

MODEL-F GAUNTLET 7" ATTACK DRONE

Technical Drawings & Component Specifications

Phase 1 Bill of Materials Reference Document

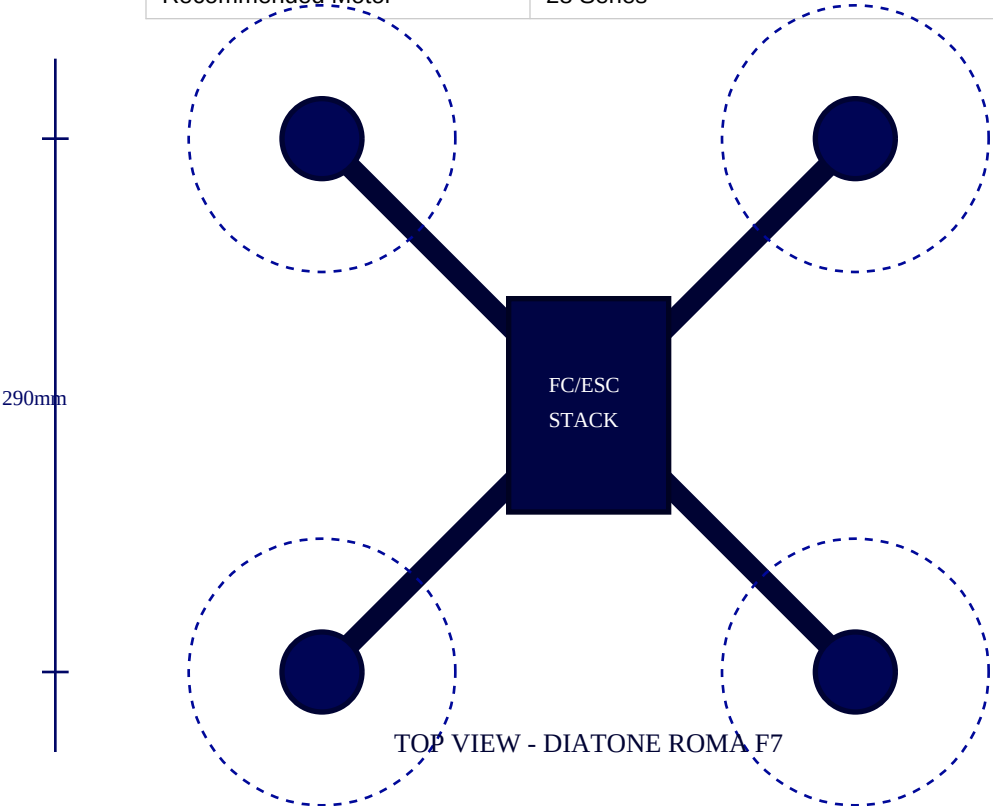
Components Covered

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1. DIATONE ROMA F7 FRAME KIT

7-Inch Long Range / Freestyle Frame

Parameter	Value
Wheelbase	290mm
Weight	200g
Prop Size	7 inch
FC Mounting	30.5×30.5mm (M3) & 20×20mm (M2)
Motor Mounting	16mm (M3)
Top Plate	2.5mm
Medium Plate	2mm
Bottom Plate	3.5mm
Arm Thickness	6mm
Max Stack Height	23mm
Carbon Fiber	T300 3K
Camera Cage	SUS304 Stainless Steel
Rated Voltage	4-6S LiPo
Recommended Battery	6S 1600-1800mAh
Recommended Motor	28 Series

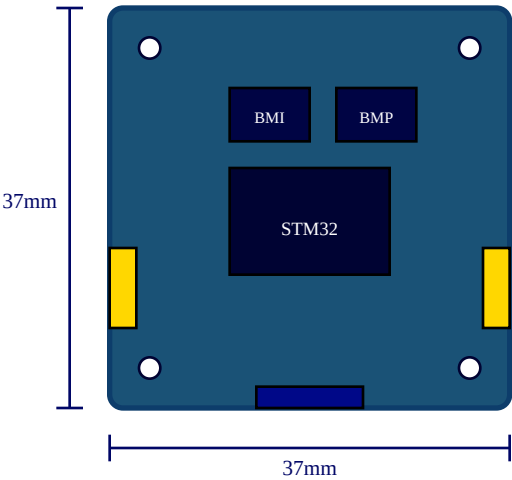


Note: Drawing is representative. Actual frame includes camera cage, GPS mount options, and arm protectors.

2. BRAVE F7 FLIGHT CONTROLLER

Blue UAS Approved - Made in USA

Parameter	Value
Dimensions	37mm × 37mm
Mounting Holes	30.5mm × 30.5mm (M3)
Weight	8g
MCU	STM32F722RET6
Gyro	BMI270
Barometer	BMP390
Input Voltage	3-8S LiPo
BEC Output	10V/2A, 5V/3A
Blackbox	16Mb
OSD	AT7456
UARTs	6
Firmware	Betaflight 4.5.1
Compliance	Blue UAS / NDAA
Manufacturing	USA (Ewing Aerospace)



TOP VIEW - BRAVE F7 FC

Note: Brave F7 features plug-and-play connectors for GPS, VTX, Camera, RX, and ESC. Solder pads also available.

