Manuals+

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Lumenier F765 LUX Flight Controller

INSTRUCTION MANUAL

MODEL: F765 / 5VBEC / 10VBEC / DJI FC Port / 8x UART / 8x PWM

Layout / Pinmap

Firmware Information

NOTE: The latest firmware files for the LUX F765 Flight Controller NDAA are only available on the product page at this time! Firmware files will soon be available directly in the Betaflight Configurator (Betaflight firmware) and QGroundControl/Mission Planner (Ardupilot and PX4 firmware). Please watch for updates and additional information on the product page!
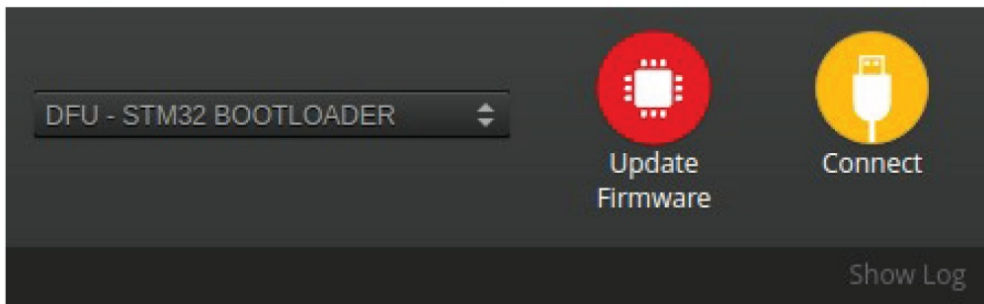
Required Software:

- Betaflight Configurator – Offline or Online
- QgroundControl
- Mission Planner
- STM32CubeProgammer

How to flash Betaflight

1) Navigate to the Lumenier LUX F765 product page and download the latest Betaflight firmware file – abc_Betaflight_x.y.z_STM32F745_LUXNDAAF7.hex.
2) While holding down the "BOOT0" button on the flight controller, plug a USB-C cable

into the flight controller and your PC. Only the flight controller's red LED should be lit.

3) Open the Betaflight Configurator and navigate to the the "Update Firmware" tab in the top right corner of the page. If not done automatically, connect to the flight controller by selecting "DFU – STM32 BOOTLOADER". NOTE: In some Betaflight Configurator versions, you will be asked to select the flight controller after clicking "Flash Firmware" in Step #4.

Update Firmware and Flight Controller Connection

4) Next, click "Load Firmware" in the bottom right corner of the page and select the Betaflight firmware file downloaded from the product page in Step #1. Click "Flash Firmware" to begin the firmware download to the flight controller.
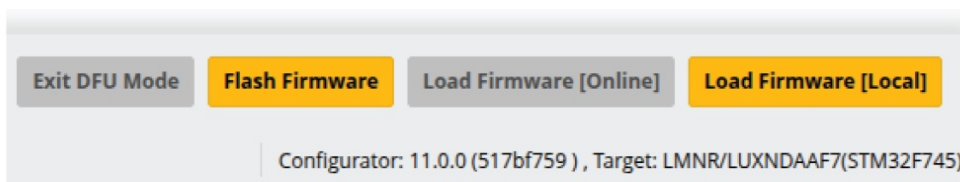
Flash and Load Firmware

5) Allow a minute or two for the firmware to download to the flight controller. Once complete, the Betaflight Configurator will read "Programming: SUCCESSFUL" at the bottom of the page. Congratulations, your flight controller is now running Betaflight and ready for additional configuration!

Programming Successful!

How to flash Ardupilot

- There are multiple ways to flash Ardupilot, but using the STM32CubeProgrammer is the easiest method if the flight controller is NOT running Ardupilot. Please see the official Ardupilot documentation for additional information.
- Skip to the QGroundControl section if the flight controller is already running Ardupilot.

STM32CubeProgrammer (Flight controller NOT running Ardupilot)

1) Navigate to the Lumenier LUX F765 product page and download the latest Ardupilot firmware file – abc_LUXNDAAF7_arducopter_x.y.z_with_bl.hex.

2) While holding down the "BOOT0" button on the flight controller, plug a USB-C cable into the flight controller and your PC. Only the flight controller's red LED should be lit.

