

Hobbymate 5" Racing Drone Assembly Instructions



Meteor

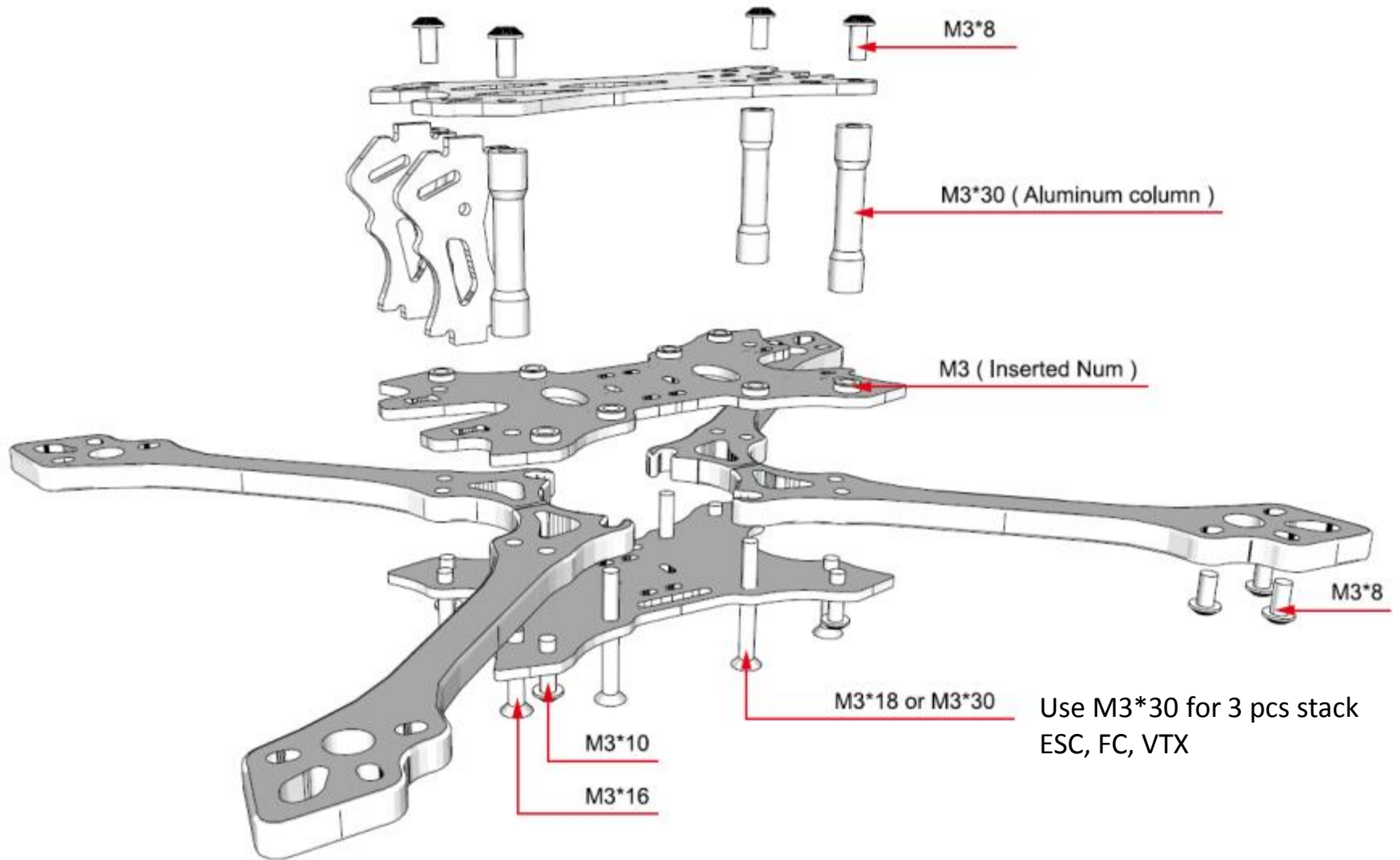


Comet

Initial Thoughts & Helpful Tips

- **Thank you for purchasing this quality Hobbymate product**
- Please read and understand all instructions before starting assembly
- Avoid static discharges as they can damage electronic boards
- Don't trim wires over drone circuitry, small bits of wire can short out and damage electronics
- Use good quality solder and flux
- Adjust soldering iron to lower temperature when soldering to boards as too much heat can loosen or damage board components
- Ground pads typically require slightly higher heat setting as they are large and dissipate heat
- Pre-tin wires that will soldered to board pads, use minimal stripped wires to avoid potential shorts
- Use thread lock on motor and frame bolts
- Before powering drone with battery for first time or after modifying wiring, check for shorts with a digital voltmeter and use a [Smoke Stopper](#) or similar device
- ALWAYS remove props when configuring drone or testing motors with battery connected
- Camera has a built in OSD which can be turned off using supplied camera joystick. If left on, it may clutter screen with Betaflight OSD enabled
- Technical support is available via email hobbymatecs@hobbymatehobby.com or on the [RC Groups Technical Support](#) thread

Assemble Frame - Comet



Assemble Frame - Meteor

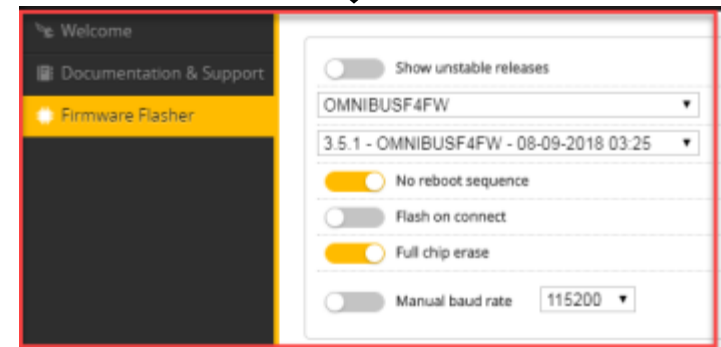
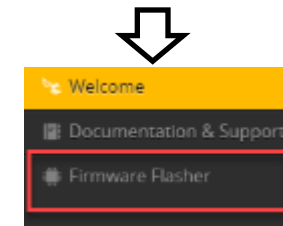
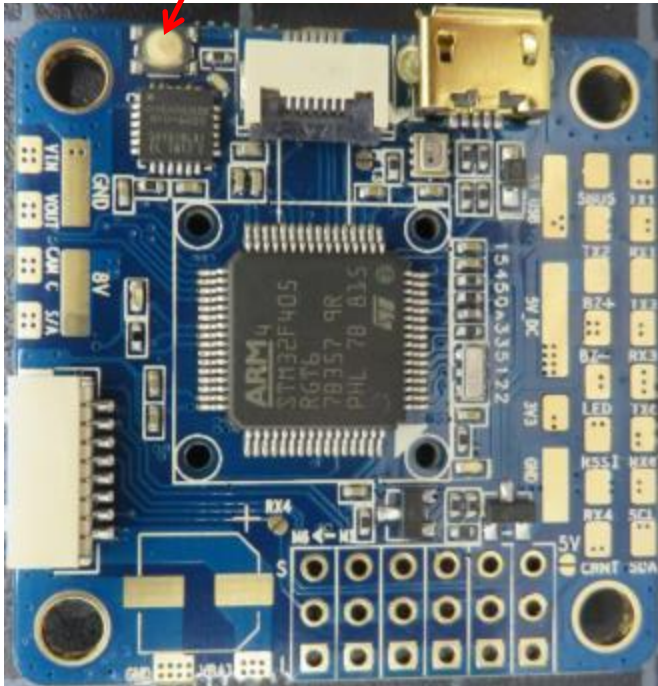
Assembly Drawing: Coming Soon

