



ZENMUSE L2 REVIEW

PREPARED BY :

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INTRODUCTION

DJI unveiled the Zenmuse L2 LiDAR and photogrammetry payload for drone surveying, bringing valuable enhancements to mapping processes. Building upon its predecessor, the L1, released in 2020, the L2 showcases notable upgrades that significantly enhance efficiency, accuracy, and data quality.

The DJI Zenmuse L2 is the pinnacle of LiDAR technology. With its 4/3 CMOS RGB camera, Livox LiDAR module and precision IMU, it delivers detailed 3D scans. Able to penetrate dense vegetation and detect objects at 250 meters, it's the ideal tool for surveying, mapping and more. Instant start-up and advanced features make it a must-have for professionals.

KEY FEATURES

- Map, Survey & Inspect with High Accuracy
- LiDAR & RGB Cameras on a 3-Axis Gimbal
- Small 1.6 x 4.7" Dot Size
- Capture 240,000 Points per Second
- 20MP RGB with 0.7-Second Image Interval
- Highly-Accurate IMU System
- Detection Range of 820 to 1476'
- Waypoint, Aera & Linear Route Types
- No Warm-Up Needed When Powered On
- DJI Care Enterprise Basic Plan Included

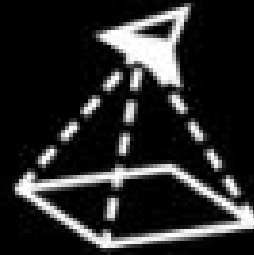
What's new?



High Precision

Vertical Accuracy: 4cm

Horizontal Accuracy: 5cm



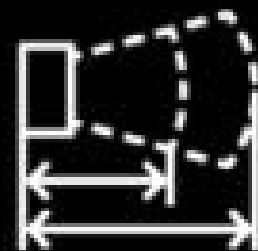
Exceptional Efficiency

Coverage of up to 2.5km² in
a single flight



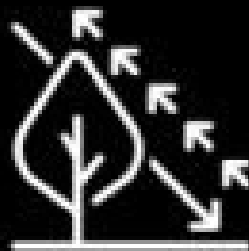
Superior Penetration

Smaller laser spots
denser point clouds

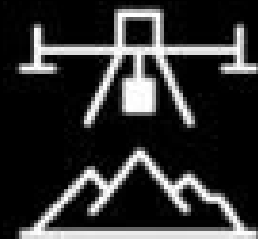


Detection Range

450m @50% reflectivity, 0 klx
250m @10% reflectivity, 100 klx



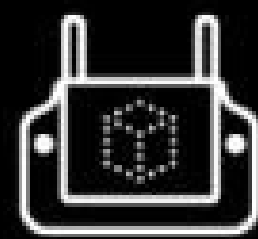
5 Returns



Turnkey Solution



One-Click Processing
on DJI Terra



Point Cloud
LiveView

IN THE BOX



- Gimbal and Camera (1)
- MicroSD card (128GB) (1)
- Storage Case (1)
- Lens Cleaning Cloth (1)
- DJI Terra Activation Code

BEST FEATURES OF THE DJI ZENMUSE L2

1: HIGH ACCURACY

ACCURACY IS CRUCIAL WHEN IT COMES TO SURVEYING. AND THE L2 IS AN ACCURATE DRONE MAPPING PAYLOAD. DJI STATES THAT THE L2 IS ABLE TO ACHIEVE:

- HORIZONTAL: 5CM @ 150M
- VERTICAL: 4 CM @ 150M

THESE ACCURACIES WERE ACHIEVED USING THE FOLLOWING PARAMETERS:

- DJI PILOT 2'S AREA ROUTE TO PLAN THE FLIGHT ROUTE
- REPETITIVE SCANNING WITH THE RTK IN FIX STATUS
- 150M RELATIVE FLIGHT ALTITUDE
- 15M/S FLIGHT SPEED
- GIMBAL PITCH -90°
- EACH STRAIGHT SEGMENT OF THE FLIGHT ROUTE LESS THAN 1500M
- POST-PROCESSING IN DJI TERRA WITH OPTIMIZE POINT CLOUD ACCURACY ENABLED.

IN IDENTICAL CONDITIONS, WHEN THE OPTIMIZE POINT CLOUD ACCURACY FEATURE IS DISABLED, DJI REPORTED ACHIEVING A VERTICAL ACCURACY OF 4CM AND A HORIZONTAL ACCURACY OF 8CM.