3) Open the STM32CubeProgrammer and select "USB" in the configuration tab on the right side of the application. Next, click the refresh button and then "Connect" if the flight controller is found in DFU mode. Target information should populate in the bottom right-hand side of the window if a connection is established. If the flight controller is not found, return to Step #2.

USB Connection

Target Information

4) Navigate the the "Erasing and Programming" window by clicking the download arrow on the left side of the page. The window should open and look similar to the image below.

Erasing and Programming Tab
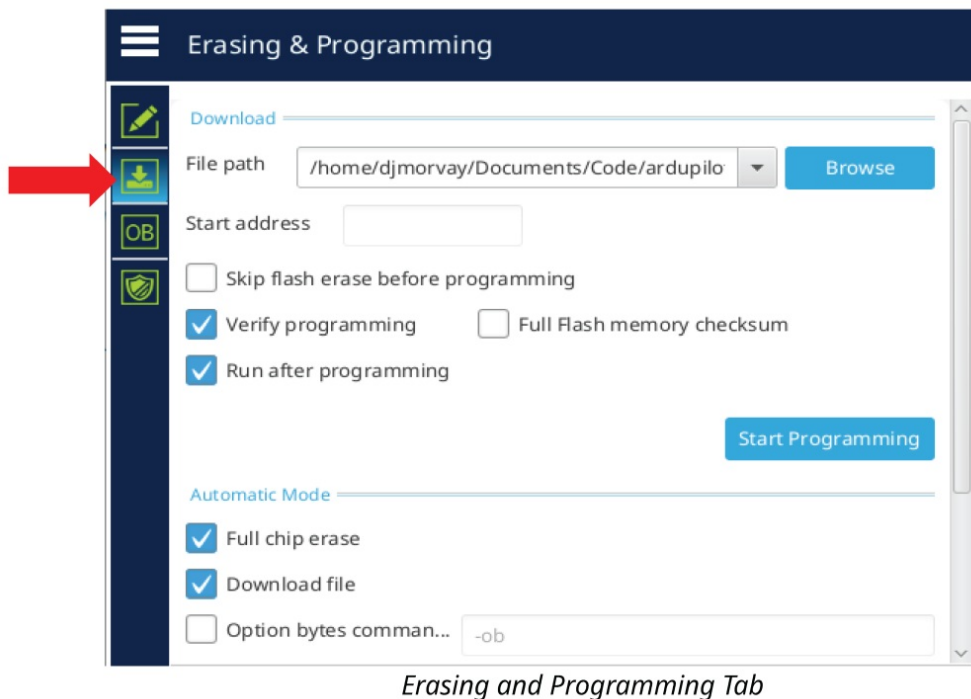
5) Next, click browse and select the Ardupilot firmware file downloaded from the product page. Click the check boxes for "Verify programming" and "Run after programming". Finally, click "Start Programming" to flash the Ardupilot firmware onto the flight controller.

