Aerial Geo Drone

M300 RTK Aerial Survey Drone

AERIAL SURVEY DRONE

The DJI Matrice 300 RTK is a high end platform for **GEOxyz Drone Services**. Offering up to 55 minutes of flight time, 6 Directional Sensing & Positioning. The M300 RTK sets a whole new standard by combining intelligence with high-performance and unrivaled reliability.

The M300 RTK can be equiped with multiple modules:
The Zenmuse L1 Lidar that integrates a Livox lidar module, a high-accuracy IMU, and camera with a 1-)inch CMOS on a 3 axis stabilized gimbal.

The Zenmuse P1 Camera, a full-frame sensor with interchangeable fixed-focus lenses on a 3-axis stabilized gimbal. Designed for photogrammetry flight missions, it takes efficiency and accuracy to a whole new level.

GEOxyz offers you a safe, fast and accurate solution to map areas and objects.
The Drone Services division focuses on the acquisition and processing of aerial images to deliver:

- Orthophoto mosaic
- Altitude model (DSM / DTM)
- 3D point cloud
- Maps

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TECHNICAL SPECIFICATION

Aircraft

•Dimensions: (unfolded propellers excl.)	810Lx670Wx430H
•Weight: (Battery Excluded)	3600 g
•Payload :	2700 g
•Max Takeoff weight:	9000 g
•Diagonal Size: (Propellers Excluded)	895 mm
•Max Ascent Speed:	6 m/s
•Max Descent Speed:	5 m/s
•Max Horizontal Speed:	23m/s
•Max Pitch Angle:	30°
•Max Wind Speed Resistance:	15 m/s
•Max Flight Time:	Approx. 55 minutes
•GNSS:	GPS/GLONASS/BeiDou/Galileo

Intelligent Flight Battery (3x2 BS60 + Battery Station)

•Capacity:	5935 mAh
•Voltage:	52,8 V
•Battery Type:	LiPo 12S
•Energy:	274 Wh
•Net Weight:	1350 g
•Charging Time:	+/- 60min

Working time

•Maximum Capacity:	2,5hours
•Built in Battery + Extenal Battery:	4,5hours

Built in Vision System

•Obstacle Sensing Range:	
•Forward/backward/Left/Right:	0,7 - 40m
•Upward/Downward:	0,6 - 30m
•FOV:	Forward/Backward/Downward: 65°(H), 50°(V)
	Left/Right/Upward: 75°(H), 60°(V)
•Operating Environment:	Surface with clear pattern
	and adequate lighting (>15 lux)

Infrared ToF Sensing System

•Obstacle Sensing Range:	0,1-8m
•FOV:	30°

FPV Camera

•Resolution:	960p
•FOV:	145°
•Frame Rate:	30fps

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M300 RTK - Payload

Aerial Survey Drone

LiDAR: Zenmuse L1

Instant Clarity + Superior Accuracy.

General

- Dimensions: 152x110x169mm
- Weight: 900g
- Power: 30W

System Performance

- Detection range: 450m @ 80% reflectivity, 0klx
  190m @ 10% reflectivity, 100klx
- System Accuracy: Horizontal: 10 cm @ 50 m
  Vertical: 5 cm @ 50 m
- Point Range: Single return: 240,000 pts/s
- Multiple return: 480,000 pts/s
- Real-time Point Cloud Colouring Modes: True colour; colouring by reflectivity; colouring by elevation

Lidar

- Ranging Accuracy: 3 cm @ 100 m
- Scan Modes: Repetitive line scan mode
  Non-repetitive petal scan mode
- Laser Safety: Class 1
- Maximum Returns Supported: 3
- FOV: Repetitive line scan 70.4° × 4.5°
  Non-repetitive scan: 70.4° × 77.2°

RGB Mapping Camera

- Sensor Size: 1 inch
- Photo Size: 4864 × 3648 (4:3)
  5472 × 3648 (3:2)
- Shutter Speed: Mechanical 1/2000 - 8 s
  Electronic 1/8000 - 8 s
- Focal Length: 8.8 mm / 24 mm (Equivalent)
- Effective Pixels: 20 MP
- Aperture Range: f/2.8 - f/11
- ISO: Video:100 – 3200 (Auto) | 100 – 6400 (Manual)
  Photo: 100 - 3200 (Auto) | 100 - 12800 (Manual)
- Aperture Range: f/2.8 - f/11

Data Storage

- Raw Data Storage: Photo / IMU / Point Cloud
- Point Cloud Data Storage: Real-time Modeling

Post Processing Software

- Supported Software: DJI Terra
- Point cloud format: PNTS/LAS/PLY/PCD/S3MB
- Reconstruction model format: B3DM/OSGB/PLY/OBJ/S3MB

Camera: Zenmuse P1

Efficiency through Flexible Full-frame Photogrammetry.

General

- Dimensions: 198x166x129mm
- Weight: 800g
- Power: 20W
- IP Rating: IP4X
- Supported Aircraft: Matrice 300 RTK
- Absolute Accuracy: Horizontal: 3 cm, Vertical: 5 cm*
  * Using Mapping Mission at a GSD of 3 cm and flight speed of 15 m/s, with an 75% front overlap rate and a 55% side overlap rate.

Camera

- Sensor size (Full frame Still): 35.9×24 mm
- Sensor size (Max video recording area): 34×19 mm
- Effective Pixels: 45MP
- Pixel size: 4.4 µm
- Supported Lenses: DJI DL 24mm F2.8 LS ASPH, FOV 84°
  DJI DL 35mm F2.8 LS ASPH, FOV 63.5°
  DJI DL 50mm F2.8 LS ASPH, FOV 46.8°
  (with lens hood and balancing ring/filter)
- Storage Files: Photo / GNSS Raw Observation Data/ Image Log File
- Photo Size: 3:2 (8192×5460)
- Operation Modes: Photo, Video, Playback
- Minimum photo interval: 0.7 s
- Shutter Speed: Mechanical Shutter Speed: 1/2000-1 s
  (Aperature value no larger than f/5.6)
  Electronic Shutter Speed: 1/8000-1 s
- Aperture Range: f/2.8-f/16
- ISO Range: Photo: 100-25600
  Video: 100-25600

Video

- Video Format: MP4,MOV
- Video Resolution: 16:9 (1920×1080)
  16:9 (3840×2160)*
  *Only 35mm lens supported
- Frame Rate: 60fps

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