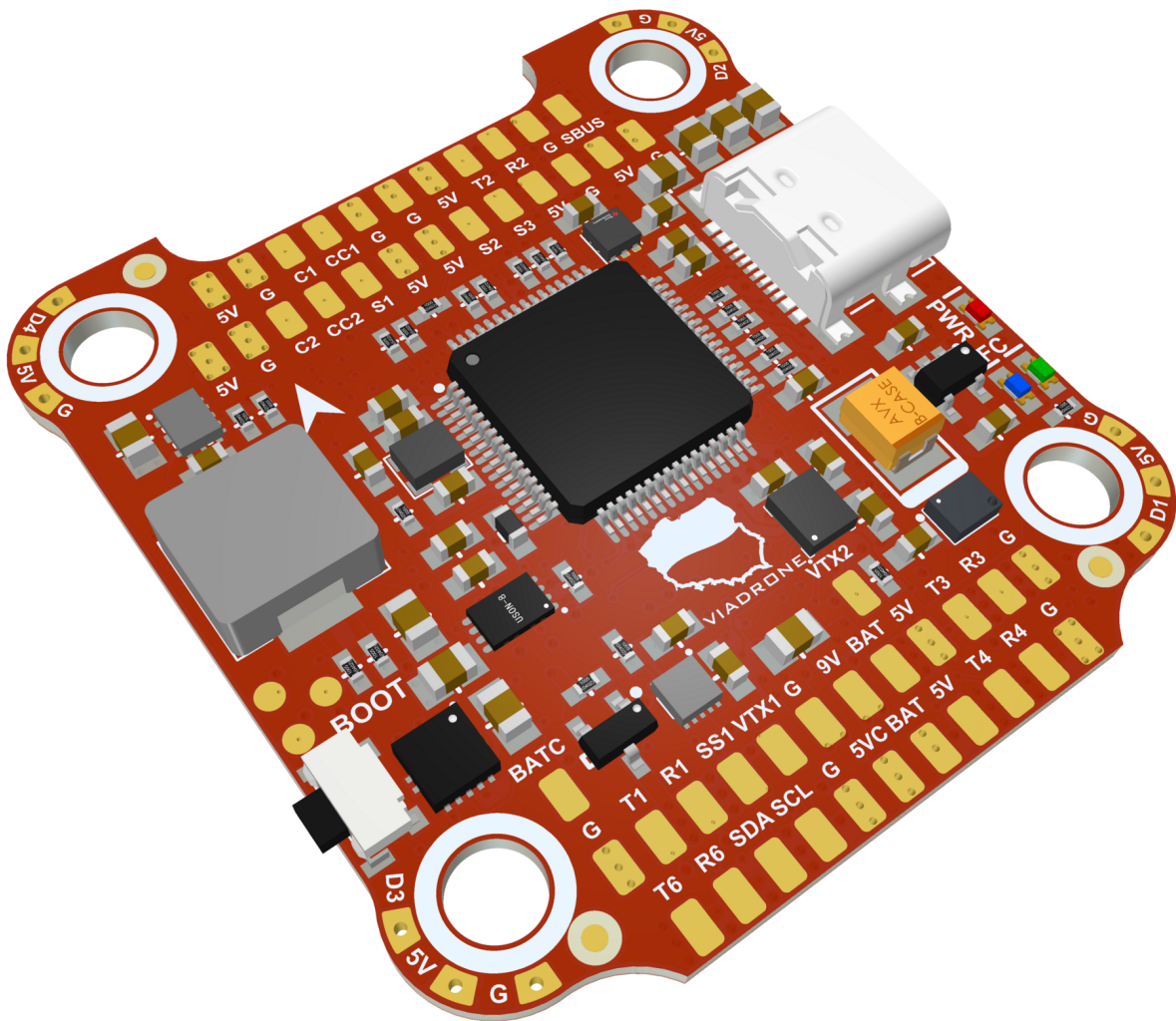


ViaDrone VIAF405V3-PL R4

Document v1.1 — July 17, 2026



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Part I

Abstract

The ViaDrone VIAF405V3-PL is a flight controller designed for FPV drones, compatible with Betaflight, INAV, and Ardupilot. From revision R4 it is available in two IMU variants: ICM-42688-P or LSM6DSV16X. It features a high-efficiency power design capable of handling up to 35V input, delivering a stable *true* 5V supply with zero voltage drop. The board integrates an analog switch for dual camera setups, along with controllable 5V/2.5A and VBAT/1.5A outputs.