EXPERIMENTS CARRIED OUT USING THE L2 YIELDED AN ABSOLUTE VERTICAL DISCREPANCY OF 44MM (EQUIVALENT TO 4.4CM) AT A FLIGHT ALTITUDE OF 50 METERS.

2: POWERFUL LIDAR SCANNER FOR DENSE AND DETAILED DIGITAL ASSETS

THE L2 IS AN EFFECTIVE DRONE LIDAR PAYLOAD, ENABLING THE CREATION OF DATA-RICH DIGITAL ASSETS. THE KEY FEATURES IN THIS DEPARTMENT ARE:

- POINT CLOUD RATE: ONE RETURN = MAXIMUM 240,000 PTS/S; MULTIPLE RETURNS = MAXIMUM 1,200,000 PTS/S
- HIGH RETURN RATE: THE L2 SUPPORTS UP TO 5 RETURNS @ 240KHZ
- DETECTION RANGE: 450M

THE L2'S MULTI-RETURN CAPABILITY, COMBINED WITH ITS CAPACITY TO ACHIEVE HIGHER SAMPLING RATES WITH INCREASED RETURNS, PROVES EXCEPTIONALLY VALUABLE FOR CREATING ELEVATION DATA WITHIN DENSELY FORESTED AREAS, SUBSEQUENTLY TRANSFORMING IT INTO A DIGITAL TERRAIN MODEL (DTM).

3: NON-REPETITIVE SCAN MODE FOR FULL COVERAGE

SIMILAR TO ITS PREDECESSOR, THE L1, THE L2 ALSO OFFERS TWO SCANNING MODES: A LINE SCAN MODE AND A NON-REPETITIVE SCANNING PATTERN.

IN THE NON-REPETITIVE SCANNING MODE, THE SCAN AREA WITHIN THE FIELD-OF-VIEW (FOV) EXPANDS PROPORTIONALLY AS THE INTEGRATION TIME EXTENDS. THIS EXPANSION ENHANCES THE PROBABILITY OF DETECTING OBJECTS AND FINER DETAILS WITHIN THE FOV. MOREOVER, THE LONGER THE DRONE LIDAR SENSOR SCANS A SPECIFIC AREA, THE GREATER THE DATA RESOLUTION BECOMES, ESPECIALLY IN COMPARISON TO THE CONVENTIONAL LINE SCAN METHOD.

THE FOV OF BOTH MODES IS AS FOLLOWS:

- REPETITIVE SCANNING PATTERN: HORIZONTAL 70°; VERTICAL 4°
- NON-REPETITIVE SCANNING PATTERN: HORIZONTAL 70°; VERTICAL 75°.

THE NON-REPETITIVE SCAN MODE EQUIPS THE DJI ZENMUSE L2 TO SWIFTLY ACHIEVE COMPREHENSIVE COVERAGE OF THE TARGET AREA, ALLOWING THE SENSOR TO COLLECT DATA IN ALL DIRECTIONS RATHER THAN FOLLOWING A PREDEFINED PLANE.

CONVERSELY, THE REPETITIVE SCANNING MODE, CHARACTERIZED BY A NARROWER FIELD OF VIEW, EXCELS IN GATHERING CONCENTRATED DATA, MAKING IT PARTICULARLY SUITABLE FOR UNIFORM AND HIGH-PRECISION MAPPING TASKS.

4: 20MP 4/3 CMOS SENSOR FOR HIGH-RESOLUTION PHOTOGRAMMETRY

THE L2 IS EQUIPPED WITH A 4/3 CMOS RGB MAPPING CAMERA BOASTING 20MP IMAGERY CAPABILITY AND A MECHANICAL SHUTTER TO ERADICATE ROLLING SHUTTER BLUR. ADDITIONALLY, IT OFFERS A HIGH-SPEED BURST MODE WITH A 0.7-SECOND SHOOTING INTERVAL, ENSURING CRISPER AND MORE VIVID IMAGES EVEN IN SWIFTLY CHANGING OR DYNAMIC SCENARIOS.

IN ITS MOST FUNDAMENTAL CAPACITY, THE RGB SENSOR SERVES FOR CAPTURING PHOTOS AND RECORDING VIDEOS. HOWEVER, IT HOLDS SUBSTANTIAL VALUE FROM A SURVEYING STANDPOINT.