6) Allow a minute or two for the firmware to download onto the flight controller. Once complete, the STM32CubeProgrammer will report "File Download Complete". Congratulations, your flight controller is ready for additional configuration in QGroundControl or Mission Planner!
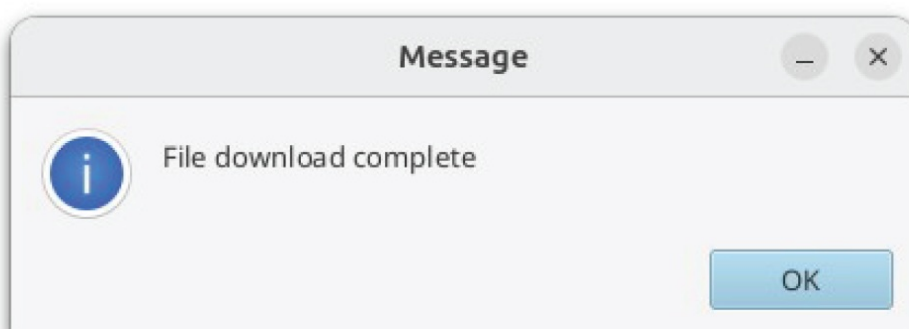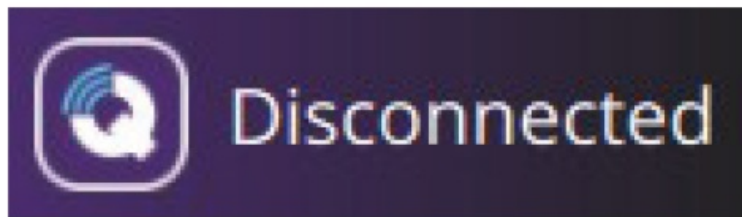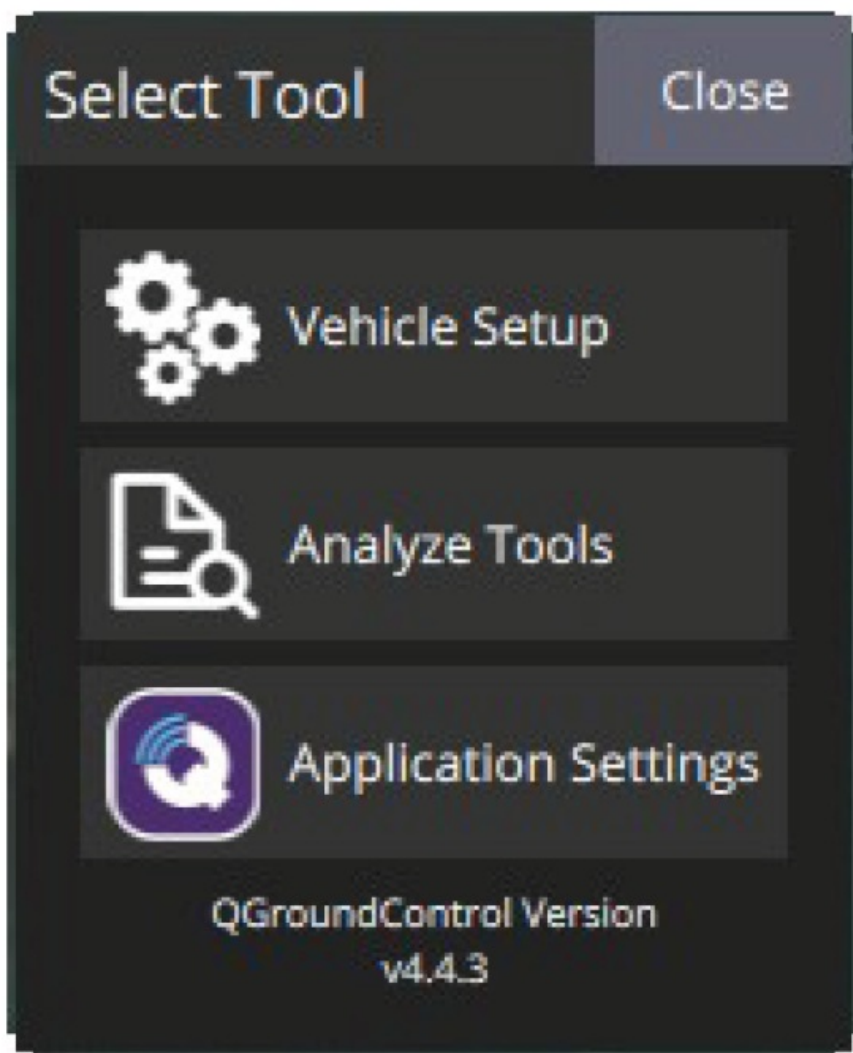

File Download Complete!

QGroundControl (Flight Controller is already running Ardupilot)

1. Navigate to the Lumenier LUX F765 product page and download the latest Ardupilot firmware file – abc_LUXNDAAF7_arducopter_x.y.z.apj.

2. Open QgroundControl and click the "Q" icon at the top left-hand side of the page. Next click "Vehicle Setup" and then "Firmware".


