



Versatile Mobile LiDAR Scanner

TSR120

**Multifunctional Mobile LiDAR
Scanning Platform**

TSR120 Versatile Mobile LiDAR Scanner

The TSR120 is new multifunctional mobile LiDAR scanning platform.

With a 360° rotating pan-tilt, it covers 270°×360° point clouds. Using advanced SLAM, it captures high-detail 3D data without light or GPS. It has built-in control & storage, swappable battery, two 20MP fisheye cameras (ultra-wide FOV), 120m max range, multi-return, and supports backpack, drone, and vehicle mounting. The companion APP enables true-color point clouds and panoramas. Applications include deep mine surveying, large earthworks, long tunnels, power line inspection, and multi-source fusion mapping.

CHARACTERISTIC

High-precision & Multi-mode Mapping

The TSR120 integrates a high-precision positioning and attitude system with multi-constellation GNSS (GPS, GLONASS, Galileo, BeiDou) and offers five mapping modes: SLAM, RTK-SLAM, PPK-SLAM, GNSS, and INS. In open areas, RTK-SLAM or GNSS mode delivers absolute coordinates; in GNSS-denied environments (indoors, tunnels, shafts), switch to PPK-SLAM or SLAM/INS. Deep fusion of LiDAR and attitude data achieves absolute accuracy ≤ 3 cm and relative accuracy ≤ 1 cm, meeting professional surveying standards.

Ultra-long Range & Strong Penetration

TSR120 delivers 120m range with a 32-channel LiDAR and 640,000 pts/s. It penetrates vegetation, grilles, and gaps to capture occluded features. It provides high-density, high-detail point clouds for open-pit mines and dense forests, boosting data integrity and efficiency in complex environments.

Multi-platform Adaptability

The device weighs only 1.7 kg, making it lightweight and portable. It supports multiple mounting options: handheld, backpack, Airborne, and Vehicle-mounted. This versatile adaptability significantly improves equipment utilization and reduces the cost of purchasing multiple devices.

True-color Point Cloud

The device is equipped with dual 20MP fisheye cameras (actual effective pixels: 2×20MP) featuring a 200° ultra-wide angle and simultaneous synchronized shooting, generating high-precision true-color point clouds and local panoramas, thereby enhancing feature recognition and visual clarity of the results.

All-in-One Solution

The TSR120's self-developed SLAM algorithm requires no deliberate loop closure — stop scanning and power off. The integrated workflow: pre-scan (app preview, RTK setup), during-scan (real-time point cloud, one-tap anchors, auto-save), and post-scan (one-click PointCloudCreator for denoising, smoothing, densification, dynamic object removal, and true-color generation) — all without third-party tools.

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Multifunctional Mobile LiDAR Scanning Platform

Weight: 1.7kg

Dimensions: 15.3*9.3*39.4cm

Ultra-long Range

120m range (80m @ 10% reflectivity)
640,000 pts/s (Point Rate)

Multiple Mapping Mode

SLAM; RTK-SLAM; PPK-SLAM;
GNSS; INS

Centimeter-Level

≤1cm(Relative)
≤3cm(Absolute)

Time-synchronized Scanning

Dual 20MP cameras with
Single camera: fisheye, 200°

64GB internal flash memory
128GB MicroSD Card



Structure and Parts

- 01. GNSS Antenna
- 02. Power button
- 03. USB-A port
- 04. USB-C port
- 05. TF card slot /microSD card slot

- 06. Handle battery charging port
- 07. LiDAR
- 08. Camera
- 09. Handle battery

Application Scenarios



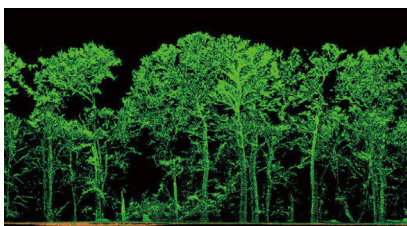
Underground & Enclosed Spaces



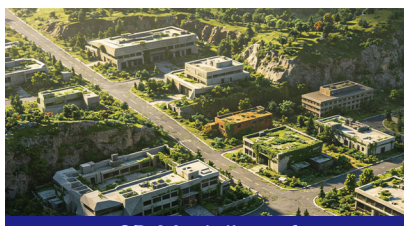
Large-scale Earthworks & Engineering Surveying



Long-distance Linear Projects



Forestry & Agricultural Surveys



3D Modeling of Complex Environments



Infrastructure Inspection

SPECIFICATION

SYSTEM SPECS

Accuracy	≤1cm(Relative), ≤3cm(Absolute)
Voltage Range	12-18V
Dimensions	15.3*9.3*39.4cm
Weight	1.7kg (including battery)
Operating Temperature	-20°C-55°C
Power Supply Range	12V-16.8V
System Consumption	25W
Storage	64GB internal flash memory 128GB MicroSD Card
Carrying Platform	Handheld / Backpack / Airborne / Vehicle-mounted
Battery	3500mAh
Operating time	2h

POS SPECS

GNSS System	GPS L1/L2 GLONASS L1/L2 GAL E1/E5a/E5b BDS B1/B3/B2a (Supports Single BeiDou Mode)
Positioning Accuracy	Horizontal: ±0.02m Vertical: ±0.03m
Pitch Accuracy	0.015°

Heading Accuracy	0.040°
Roll Accuracy	0.015°

LASER SPECS

Range	80m @ 10% reflectivity, maximum range 120m
Channels	32
Horizontal FOV	360°
Vertical FOV	40.3° (-20.8° ~ +19.5°) (Laser device) 270° (Handheld device)
Point Rate	640,000 pts/s
Range Accuracy	0.5cm (typical, 1 σ) / 1cm (standard)

CAMERA SPECS

Actual effective pixels	2*20MP
Shooting Mode	Interval shooting / Equal time-interval shooting
FOV	Single camera: fisheye, 200°

MAPPING

Mapping Mode	SLAM; RTK-SLAM; PPK-SLAM; GNSS; INS
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🌐 www.robustsurveying.com ✉ mail@asisurveyinginstruments.com

Manufacturers may update parameters at any time, please refer to the latest product information.

Contact Nos: +91 9910697973, 9310997973, +91 11 470 14 143
Email ID: balinder2kumar@yahoo.com
mail@asisurveyinginstruments.com
Website: <https://www.asisurveyinginstruments.com>
<https://www.robustsurveying.com>

Advanced Surveying Instruments (India) Pvt. Ltd.
H-10/103, 1st Floor, Express Arcade, Near P. P. Jewellers
New Delhi - 110034, INDIA