

**uAvionix Corporation
300 Pine Needle Lane
Bigfork, MT 59911 U.S.A.**

**FAA-APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
for the
uAvionix AV-30-C
as installed on**

Airplane Make and Model per AML

Registration Number: _____

Serial Number: _____

This supplement must be attached to the FAA-approved Airplane Flight Manual when the AV-30-C is installed in accordance with Approved Model List Supplemental Type Certificate SA00410BO.

The information contained herein supplements the basic manual only in those areas listed. For limitations, procedures, performance and loading information not contained in this supplement, consult the FAA-approved Airplane Flight Manual, markings, or placards.

_____, FTP, AIR-712, for
Manager, Flight Test & Human Factors Branch, AIR-710
Federal Aviation Administration

April 02, 2024
Approved Date

Log of Revisions

Revision No.	Pages Affected	Description	FAA Approved	Date
A	All	Initial release	Not FAA approved	4/24/2020
B	7	Added note regarding AoA operation.	Not FAA approved	8/7/2020
C	1, 17	Changed FAA approval contact. Updated document revisions.	W. Witzig, FAA, AIR711	8/26/2020
D	1, 4-8, 10-11, 13-20	Changed FAA approval contact. Update system description and interfaces. Add PED limitation. Add AV-Mag, transponder, and MFD functionality.	Charles Wilcox FTP, AIR-712 April 02, 2024	2/9/2024

Table of Contents

Log of Revisions	2
1 GENERAL.....	4
1.1 AV-30-C.....	4
1.2 Required / Optional Equipment	5
1.3 Capabilities	7
2 LIMITATIONS	8
2.1 Operational Limitations.....	8
3 EMERGENCY PROCEDURES	9
4 ABNORMAL PROCEDURES.....	10
4.1 Battery Transition.....	10
4.1.1 On Battery Annunciation and Charge Status.....	10
4.2 Loss of AV-Mag.....	11
5 NORMAL PROCEDURES	12
5.1 Pilot’s Guide	12
5.2 Required Battery Charge Status for IFR Operations.....	12
5.3 AI Mode – Basic Components	12
5.4 AI Mode – Initial Startup	13
5.5 DG Mode – Non-Slaved Heading Mode	14
5.6 DG Mode – GPS HSI Mode.....	15
5.7 DG Mode – GPS ARC Mode	15
5.8 MFD Mode – Traffic Display	16
5.9 Transponder Control	18
5.10 Push-Set Window	18
5.11 Additional Operational Aspects.....	19
6 PERFORMANCE.....	20
7 WEIGHT AND BALANCE	20
8 RELATED DOCUMENTATION	20

1 GENERAL

1.1 AV-30-C

The uAvionix AV-30-C is a fully digital multi-mode instrument that mounts in the legacy 3 1/8" round instrument panel. It can be field configured as either an Attitude Indicator (AI) or a Directional Gyro (DG) indicator, is fully self-contained with dual-precision inertial and pressure sensors and allows for a wide variety of pilot customization.

The AV-30-C performs the following functions:

Primary Functions:

- Primary Attitude (AI Mode)
- Primary Slip (AI Mode)
- Primary Direction of Flight Indication (DG Mode)

Supplemental Functions:

- Indicated Airspeed
- Altitude
- V-Speeds
- Angle Of Attack
- Vertical Trend
- Vertical Speed
- Set Altitude
- Heading
- Bus Voltage
- G Load
- Outside Air Temp
- True Airspeed
- Density Altitude
- GPS Navigator Waypoint Data
- GPS Navigator Nav Data
- GPS Navigator Route Line
- Heading Bug

- MFD Traffic Page with AV-Link
- Transponder Control (AI / DG Mode)

Audio and Visual Alerting Functions:

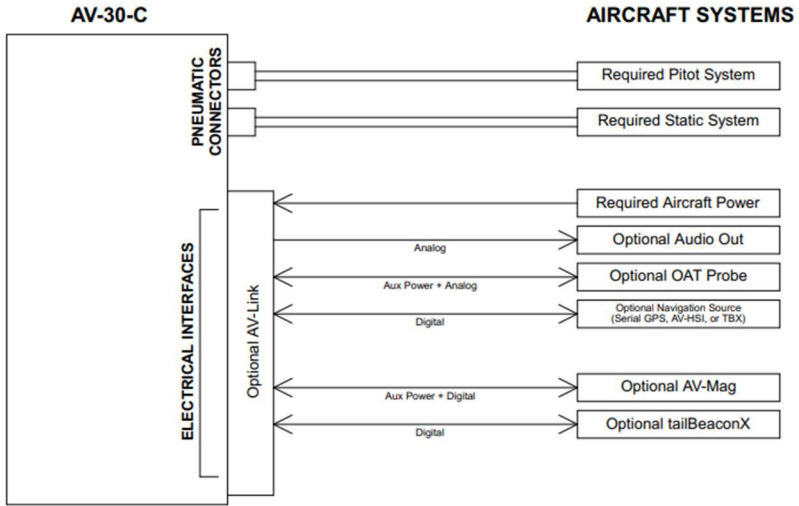
- AoA Alerting
- G Limit Alerting
- Excessive Roll Alerting
- Set Altitude Alerting
- Carbon Monoxide Alert with AV-Link and Sentry

Misc. Functions:

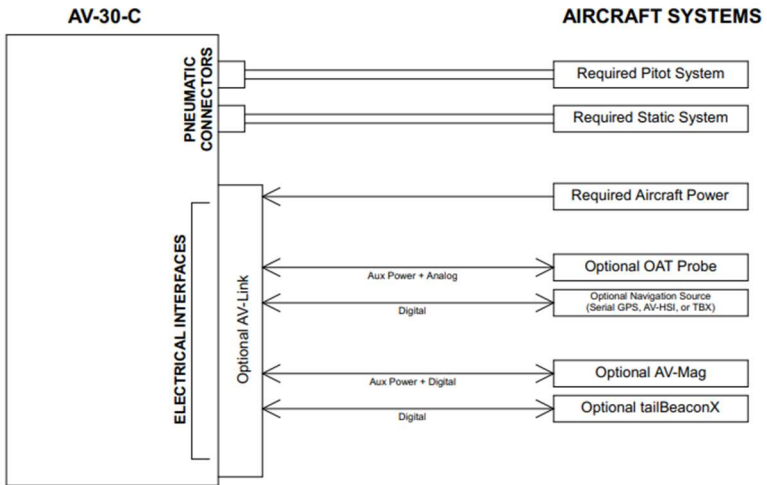
- Internal Battery Operation
- Auto / Manual Brightness

1.2 Required / Optional Equipment

The following describes each of the AV-30-C system interconnects for both the AI and DG installation configurations. Note that some interfaces are optional and may not be available in a given installation.



AV-30-C Aircraft Systems Interfaces – AI Mode



AV-30-C Aircraft Systems Interfaces – DG Mode

When installed as a DG, no audio outputs are supported, and temperature related air-data related parameters are only available when the optional OAT probe is equipped.

1.3 Capabilities

The AV-30-C is approved for primary Attitude, Slip and Direction of Flight. The AV-30-C is also approved to control select transponders. All other functionality is supplemental in nature.

The AV-30-C is capable of receiving and displaying ADS-B traffic information from non-certified equipment (portable receivers) over Wi-Fi. Traffic information is for advisory use only and does not replace a required system.

The internal battery capacity has been tested and verified to provide 30 minutes of operational capacity (with reserve), and meets the requirements defined in 14 CFR 23.1311(a)(5) and 23.1353(h), allowing independent operation from the primary electrical power system.

2 LIMITATIONS

2.1 Operational Limitations

The following operational limitations apply:

Operating Limits	
Attitude Rate Limit	±250 Degrees / Second
Attitude Operational Range	360° Roll, 180° Pitch
Attitude Accuracy	1° Static, 2.5° Dynamic
Airspeed Operational Range	40 to 300 Knots
Altitude Operational Range	-1,000 to +25,000 Feet
ADS-B Traffic	Advisory use only

Note: For aircraft capable of acrobatic flight, the Angle Of Attack indication may become unreliable for operation in inverted flight and maneuvers exceeding ±8 G.

In accordance with 14 CFR 91.21(b)(5) and 91.21(c), the aircraft operator must determine that the use of any Portable Electronic Device (PED) does not interfere with the navigation or communication system of the aircraft.

