



**AV-20-E**

## **Service Bulletin**

**Software Upgrade to 1.8.0**



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## 1. Revision History

Revision	Date	Comments
A	8/8/2025	Initial release

## **2. Warnings / Disclaimers**

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.

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## 4. Planning Information

### 4.1. Applicability

This Service Bulletin applies to the uAvionix AV-20-E UAV-1003626-001 with operating software release 1.7.1 or earlier.

Use Table 1 to determine applicability of the software update.

Hardware P/N Marking	Applicability
UAV-1003626-001	Verify by procedure

*Table 1: Applicability*

Parts identified above as “Verify by procedure” may have software release 1.7.1 or previous installed. To determine what version of software is installed:

1. Navigate to the SETUP page.
2. Press both left and right buttons simultaneously.
3. Highlight SYSTEM INFO with the up or down buttons on the left.
4. Enter the SYSTEM INFO screen by pressing the ‘SEL’ button on the right.
5. If the SW VERSION displayed is 1.7.1 or earlier proceed with this Service Bulletin.

### 4.2. Description

This Service Bulletin provides instructions for loading uAvionix AV-20-E UAV-1003626-001 with updated software release 1.8.0.

For increased performance in attitude indicator mode, the pitot and static pneumatic lines must be connected if not already connected. This Service Bulletin does not describe or provide authority for that work.

This software release (1.8.0) has the following changes:

- Added echoESX and tailBeaconX transponder configuration menu
- Improved Angle of Attack indication, now works for slanted panels
- Expanded the screen brightness range
- Add roll and slip trim

- Moved pitch trim setting to the menu. Disabled pitch SYNC.
- Added analog clock face
- Separated G meter and AoA meter into different pages
- Flag alerts can be disabled
- Added dial and needle view for G meter page
- Minor changes to the attitude indicator algorithm
- Minor changes to DEMO mode
- Various graphical and textual appearance improvements
- AoA limits now settable in 0.5 increments
- G limits now settable in 0.1 increments

### 4.3. Time Required

For software only update in the field, up to 90 minutes is required to perform this update procedure. Additional time may be required if pitot and static connections are not installed.

### 4.4. Weight and Balance

No change

### 4.5. Electrical Load Data

No change

### 4.6. Applicable Publications

The following documents are applicable to the software release 1.8.0.

Title	Part Number	Revision
AV-20-E Installation Manual	UAV-1004048-001	B
AV-20-E Pilot's Guide	UAV-1004049-001	B

*Table 2: Applicable documents*

## 5. Required Items

AV-20-E updates are performed using a Windows PC with a serial port and appropriate cable. The following items are required.

Download the software update file below.

Filename	Version	SW Part Number	SHA1 Hash
UAV-1004134-004-av20e-1_8_0-8ee47a0.bin	1.8.0	UAV-1004134-004	2d32158a25066bd31238cab4f3fca45cc0c8b008

Table 3: Software Update Files

uAvionix software update files are available for download from the uAvionix Support website at no charge, at:

<https://uavionix.com/support/av-20-e/>

### 5.1. Windows PC with Serial Port

The following items are required to perform the update when using a Windows PC with serial cable:

Quantity	Description
1	Windows PC running Windows 7 or later
1	Available serial port or appropriate USB to RS-232 converter Examples: FTDI, Parallax 28030, Sabrent SBT-USC6K or similar
1	Female DB-9 with solder or crimp terminals
2	Female terminals suitable for the installed DB-15
4'	22-24 AWG wire
1	uAvionix AV Update Tool: UAV-1005199-001 (Windows application) version 2.0.3 or newer
1	AV-20-E Software as shown in Table 3

Table 4: Required Items

The uAvionix AV Update Tool is available to download alongside the 1.8.0 Firmware, or is available to download directly at

<https://uavionix.com/download/av-30-update-tool>.



(Note that the update tool works for both AV-20 and AV-30)

Download it to your PC.

Ensure the software and any necessary update tools have been downloaded prior to visiting the aircraft. An internet connection is required to download the software and application. An internet connection is not required to perform the update.

## 6. Update Notes

All AV-20-E configuration settings will be preserved during the update procedure. However, please take note of all settings before performing the update and verify settings are correct after the update has been applied.

**If pitot and static lines were not previously connected, ensure appropriate approval and connect the lines now to ensure full performance and functionality.**

Ensure you are running a previous version of AV-20-E software. Specifically, your AV-20-E should currently be running 1.7.1 or earlier. If updating from a version prior to 1.7.1 it is not necessary to apply all prior updates in sequence. This update can be used from any prior version.

