
VIA-FPV10-PL



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Part I

Introduction

The **VIA-FPV10-PL** is a professional Heavy-Lift Long-Range FPV platform designed to bridge the gap between tactical reconnaissance and heavy-lift logistics. Engineered around a **3115 propulsion system** and a 6S Li-Ion architecture, the platform is optimized for extended endurance (20-30km range) and heavy payloads (up to 3kg).

Part II

Technical Specification

1 Parameters Overview

Parameter	Value
Speed	120 km/h (Max) / 70 km/h (Cruise)
Max Operational Range	20 – 25 km (Payload & Flight profile dependent)
Max Payload	2.5 kg (Recommended) / 6.5 kg (MTOW)
Wind Resistance	Up to 20 m/s
Operating Temp	-10°C to +50°C

Table 1: General Technical Specifications

2 Propulsion System

The propulsion architecture is based on **3115 Stator Class**.

2.1 Motor & Propeller

Component	Specification
Motor Stator	3115 (31mm × 15mm)
KV Rating	900KV
Propeller	10 × 6 × 3 Glass Fiber Reinforced Nylon



3 Avionics Stack

3.1 Flight Controller: VIAF405V3-PL

The core avionics suite utilizes the STM32F405 microcontroller running at 168MHz, capable of 8kHz IMU sampling and 2kHz PID loop.

Feature	Specification
MCU	STM32F405 (168MHz), 2kHz PID loop
IMU	ICM-42688-P
Video Switching	Dual Camera Input via PINIO (PA15)
BEC Outputs	5V/3A (System) & 9V/3A (High-Power VTX/Thermal)
Blackbox	16Mbit Flash
UARTs	6x Hardware Serial Ports
OSD	AT7456E (Analog Overlay)

Table 2: Flight Controller Specifications

3.2 Electronic Speed Controller (ESC)

The 55A OX32 4-in-1 ESC is equipped with a **1000 μ F Low-ESR Capacitor** to absorb back-EMF spikes and provide necessary instant power.

Parameter	Value
Continuous Current	55A (per channel) / 220A (Total)
Burst Current	70A (10 seconds)
Firmware	OX32 / BLHeli_32 capable
Protocol	DSHOT300/600 (w/ bi-directional Telemetry)
Cooling	Passive Airflow

Table 3: ESC Specifications

4 Environmental Limits

Strict adherence to environmental limits is required to ensure flight safety.

Limit	Description
Wind Resistance	Rated: 15 m/s (54 km/h)
Temperature (Cold)	Min: -20°C. Batteries must be pre-heated to > 20°C before launch to prevent voltage sag.
Temperature (Hot)	Max: +40°C.
Ingress Protection	IPX0. Open frame design. Flight in rain, snow, or heavy fog is may result in loss of the aircraft .

Table 4: Operational Envelope

5 Sensors & Payload

The VIA-FPV10-PL supports dual-camera configurations, switchable in-flight via the Flight Controller.

5.1 Primary FPV: Ratel 2 / Pro

Parameter	Value
Sensor	1/1.8" Starlight Sensor
Resolution	1200TVL
Low Light	0.0001LUX (Night Capable)
Lens	2.1mm (165° FOV)

5.2 Secondary: Eclipse 005SL camera

High-performance uncooled thermal imager.

Parameter	Value
Sensor Type	Uncooled Vanadium Oxide (VOx)
Resolution	576×432 px (Pixelpump)
Frame Rate	50Hz (PAL)
Lens / FOV	F1.0 / 56°(H) × 31°(V)
Latency	Average 20ms
Power Input	4.5V – 24V
Features	AI Image Enhancement, Hot Tracking, Pseudo-Color

Table 5: FN-FT483 Thermal Specifications

6 RF Communication

6.1 RC

6.1.1 RadioMaster XR3

The XR3 Receiver is a versatile, ultra-compact ExpressLRS receiver, measuring just 20 x 15mm. Powered by the advanced third-generation Semtech LR1121 transceiver, the XR3 operates seamlessly on 2.4GHz OR Sub-G 900MHz bands. Whether you're flying on 2.4GHz or 900MHz, the XR3 delivers exceptional range and sensitivity in a small, lightweight package — perfect for any build. With the reliability of ExpressLRS, you can focus on flying without worrying about link quality.

Designed for convenience, the XR3 features built-in Wi-Fi for effortless configuration and firmware updates. Access and manage settings through an intuitive WebUI on your PC or mobile device with ease.

Parameter	Value
Telemetry Power	100mW
RF Chip	LR1121
Frequency Range	2.4GHz / Sub-G 900MHz
Maximum receive refresh rate	DK500Hz / K1000Hz
Antenna	2x Dual-band T-Antenna

Table 6: XR3 Specifications

6.2 VTX

The VIA-FPV10-PL can be configured with two primary VTX options to suit operational requirements.

6.2.1 Option A: SkyZone TX2501

Parameter	Value
Output Power	25 / 800 / 1600 / 2500mW
Input Voltage	7-26V (2S-6S)
Frequency Bands	(56 Channels) (A-B-E-F-R-L-X)
Configuration	Button / IRC Tramp
Display	LED Segment Display

Table 7: SkyZone TX2501 Specifications

6.2.2 Option B: VT5804-BAT (2.5W)

Parameter	Value
Output Power	0 / 25 / 400 / 800 / 1500 / 2500mW
Input Voltage	6-36V
Frequency Bands	48CH (A-B-E-F-R-L)
Antenna Interface	MMCX
Mounting	30.5×30.5mm / 20×20mm

Table 8: VT5804-BAT Specifications

7 Power Supply

The platform supports high-performance Li-Ion configurations.

Config	Cell Type	Voltage	Capacity	Weight
6S2P	Molicel P50B	22.2 V	10,000 mAh	~950 g
6S2P	EVE 50PL	22.2 V	10,000 mAh	~960 g
6S2P	Samsung 40T	22.2 V	8,000 mAh	~920 g
6S3P	Molicel P50B	22.2 V	15,000 mAh	~1450 g
6S3P	EVE 50PL	22.2 V	15,000 mAh	~1470 g
6S3P	Samsung 40T	22.2 V	12,000 mAh	~1420 g

Table 9: Supported Battery Configurations

END OF SECTION