3 EMERGENCY PROCEDURES

No Change.

4 ABNORMAL PROCEDURES

4.1 Battery Transition

In the event of an in-flight loss of electrical power when airspeed is over 40 kts, the unit will automatically transition to battery operation with no pilot action required.

If airspeed is 40 knots or below (as computed by pitot static data and optional GPS), the unit will initiate a timed shut-down sequence and prompt if the shutdown should be aborted. Pressing any knob or button will abort the shutdown and return to operation on battery.

When running on battery, pressing and holding the left and right button simultaneously will force a shutdown. It is not possible to start the AV-30-C on battery only.

The optional AV-Mag is powered by the AV-30-C internal battery and will continue to function normally on battery.

The optional AV-Link is not powered by the AV-30-C internal battery. Traffic functions will not be available during power loss.

4.1.1 On Battery Annunciation and Charge Status

An amber ON BATTERY annunciation will be presented when operating on battery, and a minimum of 30 minutes of unit operation will be available.



On Battery Operation

The battery charge state is shown in percentage. An internal battery charger will re-charge the battery if bus voltage is above approximately 10 VDC. The battery charge icon (presented adjacent to the battery charge state), will be illuminated during the charge cycle.



Battery Charge Status

4.2 Loss of AV-Mag

If the AV-30-C is equipped with the AV-Mag remote magnetometer, and a magnetometer error is detected, a “NO MAG” flag will be displayed and the AV-30-C will fall back an unaided directional gyro. The directional gyro heading must be set periodically to match the aircraft compass.



Similarly, if the AV-Mag calibration was not properly performed or is lost, a “MAG CAL” flag will be displayed on the AV-30-C, which falls back to an unaided directional gyro functionality.

5 NORMAL PROCEDURES

5.1 Pilot's Guide

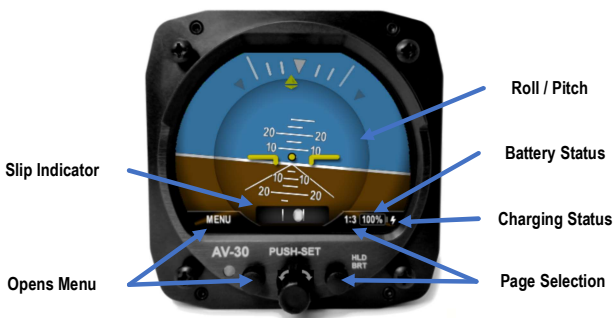
Reference the AV-30-C Pilot's Guide for a full description of unit capabilities and configuration options.

5.2 Required Battery Charge Status for IFR Operations

The internal battery on the AI must show 95% or greater prior to departure into IFR, or planned IFR conditions.

5.3 AI Mode – Basic Components

The following figure shows the basic AI with all customizable data overlay fields turned off.



Basic AI Mode User Interface

Roll, Pitch and Slip cannot be disabled, but may be shown in various color and style formats depending on customization settings.

There are three independently customizable pages which are selected round-robin fashion by sequentially pressing the Page Selection button (shown as page 1 of 3 in the figures above). Each page can be configured to show various supplemental parameters as overlays.

A fourth, fully decluttered page allows all supplemental information to be hidden, leaving just attitude and slip displayed.

5.4 AI Mode – Initial Startup

On initial startup the red ALIGN flag will flash indicating that the attitude is still stabilizing. Remain stationary until the flag is extinguished.



AI Mode, Attitude Indicator Align Indication

When the ALIGN flag is displayed, the presented attitude may be incorrect.

5.5 DG Mode – Non-Slaved Heading Mode

The following figure shows the non-slaved DG heading mode (DG HDG). The heading must be manually adjusted to correspond with the magnetic heading as indicated by the compass on the aircraft.

This heading must be occasionally corrected as drift will occur.



Basic DG Mode User Interface

The current heading is adjusted by pressing the PUSH-SET button until the DG ADJ setting is shown. Rotating the knob will adjust the heading.



DG HDG Adjustment

If the installation has an AV-Mag external magnetometer, the AV-MAG aids the DG solution, reducing DG drift. DG ADJ is still available if changes are required.

Six textual fields are available for customization and can show various parameters depending on pilot preferences.

