



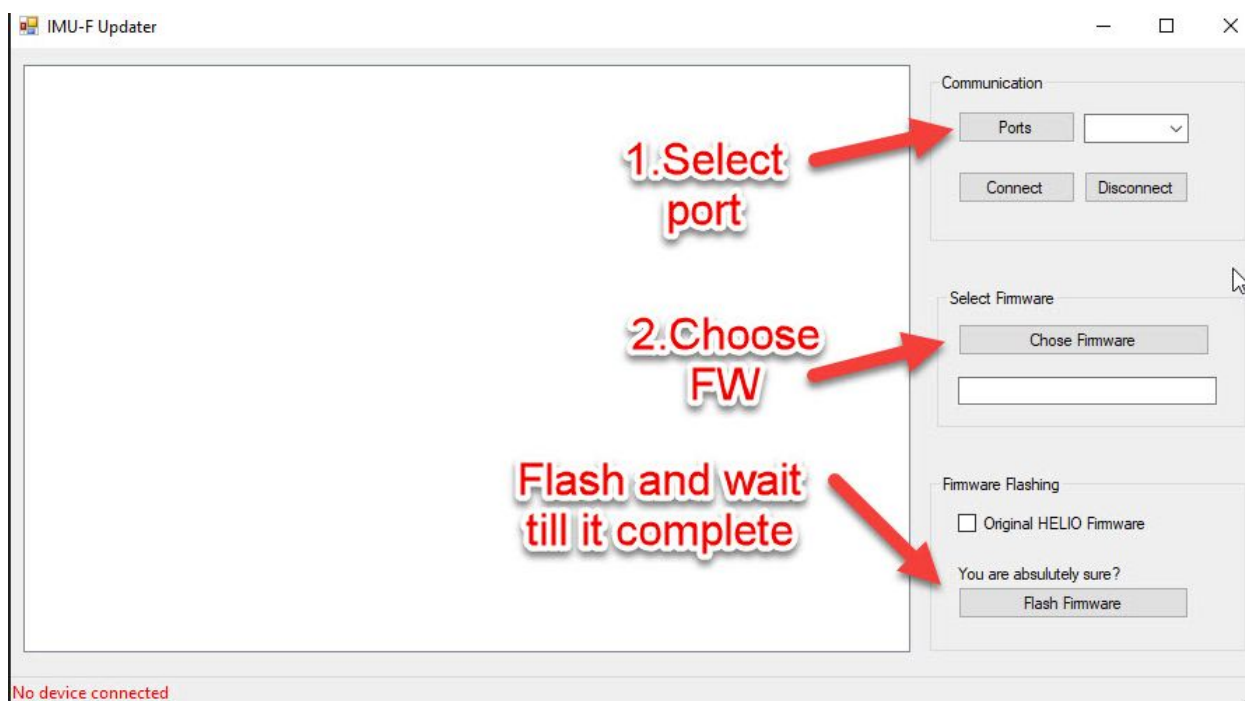
Some links:

Discord channel: <https://discordapp.com/channels/506661748347240449/>

New IMUF 2.0: tiny.cc/IMUF2

Instruction how to put new IMUF:

To install new IMUF you need to use separate flasher. By link tiny.cc/IMUF2 use flasher.



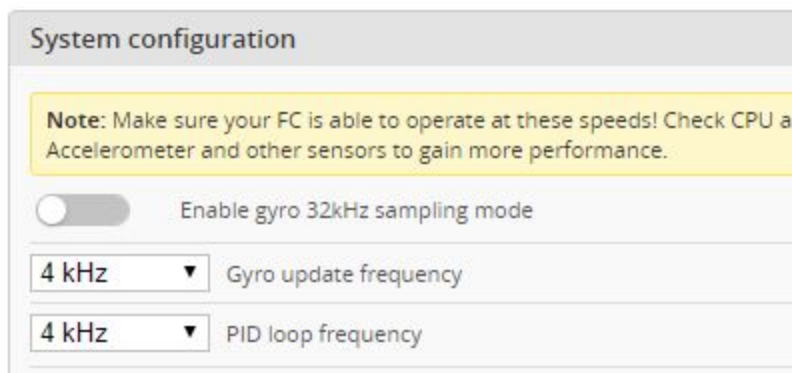
1. Select port (Usually COM3).
2. Choose firmware what you want to flash (by link also available latest builds).
3. Push flash and wait till it complete and close port.



Some notes and suggestion to start with.

