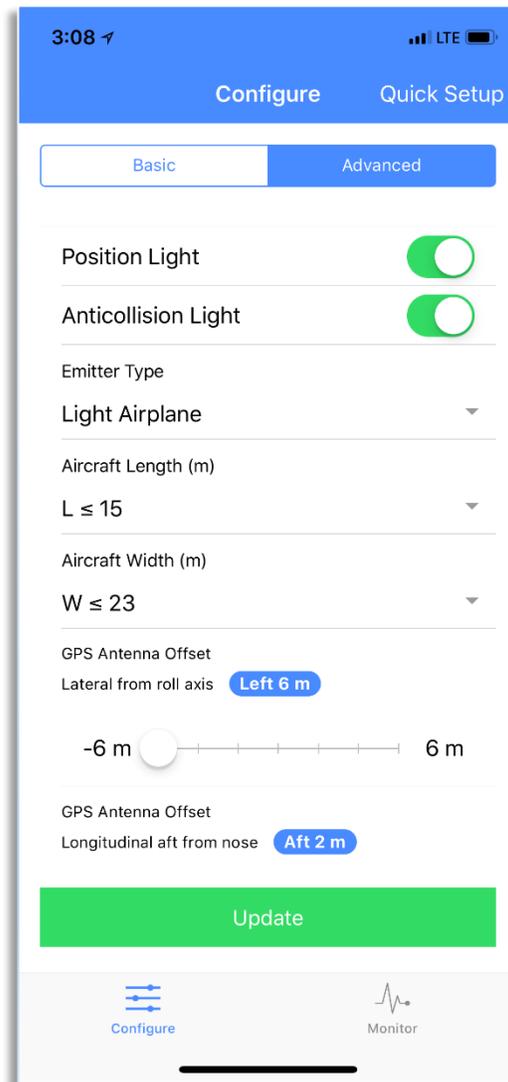
10.3 Post-Installation Checks

Configure skyBeacon before performing system checkouts.

Tab to the "Monitor" ⎍⌁ screen on the Installer App.

Verify that Status is listed as "OK". Information on status annunciations described in Section 11 can be found here.
 	
Verify that the Call Sign matches your aircraft's N-number (including the 'N').
 	
Verify that the ICAO number is correct as entered.
 	
Select ALT mode on the Aircraft's transponder.
 	
In an area of known radar activity or using a ramp tester interrogate the transponder and verify that the Squawk and Pressure Altitude agree with the transponder or known pressure altitude.
 	
With the skyBeacon having a clear view of the sky, allow enough time for the GPS to acquire a fix (typically less than 2 minutes). Verify that the Latitude/Longitude and GPS Altitude agree with the known reference position.
	2:14 ⌁ .ıl LTE ▬
	        Monitor Quick Setup
	
	Status OK
	
	Identification
	   Call Sign N8644B
	   ICAO Number ABE099
	   Squawk 1200
	   Emergency None
	
	Position
	   Latitude 41° 58' 22.68"
	   Longitude -87° 41' 22.90"
	   Altitude, Pressure 625 ft
	   Altitude, GPS 490 ft
	
	Quality
	
	                        ⎍⌁
	   Configure Monitor
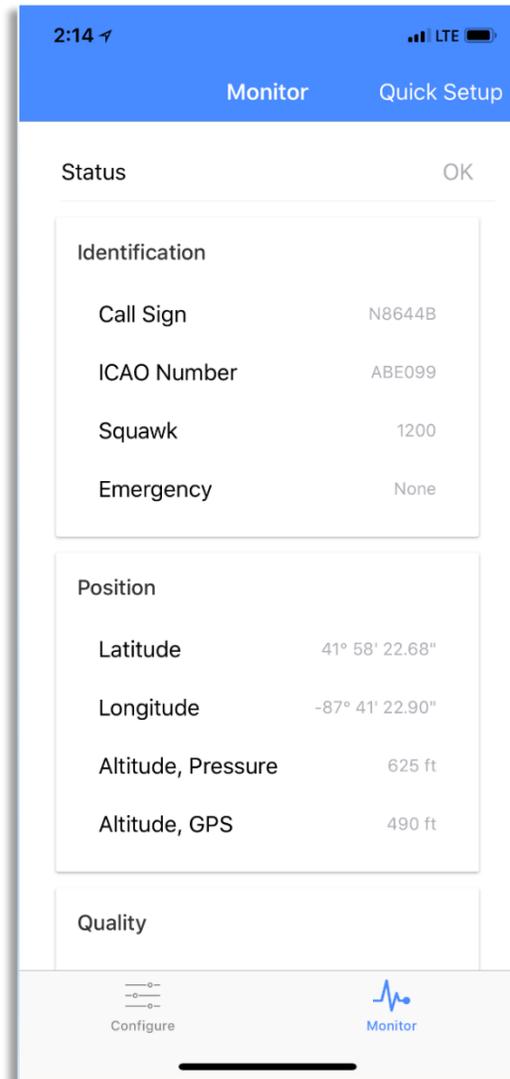
10.4 Post-Flight and Annual Checks

After your first flight with skyBeacon, and every 12 calendar months, perform the following checks.