Non-Slaved Heading is available as a tape in the AI Mode or on the Rose, HSI, or ARC pages of the DG mode.

5.6 DG Mode – GPS HSI Mode

The display type can also be configured to show GPS nav data when connected to an external GPS navigator and presented in the traditional HSI format. The heading source can be non-slaved DG or slaved to the GPS track.



GPS HSI Mode

5.7 DG Mode – GPS ARC Mode

The display type can also be configured to show the GPS flight plan in an ARC mode, showing a map style presentation of the current and subsequent flight plan legs. The heading source can be non-slaved DG or slaved to the GPS track.



GPS ARC Mode

When in the ARC display mode, the display scale is adjusted by rotating the rotary knob and represents the display distance from the own-ship icon to the outer compass ring.

If no GPS navigational data is available, the GPS track will be shown at 000, and either “NO GPS” or “NO DATA” will be displayed.

All GPS deviation data is limited to VFR operations only, as indicated by the Nav Mode indication (“VFR”).

The moving-map style GPS navigational data is to be utilized for VFR or IFR situational awareness only.

5.8 MFD Mode – Traffic Display

When equipped with an optional AV-Link and a Wi-Fi connected ADS-B source, the display can be configured to show traffic in the Multi-Function Display (MFD) mode.



MFD Mode

When in the MFD mode, the display scale is adjusted by rotating the rotary knob.

The MFD mode will display “NO DATA” if no ADS-B source is detected.

Traffic displayed is not from certified sources and is for advisory use only. Traffic display does not replace the pilot’s responsibility to see and avoid other traffic.

Aircraft operators operating under 14 CFR Part 91 are advised of their responsibilities under 14 CFR §91.21(b)(5) and §91.21(c) to determine that their portable ADS-B source will not cause interference with the navigation or communication system of the aircraft.

5.9 Transponder Control

When connected to an optional tailBeaconX or other compatible transponder, the AV-30-C can be used for transponder control.

Complete transponder data is displayed on the reversionary (AI) page in any mode. The squawk code may optionally be selected for display on additional pages.



Transponder Control

Squawk code may be entered using the push-set menu on the reversionary AI page or on any page that has the squawk code displayed. Flight ID may be entered using the push-set menu on the reversionary AI page.

5.10 Push-Set Window

The Push-Set window is activated by pushing the main rotary knob in momentarily.

This will activate a window along the bottom of the display allowing various parameters to be adjusted with the rotary knob. Pushing the

rotary knob after a value has been adjusted will accept the modified value.

The parameters that can be adjusted will vary based on the mode of the unit and the current configuration of the display. The following indicates how baro is adjusted when altitude has been configured for display:



Push-Set Example - Baro

The set of items available in the Push-Set menu is dependent on the display mode and the configuration of the AV-30-C.

5.11 Additional Operational Aspects

- Air data and attitude will not be available when the red ALIGN flag is shown.
- If altitude configured for display, the initial baro setting will be reverse computed from the last known field elevation, reducing the amount of adjustment required. The baro field will be shown in gray while this is occurring.
- Non-Slaved Heading mode requires the pilot to set the initial heading and occasionally correct the heading based on the wet compass. The system will initialize to the last set heading on shutdown. The AV-Mag, if equipped, aids the heading and reduces the need to correct the heading.

- GPS HSI and ARC modes are for VFR operations only. No vertical deviations are shown, and lateral deviations are not scaled for approach / IFR operations.
- The currently displayed GPS track may optionally be gyroscopically stabilized, allow smoother operation when in turns. This option is configured in the pilot accessible Setup Menu (GPS Track Stabilization).
- Air data / temperature related parameters (TAS, DALT, OAT) are only available if the AV-30-C has been connected to an OAT probe, otherwise they will not be selectable for display.

6 PERFORMANCE

No change.

7 WEIGHT AND BALANCE

No change.

8 RELATED DOCUMENTATION

The uAvionix AV-30-C documents, part numbers, and revisions listed below contain additional information regarding system operation installation and continued maintenance.

Part Number	Revision	Title
UAV-1003946-001	H (or subsequent)	AV-30-C Pilots Guide
UAV-1003947-001	M (or subsequent)	AV-30-C Installation Manual
UAV-1004045-001	D (or subsequent)	AV-30-C Instructions for Continued Airworthiness