Flight Control Board – Flash Firmware

- Hold Bind button on flight controller while plugging in USB to computer
- Open [Betaflight](#), see DFU
- If problems, install drivers listed on 1st page of Betaflight
- Press Firmware Flasher
- Load Firmware either Online or Local
- Flash latest version of OMNIBUSF4FW, be sure to use same version of Betaflight Configuration File (see next page)
- Flight controller will reboot

Bind button

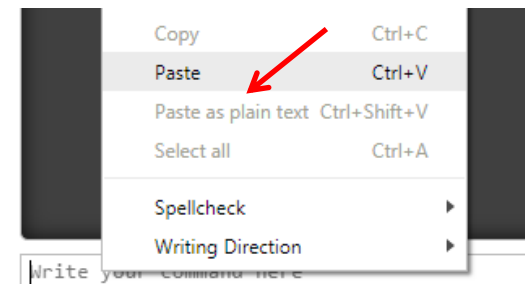
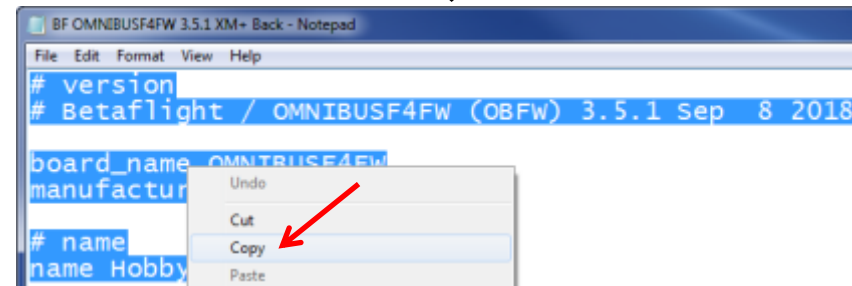
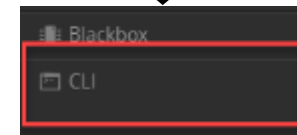
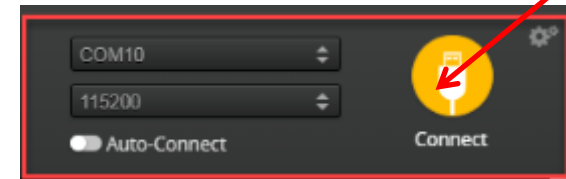
Omnibus F4 V6



Flight Control Board – Apply Configuration

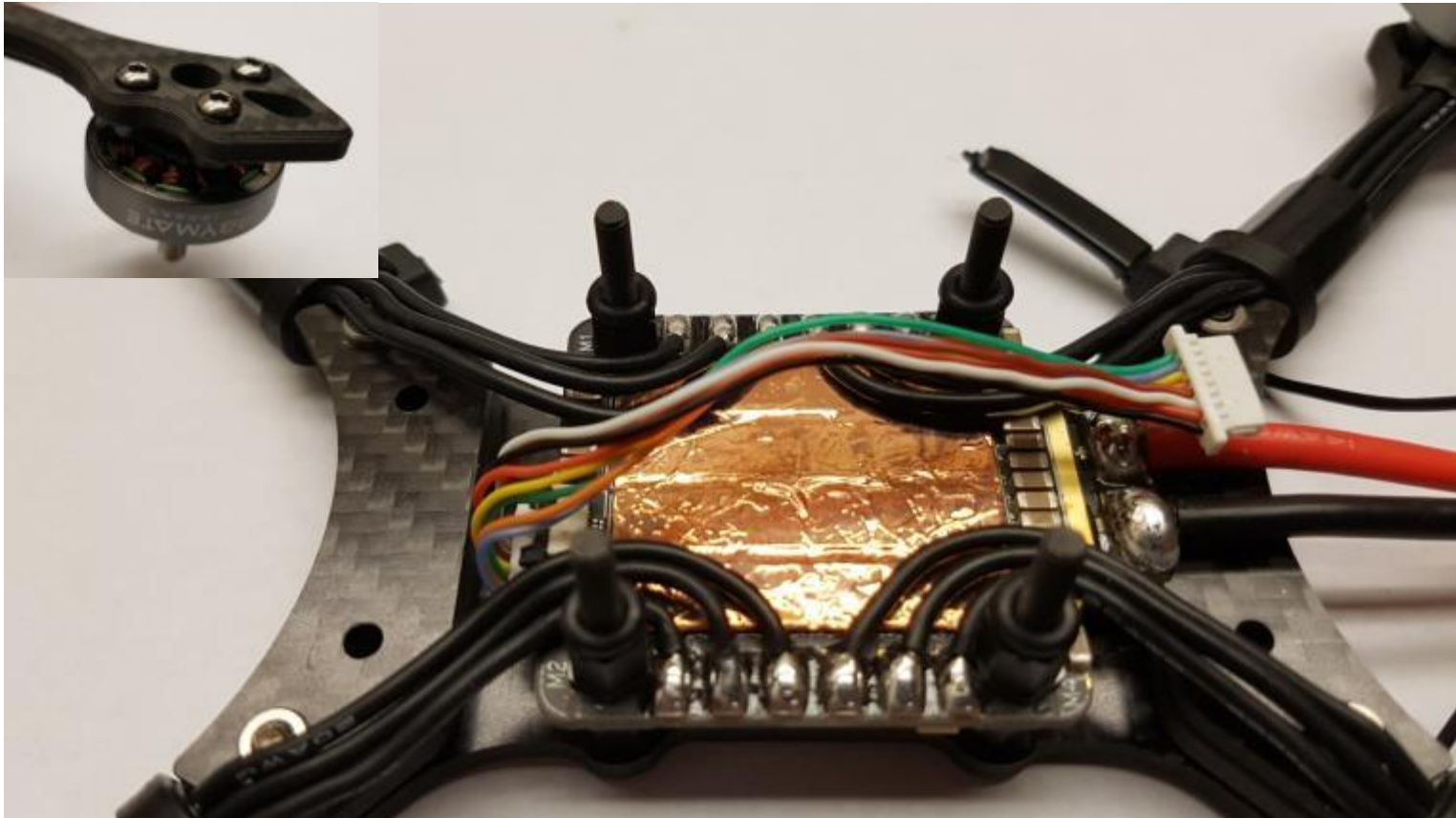
- Plug in USB to computer
- Open Betaflight, connect to Comm Port
- If problems, install drivers listed on 1st page
- Click CLI on left side
- Note: there are 4 Configuration file options:
 - XM+ or R-XSR receiver, each with either “back” ESC battery terminal orientation or “left side”.
- Open Configuration text file using text editor, copy all text
- Right click into Betaflight CLI “write your command here” box
- Paste text file contents (you will only see last line of what you pasted), press Enter
- See configuration being applied as it scrolls by above
- When finished, type SAVE, press ENTER
- Flight controller will reboot, configuration is finished
- Note: Configuration files for “back” ESC battery orientation use motor resource remapping. 2nd option for “back” is to use “left side” file and modify 8 pin cable as shown in appendix.
- Note: If configuration file is not used, you must go to CLI and type: set gyro_to_use = second, press Enter, type SAVE, press Enter. This enables gyro and accelerometer. See Appendix for manual configuration settings.
- Note: May be necessary to update receiver firmware to at least:

XM+: [XM+xxx170313-RSSI8.frk](#) (xxx indicates either R-XSR: [R-XSRxxx171009.frk](#) FCC or LBT version)
[Firmware Flashing Tutorial](#)

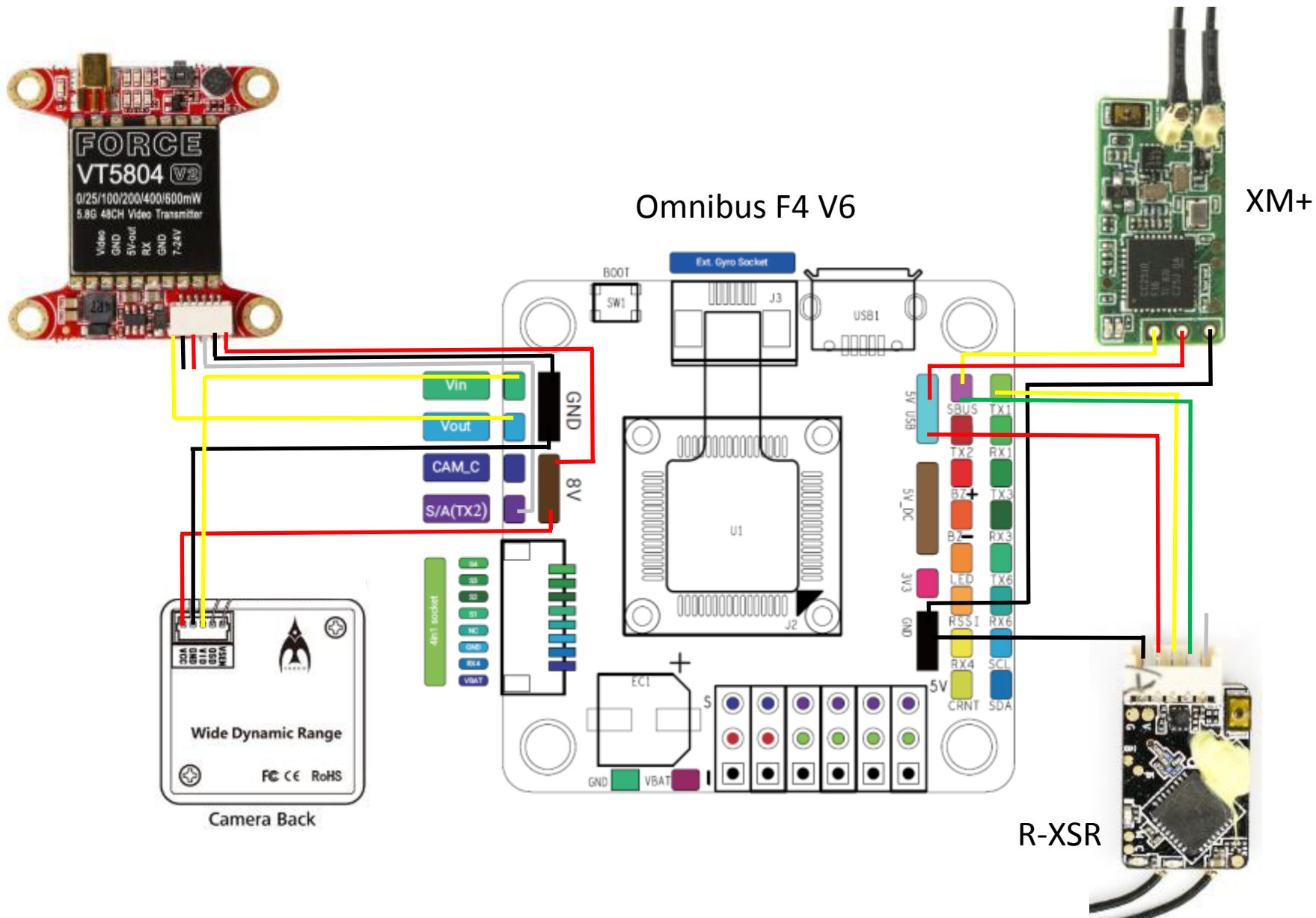


Install Motors and ESC Board

- Comet Spacing: Hex nut, ESC board, fiberglass spacer that comes in ESC package, 6mm spacer, O-ring
- Meteor Spacing: 8mm bottom spacer, ESC board, fiberglass spacer that comes in ESC package, 6mm spacer, O-ring
- Install 4in1 ESC with battery terminals exiting rear of drone, apply foil
- Solder battery lead
- Install motors with supplied screws
- Solder motor wires
- Install modified 8 pin cable