FIRSTLY, IT SUPPORTS PHOTOGRAMMETRY, FACILITATING THE CREATION OF 2D MAPS AND MODELS. FOR EXAMPLE, AT AN ALTITUDE OF 100 METERS, IT PRODUCED A 2D ORTHOMOSAIC WITH A GROUND SAMPLING DISTANCE (GSD) OF 2.69CM.

SECONDLY, THE RGB CAMERA GREATLY ENHANCES LIDAR DATA ACQUISITION. IT DELIVERS REAL-TIME COLOR INFORMATION DURING THE SCANNING PROCESS, ENABLING THE L2 TO GENERATE TRUE-COLOR POINT CLOUDS AND REALITY MODELS, AS EXEMPLIFIED BELOW.

FURTHERMORE, THE L2 FEATURES POINT CLOUD LIVEVIEW, A FUNCTIONALITY THAT ALLOWS USERS TO CONFIRM DATA CAPTURE IN REAL-TIME WITHOUT THE NEED TO LAND OR WAIT FOR POST-PROCESSING. THIS CAPABILITY PREVENTS THE NEED FOR ADDITIONAL FLIGHTS AND REWORK.

5: HIGH-ACCURACY IMU

THE INERTIAL MEASUREMENT UNIT (IMU) IS RESPONSIBLE FOR MONITORING A DRONE'S INSTANT 3-AXIS ACCELERATION AND ANGULAR VELOCITY, ENABLING THE PRECISE DETERMINATION OF THE AIRCRAFT'S SPEED, POSITION, AND ALTITUDE ANGLES.

THEREFORE, A HIGH-PRECISION IMU IS OF PARAMOUNT IMPORTANCE FOR ENSURING THE QUALITY OF LIDAR DATA ACQUISITION. WITHOUT IT, YOUR POINT CLOUD WOULD LACK STRUCTURE AND SIGNIFICANCE, RESEMBLING NOTHING MORE THAN A RANDOM ASSORTMENT OF DATA POINTS.

THE IMU AFFORDS THE FOLLOWING ACCURACIES:

- YAW ACCURACY: REAL-TIME 0.2° ; POST-PROCESSING 0.005°
- PITCH/ROLL ACCURACY: REAL-TIME: 0.05° , POST-PROCESSING: 0.025° .

AS AN EXTRA CONVENIENCE, THERE'S NO REQUIREMENT FOR AN IMU WARM-UP PERIOD; THE IMU IS READY FOR OPERATION IMMEDIATELY UPON STARTUP. NEVERTHELESS, IT'S IMPORTANT TO NOTE THAT AN IMU CALIBRATION REMAINS A NECESSARY STEP DURING MAPPING MISSIONS.

6: FAST AND EFFICIENT MAPPING

ONE EFFICIENCY ADVANTAGE OF THE L2 LIES IN ITS ELIMINATION OF THE NEED FOR PRE-FLIGHT IMU CALIBRATION.

FURTHERMORE, IT EXCELS IN DATA COLLECTION SPEED, CAPABLE OF CAPTURING DATA AT 15M/S, WHICH RESULTS IN A NOTABLY SWIFTER SURVEY OF THE SAME AREA IN COMPARISON TO THE L1, WHICH TYPICALLY OPERATES AT RECOMMENDED FLIGHT SPEEDS BETWEEN 8M/S AND 12M/S.

REMARKABLY, THE L2 CAN COVER A SUBSTANTIAL 2.5 SQUARE KILOMETERS IN A SINGLE FLIGHT.

7: 3-AXIS STABILIZED GIMBAL FOR DATA GAP ELIMINATION

THE L2 INCORPORATES A HIGHLY CAPABLE 3-AXIS STABILIZED GIMBAL.

THIS FEATURE ACTIVELY COUNTERACTS ANY UNINTENDED DRONE MOVEMENTS, INCLUDING TILT, ROLL, AND PAN, ENSURING DYNAMIC STABILITY WITHIN AN IMPRESSIVELY TIGHT RANGE OF $\pm 0.01^\circ$. CONSEQUENTLY, THIS PRECISE STABILIZATION FACILITATES CONSISTENT POINT DISTRIBUTION, EVEN WHEN OPERATING AT EXCEPTIONALLY HIGH SCAN RATES.

THIS, IN TURN, SUBSTANTIALLY MITIGATES THE RISK OF DATA GAPS, EFFECTIVELY LOWERING THE EXPENSES LINKED TO THE NEED FOR RE-FLYING MISSIONS.