Part II

Technical Specification

1 Processors & Sensors

- FMU Processor: STM32F405
32 Bit Arm® Cortex™-M4, 168MHz, 1MB flash memory, 192KB RAM
- On-board sensors
 - **IMU** ICM-42688-P *or* LSM6DSV16X (depending on variant)
 - **BARO** DPS368 / SPA06-003

2 Features

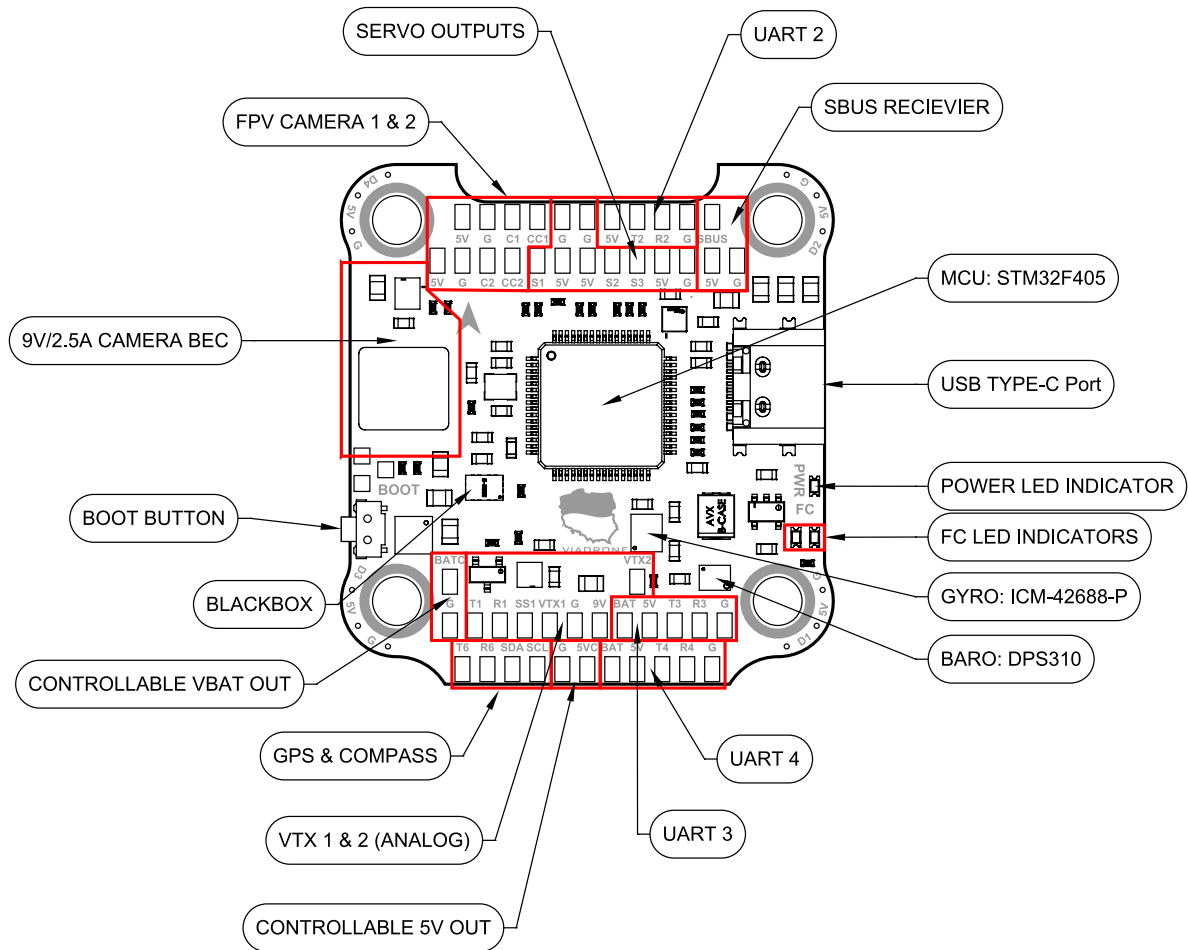
- 2x camera interface (analog input and camera control), switchable via PINIO (PC15)
- 2x analog VTX interface (analog signal is split into two outputs, configuration depending on software)
- 4 motor outputs with DMA for BDshot (M1–4)
- 3 PWM servo outputs (S5–7)
- 1x external I2C — SDA & SCL pads on front side
- 6x hardware serial ports S1 (on pads and VTX connector), S2 (with RX inverted for SBUS), S3, S4, S5 (TX only — half-duplex ESC telemetry, on pad and ESC connector), S6
- Dedicated Software Serial (PA9)
- Internal VBAT monitoring (analog)
- RSSI input (analog)
- Current Sensor Input (analog)
- Buzzer — BZ+ and BZ- pads for 5V buzzer
- LED NZR output (e.g. WS2812b)
- Controllable 5V/2.5A output (via PINIO — PC14)
- Controllable VBAT/1.5A output (via PINIO — PB2)
- OSD (AT7456E)
- 16 Mbit blackbox (w/o on request)