3. BRAVE 55A ESC

Blue UAS Approved - Made in USA

Parameter	Value
Continuous Current	55A
Burst Current	65A (10s)
Input Voltage	3-8S LiPo
BEC Output	10V/2A
Firmware	BLHeli_32
Protocol	DSHOT150/300/600/1200, PWM, Oneshot
Mounting	30.5mm × 30.5mm (M3)
Compliance	Blue UAS / NDAA
Manufacturing	USA



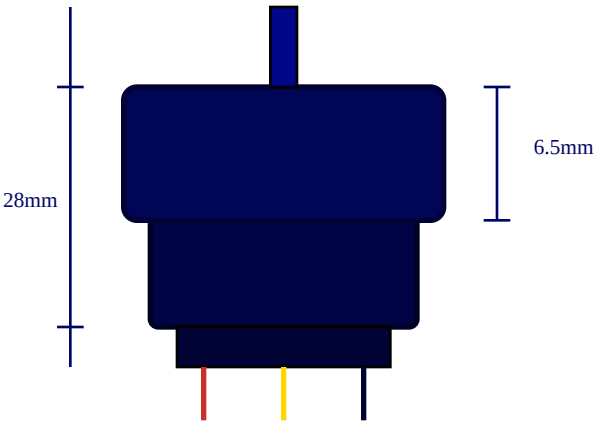
TOP VIEW - BRAVE 55A 4-IN-1 ESC

Note: 4-in-1 ESC design. Stacks under FC with 30.5mm mounting pattern.

4. BROTHERHOBBY AVENGER 2806.5 MOTOR

1460KV - Long Range FPV Motor

Parameter	Value
Stator Size	28mm × 6.5mm
KV Rating	1460KV
Weight	41g (with wires)
Configuration	12N14P
Shaft	Titanium Alloy Hollow, M5 Thread
Bearings	Japanese NMB 12×6×4
Magnets	N52H Arc (Neodymium)
Stator Material	0.2mm Kawasaki Silicon Steel
Bell/Base	7075 Aluminum
Mounting Pattern	M3 19×19mm
Wire	18AWG, 20cm
Cells	4-6S LiPo
Max Thrust (6S)	~1800g



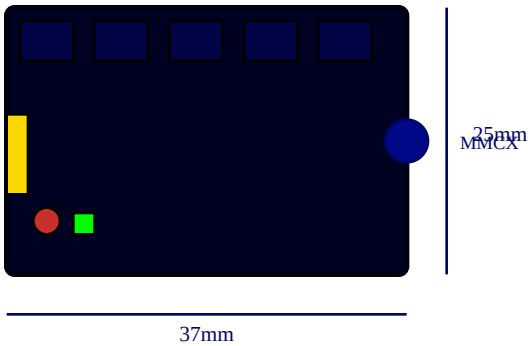
SIDE VIEW - 2806.5 MOTOR

Note: Motor contains N52H neodymium rare earth magnets. 19×19mm mounting requires frame compatibility check.

5. TBS UNIFY PRO32 DP VTX

NDAA Compliant Video Transmitter

Parameter	Value
Dimensions	37mm × 25mm × 6mm
Weight	8.7g
Input Voltage	2-6S LiPo (6V-36V)
Output Power	25mW / 200mW / 400mW / 500mW / 999mW / Max
Frequency	5.8GHz (37 channels)
Connector	MMCX
Camera Output	5V/2A (filtered)
Protocol	SmartAudio 2.1, CRSF
Features	PitMode, CleanSwitch
Bands	A, B, E, Airwave, Race Band
Compliance	NDAA



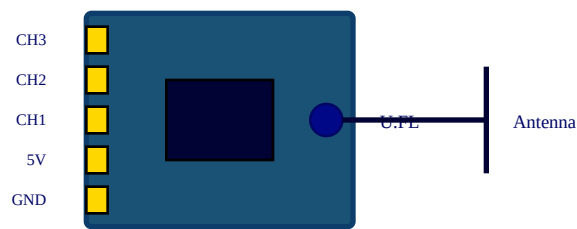
TOP VIEW - TBS UNIFY PRO32 DP

Note: HAM license required for power levels above 25mW. Use only TBS-branded antennas for high power operation.