"Q" Icon

Vehicle Setup

Firmware Setup

3. Connect the flight controller to your PC using the dedicated USB-C port.

QGroundControl should immediately recognize the flight controller and display a "Firmware Setup" pop-up. Click "Ardupilot", "Advanced settings", and "Custom firmware file". Finally, click "OK" and select the Ardupilot firmware downloaded from the product page. The firmware will then begin downloading to the flight controller.
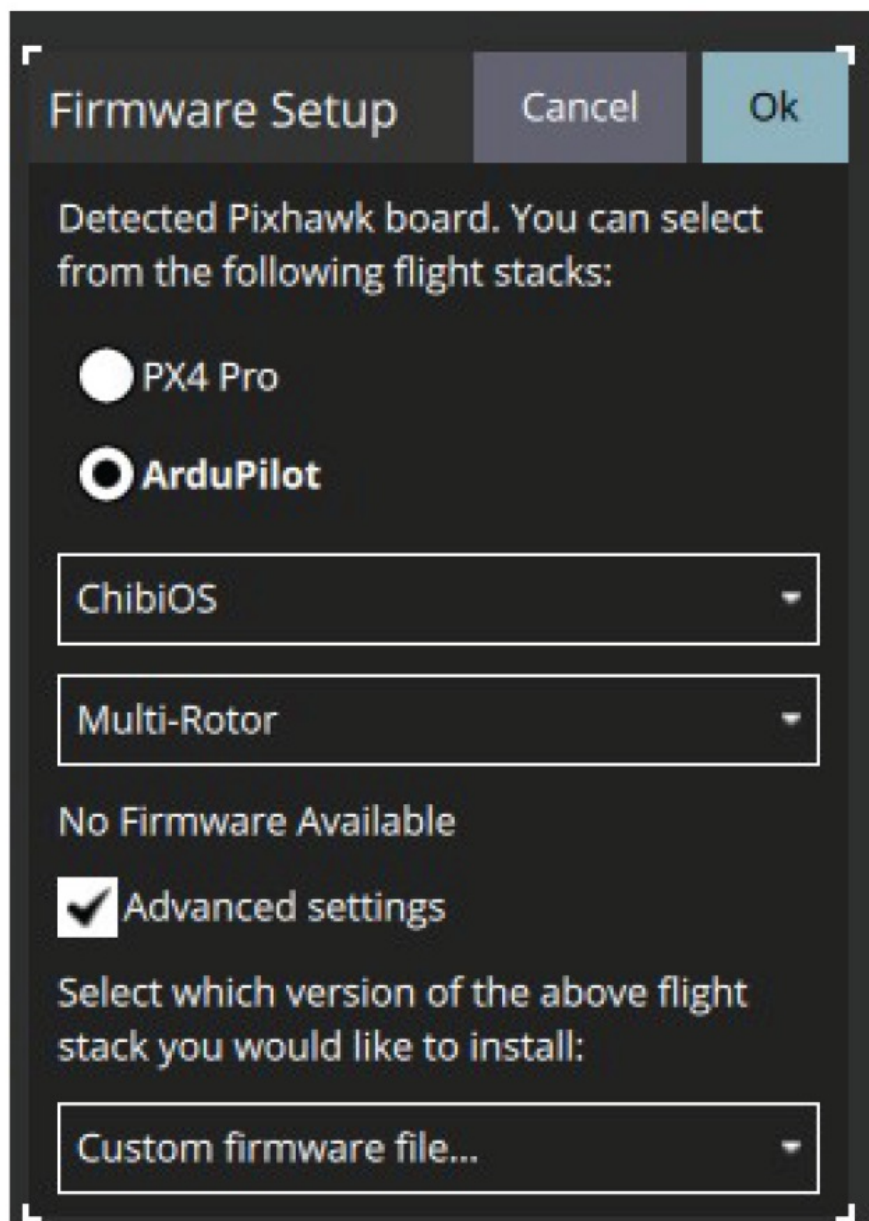
Firmware Setup Pop-up

4. Please allow a minute or two for the firmware to download onto the flight controller. Once complete, QGroundControl will open to the Vehicle Setup –Summary tab. Congratulations, your flight controller is ready for additional configuration in QGroundControl or Mission Planner!
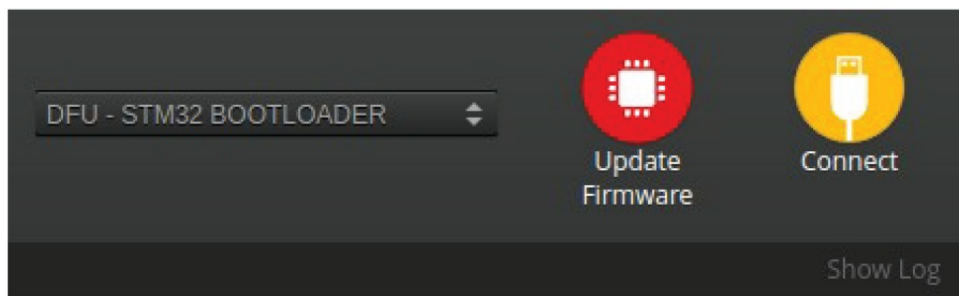
How to Flash PX4

If NOT running PX4, start at Step #1. If already running PX4, skip to Step #6.