3 Electrical data

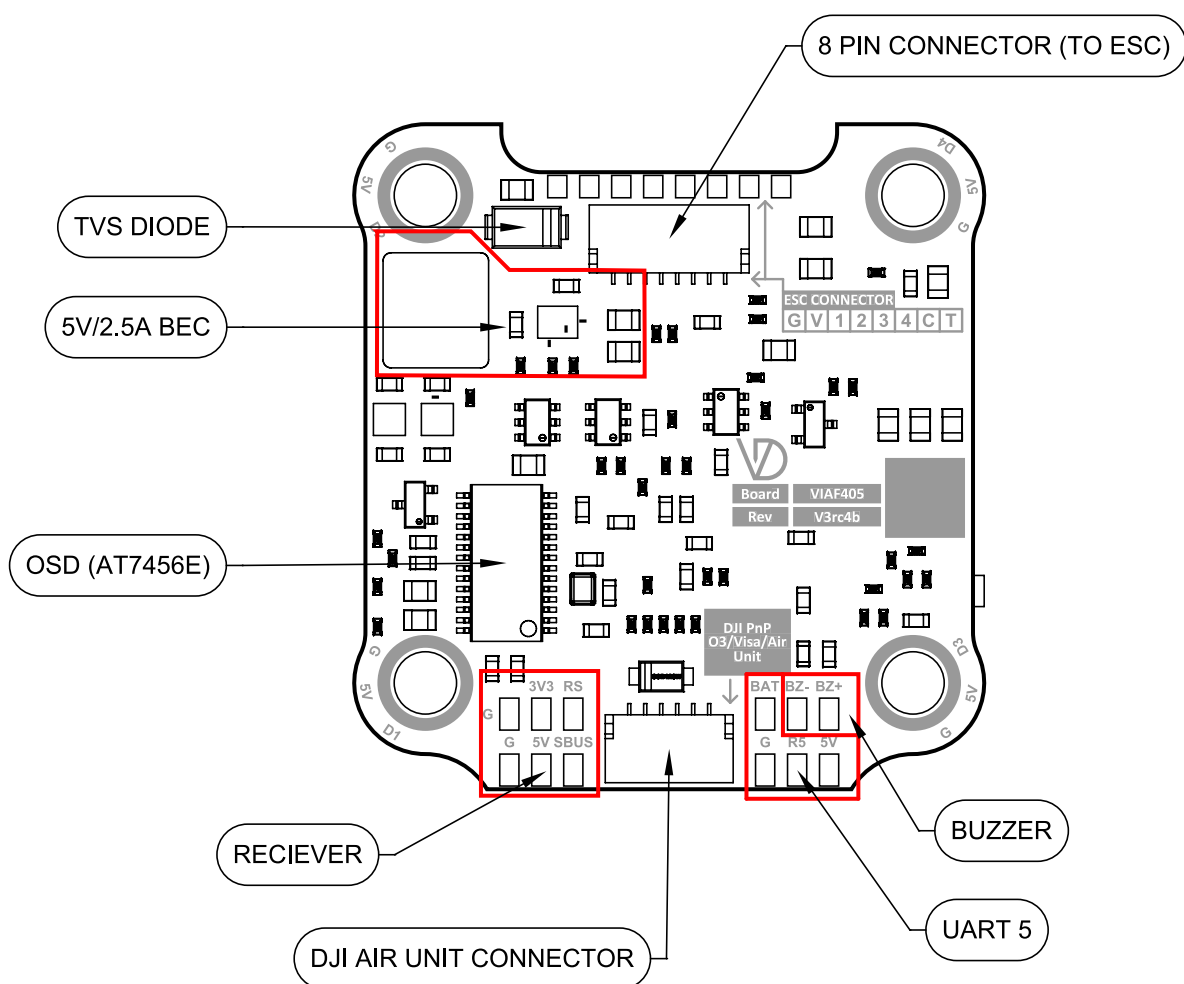
- 10–35V input with internal monitoring
- Available Power Domains:
 - 5V/2.5A (PEAK 3.5A) MCU and peripherals
 - 9V/2.5A (PEAK 3.5A) Cameras and VTXs
 - 3V3/200mA (300mA PEAK) Peripherals

