



# TERSUS MVP100

Base-Station-Free Mobile Mapping System



# Tersus MetaVerse Painter 100

The Tersus MVP100 is an integrated, high-performance mobile mapping system designed for rapid and precise 3D geospatial data acquisition across multiple platforms. Powered by a GNSS-aided inertial navigation system (INS), Tersus patented GNSS receiver, and native support for Tersus TAP-Global PPP positioning service, the MVP100 delivers centimeter-level accuracy without reliance on local base stations, making it a cost-effective solution for capturing rich, high-precision 3D spatial data. This makes it particularly well suited for large-scale, cross-region, and remote mapping projects where base station deployment is impractical or costly.

MVP100 offers a complete, turnkey mobile mapping solution by seamlessly combining advanced hardware and intelligent software. The system integrates a LiDAR sensor, industrial-grade camera, mounting accessories, and vibration isolation, with the Tersus MVP Engine at its core. The software supports automated PPK and PPP (TAP) processing, trajectory optimization, point cloud colorization, and advanced point cloud refinement—ensuring an efficient, streamlined workflow from data capture to final deliverables.

Capable of generating high-density point clouds and high-resolution imagery with consistent global accuracy, the MVP100 is well suited for a wide range of applications, including terrain and corridor mapping, mining and water conservancy surveying, agriculture and forestry, power line inspection, emergency response, smart cities, BIM modeling, urban asset mapping, and transportation infrastructure surveying.

## Features

- Advanced GNSS positioning system with PPK, and TAP(PPP), integrated with built-in IMU
- 5 mm (PPK) positioning accuracy, with base-station-free operation via TAP(PPP)
- 3–5 cm point cloud absolute accuracy
- Multi-source data automatic alignment and fusion
- Powerful one-click processing software
- Multiple payload support: drone, vehicle and handheld platforms
- DJI SkyPort compatible, with optional accessories and reserved direct interfaces
- Low power consumption for extended operation
- Lightweight design: 1.45 kg
- Flexible system integration for diverse mapping scenarios

## Supported Drones

Compatible with popular drone models



DJI M300/350

DJI M400

DJI M600

## Lightweight & Extended Endurance

The MVP100 features a compact design, weighing only 1.45kg, significantly reducing drone payload and extending single-flight operation time for enhanced efficiency.

## Out-of-Box Experience & Rapid Deployment

MVP100 provides an out-of-box experience and can be used immediately once mounted to the payload. All the calibration and bore-sighting procedures have been completed before shipping.

## Integrated Design, Multi-Platform Adaptability

Equipped with a DJI SkyPort interface, the MVP100 seamlessly integrates with various mainstream drones (e.g., DJI series), vehicles, and other mobile platforms, enabling flexible and rapid deployment to meet diverse operational needs.

## Wide Field of View, Broad Coverage

Supporting flight altitudes up to 100m AGL, combined with the LiDAR's 360° horizontal and 31° vertical Field of View (based on Hesai Pandar XT-32), the MVP100 efficiently scans large-scale scenes for comprehensive data acquisition.

## Automated Point Cloud from Multi-Source Data

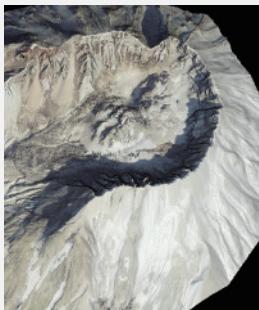
By tightly integrating GNSS, INS, LiDAR, and camera data with Tersus' patented PPK algorithms, the MVP100 delivers high-accuracy point clouds. Data can be processed with a streamlined workflow to automatically generate dense point clouds with 3–5 cm absolute accuracy.

## Base-Station-Free Mobile Mapping with TAP

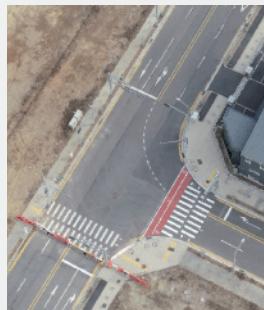
Powered by Tersus TAP (PPP) technology, the MVP100 delivers centimeter-level positioning without the need for ground base stations. This base-station-free workflow simplifies field setup, increases operational flexibility.