1. Navigate to the Lumenier LUX F765 product page and download the latest PX4

bootloader file – abc_LUXNDAAF7_PX4_bl.hex.

2. While holding down the "BOOT0" button on the flight controller, plug a USB-C cable into the flight controller and your PC. Only the flight controller's red LED should be lit.

3. Open the Betaflight Configurator and navigate to the the "Update Firmware" tab in the top right corner of the page. If not done automatically, connect to the flight controller by selecting "DFU – STM32 BOOTLOADER". NOTE: In some Betaflight Configurator versions, you will be asked to select the flight controller after clicking "Flash Firmware" in Step #4.

*Update Firmware and Flight Controller Connection*

4. Next, click "Load Firmware" in the bottom right corner of the page and select the PX4 bootloader file downloaded from the product page in Step #1. Click "Flash Firmware" to begin the firmware download to the flight controller.
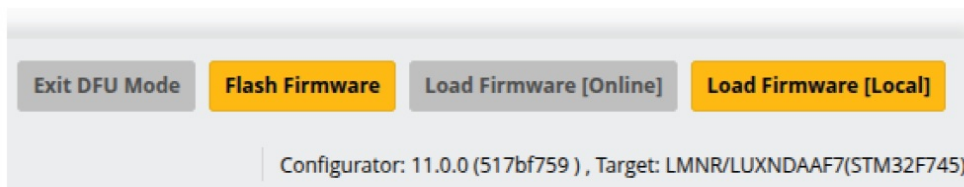

Flash and Load Firmware

5. Allow a minute or two for the bootloader to download onto the flight controller.

Once complete, the Betaflight Configurator will read "Programming: SUCCESSFUL" at the bottom of the page. The PX4 bootloader is now installed on the flight controller! Unplug the flight controller from your computer momentarily.
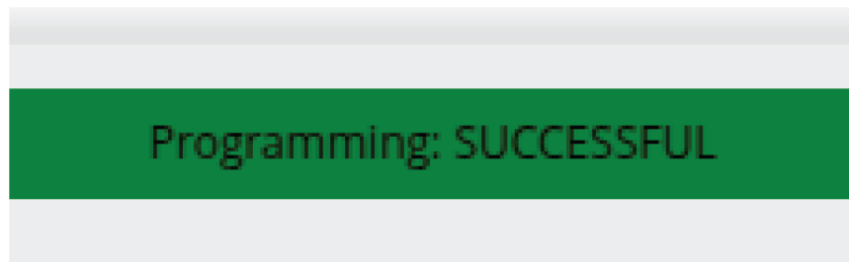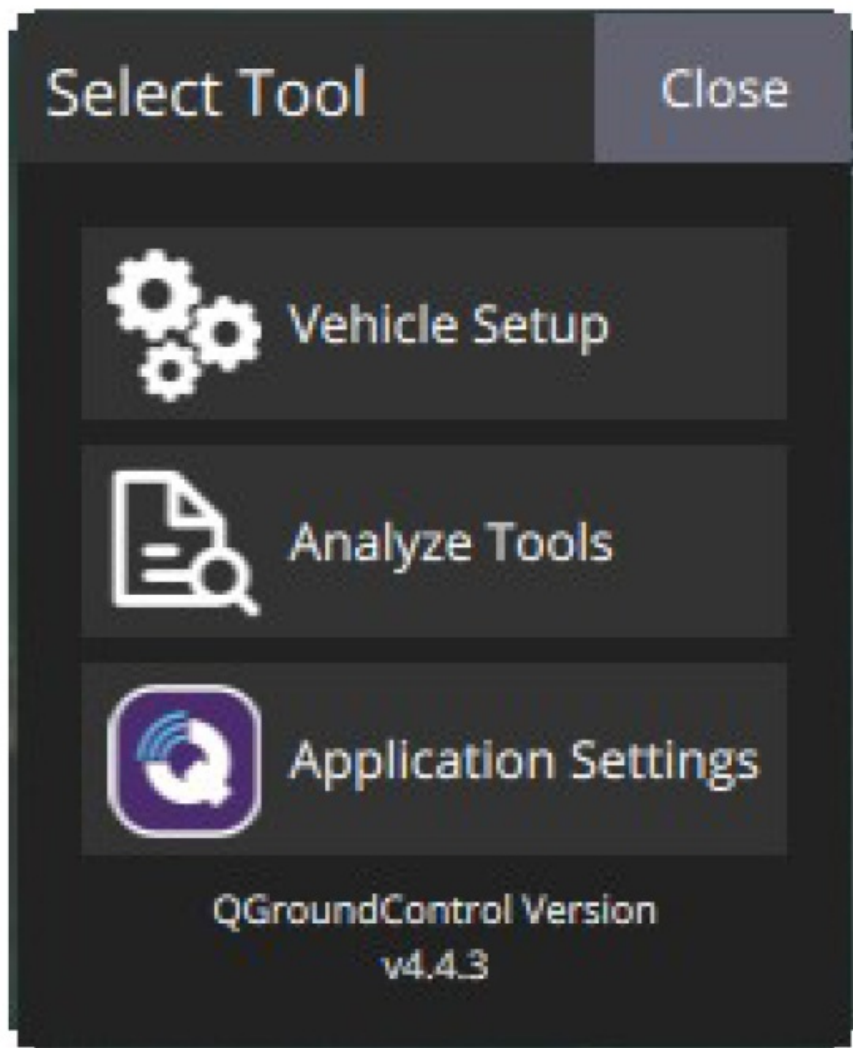
Programming Successful!