## 7. Update Procedure

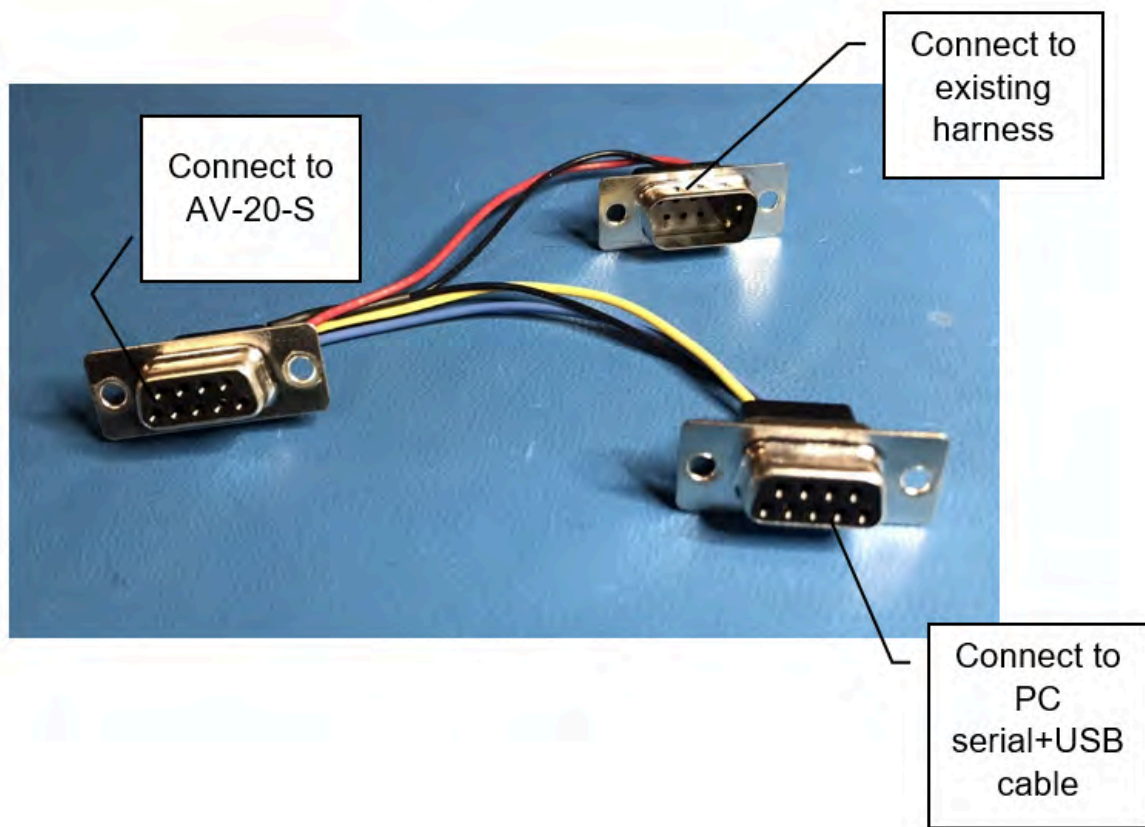
### 7.1. Serial Update Preparation

1. There are two options for wiring. (1) you may modify the existing DB-9 connector or (2) you may build a “Go Between” wiring harness that can be removed after the update.
2. Option (1) Existing Connector Modification
  - a) Only one new DB-9 Female connector and pins are needed.
  - b) Add wires to pins 3 and 4 to the AV-20-E harness. Add an additional ground wire to either existing the ground from the AV-20-E harness or ground the new wire directly to aircraft ground.
  - c) Connect the other end of these new wires to the new female DB-9 connector according to Table 5 Existing Connector Modification. Upon completion of wiring, connect the new assembly to an available serial port or USB serial adapter.

AV-20-E Pin	DB-9 Standard Pin
3	3
4	2
ground	5

*Table 5: Existing Connector Modification*

3. Option (2) “Go Between” harness
  - c) One male and two female DB-9 connectors and appropriate pins are needed.
  - d) Build the wiring harness with the materials with the materials from Table 4. A finished example is shown in Figure 1. The wiring schematic is shown in Figure 3.
  - e) Connect the serial+USB cable to your PC and the harness, then connect the harness to the AV-20-E and apply power.