4 Layout

4.1 Top layout



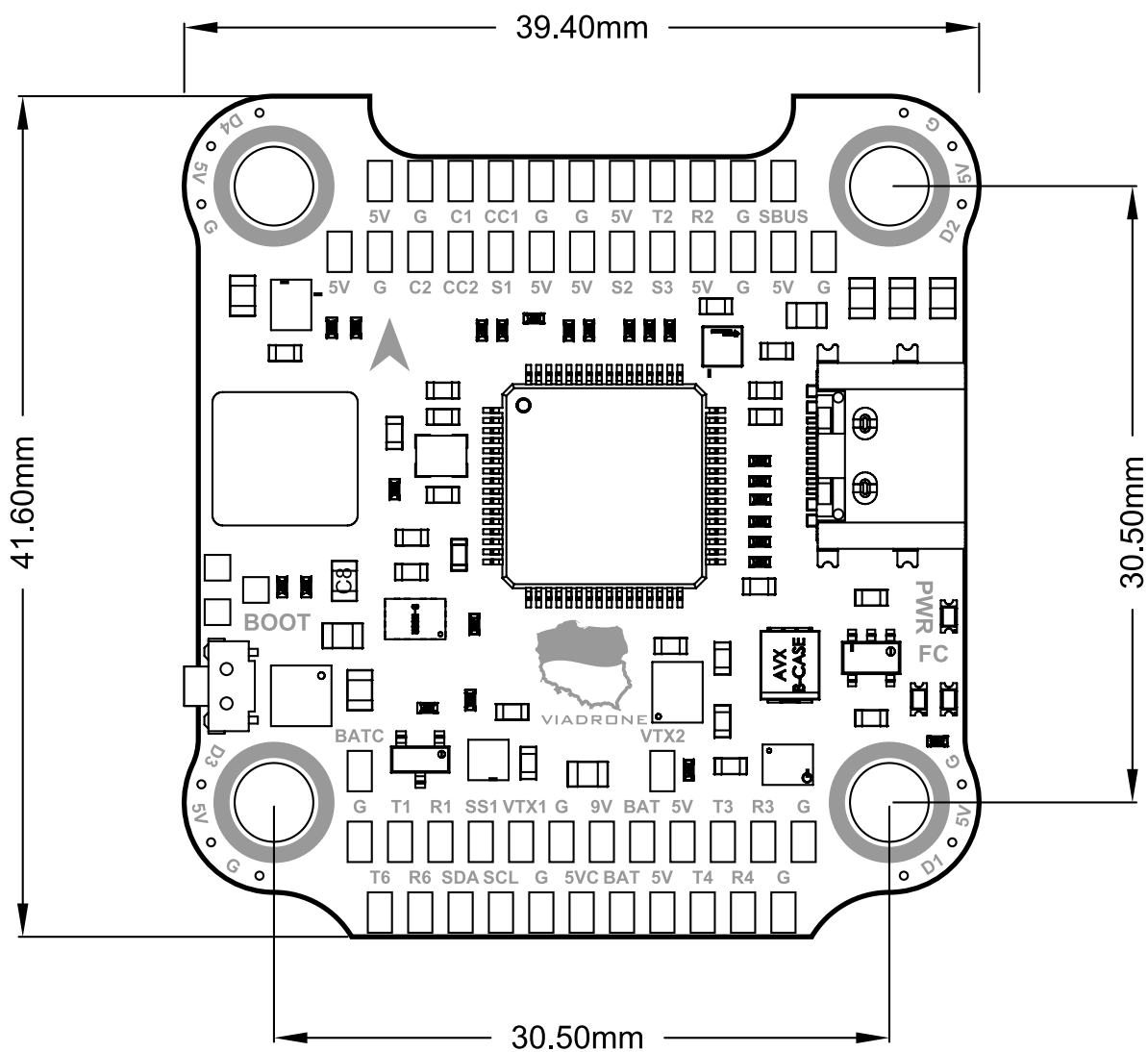
4.2 Bottom layout



5 Mechanical

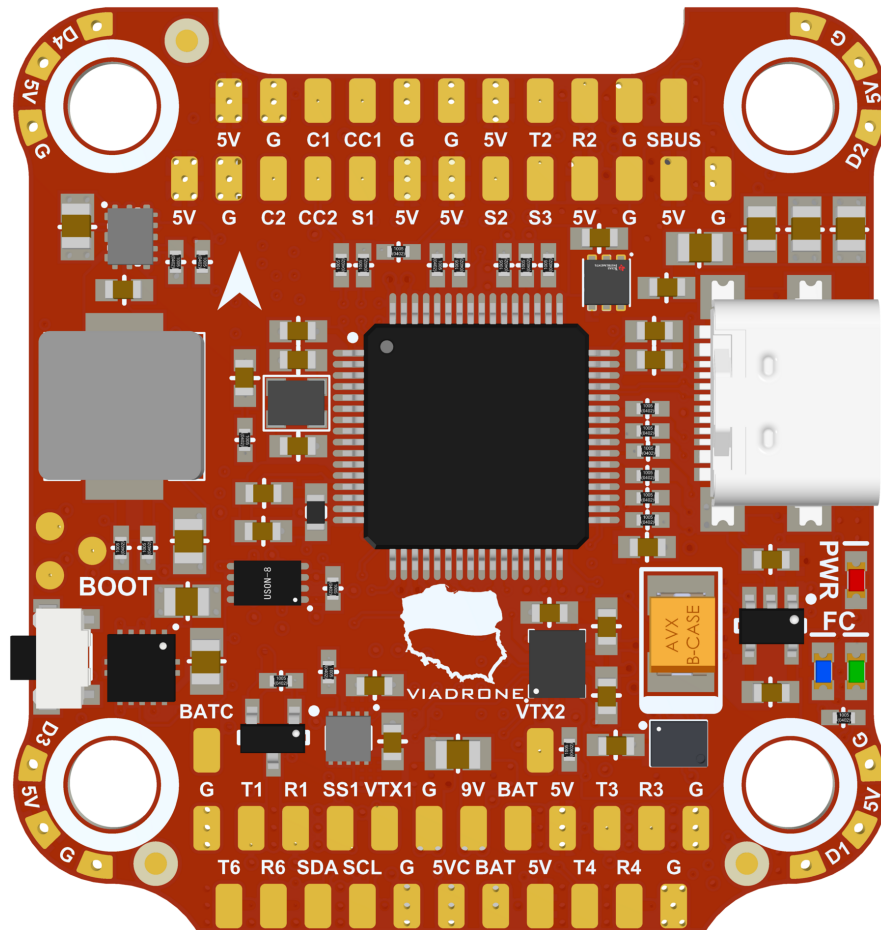
- Weight: 8.5g

5.1 Dimensions

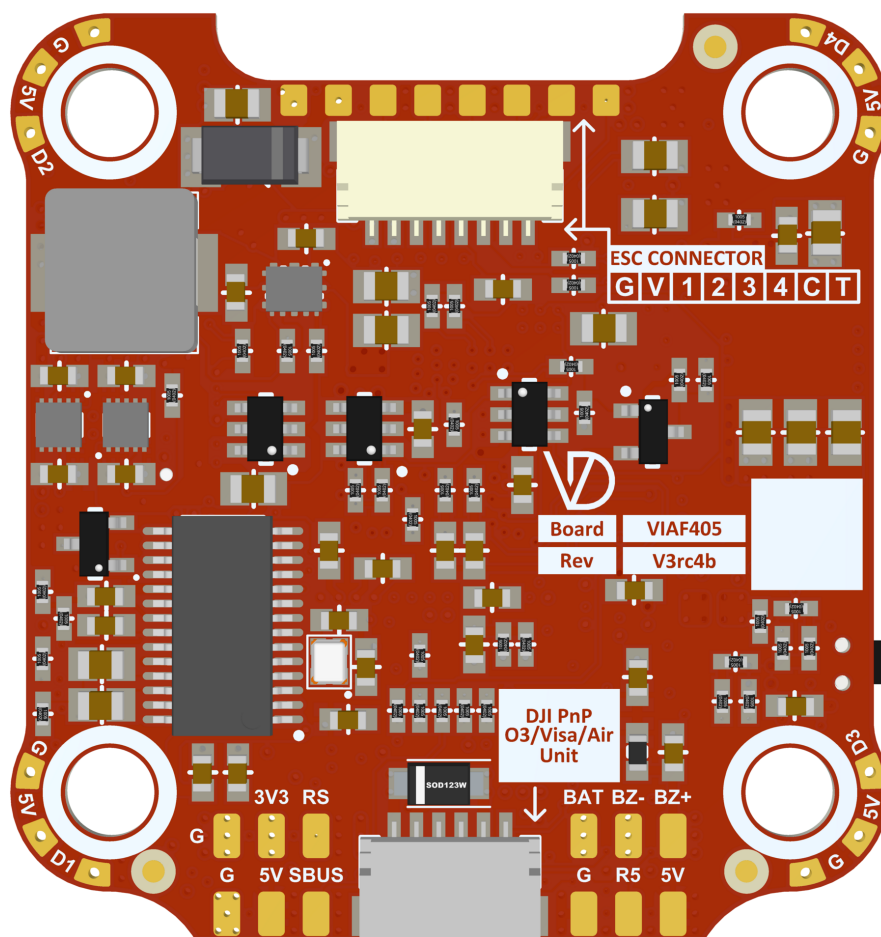


6 Pictures

6.1 Top



6.2 Bottom



7 Betaflight

7.1 OSD

In order to enable the AT7456E chip following config needs to be set:

```
feature OSD
set osd_displayport_device = MAX7456
set osd_canvas_width = 30
set osd_canvas_height = 16
set vcd_video_system = PAL
```

In case of using NTSC format adjust the **vcd_video_system** setting.

7.2 Camera Control

Camera Control on R4 uses PB14 (TIM12_CH1).

Sample settings for controlling Ratel 2 analog camera:

```
set camera_control_ref_voltage = 327