8: COMPATIBLE WITH DJI M300 SERIES

THE L2 IS FULLY COMPATIBLE WITH BOTH THE DJI M350 RTK AND DJI M300 RTK DRONES.

THE DJI M350 RTK REPRESENTS A TOP-TIER ENTERPRISE UPGRADE OF THE M300, BOASTING AN IMPROVED IP RATING, UPGRADED BATTERY SYSTEM, AND ADDITIONAL SAFETY ENHANCEMENTS, INCLUDING AN ARM LOCK INDICATOR AND AN UPDATED FPV CAMERA.

THE M350 RTK COMES BUNDLED WITH THE DJI RC PLUS CONTROLLER, WHICH IS AN ENHANCED ENTERPRISE CONTROLLER EQUIPPED WITH A SIZABLE 7-INCH HIGH-BRIGHTNESS SCREEN, A RUNTIME OF UP TO SIX HOURS (COMBINING INTERNAL AND EXTERNAL BATTERIES), AND A COMMENDABLE IP RATING.

HOWEVER, IT'S IMPORTANT TO NOTE THAT WHEN UTILIZING THE L2 WITH THE M300 RTK, OPERATORS MUST ALSO USE THE DJI RC PLUS, WHICH IS PURCHASED SEPARATELY, AND A FIRMWARE UPDATE IS REQUIRED. CONSEQUENTLY, THE L2 IS NOT COMPATIBLE WITH THE M300 RTK'S STANDARD CONTROLLER, THE SMART CONTROLLER ENTERPRISE.

BOTH THE M350 RTK AND M300 RTK ARE VERSATILE DRONES DESIGNED FOR INTERCHANGEABLE PAYLOAD CAPABILITY, PERMITTING OPERATORS TO SWAP OUT THE L2 FOR ANOTHER PAYLOAD AS NEEDED.

9: SEAMLESS END-TO-END SURVEYING WORKFLOWS

BENEFIT FROM A SEAMLESS END-TO-END SURVEYING WORKFLOW, UTILIZING THE DJI ECOSYSTEM THROUGHOUT.

THE FOLLOWING FEATURES BENEFIT THE DATA-COLLECTION PROCESS:

- **POINT CLOUD LIVEVIEW: FLY CONFIDENTLY WITH THE REAL-TIME POINT CLOUD LIVEVIEW AND LASER RANGEFINDER.**
- **FIELDWORK QUALITY: CHECK THE ON-SITE DATA COLLECTION QUALITY TO SUPPORT TIMELY DECISIONS ON RECOLLECTIONS OR REWORK.**
- **POINT CLOUD LIBRARY: AFTER THE OPERATION, THE 3D POINT CLOUD MODEL CAN BE VIEWED IMMEDIATELY IN THE ALBUM.**

THE L2 INCLUDES A DJI TERRA LICENSE FOR POINT CLOUD DATA PROCESSING, INCLUDING A PRE-PROCESSING AND POST-PROCESSING POINT-CLOUD FUNCTIONS.

THIS SOFTWARE SUPPORTS EXPORTING POINT CLOUD MODELS IN THE FOLLOWING FORMATS:

- **PNTS**
- **LAS**
- **PLY**
- **PCD**
- **S3MB**

10: IP54 FOR RELIABLE PERFORMANCE

WITH ITS IP54 INGRESS PROTECTION RATING, THE L2 EXHIBITS REMARKABLE VERSATILITY BY BEING ABLE TO OPERATE IN A BROAD RANGE OF CHALLENGING WEATHER CONDITIONS, SUCH AS SNOWY, SMOKY, FOGGY, AND RAINY ENVIRONMENTS.

FURTHERMORE, THE L2 CAN ADEPTLY CAPTURE POINT CLOUDS DURING NIGHTTIME HOURS AND UNDER LOW-LIGHT CONDITIONS.

IT'S WORTH NOTING THAT THE L2'S IP RATING ALIGNS WITH THE WEATHER-RESISTANT ATTRIBUTES OF THE M300 SERIES. SPECIFICALLY, THE M350 RTK BOASTS AN IP55 RATING, THE M300 RTK HOLDS AN IP45 RATING, AND THE DJI RC PLUS IS ALSO RATED AT IP54, ENSURING CONSISTENT PROTECTION ACROSS THE ENTIRE ECOSYSTEM.

