TERSUS GNSS

TERSUS
MVP100

High-Precision Mobile Mapping System

Tersus MetaVerse Painter 100

The Tersus MVP100 is an integrated, high-performance mobile mapping system designed for rapid and precise geospatial data acquisition across diverse platforms. Leveraging a high-performance GNSS-aided inertial navigation system (INS) and Tersus's patented GNSS receiver, the MVP100 delivers centimeter-level accuracy with PPK processing capabilities, making it a cost-effective solution for capturing rich 3D spatial data.

MVP100 provides a comprehensive, turnkey mobile mapping solution, integrating cutting-edge hardware with powerful software for a seamless workflow. It encompasses essential components like the LiDAR unit, industrial-grade camera, mounting brackets, and vibration isolator. The system's core lies in the Tersus MVP Engine software, which supports automatic Post-Processing (PPK), trajectory optimization, point cloud coloring, and advanced point cloud optimization. This integrated approach ensures an efficient and complete data processing workflow from acquisition to final deliverables.

With its ability to generate vast quantities of high-precision 3D spatial data, high-density point clouds, and high-resolution image data, the MVP100 is broadly applicable. Key applications include terrain mapping, mine and water conservancy surveying, agricultural and forestry management, power line inspection, disaster emergency response, smart city initiatives, BIM modeling, urban streetscape analysis, and transportation infrastructure surveying.

Features

- **Advanced GNSS RTK system and built-in IMU supported**
- **Multi-source data automatic alignment & fusion**
- **5mm (PPK), 10mm (RTK) position accuracy**
- **3-5 cm Point Cloud Absolute Accuracy**
- **Low power consumption**
- **Multiple payloads, Drone, Vehicle supported**
- **DJI Skyport and more optional accessories (direct connection interface reserved)**
- **Powerful one-click processing software**
- **Lightweight 1.45kg**

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.

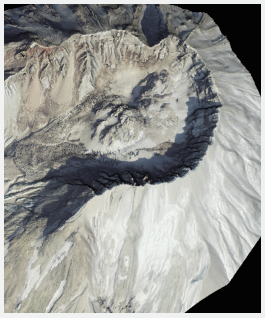
Precise Point Cloud from Multi-Source Analysis

Through multi-sensor data collection (GNSS+INS+LiDAR+Camera), Tersus's patented PPK algorithms ensure highly accurate coordinate data output. All data can be consolidated into a single file for streamlined post-processing.

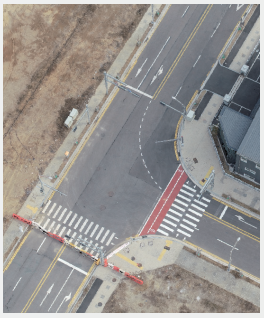
Streamlined Workflow, Automated Point Cloud Generation

Simply import data files into the post-processing software, and high-density point clouds with 3-5cm absolute accuracy can be automatically generated with a single click, significantly boosting operational efficiency.

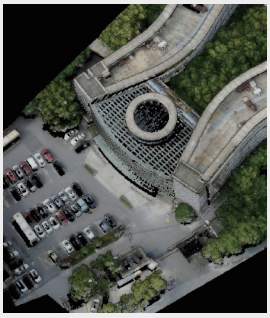
Application Scenario



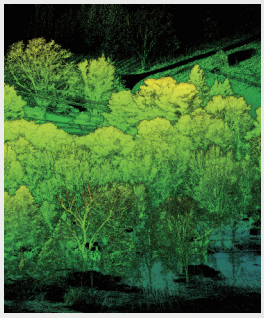
Terrain Surveying



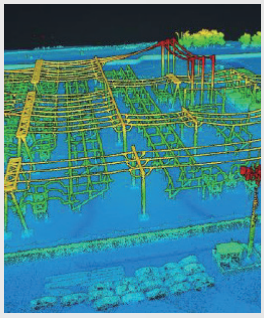
Road Construction



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
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

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°
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

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
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
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°
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

Tersus GNSS Inc.

Right to the point.

Tersus GNSS is a leading Global Navigation Satellite System (GNSS) solution provider. Our offerings and services aim to make centimeter-precision positioning affordable for large-scale deployment.
Founded in 2014, we have been pioneers in design and development GNSS RTK products to better cater to the industry’ s needs. Our portfolios cover GNSS RTK & PPK OEM boards, David GNSS Receiver, Oscar GNSS Receiver and inertial navigation systems.
Designed for ease of use, our solutions support multi-GNSS and provide flexible interfaces for a variety of applications, such as UAVs, surveying, mapping, precision agriculture, lane-level navigation, construction engineering, and deformation monitoring.

Descriptions, specifications and related materials are subject to change.

To learn more, please visit: www.tersus-gnss.com
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