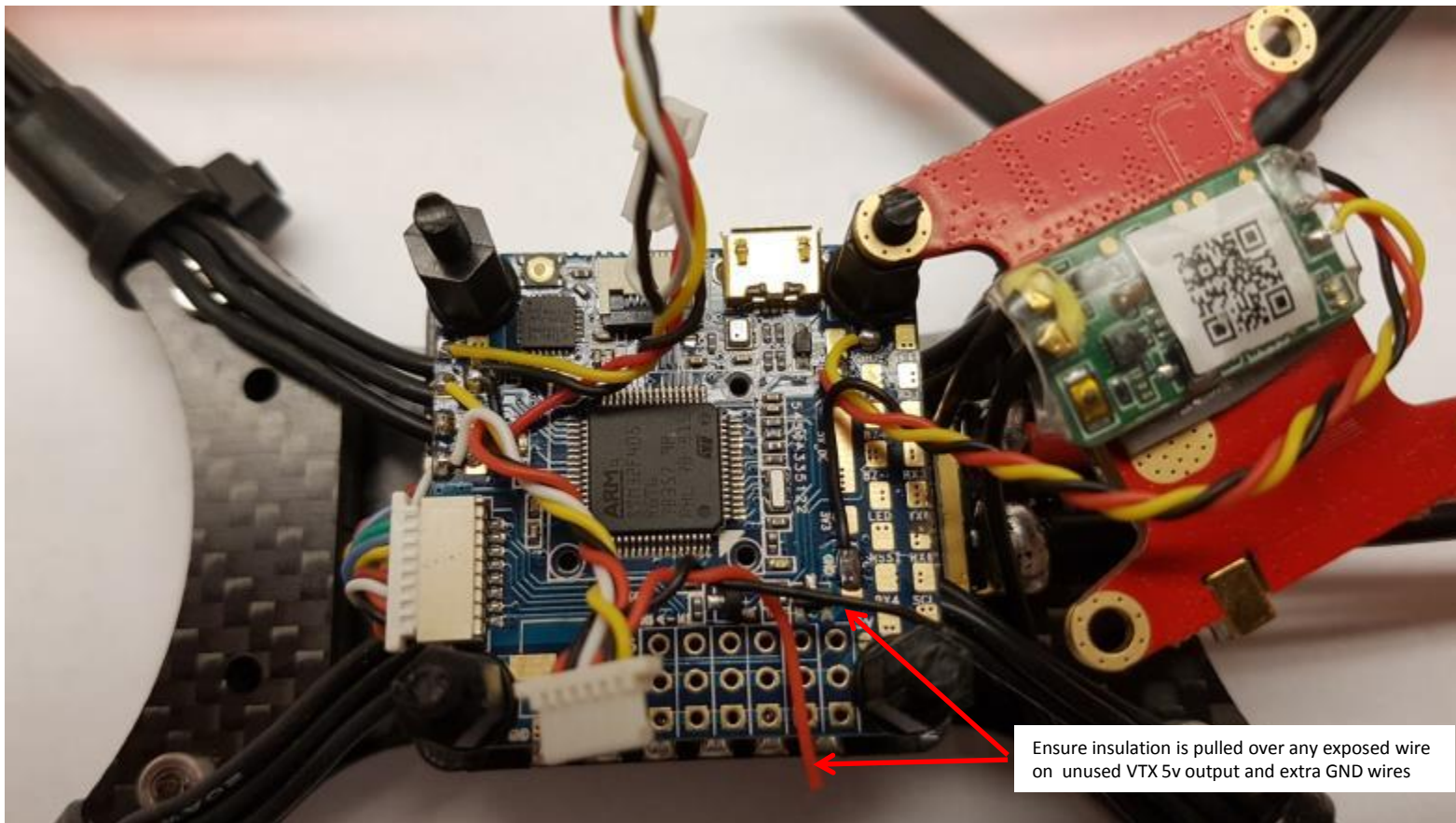


Flight Control Board – Wiring Diagram



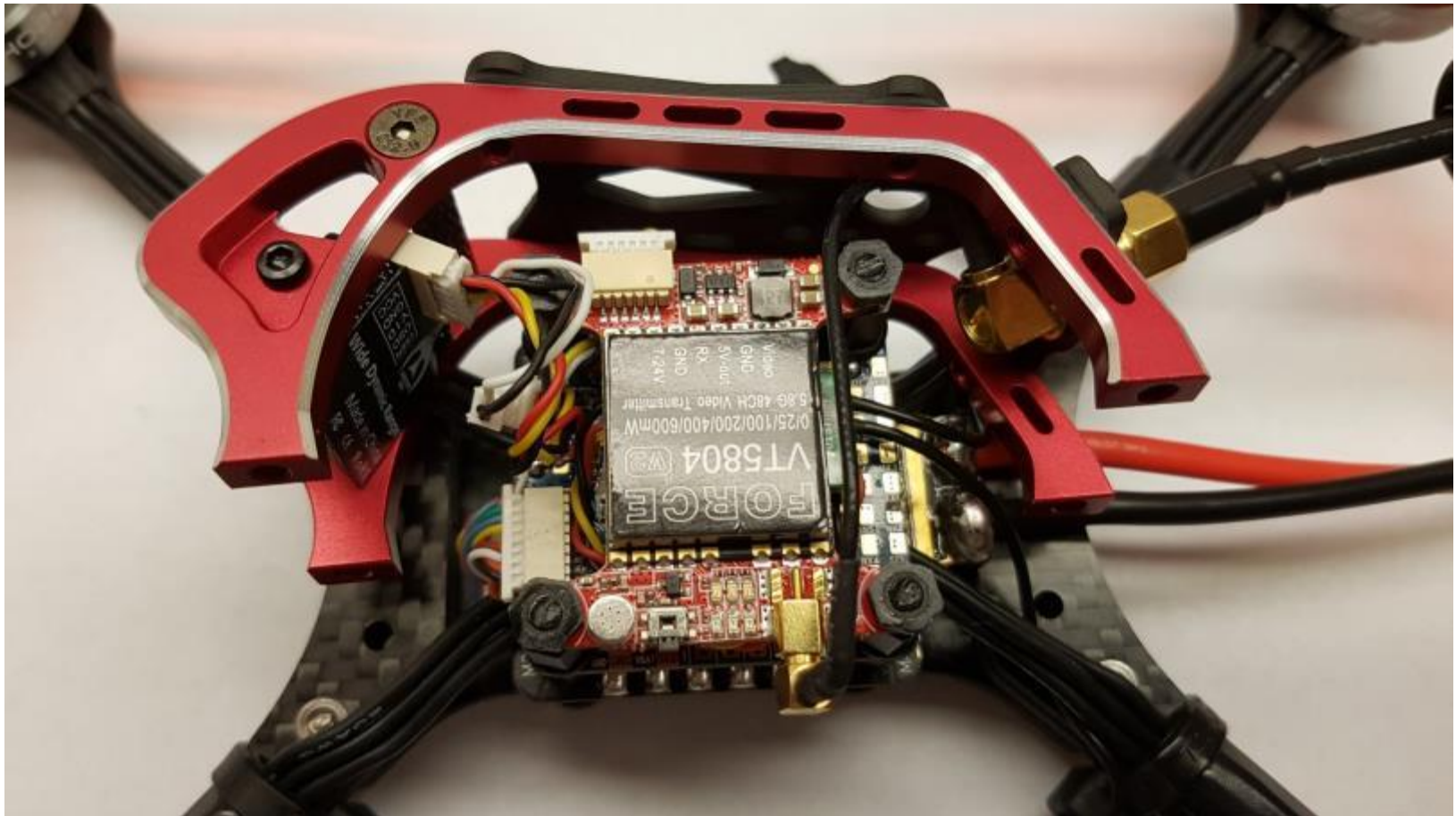
Install Flight Controller with connections

- Comet Spacing: FC, O-ring, 6mm spacer with threaded end
- Meteor Spacing: FC, O-ring, 8mm spacer with threaded end
- Solder receiver, VTX, Camera per wiring diagram
- Connect 8 pin cable to FC
- Foam tape receiver to bottom of VTX