1. In configurator disable 32khz sampling mode and try 4k/4k. You can also try 8k/8k, but 4k should be better - less jitter.

!!! Do not use Pegasus with new IMUF. Pegasus set by default 32khz sampling mode. !!!



2. Set in CLI

```
feature -DYNAMIC_FILTER
set dterm_lowpass_type = PT1
set dterm_lowpass_hz = 120
set dterm_lowpass2_hz = 190
set dterm_notch_hz = 0
set tpa_type = BETAFLIGHT
```

3. You can use Betaflight 3.6.4 or 3.6.6
4. If you use 32bit ESC than set **motor timing** to Auto and **PWM** to 32khz or 48khz
5. In CLI you can adjust **i_decay**. Starting from version RC6-C
By default it is 1 (suggested for freestyle).

```
set i_decay = 1
```

The **i_decay** values reduce the i-term filter state faster when the copter moves in the other direction by that **i_decay** reduces the lag caused by the i-term significantly. Default value 1 (same as was before in previous versions). Possible values 1-10.

6. Adjust "imuf_acc_lpf_cutoff_hz" if needed (starting from RC8). Default value 40Hz
For race quad suggested in range 60-80Hz



IMUF versions

- **IMUF 2.06 RC6** - (Best at moment for freestyle)
Version with IMUF acc low pass filter cutoff for accelerometer - 40hz
- **IMUF 2.06 RC6-B**
Version with IMUF acc low pass filter cutoff for accelerometer - 80hz
- **IMUF 2.06 RC6-C**
Version with IMUF acc low pass filter cutoff for accelerometer - 60hz
- **IMUF 2.08 RC8**
NEW:
1) Adjustable i_decay
2) Adjustable "imuf_acc_lpf_cutoff_hz". Default value 40Hz
Values possible to change via CLI or OSD (new 3.6.6 BuF required)



FULL diffs:

- **DIFF for freestyle quad (BuF 2.6.4 - IMUF 2.0 - RC6) .**

Specs:

Frame: AstroX X5 JohnnyFPV

Motors: Brotherhobby SpeedShield v1 2207 2700kV

FC: Helio Spring V2

ESC: Aikon AK32 35A

```
# feature
feature -DYNAMIC_FILTER
feature ESC_SENSOR

# master
set imuf_roll_q = 2800
set imuf_yaw_q = 3200
set imuf_w = 16
set imuf_pitch_lpf_cutoff_hz = 115
set imuf_roll_lpf_cutoff_hz = 115
set rssi_channel = 8
set rc_interp_int = 10
set serialrx_provider = CRSF
set blackbox_p_ratio = 64
set motor_pwm_protocol = DSHOT1200
set align_board_roll = 180
set battery_meter = ESC
set beeper_dshot_beacon_tone = 4
set yaw_motors_reversed = ON
set small_angle = 180
set osd_warn_arming_disable = ON
set osd_warn_batt_not_full = ON
set osd_warn_batt_warning = ON
set osd_warn_batt_critical = ON
set osd_warn_visual_beeper = ON
set osd_warn_crash_flip = ON
set osd_warn_esc_fail = ON
set osd_warn_core_temp = OFF
set osd_vbat_pos = 328
set osd_rssi_pos = 2521
set osd_tim_1_pos = 321
set osd_tim_2_pos = 2507
set osd_current_pos = 279
set osd_mah_drawn_pos = 2488
set osd_craft_name_pos = 353
set osd_warnings_pos = 2410
set osd_avg_cell_voltage_pos = 2465
set osd_esc_tmp_pos = 2497
set osd_esc_rpm_pos = 279
set vcd_video_system = PAL
```



```
# profile
profile 0

set dterm_lowpass_type = PT1
set dterm_lowpass_hz = 120
set dterm_lowpass2_hz = 190
set dterm_notch_hz = 0
set vbat_pid_gain = ON
set throttle_boost = 0
set p_pitch = 60
set i_pitch = 75
set d_pitch = 27
set p_roll = 55
set i_roll = 60
set d_roll = 22
set p_yaw = 75
set i_yaw = 75

# rateprofile
rateprofile 0

set roll_rc_rate = 160
set pitch_rc_rate = 160
set yaw_rc_rate = 140
set roll_expo = 50
set pitch_expo = 50
set yaw_expo = 30
set yaw_srate = 60
set tpa_rate = 20
set tpa_breakpoint = 1250
set tpa_type = BETAFLIGHT
```