*Figure 1: "Go Between" Update Harness*

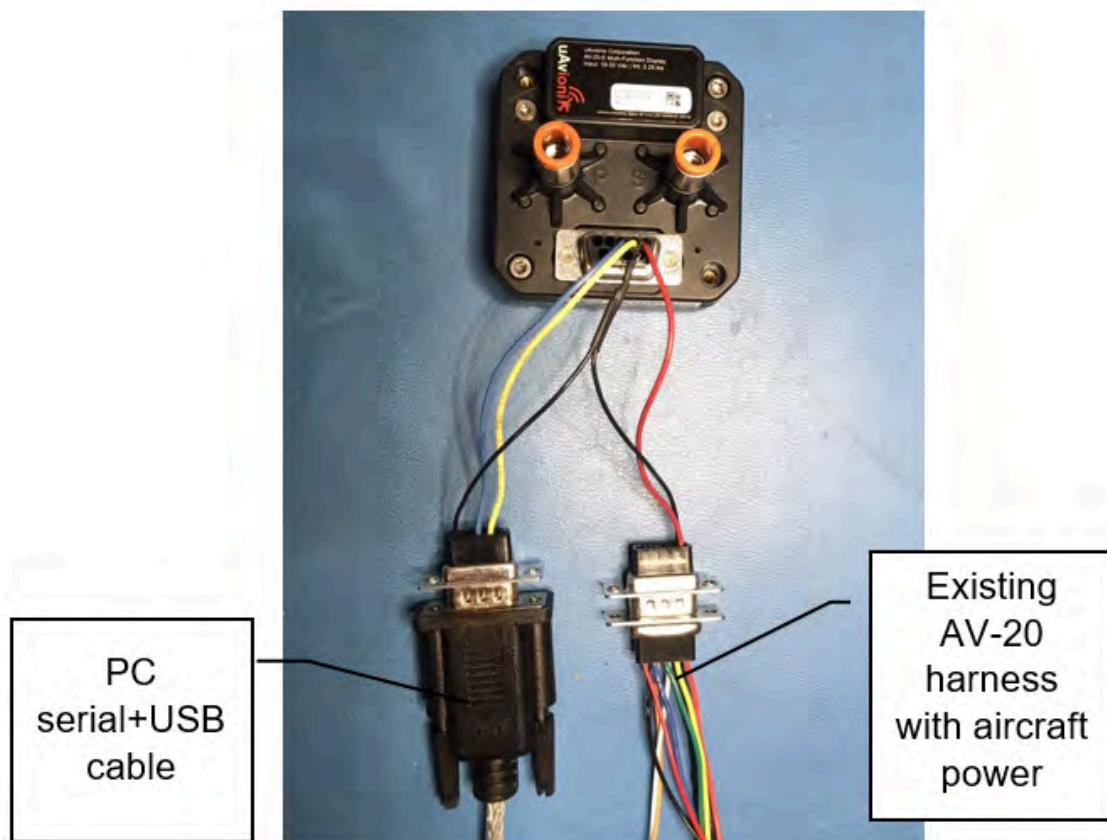


Figure 2: "Go Between" Update Harness Installed

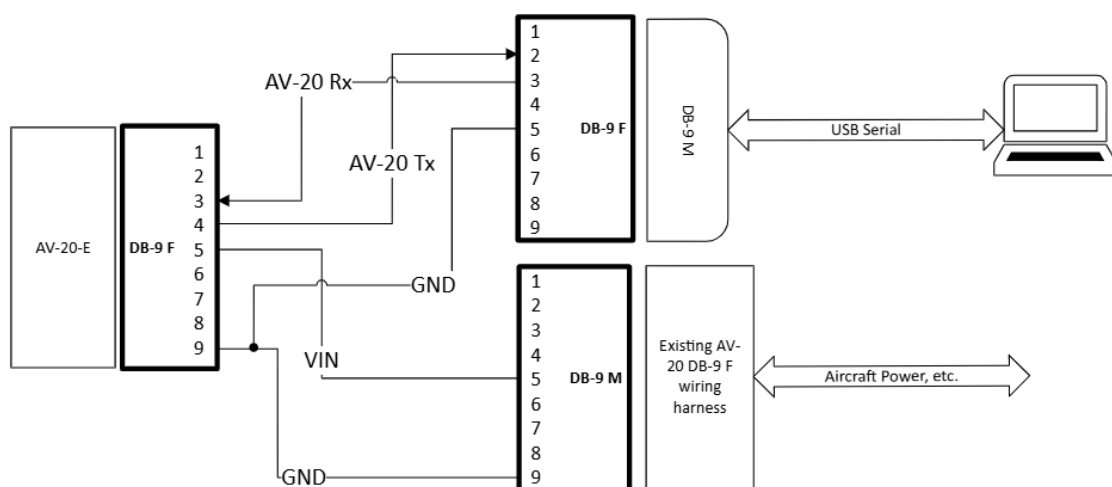


Figure 3: "Go Between" Update Harness Schematic

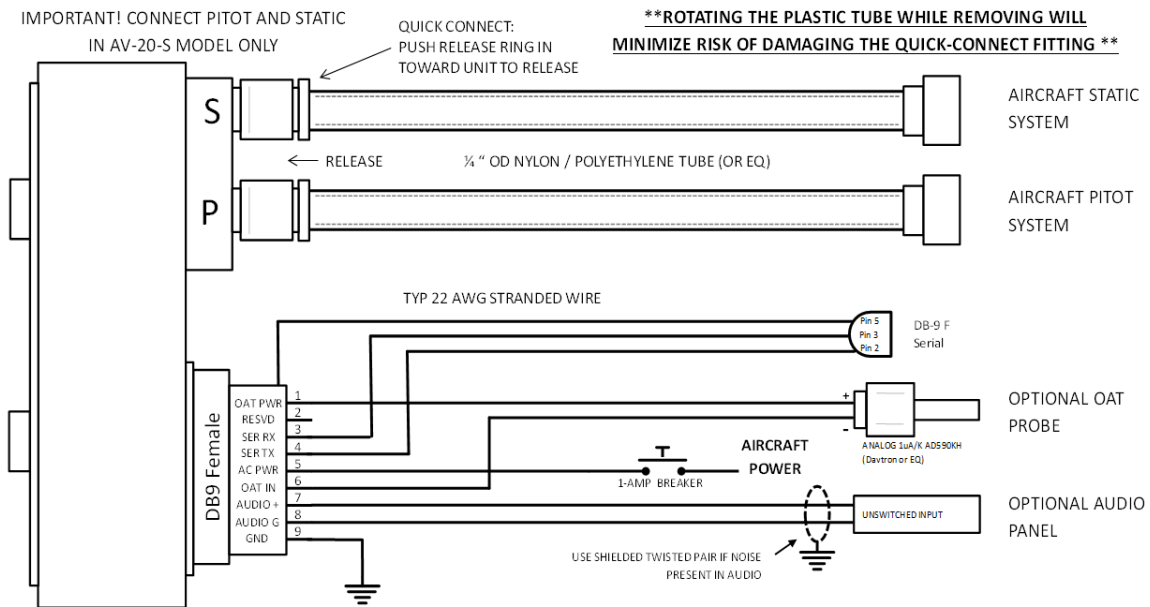