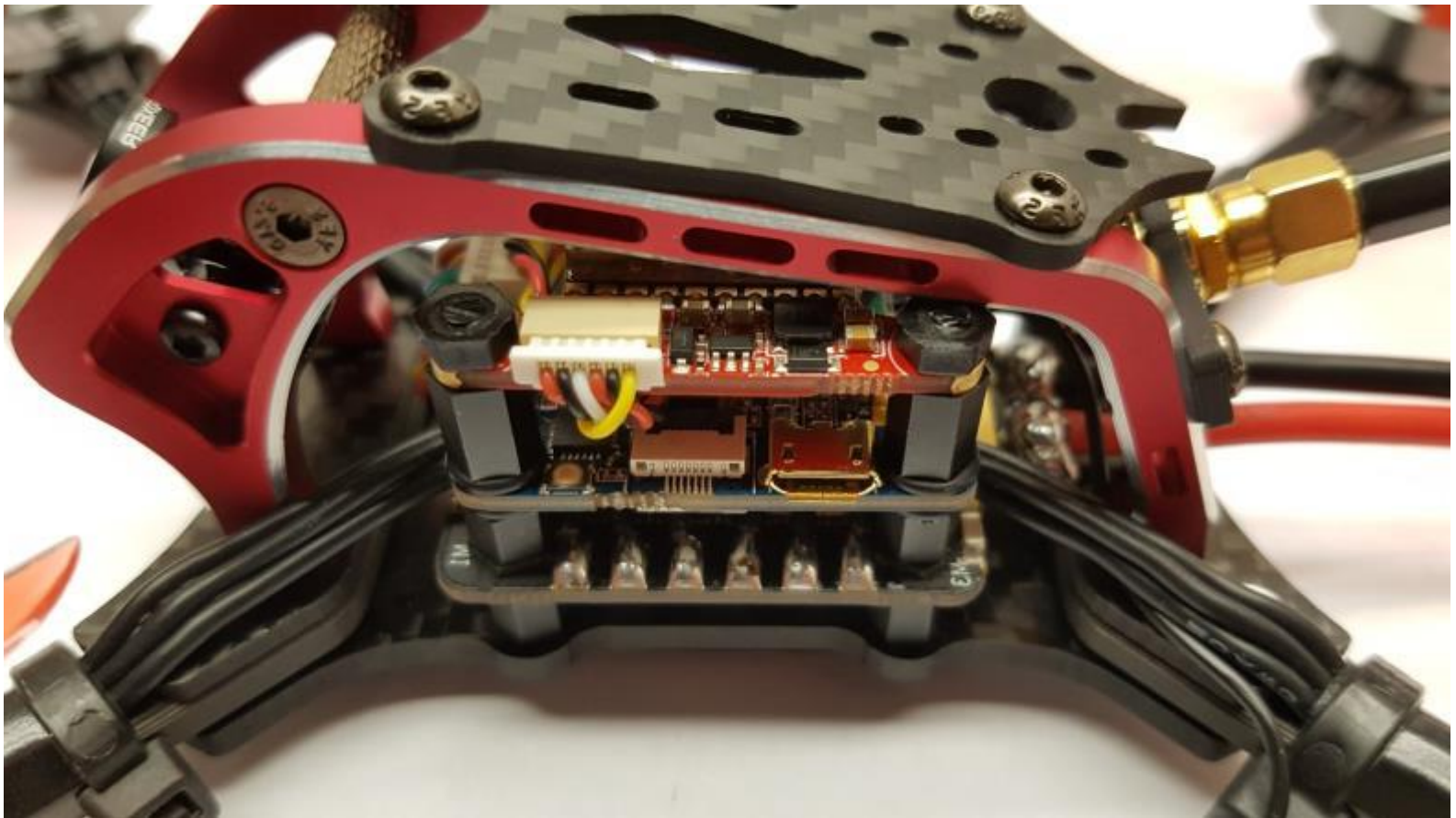
Install VTX, Camera, Antenna

- Install VTX using hex nuts
- Install Camera using supplied screws
- Install MMCX cable and antenna
- Connect VTX, camera and MMCX cable to VTX
- Attach top frame with supplied screws



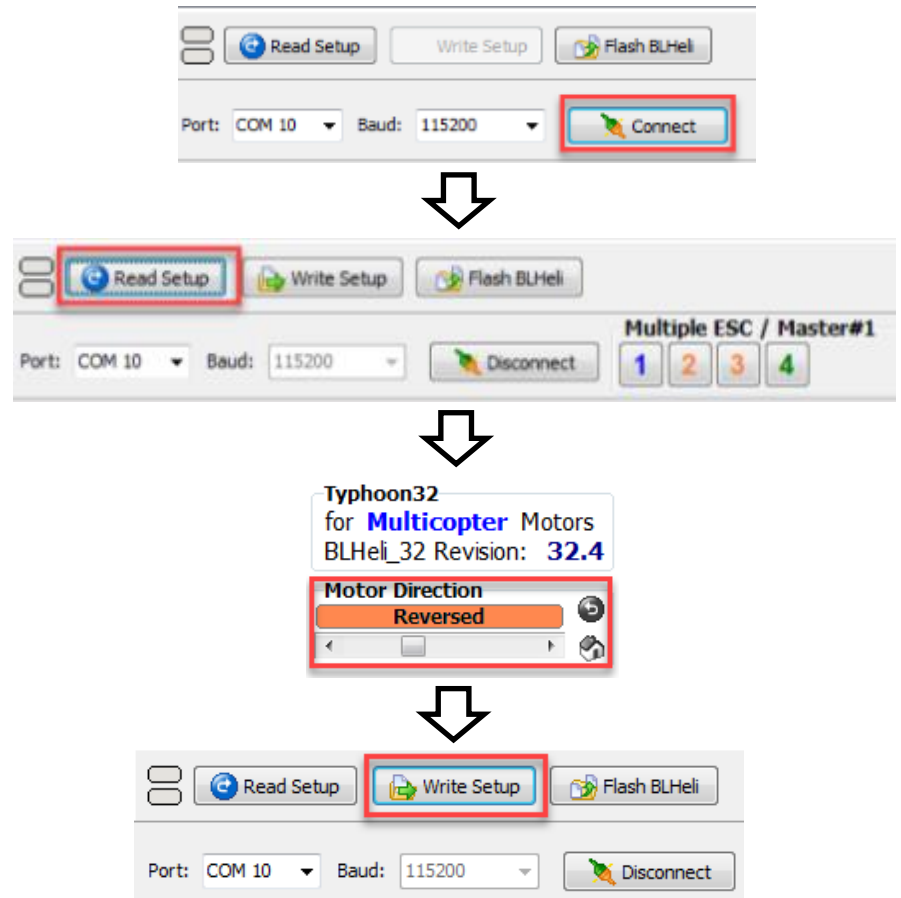
Final Steps

- Bind receiver to transmitter
- Connect to Betaflight and verify settings, receiver is responding and flight modes are as desired
- Without props but with battery connected, verify motor rotation is correct using Motors Tab
- If any motor rotation is wrong direction correct using BLHeliSuite32



BLHeliSuite32

- With no props, but with battery connected, connect FC to [BLHeli 32 Suite](#)
- Click Read Setup
- Select ESC that needs to be reversed
- Click Write Setup to save change to motor rotation direction
- Repeat on other motors ESCs as needed
- Confirm motor rotation directions correct either on BLHeliSuite32 Motors tab or Betaflight Motors tab



Appendix – Betaflight Manual Configuration

Setup tab

The screenshot displays the Betaflight Configurator's Setup tab. At the top, a navigation bar contains several icons: a battery icon labeled 'SBUS', a gyro icon, an accelerometer icon, a barometer icon, and an RSSI icon. These icons are enclosed in a red rectangular box. Below the navigation bar, the main content area is titled 'Setup' and features several yellow buttons: 'Calibrate Accelerometer', 'Reset Settings', 'Backup', and 'Restore'. A 3D model of a drone is centered on the page, also enclosed in a red rectangular box. To the right of the drone model, there is a 'Reset Z axis, offset: 0 deg' button. The right sidebar contains an 'Info' section with fields for 'Arming Disable Flag', 'Battery voltage', 'Capacity drawn', 'Current draw', and 'RSSI'. The bottom status bar shows 'Port utilization: D: 20% U: 3%' and 'Firmware: Betaflight 3.5.1 (Target: OBFW) Configurator: 10.4.1'.

Base Configuration (includes XM+ receiver)

- With drone on level surface, press Calibrate Accelerometer
- When properly configured per following pages , please notice:
- Battery voltage, Gyro, Accel, Baro, RSSI enabled
- Notice when moving drone, tilts with correct angles

Appendix – Betaflight Manual Configuration

Ports tab

BETAFLIGHT
Configurator 10.4.1
Firmware: BFL 3.5.1 (Target: OBFW)

2018-10-06 @ 15:40:25 -- Running firmware released on: Sep 8 2018 05:39:57
2018-10-06 @ 15:40:25 -- Board: OBFW, version: 0
2018-10-06 @ 15:40:25 -- Unique device ID: 0x2200334648509a20303096
2018-10-06 @ 15:40:25 -- Craft name: HobbyMate
2018-10-06 @ 15:40:25 -- Arming Disabled

Ports

Note: not all combinations are valid. When the flight controller firmware detects this the serial port configuration will be reset.
Note: Do NOT disable MSP on the first serial port unless you know what you are doing. You may have to reflash and erase your configuration if you do.