6. TBS CROSSFIRE NANO PRO RX

NDAA Compliant Long Range Receiver

Parameter	Value
Dimensions	11mm × 18mm
Weight	0.5g (receiver only)
Input Voltage	3.3V - 8.4V
Telemetry Power	500mW
Frequency	915MHz (US) / 868MHz (EU)
Range	50km+ (with telemetry)
Protocol	CRSF
Antenna Connector	U.FL
Antenna Included	Immortal T V2
Firmware	V6.14+
Compliance	NDAA



ACTUAL SIZE: 11mm × 18mm (shown enlarged)

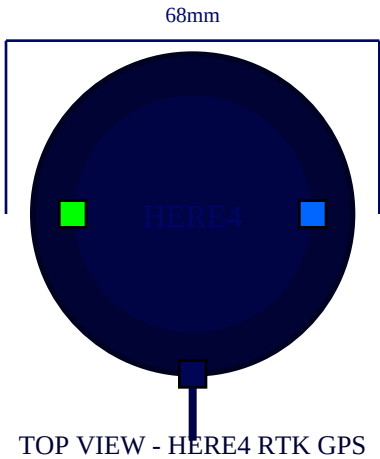
TOP VIEW - TBS CROSSFIRE NANO PRO

Note: Extremely compact receiver. Wiring: RX→FC TX, TX→FC RX. Configure CRSF protocol in Betaflight.

7. HERE4 RTK GPS

Blue UAS Approved - RTK Capable GNSS

Parameter	Value
Dimensions	68mm diameter × 16mm height
Weight	60g
GNSS Module	u-blox NEO-F9P (L1/L5)
Processor	STM32H757 (dual-core)
Compass	RM3100
IMU	ICM42688
Horizontal Accuracy	0.01m + 1ppm (RTK)
Protocol	DroneCAN FD (8Mbps)
Constellations	GPS, GLONASS, Galileo, BeiDou, QZSS
PWM Outputs	8 (BDSHOT capable)
Country of Origin	Taiwan
Compliance	Blue UAS / NDAA 2023

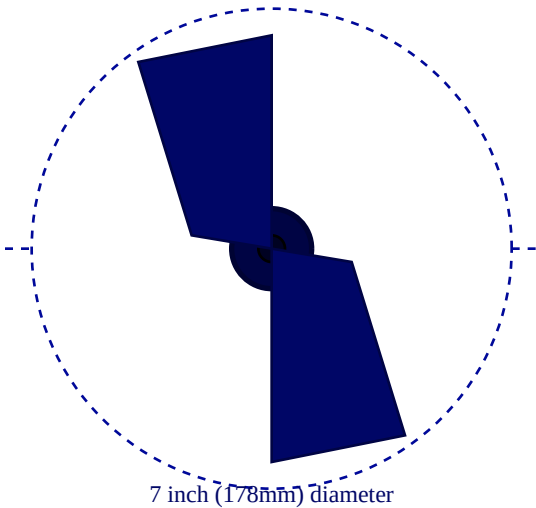


Note: Mount on elevated mast 3-4" above frame for optimal compass performance. Keep away from motors and ESC.

8. HQ 7×4.5 PROPELLER

2-Blade Durable Long Range Prop

Parameter	Value
Diameter	7 inch (178mm)
Pitch	4.5 inch
Blades	2
Material	Polycarbonate
Weight	6.6g each
Hub Diameter	13.5mm
Hub Thickness	7.5mm
Shaft	5mm (POPO compatible)
Pack Contents	2× CW, 2× CCW



TOP VIEW - HQ 7×4.5 PROPELLER

Note: 2-blade props offer better efficiency for long range. Mount CW/CCW according to motor rotation direction.

9. SYSTEM ASSEMBLY OVERVIEW

Component Integration Reference

Electronics Stack (Center of Frame)

Position	Component	Height
Top	GPS Mast Mount	+70-100mm
4	VTX (rear mounted)	6mm
3	RX (side mounted)	~3mm
2	Flight Controller	~8mm
1	ESC (4-in-1)	~8mm
Bottom	Frame Bottom Plate	3.5mm

Primary Wiring Connections

From	To	Connection
Battery (XT60)	ESC BAT+/BAT-	Main Power
ESC Motor 1-4	Motors 1-4	3-phase motor wires
ESC Signal	FC Motor Pads	DSHOT signal
FC UART (TX/RX)	Crossfire RX	CRSF Protocol
FC UART (TX)	VTX SmartAudio	SmartAudio 2.1
FC CAN	Here4 GPS	DroneCAN FD
FC Camera	FPV Camera	Video + Power
VTX MMCX	VTX Antenna	5.8GHz Video

Compliance Status Summary

Component	Blue UAS	NDA	Origin
Brave F7 FC	✓	✓	USA
Brave 55A ESC	✓	✓	USA
TBS Unify Pro32 DP	—	✓	Germany
TBS Crossfire Nano Pro	—	✓	Germany
Here4 RTK GPS	✓	✓	Taiwan
BrotherHobby Motor	—	—	China
Diatone Frame	—	—	China
HQ Propeller	—	—	China