Figure 4: Wiring Diagram

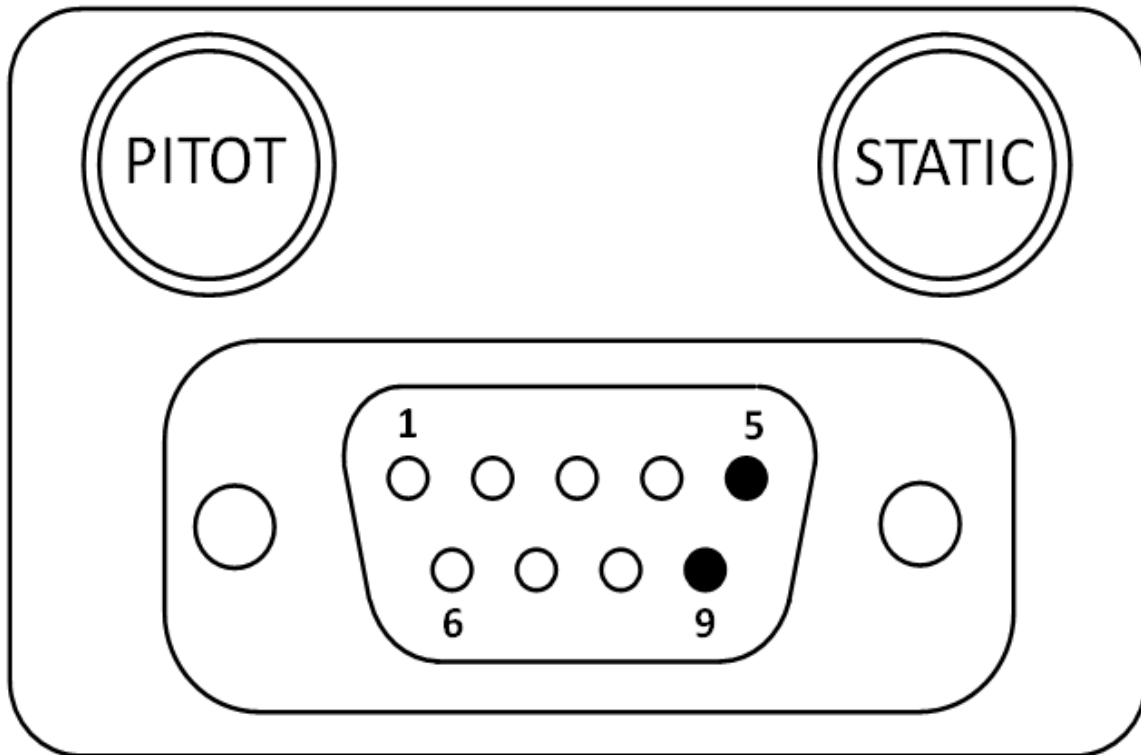


Figure 5: Unit Connections - DB-9, Male Connector - Rear View

All connections are provided on the single 9-Pin D-sub connector and the two pneumatic fittings.