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART2	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	IRC Tramp AUTO
UART3	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART4	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	ESC AUTO	Disabled AUTO
UART5	<input type="checkbox"/> 115200	<input checked="" type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
SOFTSERIAL1	<input type="checkbox"/> 115200	<input type="checkbox"/>	SmartPort AUTO	Disabled AUTO	Disabled AUTO

Save and Reboot

Port utilization: D: 24% U: 1% Packet error: 0 I2C error: 0 Cycle Time: 129 CPU Load: 12%

Firmware: BFL 3.5.1 (Target: OBFW), Configurator: 10.4.1

Base Configuration (includes XM+ receiver)

Additional for R-XSR receiver

To configure SoftSerial1 execute the following CLI commands (needed for R-XSR telemetry):

-Type: RESOURCE SERIAL_TX 1 NONE press ENTER

-Type: RESOURCE SERIAL_TX 11 A09 press ENTER

-Type: SAVE press ENTER

Appendix – Betaflight Manual Configuration

Configuration tab – Part 1

The screenshot shows the Betaflight Configuration interface. The top bar includes the Betaflight logo, version 10.4.1, and various status icons. The left sidebar lists navigation options: Setup, Ports, Configuration (highlighted), Power & Battery, Failsafe, PID Tuning, Receiver, Modes, Adjustments, Servos, Motors, OSD, Sensors, Tethered Logging, Blackbox, and CLI. The main content area is titled 'Configuration' and contains several sections:

- Mixer:** A diagram of a quadcopter with motors numbered 1-4. A dropdown menu is set to 'Quad X'. Below it is a checkbox for 'Motor direction is reversed'.
- ESC/Motor Features:** A dropdown menu is set to 'DSHOT1200'. A checkbox for 'MOTOR_STOP' is checked. Below it is a slider for 'Motor Idle Throttle Value (percent)' set to 4.5.
- System configuration:** A note about CPU and cyclotime stability. Below it are checkboxes for 'Enable gyro 32kHz sampling mode', 'Gyro update frequency' (set to 8 kHz), 'PID loop frequency' (set to 8 kHz), 'Accelerometer', 'Barometer (if supported)', and 'Magnetometer (if supported)'. These last three items are highlighted with a red box.
- Board and Sensor Alignment:** A dropdown menu is set to 'Roll Degrees'. Below it are dropdowns for 'Pitch Degrees' and 'Yaw Degrees'. To the right are dropdowns for 'GYRO Alignment', 'ACCEL Alignment', and 'MAG Alignment', all set to 'Default'.
- Accelerometer Trim:** Two sliders for 'Accelerometer Roll Trim' and 'Accelerometer Pitch Trim', both set to 0.
- Arming:** A dropdown menu is set to 'Stabilize on ARM Anolis Stompaart'.

The bottom status bar shows: Port Utilization: 0, 24% U: 1%, Packet error: 0, I2C error: 0, Cycle Time: 125, CPU Load: 12%. The bottom right corner has a 'Save and Reboot' button and the text 'Firmware: BTFL 3.5.1 (Target: OSFW), Configurator: 10.4.1'.

Base Configuration (includes XM+ receiver)

Appendix – Betaflight Manual Configuration

Configuration tab – Part 2

The screenshot displays the Betaflight Configuration interface. The left sidebar shows the 'Configuration' tab selected. The main content area is divided into several sections:

- Receiver:** A dropdown menu is set to 'Serial-based receiver (SPEKSAT, E)'. Below it, a note states: 'Remember to configure a Serial Port (via Ports tab) and choose a Serial Receiver Provider when using RX_SERIAL feature.' The 'Serial Receiver Provider' dropdown is set to 'SBUS'.
- Other Features:** A list of features with toggle switches. A red box highlights the 'OSD', 'ESC_SENSOR', 'ANTI_GRAVITY', and 'DYNAMIC_FILTER' options. A green box highlights the 'SOFTSERIAL' option.
- RSSI (Signal Strength):** A toggle switch for 'RSSI_ADC Analog RSSI input' is shown.
- 3D ESC/Motor Features:** A toggle switch for '3D 3D mode (for use with reversible ESCs)' is shown.
- GPS:** A toggle switch for 'GPS GPS for navigation and telemetry' is shown.

At the bottom right, there is a 'Save and Reboot' button. The bottom status bar shows system metrics: Port Utilization: 0, 26% U: 1%, Packet error: 0, I2C error: 0, Cycle Time: 130, CPU Load: 12%, and Firmware: BTFL 3.5.1 (Target: OBFW), Configurator: 10.4.1.

Base Configuration (includes XM+ receiver)

Additional for R-XSR receiver

Appendix – Betaflight Manual Configuration

Configuration tab – Part 3

The screenshot displays the Betaflight Configuration interface. The top bar includes the Betaflight logo, version information (Configuration: 10.4.1, Firmware: BTFL 3.5.1 Target: OBFW), and various system status icons like battery, gyro, accel, imu, baro, imu, and imu. The left sidebar shows navigation options: Setup, Ports, Configuration (highlighted), Power & Battery, Failsafe, PID Tuning, Receiver, Modes, Adjustments, Servos, Motors, OSD, Sensors, Tethered Logging, Blackbox, and CU. The main content area is divided into two sections: 'Dshot Beacon Configuration' and 'Beeper Configuration'. In the 'Dshot Beacon Configuration' section, the 'Beacon Tone' dropdown is set to '1'. Two items, 'RX_LOST' and 'RX_SET', are listed with their respective descriptions and are highlighted with a red box. The 'Beeper Configuration' section lists various beeper events with their descriptions and status (all are currently disabled).

Dshot Beacon Configuration

Beacon Tone	Description
<input checked="" type="checkbox"/> RX_LOST	Beeps when TX is turned off or signal lost (repeat until TX is okay)
<input checked="" type="checkbox"/> RX_SET	Beeps when aux channel is set for beep

Beeper Configuration

<input type="checkbox"/> GYRO_CALIBRATED	Beeps when gyro has been calibrated
<input type="checkbox"/> RX_LOST	Beeps when TX is turned off or signal lost (repeat until TX is okay)
<input type="checkbox"/> RX_LOST_LANDING	Beeps SOS when armed and TX is turned off or signal lost (outstanding/autodisarm)
<input type="checkbox"/> DISARMING	Beep when disarming the flightcontroller
<input type="checkbox"/> ARMING	Beep when arming the flightcontroller
<input type="checkbox"/> ARMING_GPS_FIX	Beep a special tone when arming the board and GPS has fix
<input type="checkbox"/> BAT_CRIT_LOW	Longer warning beeps when battery is critically low (repeats)
<input type="checkbox"/> BAT_LOW	Warning beeps when battery is getting low (repeats)
<input type="checkbox"/> GPS_STATUS	Use the number of beeps to indicate how many GPS satellites were found
<input type="checkbox"/> RX_SET	Beeps when aux channel is set for beep
<input type="checkbox"/> ACC_CALIBRATION	Accelerometer in-flight calibration completed confirmation
<input type="checkbox"/> ACC_CALIBRATION_FAIL	Accelerometer in-flight calibration failed
<input type="checkbox"/> READY_BEEP	Ring a tone when GPS is locked and ready
<input type="checkbox"/> DISARM_REPEAT	Beeps sounded while stick held in disarm position
<input type="checkbox"/> ARMED	Warning beeps when board is armed with motors off when idle (repeats until board is disarmed or throttle is increased)
<input type="checkbox"/> SYSTEM_INIT	Initialisation beeps when board is powered on
<input type="checkbox"/> USB	Beep when flight controller is powered from USB. Turn this off if you don't want the beeper to be on when on the workbench

Save and Reboot

Port Utilization: 0.26% U: 1% Packet error: 0 I2C error: 0 Cycle Time: 128 CPU Load: 13% Firmware: BTFL 3.5.1 (Target: OBFW), Configurator: 10.4.1

