

# Thunderbird firmware change log



## Thunderbird\_19122019\_FT

<https://yuneecpilots.com/threads/typhoon-h-480-px4-v1-10-stability-issues.18205/#post-204345>

First Thunderbird release. PX 4 bootloader "omnibusf4sd\_bl.bin".  
Onboard parameter settings for H480 "typhoon\_h\_parameters.params".  
Flight modes "Position" and "Stability". Basic telemetry to ST16.

## Thunderbird\_19122019\_FT

Binding mode added to Thunderbird Autopilot.  
To set into binding mode, connect to QGroundControl and enter "**typhoon\_bind start**" at MAVlink command line.  
Telemetry "tas" provided to telemetry file.

## Thunderbird\_xxyy2020\_FT

<https://yuneecpilots.com/threads/typhoon-h-480-px4-v1-10-stability-issues.18205/post-212015>

### Summary

- Update functionality of the "Drone status LED".
- Refactoring of ST16\_telemetry.cpp.
- Minor changes here and there, but the most notable change will be the LED reacting to drone's status.
- Pitch, roll, yaw and f\_mode added to telemetry file.

### ST16 Status information

**Acquiring to Ready** transition on ST16 happens only when the drone is fully mission-capable. The PX4 Autopilot takes its time to make things ready even there is a valid GPS fix.  
ST16 flight mode display changes according the selected flight modes.

## Drone status LED codes

### Drone status LED basic rules, regardless of color coding:

1. When the LED is SOLID regardless of color, you have the full control.
2. When the LED is BLINKING, the Thunderbird is actively doing something (like assisting you somehow).
3. Than lighter the color, than more challenging and rewarding is it to fly.
4. Red light means malfunction, fail-safe mode or manual requested RTH.

### RGB status LED details:

#### Green: Startup

**GREEN blinking: Initialization.** The ST16 shows "acquiring" in GNSS mode display and "start" as a flight mode.

**GREEN solid:** The drone is **Ready**. The ST16 GNSS status transitions from "Acquiring" to "Ready" and flight mode display shows also "Ready".

#### Purple: GNSS-assisted flight

**PURPLE blinking: Mission mode.** ST16 flight mode display: "Waypoint" or "Home"

**PURPLE solid: Position mode.** The Thunderbird flies like a stock Typhoon in Angle Mode. ST16 flight mode display: "Angle".

#### Blue: Stabilize

**BLUE blinking: Altitude mode.** The Thunderbird flies like a stock Typhoon in Angle Mode without GPS.

**BLUE solid: Stabilize mode.** ST16 flight mode display: "THR".

#### White: Manual flight modes

**WHITE blinking: Rattitude mode** or "Assisted Acrobatics". ST16 flight mode display: "Rate".

**WHITE solid: Manual, Acro or Rate mode.** ST16 flight mode display: "Rate".

#### Red: Fail-safe, RTH, malfunction

**RED blinking:** The drone has degraded performance, but is airborne, still operational and attempts an automatic recovery. The LED blinks red when the fail-safes are activated (RTH) or the drone attempts auto-land with a failed GPS.

**RED solid:** Malfunction, arming is prohibited. ST16 flight mode display: "EMER".