set camera_control_key_delay = 120
set camera_control_internal_resistance = 270
set camera_control_button_resistance = 450,270,150,68,10
```

7.3 Dual camera setup

For seamless camera switching, make sure both cameras have the same video format (PAL/NTSC) configured as well as the **vcd_video_system** setting in Betaflight.

7.4 BDShot

```
set dshot_bidir = ON
set dshot_bitbang = OFF
set motor_pwm_protocol = DSHOT300
```

7.5 PINIO

Following config will configure the mapping between modes and features:

```
resource PINIO 1 C15
resource PINIO 2 C14
resource PINIO 3 B2
set pinio_box = 40, 41, 42, 255
```

Those settings are baked into firmware

PIN	MODE	FEATURE
C15	USER1	CAMERA SELECT
C14	USER2	5VC ON/OFF
B2	USER3	BATC ON/OFF

7.6 ESC Telemetry

ESC telemetry is received on UART5 (half-duplex, pin PC12):

```
feature ESC_SENSOR
set esc_sensor_halfduplex = ON
```

7.7 GPS

```
feature GPS
```

7.8 Serial port mapping

Port	RX Pin	TX Pin	Notes
SERIAL1	PA10	PB6	
SERIAL2	PA3	PA2	Shared with SBUS (inverted)
SERIAL3	PC11	PC10	
SERIAL4	PA1	PA0	
SERIAL5	-	PC12	ESC Telemetry, half-duplex
SERIAL6	PC7	PC6	

8 Document History

Version	Date	Changes
v1.0	2026-06-17	Initial R4 release — dual IMU variant (ICM-42688-P / LSM6DSV16X), revised PINIO mapping (camera select on PC15, VBAT ctrl on PB2)
v1.1	2026-07-17	Added required <code>esc_sensor_halfduplex</code> setting for ESC telemetry; updated board layout and dimension drawings

END OF SECTION