Base Configuration (includes XM+ receiver)

Appendix – Betaflight Manual Configuration

Power & Battery tab

BETAFLIGHT
Configurator: 10.4.1
Firmware: BFL_3.5.1 (Target: OBFW)

2018-09-29 @ 22:26:22 -- Running firmware released on: Sep 8 2018 05:39:57
2018-09-29 @ 22:26:22 -- Board: OBFW, version: 0
2018-09-29 @ 22:26:22 -- Unique device ID: 0c2ae0204648500c20303056
2018-09-29 @ 22:26:22 -- Craft name: Meteor 220
2018-09-29 @ 22:26:22 -- Arming Disabled

Setup
Ports
Configuration
Power & Battery
Failsafe
PID Tuning
Receiver
Modes
Adjustments
Servos
Motors
OSD
Sensors
Tethered Logging
Blackbox
CLI

Power & Battery

Battery

Onboard ADC Voltage Meter Source
ESC Sensor Current Meter Source
3.3 Minimum Cell Voltage
4.3 Maximum Cell Voltage
3.5 Warning Cell Voltage
0 Capacity (mAh)

Voltage Meter

Battery 0 V
113 Scale
10 Divider Value
1 Multiplier Value

Amperage Meter

ESC Combined	0.00 A
ESC Motor 1	0.00 A
ESC Motor 2	0.00 A
ESC Motor 3	0.00 A
ESC Motor 4	0.00 A

Power State

Connected	No
Voltage	0 V
mAh used	0 mAh
Amperage	0 A

Save

Port utilization: D: 27% U: 2% Packet error: 0 I2C error: 0 Cycle Time: 129 CPU Load: 10%

Firmware: BFL_3.5.1 (Target: OBFW), Configurator: 10.4.1

Base Configuration (includes XM+ receiver)

Note: no changes on Failsafe or PID Tuning Tabs

Appendix – Betaflight Manual Configuration

Failsafe tab

BETAFLIGHT
Configuration: 10.4.1
Firmware: BTFL 3.5.1 (Target: OBPW)

2018-10-07 @ 06:09:27 -- Running firmware released on: Sep 8 2018 05:39:37
2018-10-07 @ 06:09:27 -- Board: OBPW, version: 0
2018-10-07 @ 06:09:27 -- Unique device ID: 0a2200334648500a20303056
2018-10-07 @ 06:09:27 -- Craft name: Hobbywing
2018-10-07 @ 06:09:27 -- Arming Disabled

Setup
Ports
Configuration
Power & Battery
Failsafe
PID Tuning
Receiver
Modes
Adjustments
Servos
Motors
OSD
Sensors
Tethered Logging
Blackbox
CLI

Failsafe

Failsafe has two stages. Stage 1 is entered when a flight channel has an invalid pulse length, the receiver reports failsafe mode or there is no signal from the receiver at all, the channel fallback settings are applied to **all channels** and a short amount of time is provided to allow for recovery. Stage 2 is entered when the error condition takes longer than the configured guard time while the craft is **armed**, all channels will remain at the applied channel fallback setting unless overruled by the chosen procedure.
Note: Prior to entering stage 1, channel fallback settings are also applied to individual AUX channels that have invalid pulses.

Valid Pulse Range Settings

885 Minimum length
2115 Maximum length

Channel Fallback Settings

Roll [A]	Auto
Pitch [E]	Auto
Yaw [R]	Auto
Throttle [T]	Auto
AUX 1	ARM
AUX 2	ANGLE HORIZON AIR MODE
AUX 3	RESPER FLIP OVER AFTER CRASH
AUX 4	Hold
AUX 5	Hold
AUX 6	Hold
AUX 7	Hold
AUX 8	Hold
AUX 9	Hold
AUX 10	Hold

Failsafe Switch

Stage 1 Failsafe Switch Action

Stage 2 - Settings

4 Guard time for stage 2 activation after signal lost [1 = 0.1 sec]
100 Failsafe Throttle Low Delay [1 = 0.1 sec]

Stage 2 - Failsafe Procedure

Drop
 Land

1000 Throttle value used while landing
10 Delay for turning off the Motors during Failsafe [1 = 0.1 sec]

Save and Reboot

Port utilization: D: 26% U: 1% Packet error: 0 i2c error: 0 Cycle Time: 128 CPU Load: 13%

Firmware: BTFL 3.5.1 (Target: OBPW), Configuration: 10.4.1

Note: Stock settings (no changes needed)

Appendix – Betaflight Manual Configuration

PID Tuning tab

The screenshot displays the Betaflight configuration interface, specifically the PID Tuning tab. The top bar shows the Betaflight logo, version 10.4.1, and the target board: BFL 3.5.1 (Target: OBFW). The interface is divided into several sections:

- Profile and Rateprofile:** Both set to Profile 1 and Rateprofile 1. Buttons for "Copy profile values", "Copy rateprofile values", "Reset all profile values", and "Show all PIDs" are visible.
- PID Settings:** A table showing PID parameters for Basic/Acro mode.
- Angle/Horizon:** Settings for Angle and Horizon, including Strength and Transition.
- PID Controller Settings:** Sliders for various parameters and checkboxes for I Term Relax, Vbat PID Compensation, Smart Feedforward, and I Term Relax.
- Anti Gravity Mode:** Settings for Anti Gravity Gain and Smooth.
- Rates:** A graph showing the rate response, with a peak of 800 deg/s and a rate of 667 deg/s.
- Throttle:** Settings for Throttle MID (0.50) and Throttle EXPD (0.00), along with a Throttle curve graph.

Basic/Acro	Proportional	Integral	Derivative	Feedforward	RC Rate	Super Rate	Max Vel [deg/s]	RC Expo
ROLL	45	45	25	60	1.00	0.70	667	0.00
PITCH	50	50	27	60	1.00	0.70	667	0.00
YAW	65	45	0	60	1.00	0.70	667	0.00

Angle/Horizon	Strength	Transition
Angle	50	50
Horizon	50	75
Angle Limit	55	

Parameter	Value
Feedforward transition	0
Acro Trainer Angle Limit	20
Throttle Boost	5
Absolute Control	0

Parameter	Value
I Term Relax	0
Vbat PID Compensation	0
Smart Feedforward	0
I Term Relax	0

Parameter	Value
Anti Gravity Gain	5
Smooth	5

Port utilization: 0.42% U: 4% Packet error: 0 I2C error: 0 Cycle Time: 126 CPU Load: 12%

Firmware: BFL 3.5.1 (Target: OBFW), Configurator: 10.4.1

Note: Stock PIDs (Custom Tune coming soon)

Appendix – Betaflight Manual Configuration

Receiver tab

BETAFLIGHT
Configurator: 10.4.1
Firmware: BFL 3.5.1 (Target: OBFW)

2018-10-06 @ 16:12:15 -- Running firmware released on: Sep 8 2018 05:39:37
2018-10-06 @ 16:12:15 -- Board: OBFW, version: 0
2018-10-06 @ 16:12:15 -- Unique device ID: 0x2200334648500e20303056
2018-10-06 @ 16:12:15 -- Craft name: Hobbymate
2018-10-06 @ 16:12:15 -- Arming Disabled

Receiver

Please read receiver chapter of the documentation. Configure serial port (if required), receiver mode (serial/gps/pwm), provider (for serial receivers), bind receiver, set channel map, configure channel endpoints/range on TX so that all channels go from -1000 to -2000. Set midpoint (default 1500), trim channels to 1500, configure stick deadband, verify behaviour when TX is off or out of range.
IMPORTANT: Before flying read failsafe chapter of documentation and configure failsafe.