Pin	Function	Type	Comment
1	OAT Supply	Output	OAT Sensor Supply Line
2	Serial Input	Input	Reserved
3	AV-XPORT Input	Input	RS-232 Software Update
4	AV-XPORT Output	Output	RS-232 Software Update
5	Power	Power	+12 to +28 VDC
6	OAT Sensor	Input	OAT Sensor Input
7	Audio H	Output	Altitude Alerts / Other
8	Audio L	Output	To Audio Panel Ground
9	Ground	Power	To Aircraft Ground

Table 6: AV-20-E DB-9 Male Connector Pinout

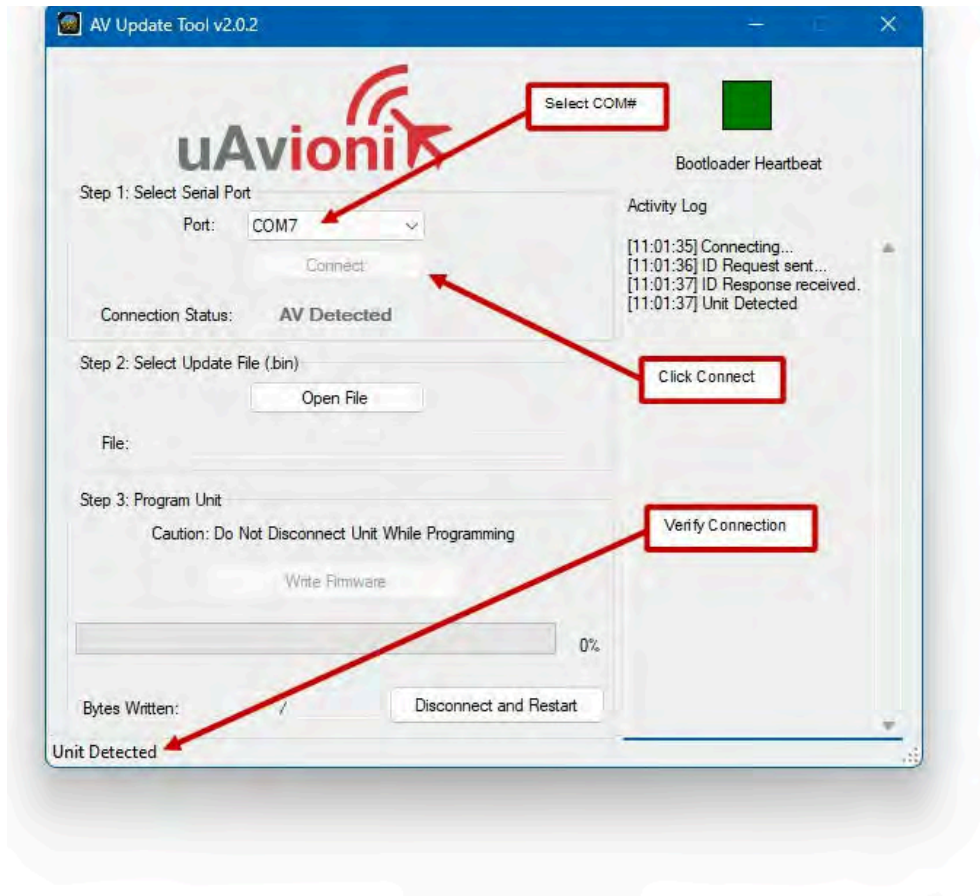
Pin	Function
1	
2	Serial Output
3	Serial Input
4	
5	Ground
6	
7	
8	
9	

Table 7: Standard DB-9 Female Connector Pinout for reference

## 7.2. Serial Update Procedure

1. Connect the AV-20-E to the Windows PC through the DB-9 connection previously installed in Section 7.1.
2. Apply power to the AV-20-E. Do not interrupt power during the update process.
3. Go to the SETUP page and scroll down to PAGE ENABLE.