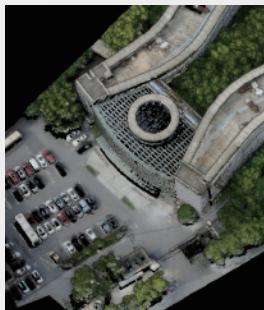
# Application Scenario



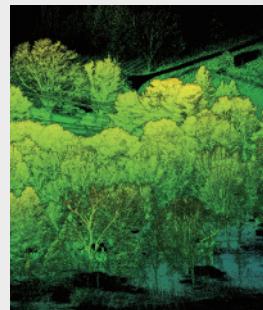
Terrain Surveying



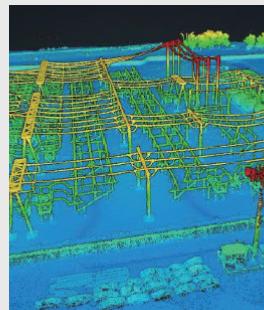
Road Construction



Building Management



Forestry Analysis



Power Line Inspection

# Technical Specifications

## MVP100

### System Platform

|                        |                      |
|------------------------|----------------------|
| Weight                 | 1.45 kg              |
| Power Supply / Voltage | 13-18V DC            |
| Power Consumption      | 20W                  |
| Operating Temperature  | -10°C ~ +50°C        |
| Storage Temperature    | -30°C ~ +60°C        |
| Data Storage           | 256GB USB, up to 1TB |

### Scanner Performance (Based on Hesai Pandar XT-32)

|                            |   |
|----------------------------|---|
| Laser Class                | Class 1 Eye Safe                            |
| Laser Channels             | 32  |
| Wavelength                 | 905nm                                       |
| Operating Principle        | TOF   |
| Measurement Range          | 0.05-120 m                                  |
| Field of View (Horizontal) | 360°  |
| Horizontal Resolution      | 0.09° (5Hz)<br>0.18° (10Hz)<br>0.36° (20Hz) |

### Field of View (Vertical)

31° (-16° ~ +15°)

### Vertical Resolution

1°

### Frame Rate

5Hz, 10Hz, 20Hz

### Returns Supported

Dual Returns

Single Return (Last, Strongest, First)

### Max. Effective Measurement Rate

640,000 pts/ sec (Single Return)

1,280,000 pts/ sec (Dual Returns)

### LiDAR Accuracy/ Precision

10mm / 5mm

### Point Cloud Accuracy

3-5cm

### Camera

#### Camera Kit

26 MP APS-C

#### Effective Pixels

6252x4168

#### Sensor Size

23.5x15.7mm

#### Focal Length

16mm

#### FOV

83°

#### GSD @ 100 m

2.3cm

### GNSS / IMU Performance

Positioning Accuracy (RMS) 0.5cm+1ppm (PPK)

GNSS Data Rate Up to 20Hz

IMU Data Rate Up to 1000Hz

INS Data Rate Up to 1000Hz

Roll & Pitch Accuracy <0.01°

Heading Accuracy <0.05°

### TAP Performance

Coverage Global

Accuracy(RMS)

-Horizontal 1.5cm

-Vertical 3cm

Convergence <3 minutes

Signal Stability 99.99%

## MVP100 Plus

### System Platform

|                        |                      |
|------------------------|----------------------|
| Weight                 | 1.15kg               |
| Power Supply / Voltage | 13-18V DC            |
| Power Consumption      | 20W                  |
| Operating Temperature  | -10°C ~ +50°C        |
| Storage Temperature    | -30°C ~ +60°C        |
| Data Storage           | 256GB USB, up to 1TB |

### Scanner Performance (Based on Hesai Pandar XT-32M2X)

|                            |   |
|----------------------------|---|
| Laser Class                | Class 1 Eye Safe                            |
| Laser Channels             | 32  |
| Wavelength                 | 905nm                                       |
| Operating Principle        | TOF   |
| Measurement Range          | 0.5-300 m                                   |
| Field of View (Horizontal) | 360°  |
| Horizontal Resolution      | 0.09° (5Hz)<br>0.18° (10Hz)<br>0.36° (20Hz) |
| Field of View (Vertical)   | 40.3°(-20.8°~ +19.5°)                       |

### Vertical Resolution

1.3°

### Frame Rate

5Hz, 10Hz, 20Hz

### Returns Supported

Single Return (Last, Strongest, First)

Dual Return

Triple Return

### Max. Effective Measurement Rate

640,000 pts/ sec (Single Return)

1,280,000 pts/ sec (Dual Returns)

1,920,000 pts/sec (Triple Returns)

### LiDAR Accuracy/ Precision

10mm / 5mm

### Point Cloud Accuracy

3-5cm

### Camera

#### Camera Kit

26 MP APS-C

#### Effective Pixels

6252x4168

#### Sensor Size

23.5x15.7mm

#### Focal Length

16mm

#### FOV

83°

#### GSD @ 100 m

2.3cm

### GNSS / IMU Performance

Positioning Accuracy (RMS) 0.5cm+1ppm (PPK)

GNSS Data Rate Up to 20Hz

IMU Data Rate Up to 1000Hz

INS Data Rate Up to 1000Hz

Roll & Pitch Accuracy <0.01°

Heading Accuracy <0.05°

### TAP Performance

Coverage Global

Accuracy(RMS)

-Horizontal 1.5cm

-Vertical 3cm

Convergence <3 minutes

Signal Stability 99.99%



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