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FREEFLYSYSTEMS.COM

SB01 ALTA Pro flight controller sensor defect

Date Released: May 25, 2019

Subject: Flight controller sensor defect

Effectivity: ALTA Pro units shipped between January 2019 to May 2019

Required Action: If QGroundControl sends the alert “Missing Accel calibration”, DO NOT FLY, and contact freefly support.

INTRODUCTION

The manufacturer of Alta 8 Pro’s flight controller hardware module has reported that some units may have a manufacturing issue that could result in some of the sensors disconnecting. The manufacturer estimates the affected number to be 0.5% of all modules manufactured between December 2018 through April 2019.

BACKGROUND

Serial numbers of affected modules have not been made available yet, and Freefly will continue monitoring the situation and take appropriate action. Freefly documents the flight controllers of each aircraft shipped and will update actions as the manufacturer knows more.

DISCUSSION

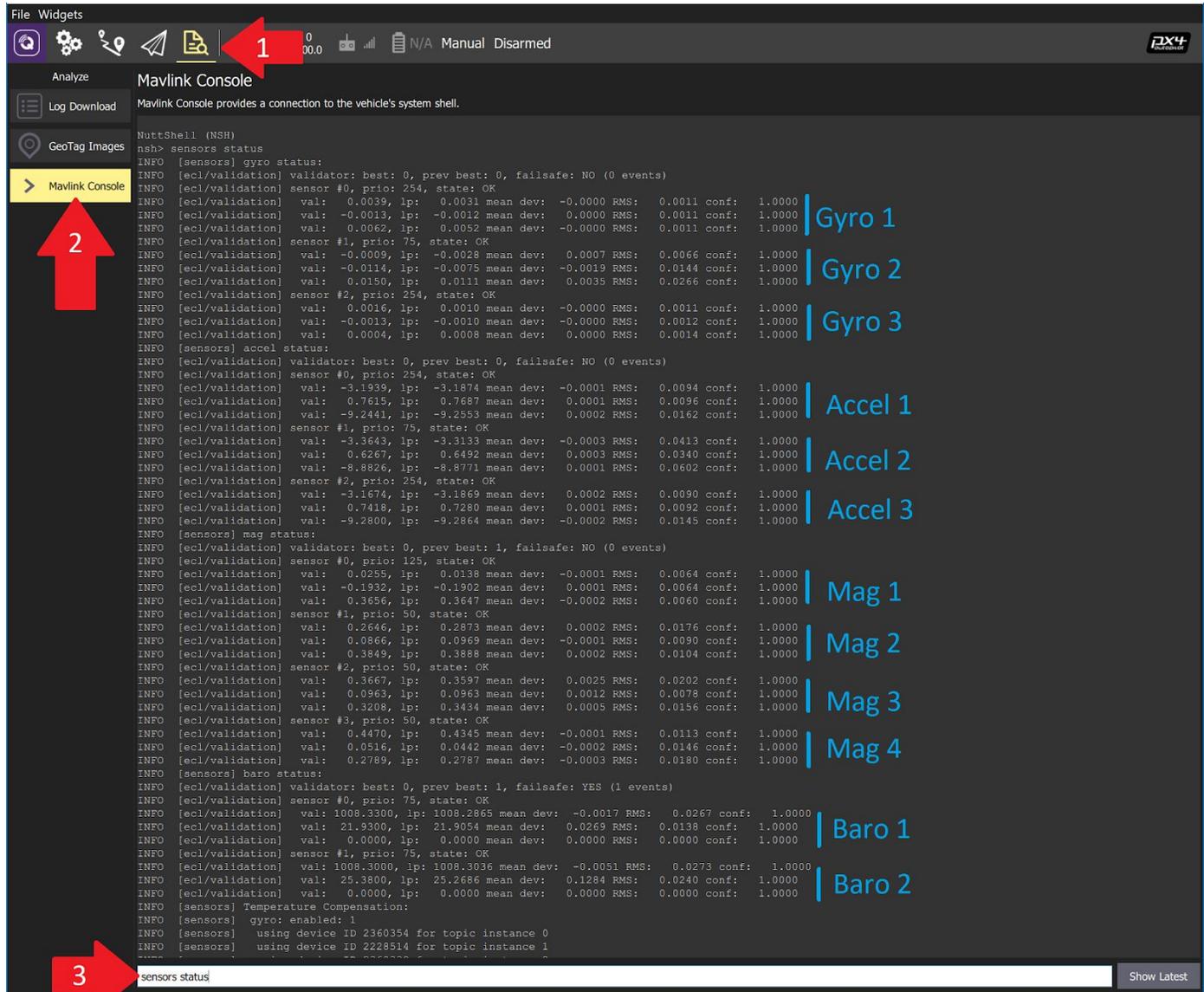
- Freefly has not experienced this problem with any of the Alta Pro fleet, or seen it on any manufactured units to date.
- All Alta Pro production flight controllers have been through production temperature cycling, calibration, burn-in, and flight test before leaving Freefly.
- The flight controller has triple redundant sensors, and the fault does not impact all of them.
- Freefly has performed internal testing simulating a failure while the machine is stored, and PX4 will prevent flight on next boot (see required action about what to do if sensor calibration is suddenly missing)
- Freefly has performed bench testing of sensor failure with motors running, and the software seamlessly switched IMUs as expected.
- PX4, the autopilot software Alta 8 Pro is based on, has examples of the sensor failure in-flight and successful transition to alternate sensors.

REQUIRED ACTION

- If the sensor board were to fail while powered off, the AltaPro will alert the user through QGroundControl by displaying the alert “Accel not calibrated” at bootup. In addition, this error will prevent arming, and the main GPS LEDs will flash red. If QGroundControl displays this alert, **DO NOT FLY** and contact freefly support.
- Users can check everything is ok any time they want by querying the sensors over a USB connection
 - Connect to Aircraft using USB from a computer with QGroundControl (do not plug in batteries). Wait for rear status light to begin flashing white. (note, do NOT try this over long range radio or wifi; the link may drop packets and make it appear that some sensors are missing)
 - Using QGroundControl, click the logs tab, click the “mavlink console” button, and then type “sensors status” without the quotes into command line and press enter. It will print out the current status of all sensors (see image)



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- Verify that the following sensors are all showing: 3 gyros, 3 accels, 4 magnetometers (mag), 2 barometers (baro).
- If any sensors are missing, DO NOT FLY, and contact freefly support
- If you suspect that your unit may be exhibiting this problem, please contact Freefly support.

For Service Information Contact:
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Hours of Operation: M-F 7am-5pm PST