6. Navigate to the Lumenier LUX F765 product page and download the latest
PX4 firmware file – abc_LUXNDAAF7_PX4_x.y.z.px4.

7. Open QgroundControl and click the "Q" icon at the top left-hand side of the page.
Next click "Vehicle Setup" and then "Firmware".
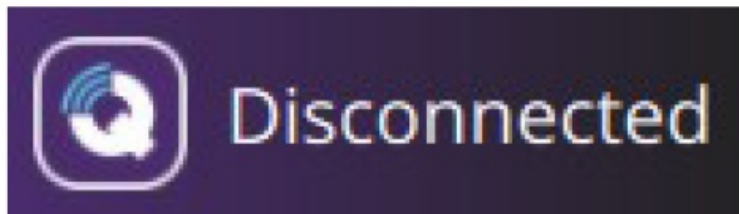
"Q" Icon

Vehicle Setup

Firmware

8. Connect the flight controller to your PC using the dedicated USB-C port.

QGroundControl should immediately recognize the flight controller and display a "Firmware Setup" pop-up. Click "PX4 Pro", "Advanced settings", and "Custom firmware file". Finally, click "OK" and select the PX4 firmware downloaded from the product page. The firmware will then begin downloading to the flight controller.
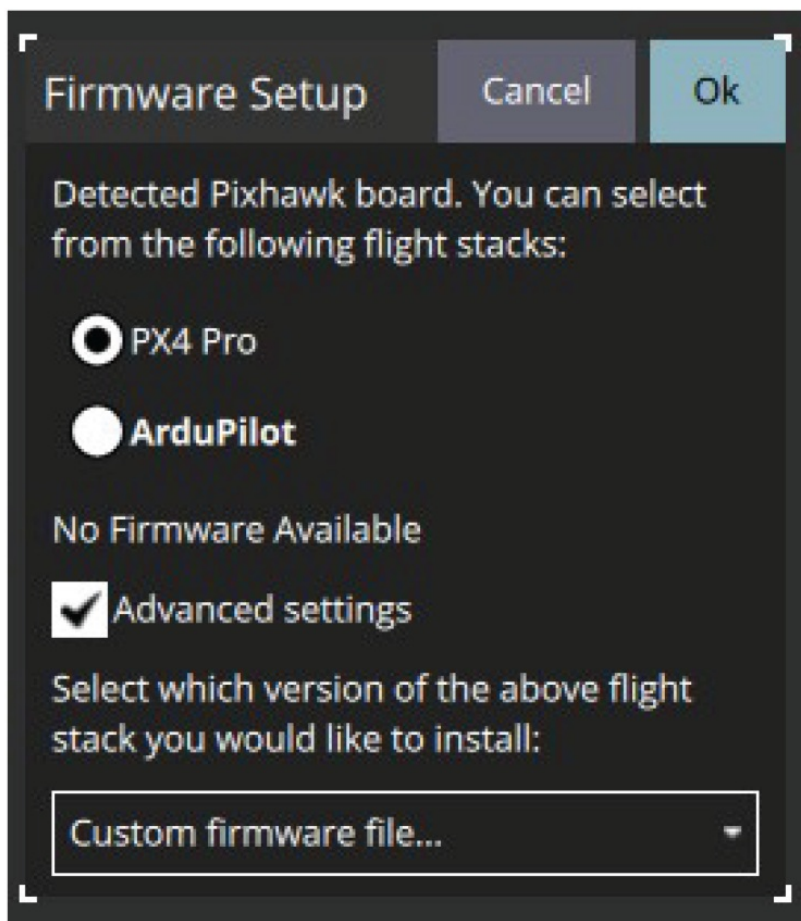
Firmware Setup Pop-up