Channel	Value
Roll [A]	1500
Pitch [B]	1500
Yaw [R]	1500
Throttle [T]	885
AUX 1	925
AUX 2	1500
AUX 3	1500
AUX 4	1500
AUX 5	1500
AUX 6	1500
AUX 7	1500
AUX 8	1500
AUX 9	1500
AUX 10	1500
AUX 11	1500
AUX 12	1500
AUX 13	1500
AUX 14	1500

Channel Map: TAER1234 | RSSI Channel: AUX 4

Stick Low Threshold: 1010 | Stick Center: 1500 | Stick High Threshold: 2000

RC Deadband: 0 | Yaw Deadband: 0 | 3D Throttle Deadband: 50

RC Smoothing: Interpolation | Smoothing Type: RPYT | Channels Smoothed: Auto | RC Interpolation: Auto

Refresh Save

Port utilization: D: 33% U: 3% | Packet error: 0 | I2C error: 0 | Cycle Time: 129 | CPU Load: 12%

Firmware: BFL 3.5.1 (Target: OBFW), Configurator: 10.4.1

Base Configuration (includes XM+ receiver)

Appendix – Betaflight Manual Configuration

Modes tab (setup will vary based on radio settings)

The screenshot shows the Betaflight Modes configuration page. The page is titled "Modes" and includes a "Save" button in the top right corner. The page contains a list of modes with their corresponding AUX channel and range settings. The modes are ARM, ANGLE, HORIZON, BEEPER, AIR MODE, and FLIP OVER AFTER CRASH. Each mode has a range slider and an "Add Range" button. The ANGLE mode is highlighted in yellow.

Mode	AUX Channel	Min	Max
ARM	AUX 1	950	1350
ANGLE	AUX 2	950	1350
HORIZON	AUX 2	1350	1700
BEEPER	AUX 3	1350	1700
AIR MODE	AUX 2	1350	2100
FLIP OVER AFTER CRASH	AUX 3	1700	2100

Port utilization: D: 33% U: 2% Packet error: 0 I2C error: 0 Cycle Time: 129 CPU Load: 12% Firmware: BFL 3.5.1 (Target: OBFW), Configurator: 10.4.1

Note: No changes needed to default Adjustments, Servos or Motors Tabs

Appendix – Betaflight Manual Configuration

OSD tab – Part 1

BETAFLIGHT
Configuration: 10.4.1
Firmware: BFL 3.5.1 (Target)

2018-10-06 @ 16:37:36 -- Running firmware (released on: Sep 8 2018 09:39:57)
2018-10-06 @ 16:37:36 -- Board: OBPW, version: 8
2018-10-06 @ 16:37:36 -- Unique device ID: 8c22033464850ba3d303058
2018-10-06 @ 16:37:36 -- Craft name: Honeyman
2018-10-06 @ 16:37:36 -- Arming Disabled

OSD

Note: OSD preview may not show the actual font that is installed on the flight controller.

Elements: Switch all

- Roll Value
- Main Batn Voltage
- Crosshairs
- Artificial Horizon
- Horizon Sideskew
- Timer 1
- Timer 2
- Flymode
- Craft Name
- Throttle Position
- Vtx Channel
- Current Draw
- Mah Drawn
- Gps Speed
- Gps Sats
- Altitude
- Pid Roll
- Pid Pitch
- Pid Yaw
- Power
- Pid Rate Profile
- Warnings
- Avg Cell Voltage
- Gps Lon
- Gps Lat

Preview (drag to change position) Logo

Video Format:
 AUTO PAL NTSC

Units:
 IMPERIAL METRIC

Timers:

- Source: ON TIME
Precision: SECOND
Alarm: 10
- Source: TOTAL ARMED TIME
Precision: SECOND
Alarm: 10

Alarms:

- 20 Roll
- 2200 Capacity
- 100 Altitude

Warnings:

- Arming Disabled
- Battery Not Full
- Battery Warning
- Battery Critical
- Motor Disabled

Font Manager Save

Port utilization D: 25% U: 1% Packet error: 0 IQC error: 0 Cycle Time: 128 CPU Load: 12%

Firmware: BFL 3.5.1 (Target: OBPW, Configuration: 10.4.1)

Appendix – Betaflight Manual Configuration

OSD tab – Part 2

The screenshot displays the Betaflight OSD configuration interface. The left sidebar lists various OSD elements, with 'OSD' selected. The central preview window shows a first-person view of a drone in flight with the Betaflight logo and various OSD elements overlaid. The right-hand panel contains sections for Alarms, Warnings, and Post Flight Statistics. The bottom status bar provides system information.

OSD Elements List:

- Gps Speed
- Gps Sets
- Altitude
- Pid Roll
- Pid Pitch
- Pid Yaw
- Power
- Pid Rate Profile
- Warnings
- Avg Cell Voltage
- Gps Lon
- Gps Lat
- Debug
- Pitch Angle
- Roll Angle
- Main Batt Usage
- Disarmed
- Home Direction
- Home Distance
- Numerical Heading
- Numerical Vario
- Compass Bar
- Esc Temperature
- Esc Rpm
- Remaining Time Estimate
- Rtc Date Time
- Adjustment Range
- Core Temperature
- Airtt Gravity
- G Force

Alarms:

- Roll
- Capacity
- Altitude

Warnings:

- Arming Disabled
- Battery Not Full
- Battery Warning
- Battery Critical
- Visual Beeper
- Crash Flip Mode
- Osd Warning Esc Fail

Post Flight Statistics:

- Rtc Date Time
- Timer 1
- Timer 2
- Max Speed
- Max Distance
- Min Battery
- End Battery
- Battery Voltage
- Min Rssi
- Max Current
- Used Mah
- Max Altitude
- Blackbox
- Blackbox Log Number

Status Bar:

Port Utilization: 0, 25% u. 1%, Packet error: 0, I2C error: 0, Cycle Time: 127, CPU Load: 12%, Firmware: BFL 3.5.1 (Target: OBFW, Configurator: 30.4.1)

Note: No changes needed to default Sensors, Tethered Logging or Blackbox Tabs

Appendix – Motor resource remapping or 8 pin Modification for “Back” ESC Battery Terminal Orientation

(if not using configuration file)

Execute the following CLI commands:

```
resource MOTOR 1 NONE
resource MOTOR 2 NONE
resource MOTOR 3 NONE
resource MOTOR 4 NONE
resource MOTOR 1 A03
resource MOTOR 2 B00
resource MOTOR 3 B05
resource MOTOR 4 B01
```

Save

(press ENTER after each line)

OR

Modify 8 pin cable

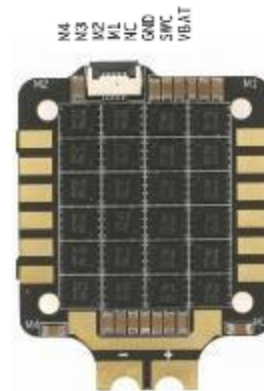
8 pin cable picture
Coming Soon



“Left side”
orientation



“Back”
orientation



Modification needed for back orientation

(4in1 ESC is designed for left side orientation but can be adapted to back orientation)

- FC S1 (color) to original M3 position
- FC S2 (color) original M1 position
- FC S3 (color) to original M4 position
- FC S4 (color) to original M2 position

- to move wire, lift small retaining tab with small pin or Exacto knife, pull wire gently
- no mod need for terminals out of left side