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APPLICATION SCENARIOS





Forestry management



Infrastructure management

SPECIFICATION :

General

- Product Name
- Zenmuse L2
- Dimensions
- 155×128×176 mm (L×W×H)
- Weight
- 905±5 g
- Power
- 28 W (typical)
- 58 W (max.)
- IP Rating
- IP54
- Supported Aircraft
- Matrice 300 RTK (requires DJI RC Plus)
- Matrice 350 RTK
- Storage Temperature
- -20° to 60° C (-4° to 140° F)

SPECIFICATION :

System Performance

- Detection Range
- 450m @50% reflectivity, 0 klx
- 250m @10% reflectivity, 100 klx
- Point Cloud Rate
- Single return: max. 240,000 pts/s
- Multiple returns: max. 1,200,000 pts/s
- System Accuracy
- Horizontal: 5 cm @ 150 m
- Vertical: 4 cm @ 150 m
- **Real-Time Point Cloud Coloring Coding**
- Reflectivity, Height, Distance, RGB

SPECIFICATION :

LiDAR

- Ranging Accuracy (RMS 1σ)
- 2 cm @ 150 m
- Maximum Returns Supported
- 5
- Scanning Modes
- Non-repetitive scanning pattern,
Repetitive scanning pattern
- FOV
- Repetitive scanning pattern: Horizontal
70°, Vertical 3°
- Non-repetitive scanning pattern:
Horizontal 70°, Vertical 75°
- Minimum Detection Range
- 3 m
- Laser Beam Divergence
- Horizontal 0.2 mrad, Vertical 0.6 mrad
- Laser Wavelength
- 905 nm

- **Laser Spot Size**
- Horizontal 4 cm, vertical 12 cm @ 100 m (FWHM)
- **Laser Pulse Emission Frequency**
- 240 kHz
- **Laser Safety**
- Class 1 (IEC 60825-1:2014)
- **Accessible Emission Limit (AEL)**
- 233.59 nJ
- **Reference Aperture**
- Effective Aperture: 23.85 mm (equivalent to circular)
- **Max Laser Pulse Emission Power Within 5 Nanoseconds**
- 46.718 W

SPECIFICATION :

Inertial Navigation System

- IMU Update Frequency
- 200 Hz
- Accelerometer Range
- ± 6 g
- Angular Velocity Meter Range
- ± 300 dps
- Yaw Accuracy (RMS 1σ)
- Real-time: 0.2° , Post-processing: 0.05°
- Pitch/Roll Accuracy (RMS 1σ)
- Real-time: 0.05° , Post-processing: 0.025°
- Horizontal Positioning Accuracy
- RTK FIX: 1 cm + 1 ppm
- Vertical Positioning Accuracy
- RTK FIX: 1.5 cm + 1 ppm

SPECIFICATION :

RGB Mapping Camera

- **Sensor**
- 4/3 CMOS, Effective Pixels: 20 MP
- **Lens**
- FOV: 84°
- Format Equivalent: 24 mm
- Aperture: f/2.8-f/11
- Focus Points: 1 m to ∞ (with autofocus)
- **Shutter Speed**
- Mechanical Shutter: 2-1/2000 s
- Electronic Shutter: 2-1/8000 s
- **Shutter Count**
- 200000
- **Photo Size**
- 5280×3956 (4:3)
- **Still Photography Modes**
- Single shot: 20 MP
- Timed: 20 MP
- JPEG Timed Interval:
0.7/1/2/3/5/7/10/15/20/30/60 s
- RAW/JPEG + RAW Timed Interval:
2/3/5/7/10/15/20/30/60 s

- **Video Codec and Resolution**

- H.264

- 4K: 3840×2160@30fps

- FHD: 1920×1080 @30fps

- **ISO**

- Video: 100-6400

- Photo: 100-6400

- **Video Bitrate**

- 4K: 85Mbps

- FHD: 30 Mbps

- **Supported File System**

- exFAT

- **Photo Format**

- JPEG/DNG (RAW)

- **Video Format**

- MP4 (MPEG-4 AVC/H.264)

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SPECIFICATION :

Gimbal

- Stabilization System
- 3-axis (tilt, roll, pan)
- Angular Vibration Range
- 0.01°
- Mounting
- Detachable DJI SKYPORT
- Mechanical Range
- Tilt: -143° to +43°
- Pan: ±105°
- * Structural limit, not controllable range.
- Controllable Range
- Tilt: -120° to +30°
- Pan: ±90°
- Operation Mode
- Follow/Free/Re-center

