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.

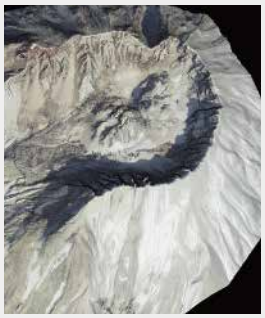
Automated Point Cloud from Multi-Source Data

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.

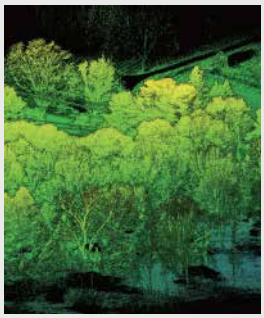
Application Scenario



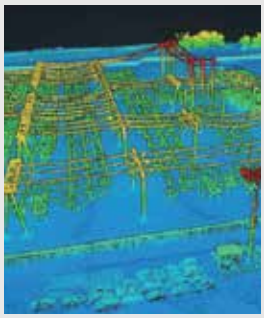
Terrain Surveying

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)
	0.18° (10Hz)
	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 Accuarcy	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)
	0.18° (10Hz)
	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 Accuarcy	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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