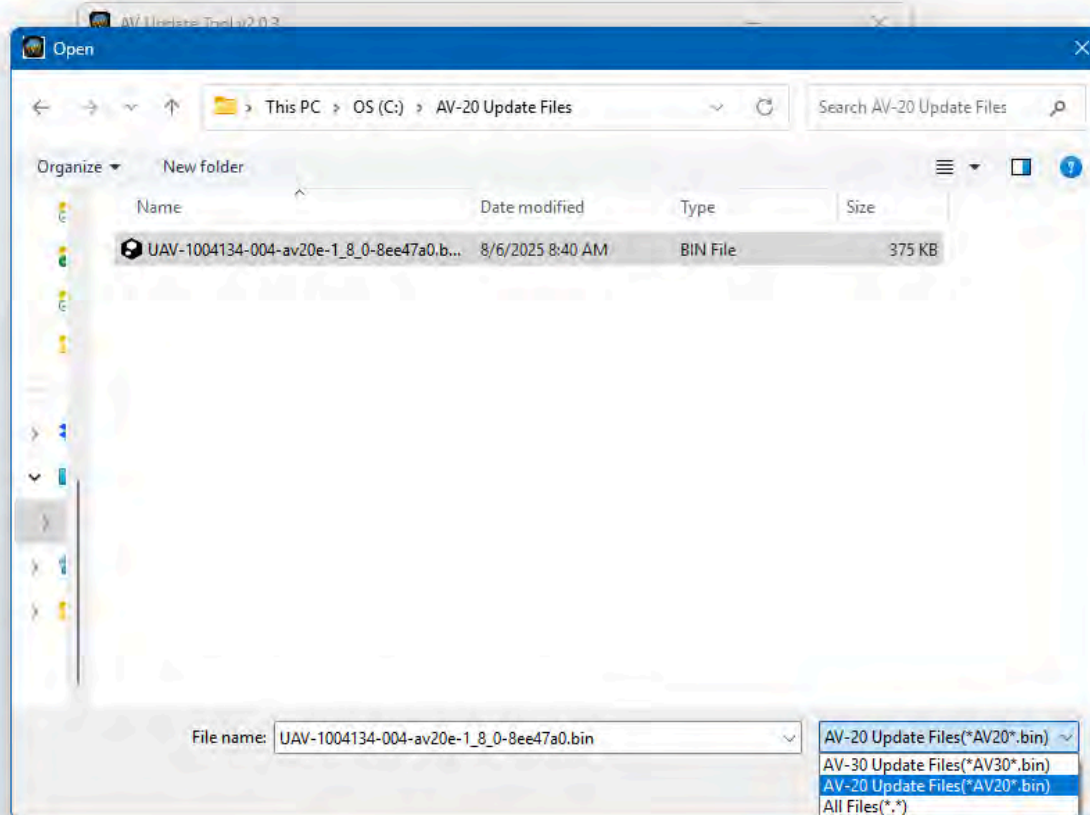
4. If the XPDR CTRL page is enabled, disable it and power cycle the AV-20-E. This step is required for the AV Updater application to detect the AV-20-E.
5. Launch the previously downloaded AV Updater application.
6. On the AV Updater tool, select the appropriate COM Port from the dropdown menu and click "Connect".



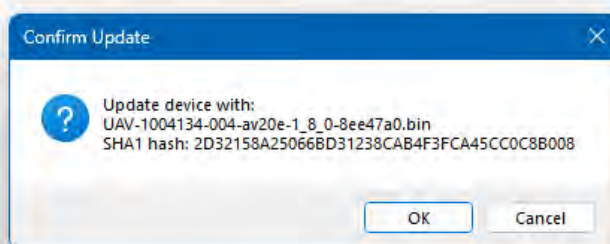
5. Proper connection has been made when the message "Unit Detected" has appeared on the bottom left corner of the AV Updater Tool. The screen on the AV-20-E will go black for the remainder of this procedure.
6. If "Unit Detected" does not appear, contact uAvionix Support for additional guidance.
7. Once proper connection has been made, select the firmware file to upload to the AV-20-E by clicking "Open File" and selecting the previously downloaded firmware file as identified in Table 3.



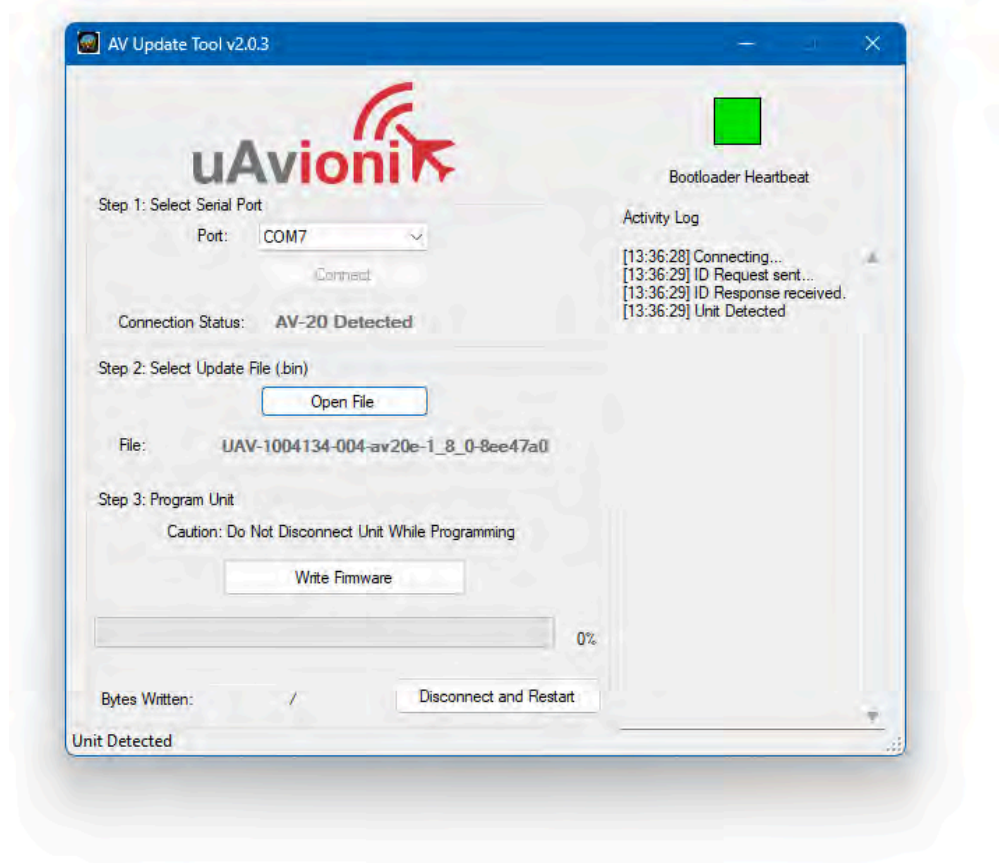
Note that you need to select "AV-20 Update Files" in the lower right corner.