SPECIFICATION :

Data Storage

- Raw Data Storage
- Photo/IMU/Point cloud/GNSS/Calibration files
- Point Cloud Data Storage
- Real-time modeling data storage
- Supported microSD Cards
- microSD: Sequential writing speed 50 MB/s or above and UHS-I Speed Grade 3 rating or above; Max capacity: 256 GB. Use the recommended microSD cards.
- Recommended microSD Cards
- Lexar 1066x 64GB U3 A2 V30 microSDXC
- Lexar 1066x 128GB U3 A2 V30 microSDXC
- Kingston Canvas Go! Plus 128GB U3 A2 V30 microSDXC
- Lexar 1066x 256GB U3 A2 V30 microSDXC

QUESTIONS AND ANSWERS

WHAT IS THE PROTECTION LEVEL OF THE ZENMUSE L2?

ZENMUSE L2 ACHIEVES AN IP54 RATING ACCORDING TO THE IEC60529 STANDARD UNDER CONTROLLED LABORATORY CONDITIONS. TO ENSURE THE HIGHEST LEVELS OF PROTECTION:

- BEFORE INSTALLING, MAKE SURE THAT THE INTERFACE AND SURFACE OF THE GIMBAL ARE DRY;
- BEFORE USE, MAKE SURE THAT THE GIMBAL IS FIRMLY INSTALLED ON THE DRONE AND THE SD CARD PROTECTIVE CAP IS CLEAN, FREE OF FOREIGN OBJECTS, AND CLOSED;
- BEFORE OPENING THE SD CARD PROTECTIVE CAP, WIPE THE SURFACE OF THE DRONE CLEAN.

WHAT AIRCRAFT IS ZENMUSE L2 COMPATIBLE WITH? WHICH GIMBAL INTERFACE CAN IT BE MOUNTED ON?

ZENMUSE L2 IS COMPATIBLE WITH THE MATRICE 350 RTK AND MATRICE 300 RTK AND ONLY SUPPORTS DJI RC PLUS AS THE REMOTE CONTROLLER. BEFORE USING, PLEASE UPGRADE THE FIRMWARE OF THE AIRCRAFT AND REMOTE CONTROLLER TO THE LATEST VERSION. TO ENSURE MAPPING ACCURACY, MAKE SURE THE L2 IS MOUNTED ON A SINGLE DOWNWARD GIMBAL CONNECTOR WITH THE CABLE CONNECTED TO THE RIGHT USB-C PORT (WHEN FACING THE AIRCRAFT).

WHAT IS THE FIELD OF VIEW (FOV) OF ZENMUSE L2'S LIDAR?

REPETITIVE SCANNING: HORIZONTAL 70°, VERTICAL 3°

NON-REPETITIVE SCANNING: HORIZONTAL 70°, VERTICAL 75°

WHAT IS THE MAXIMUM DETECTION RANGE OF ZENMUSE L2?

DETECTION RANGE:

250M @10% REFLECTIVITY, 100 KLX

450M @50% REFLECTIVITY, 0 KLX

THE RECOMMENDED OPERATING ALTITUDE IS 30-150 M.

HOW MANY RETURNS DOES ZENMUSE L2 SUPPORT?

ZENMUSE L2 SUPPORTS FIVE TYPES OF RETURNS: SINGLE RETURN (STRONGEST ECHO), DUAL RETURNS, TRIPLE RETURNS, QUAD RETURNS, AND PENTA RETURNS.

WHAT IS THE POINT CLOUD RATE OF ZENMUSE L2?

SINGLE RETURN: MAX. 240,000 PTS/S

MULTIPLE RETURNS: MAX. 1,200,000 PTS/S

HOW MANY SCANNING MODES DOES ZENMUSE L2 HAVE? IN WHAT SCENARIOS DO THEY APPLY?

ZENMUSE L2 HAS TWO SCANNING MODES: NON-REPETITIVE SCANNING MODE AND REPETITIVE SCANNING MODE. IN REPETITIVE SCANNING MODE, LIDAR CAN ACHIEVE MORE UNIFORM AND ACCURATE SCANNING, MEETING HIGH-PRECISION MAPPING REQUIREMENTS.

IN NON-REPETITIVE SCANNING MODE, IT OFFERS STRONGER PENETRATION, GATHERING MORE STRUCTURAL INFORMATION, MAKING IT SUITABLE FOR POWER LINE INSPECTION, FORESTRY SURVEYING, AND OTHER SCENARIOS.