9. Please allow a minute or two for the firmware to download onto the flight controller. Once complete, QGroundControl will open to the Vehicle Setup –Summary tab. Congratulations, your flight controller is ready for additional configuration in QGroundControl or Mission Planner!

Flashing Betaflight Firmware:

1. Navigate to the Lumenier LUX F765 product page and download the latest Betaflight firmware.

2. Connect the flight controller to your PC via USB.

3. Open Betaflight Configurator and connect to the flight controller.

4. Click Load Firmware, select the downloaded firmware file, and then click Flash Firmware.

5. Wait for the firmware to download and check for "Programming: SUCCESSFUL" in the configurator.

Flashing Ardupilot Firmware:

1. Download the latest Ardupilot firmware from the product page.

2. Connect the flight controller to your PC via USB.

3. Use STM32CubeProgrammer to flash the firmware. Follow on-screen instructions.

Firmware Information:

The latest firmware files for the LUX F765 Flight Controller NDAA are available on the product page. Updates will soon be integrated into Betaflight Configurator and QGroundControl/Mission Planner.

Layout / Pinmap:

Refer to the provided pinmap for connecting various peripherals like GPS, VTX, receivers, and more to the flight controller.

CAN BUS:

CAN BUS is not supported by Betaflight. Refer to the manual for alternative configurations if using CAN BUS.

Buzzer Connection:

The flight controller supports buzzer connection. Refer to the pinmap for correct wiring.

Resources:

Refer to the UART allocation table for connecting specific functions like telemetry, GPS, OSD, etc., to the available UART ports.

Notes:

Ensure proper power supply within recommended voltage ranges for optimal performance and safety.

Specifications:

- Flight Controller: Lumenier LUX F765 NDAA
- MCU: 216MHz STM32F765
- IMU: ICM-42688
- UARTs: 8
- PWM Output: 8x DSHOT, 4x PWM
- I2C: 1
- CAN: 1
- VBAT Input: 8-36V, 3-6S Lipo
- BEC: 5V 2.5A / 9V 2A
- Blackbox: 128Mbit / 16MByte
- Supported Firmware: Betaflight, Ardupilot, PX4
- MCU: 216MHz STM32F765
- IMU: ICM-42688
- UARTs: 8
- PWM output: 8x DSHOT, 4xPWM
- I2C: 1
- CAN: 1
- VBAT input: 8-36V, 3-6S Lipo
- BEC: 5V 2.5A / 9V 2A
- Blackbox: 128Mbit / 16MByte
- Beeper/WS2812b LED Strip

Supported Firmware – Betaflight, Ardupilot, and PX4

Firmware: abc_Betaflight_x.y.z_STM32F745_LUXNDAAF7

Download in product page

FAQ:

Q: Where can I find the latest firmware files?

A: The latest firmware files are available on the product page.

Updates will be integrated into configurator tools soon.

Q: Can I use CAN BUS with Betaflight?

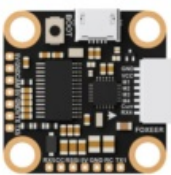A: No, CAN BUS is not supported by Betaflight. Refer to manual for alternative configurations.

Documents / Resources

[Lumenier F765 LUX Flight Controller](#) [[pdf](#)] Instructions

F765 LUX Flight Controller, F765, LUX Flight Controller, Flight Controller, Controller

References

- [User Manual](#)

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