Tab to the "Monitor" ⎍ screen on the Installer App.

Ensure that the "Last Calibration" field has the UTC date and time of a recent flight recorded. This indicates that Continuous Calibration™ information has updated, and that the integrated altitude encoder is synchronized with your transponder altitude encoder. If no "Last Calibration" date is listed, or does not match that of a recent flight of significant duration, your transponder may not have been interrogated, the Transponder Monitor Threshold may need to be adjusted, or your transponder may need serviced. **Annually**, confirm the displayed "ADS-B P/N" and "ADS-B Version" is current per Service Bulletins listed at: https://uavionix.com/support/skybeacon/ If "ADS-B Version" is not current, apply Service Bulletins as appropriate to update ADS-B software.	**9:44** ⎔ .ıl LTE ▬ **Monitor** Longitude -87° 41' 22.90" Altitude, Pressure 600 ft Altitude, GPS 490 ft Quality NIC 9 NACp 8 Last Calibration 2020-07-09 18:15Z Version ADS-B P/N UAV-1001759-007 ADS-B Version 1.5.1 ADS-B CRC 7157C925 App Version 1.6.12 Configure Monitor
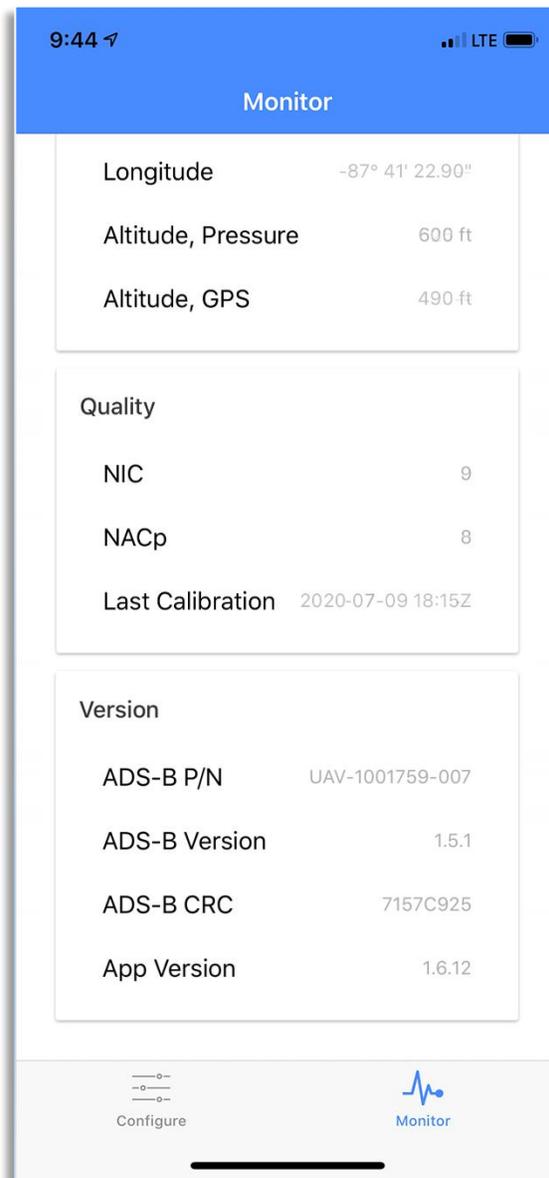
11 Normal Operation

skyBeacon must be enabled (turned ON) during all phases of flight including surface movement operations. To ensure skyBeacon is enabled, aircraft power to the position light must remain on.

A red LED annunciator is on the pilot facing side of the fin. It indicates operating status of the skyBeacon.
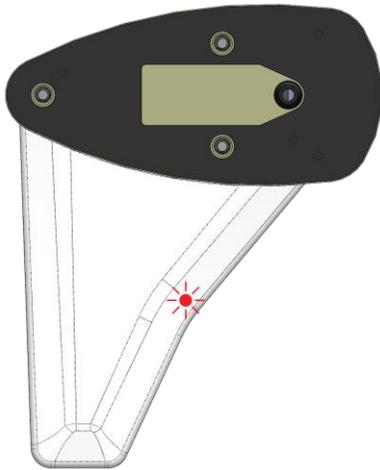
LED Indication	Meaning

On (Constant)	Device Failure
	    Internal self-test failure
	    Invalid ICAO configured

Blinking (On/off every second)	Function Failure
	    No GPS signal
	    ADS-B broadcast failure

Off	No Failure

12 Support

For additional questions or support please visit:

https://www.uavionix.com/support/