WHAT IS L2'S RGB CAMERA USED FOR?

WHEN COLLECTING POINT CLOUD DATA, THE RGB CAMERA CAN PROVIDE REAL-TIME COLOR INFORMATION FOR THE DATA, AND THE PHOTOS TAKEN CAN BE USED FOR RECONSTRUCTING 2D RGB MODELS. WHEN THERE IS NO NEED TO GATHER POINT CLOUD DATA, THE RGB CAMERA CAN TAKE PHOTOS AND VIDEOS, AND COLLECT IMAGES FOR RECONSTRUCTING 2D OR 3D RGB MODELS.

WHAT IS THE SURVEYING AND MAPPING ACCURACY OF ZENMUSE L2?

HORIZONTAL ACCURACY: 5 CM

VERTICAL ACCURACY: 4 CM

WHAT CMOS SIZE IS ZENMUSE L2'S RGB CAMERA? AND WHAT IS ITS PIXEL SIZE?

THE RGB CAMERA USES A 4/3 CMOS, AND THE PIXEL SIZE IS 3.3×3.3 MM.

WHAT IMPROVEMENTS DOES ZENMUSE L2 HAVE COMPARED TO THE PREVIOUS GENERATION?

THE PERFORMANCE OF THE LIDAR HAS IMPROVED TO ABOUT 1/5 OF L1'S SPOT SIZE WHEN THE OBJECT OR AREA IS 100 M FROM THE LIDAR. THE LIDAR'S PENETRATION ABILITY HAS BEEN SIGNIFICANTLY INCREASED, AND BOTH ITS DETECTION RANGE AND ACCURACY HAVE IMPROVED. THE PIXEL SIZE OF THE RGB CAMERA HAS INCREASED BY 89% COMPARED TO L1'S 2.4×2.4 MM. THE ACCURACY OF THE IMU HAS IMPROVED TO 0.05° (REAL-TIME) AND 0.025° (POST-PROCESSING). THE LIDAR SUPPORTS LASER RANGEFINDER (RNG).

HOW EFFICIENT IS THE SURVEYING AND MAPPING OPERATION OF ZENMUSE L2?

ZENMUSE L2 CAN COLLECT DATA COVERING AN AREA OF UP TO 2.5 KM² IN A SINGLE FLIGHT.

MEASURED WHEN ZENMUSE L2 IS MOUNTED ON MATRICE 350 RTK WITH A FLIGHT SPEED OF 15 M/S, FLIGHT ALTITUDE OF 150 M, SIDE OVERLAP RATE OF 20%, CALIBRATE IMU ENABLED, ELEVATION OPTIMIZATION TURNED OFF, AND TERRAIN FOLLOW TURNED OFF.

WHAT ARE THE APPLICATION SCENARIOS OF ZENMUSE L2?

ZENMUSE L2 CAN BE WIDELY USED IN MULTIPLE SCENARIOS INCLUDING TOPOGRAPHIC SURVEYING AND MAPPING, POWER LINE MODELING, FORESTRY MANAGEMENT, SURVEYING MEASUREMENT, AND MORE.

WHAT TYPE OF SD CARD IS REQUIRED FOR ZENMUSE L2?

AN SD CARD WITH A SEQUENTIAL WRITING SPEED OF 50 MB/S OR ABOVE AND UHS-I SPEED GRADE 3 RATING OR ABOVE;
MAX CAPACITY: 256 GB.

LEXAR 1066X 64GB U3 A2 V30 MICROSDXC

LEXAR 1066X 128GB U3 A2 V30 MICROSDXC

KINGSTON CANVAS GO! PLUS 128GB U3 A2 V30 MICROSDXC

LEXAR 1066X 256GB U3 A2 V30 MICROSDXC

WHAT DOES REAL-TIME POINT CLOUD MODELING OF ZENMUSE L2 MEAN? WHICH COLORING MODES ARE SUPPORTED? WHAT OPERATIONS ARE SUPPORTED DURING VIEWING?

DURING THE COLLECTION OF ORIGINAL POINT CLOUD DATA, ZENMUSE L2 CAN GENERATE AND DISPLAY A REAL-TIME POINT CLOUD MODEL IN THE DJI PILOT 2 APP PROCESSED WITH SPARSE RESOLUTION. FOUR COLORING MODES ARE SUPPORTED, INCLUDING REFLECTIVITY, HEIGHT, DISTANCE AND RGB. WHEN VIEWING MODELS IN THE ALBUM ON THE REMOTE CONTROLLER, YOU CAN ROTATE, DRAG, ZOOM, QUICKLY SWITCH THE PERSPECTIVE, AND RE-CENTER THE VIEW.