A confirmation dialog will appear with the filename and a calculated SHA1 hash. To confirm integrity of the file, compare the displayed SHA1 hash to that in Table 3. Note that the hash value is not case sensitive.



8. When confirmed, press OK and the main dialog will re-appear.



9. Select "Write Firmware" and then "OK" to begin the upload.

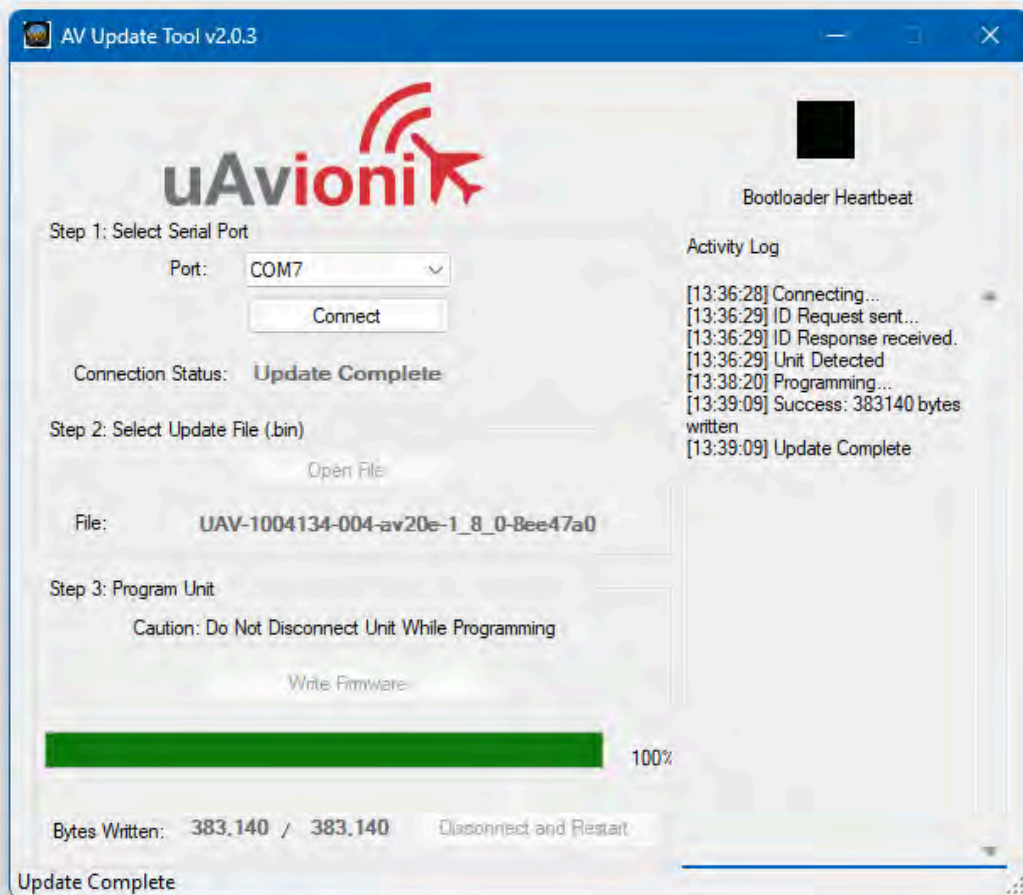


DO NOT POWER OFF THE AV-20-E OR CLOSE THE UPDATER TOOL UNTIL THE UPDATE IS COMPLETE



THE SCREEN OF THE AV-20-E WILL GO BLACK DURING THE UPDATE. THIS BEHAVIOR IS NORMAL AND THE STARTUP SCREEN WILL APPEAR AFTER REBOOTING.

