Date Released: **February 24, 2016**
Subject: **ALTA ESC Firmware Update Version 1.0.1**
Affected ALTAs: **All ALTAs shipped prior to February 11, 2016**
Require Action: **Install latest Synapse and optionally install ESC firmware**
Time of Compliance: **As soon as practicable**

INTRODUCTION

This Service Bulletin (SB) announces the availability of ALTA ESC firmware version 1.0.1. Installation of the ESC firmware addresses the issue described in the previous SB released February 10, 2016.

BACKGROUND

Recently, three (3) Freefly ALTA customers have lost control of their ALTAs and crashed when flying with payload above the stated maximum shown in the ALTA Aircraft Flight Manual (AFM). When operated at higher payloads, the ALTA motors must spin faster than normal in order to generate lift necessary to remain airborne. This causes the ESCs to overheat, which can create an ESC microcontroller fault, loss of command signal, and inability to control the aircraft.

The Status Light located at the rear panel of the ALTA indicates the status of ALTA during boot, arming, and flying. During flight, critical alarms are conveyed to the pilot using the Status Light. For Synapse firmware versions 3.4 and prior, the Status Light illuminates red when the ESC temperature reaches 90°C, indicating that the pilot should land immediately. **Freefly has decreased the temperature alarm from 90°C to 70°C in Synapse firmware v3.5.1, available in the App Store and Google Play, and accordingly issued a Service Bulletin on February 10, 2016.**

In addition to the Synapse firmware v3.5.1 release, Freefly has released an ESC firmware update which changes the internal communication algorithm and makes the ALTA more tolerant to operating in conditions which could otherwise cause a microcontroller fault and loss of control to occur. This firmware can only be updated by making a physical connection with a connector inside the ALTA chassis, requiring disassembly of the ALTA top chassis plate.

RECOMMENDATIONS

Install the latest release of Synapse firmware v3.5.1 using the ALTA App at your earliest convenience. As always, observe the Status Light during operation, and land the aircraft in case of alarms.

Optionally, update ESC firmware to v1.0.1 release.

DISCUSSION OF OPTIONAL ESC FIRMWARE UPDATE

Updating the ESC firmware to version 1.0.1 can mitigate risks associated with operating the ALTAs ESCs at high temperatures. For some users, the ESC firmware update may be unnecessary.

This high-temperature fault is most likely to be provoked when flying at a gross weight above the limitations stated in the ALTA AFM, though it may be possible to reach this limit even if gross weight does not exceed specifications. A review of available flight data from over 4400 ALTA flights across a range of operating conditions shows that most flights will be remain below 70°C. Operating payload, flight style (aggressive vs. docile), and ambient temperature can affect individual results.
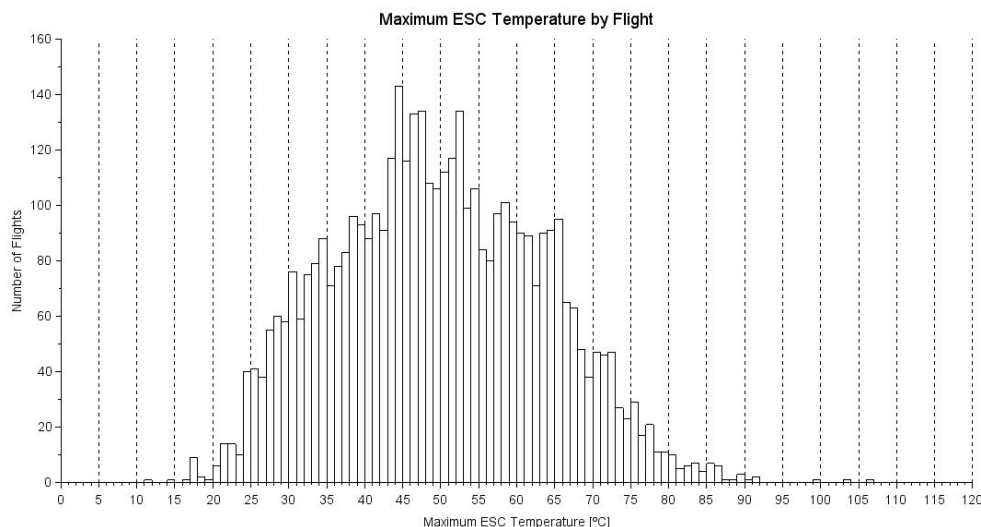
Figure 1. Review of available flight data from 4400 ALTA flights.

The best way to determine whether or not to perform the ESC firmware update is to review your previous flight data and assess your typical operating style and conditions. The ALTA records flight data on a microSD card accessible from the GPS/Compass mount. Answering these questions can help make an informed decision:

- Do the motor temperatures in your flight logs typically exceed 70°C? Is the average rpm during your flights at or above 4700rpm?
- How much does your standard payload weigh? Is it equal to or in excess of the maximum stated in the Aircraft Flight Manual? Note: Freefly does not support or endorse flying with payload in excess of the specifications listed in the AFM.
- Do you expect to continue operating your ALTA in the same manner and similar ambient conditions as flights you have already conducted? If you expect to operate with heavier payload or in higher ambient temperatures (e.g. moving to a hotter climate), your previous flight data may not be indicative of future results.
- Still unsure? Check out the Freefly Support Forum or contact Customer Support directly with questions.

For those customers who elect to update ESC firmware, two options are available. Each customer can select a preferred option 1) or 2).

1. Freefly will perform the update process at our headquarters free of charge, with all shipping costs to be paid by the customer.

    OR

2. Customer will perform the update process using a set of instructions and encrypted firmware provided by Freefly Customer Support. Please contact Customer Support to receive the update instructions. Note that the update process requires disassembly of the ALTA top chassis plate, so this option is only recommended for more technical users.

For Service Information Contact:
Freefly Customer Support
Email: support@freeflysystems.com
Phone: +1 (425) 485-5500
Hours of Operation: M-F 8am-6pm PST