WHICH TYPES OF FLIGHT TASKS DOES ZENMUSE L2 SUPPORT?

THE L2 CURRENTLY SUPPORTS WAYPOINT ROUTE, AREA ROUTE AND LINEAR ROUTE FLIGHT TASKS.

DOES ZENMUSE L2 REQUIRE WARM-UP BEFORE PERFORMING FLIGHT TASKS?

NO WARM-UP IS REQUIRED. ONCE THE AIRCRAFT'S RTK IS IN THE FIX STATUS, IT CAN TAKE OFF AND OPERATE.

DOES ZENMUSE L2 NEED TO CALIBRATE THE IMU DURING OPERATION?

TO ENSURE THE ACCURACY OF THE COLLECTED DATA, CALIBRATE IMU NEEDS TO BE ENABLED. BEFORE EXECUTING THE FLIGHT TASK, PLEASE ENABLE CALIBRATE IMU. BEFORE MANUAL FLIGHT, YOU CAN TAP CALIBRATE BEFORE THE OPERATION TO MANUALLY TRIGGER THE CALIBRATION. DURING THE OPERATION, MANUALLY TRIGGER THE IMU CALIBRATION AGAIN BASED ON THE COUNTDOWN PROMPT.

WHAT IS THE PURPOSE OF ZENMUSE L2'S TASK QUALITY REPORT?

THE TASK QUALITY REPORT RECORDS THE EFFECTIVE DATA DURATION OF THE LIDAR, THE CAMERA, AND THE IMU MODULE. OPERATORS CAN JUDGE THE VALIDITY OF DATA COLLECTION BASED ON THE STATUS OF EACH MODULE.

WHAT ARE THE DIFFERENT TYPES OF DATA SAVED ON THE SD CARD OF ZENMUSE L2?

CLC (CAMERA LIDAR CALIBRATION FILE)
CLI (LIDAR IMU CALIBRATION FILE)
LDR (LIDAR DATA)
RTK (RTK DATA OF MAIN ANTENNA)
RTL (COMPENSATION DATA OF RTK POLE)
RTS (RTK DATA OF AUXILIARY ANTENNA)
RTB (BASE STATION RTCM DATA)
IMU (IMU RAW DATA)
SIG (PPK SIGNATURE FILE)
LDRT (POINT CLOUD FILE FOR PLAYBACK ON THE APP)
RPT (POINT CLOUD QUALITY REPORT)
RPOS (REAL-TIME POS SOLUTION DATA)
JPG (PHOTOS TAKEN DURING FLIGHT)

HOW TO BUILD A HIGH-PRECISION MODEL WITH DATA COLLECTED BY ZENMUSE L2?

LAUNCH DJI TERRA TO CREATE A NEW "LIDAR POINT CLOUD" TASK. FOLLOW THE INSTRUCTIONS TO IMPORT THE DATA FROM THE SD CARD INTO DJI TERRA AND COMPLETE THE RELATED SETTINGS, AND YOU CAN INITIATE HIGH-PRECISION MODELING.

IN DJI TERRA, WHAT RESULT FORMATS CAN BE GENERATED WITH THE DATA OF ZENMUSE L2?

POINT CLOUD FORMATS: PNTS, LAS, PLY, PCD, S3MB
TRAJECTORY FORMATS: SBET.OUT, SBET.TXT.

WHAT NEW POINT CLOUD PROCESSING FUNCTIONS CAN BE ACHIEVED BY ZENMUSE L2 WITH DJI TERRA?

1. GROUND POINT CLASSIFICATION;
2. OUTPUT DIGITAL ELEVATION MODEL (DEM);
3. A NEW ACCURACY CONTROL AND CHECK FUNCTION THAT SUPPORTS LOCAL COORDINATE SYSTEM, TO ENSURE THE RESULTS REACH SURVEYING AND MAPPING ACCURACY;
4. OPTIMIZATION OF THE POINT CLOUD THICKNESS BETWEEN THE FLIGHT STRIPS, MAKING IT THINNER AND MORE CONSISTENT;
5. MORE COMPREHENSIVE POINT CLOUD QUALITY REPORT.



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