10. When the AV Update Tool displays "100%" and the lower status reads "Update Complete" the process is complete.



11. The unit will automatically restart. Upon restart of the unit, verify the startup screen indicates the updated software version.
12. If the unit was removed to perform the update it can now be reinstalled as per the installation manual.
13. Any new wiring added for the update process should be properly secured.
14. If a Go Between harness was used, remove it now and reconnect the original connector. Any new wiring added for the update process should be properly secured.

15. If the XPDR CTRL page was disabled in step 4, re-enable it now and power cycle the AV-20-E.
16. Following the completion of the update, follow Section 9 to perform required post-installation procedures.

## **8. Troubleshooting**

The following steps are to aid in identifying update issues:

Issue Possible Reason and Remedy	
Update Tool	
Update Tool does not connect	Disable Transponder. – On SETUP page, under PAGE ENABLE, turn off the XPDR page (red X). Re-enable it after the update.
	Check wiring. -AV-20-E must be powered separately from serial cable. Serial end of cable does not provide power. -Check pinouts. -Check signal ground wire.
	Check COM port. -Does a new COM port get created when the cable is plugged into the USB port? Try another port or check for a Windows device driver problem. Follow cable manufacturer instructions. -Are you using the COM port associated with the USB cable? -Are you using the recommended USB cable? -Is another application using this COM port?
Unit has black screen after update	Update completed but unit did not restart Reconnect with the updater tool, then press the 'Disconnect and Restart' button
	Update was interrupted before it could complete Boot into bootloader mode as follows: Press and hold bottom left and right buttons while powering up. Hold for 10 seconds before releasing Retry the update with the updater tool Make sure power stays on during the update
	Device settings may need to be reset Disconnect power and let the device sit unpowered for 15 minutes Hold upper and lower left buttons while powering up. Release buttons after splash screen has cleared
	Contact Product Support
Calibration Operations	
Pitot Zero will not run	Device detects airborne condition based on vibration Isolate the device from strong vibration sources like air data test sets, machinery, etc.
Airspeed trim will not run	Device detects airborne condition based on vibration Isolate the device from strong vibration sources like air data test sets, machinery, etc.
Hard Calibration will not run	Device detects airborne condition based on airspeed Run Pitot-Zero operation first, then retry hard Calibration Calibrate airspeed trim, then retry
Altitude trim will not run	Device detects airborne condition based on airspeed Run Pitot-Zero operation first, then retry hard Calibration Calibrate airspeed trim, then retry
Post-Update Operation	
Transponder page missing	On SETUP page, under PAGE ENABLE, turn on the XPDR page (green checkmark).
Unexpected VFR Squawk Code value	on SETUP page, under XPDR CFG, Advanced Config, Default Squawk, check that the transponder has a default squawk code that is the desired VFR squawk code.

## **9. Post-Accomplishment Verification and Actions**

### **9.1. Verify Update Versions**

On restart, verify that the startup screen displays the correct version number. Access the Installation Menu to complete post-accomplishment verification steps.

1. To enable access to the Installation Menu, ensure the unit is completely turned off. Push and hold the main control knob in while power is applied.
2. Navigate to the SETUP page.
3. Press both left and right buttons simultaneously.
4. Highlight SYSTEM INFO with the up or down buttons on the left.
5. Enter the SYSTEM INFO screen by pressing the 'SEL' button on the right.
6. If the SW VERSION displayed is 1.8.0, the update is verified.

If the new software version is not 1.8.0, contact uAvionix Support.

## 10. System Checkout

Review the settings in the aircraft log book and verify that the AV-20-E settings are intact. Review the *AV-20-E Installation Manual UAV-1004048-001* Rev. B §9 Instructions for Continued Maintenance & Operation prior to returning to service.

Version 1.8.0 and greater uses pitot-static data to assist the attitude algorithm. Performing the Air Data – Pitot Zero procedure found in the Installation Manual is particularly important.

It is strongly recommended to execute a Hard Cal calibration procedure, and to calibrate airspeed and altitude with an air data test set in addition to the Pitot-Zero.



## **11. Support**

For additional questions or support please visit:

<http://www.uavionix.com/support/>

## 12. Maintenance Record

When post-accomplishment verification and system checkout is completed, make appropriate entries in the Aircraft Maintenance Log Book.

### Maintenance Record

Service Bulletin UAV-1007941-002 Rev A to install software v1.8.0 for AV-20-E UAV-1003626-( ) has been complied with.



**A copy of this form must be submitted by visiting: <https://uavionix.com/logbook/>**

Date:	By:
Aircraft Information	
Make:	Model:
Serial Number:	Registration Number:
AV-20-E Information	
Serial Number:	
Hardware Part Number:	UAV-1003626-_____
Customer Information	
Name:	
Email:	
Telephone:	