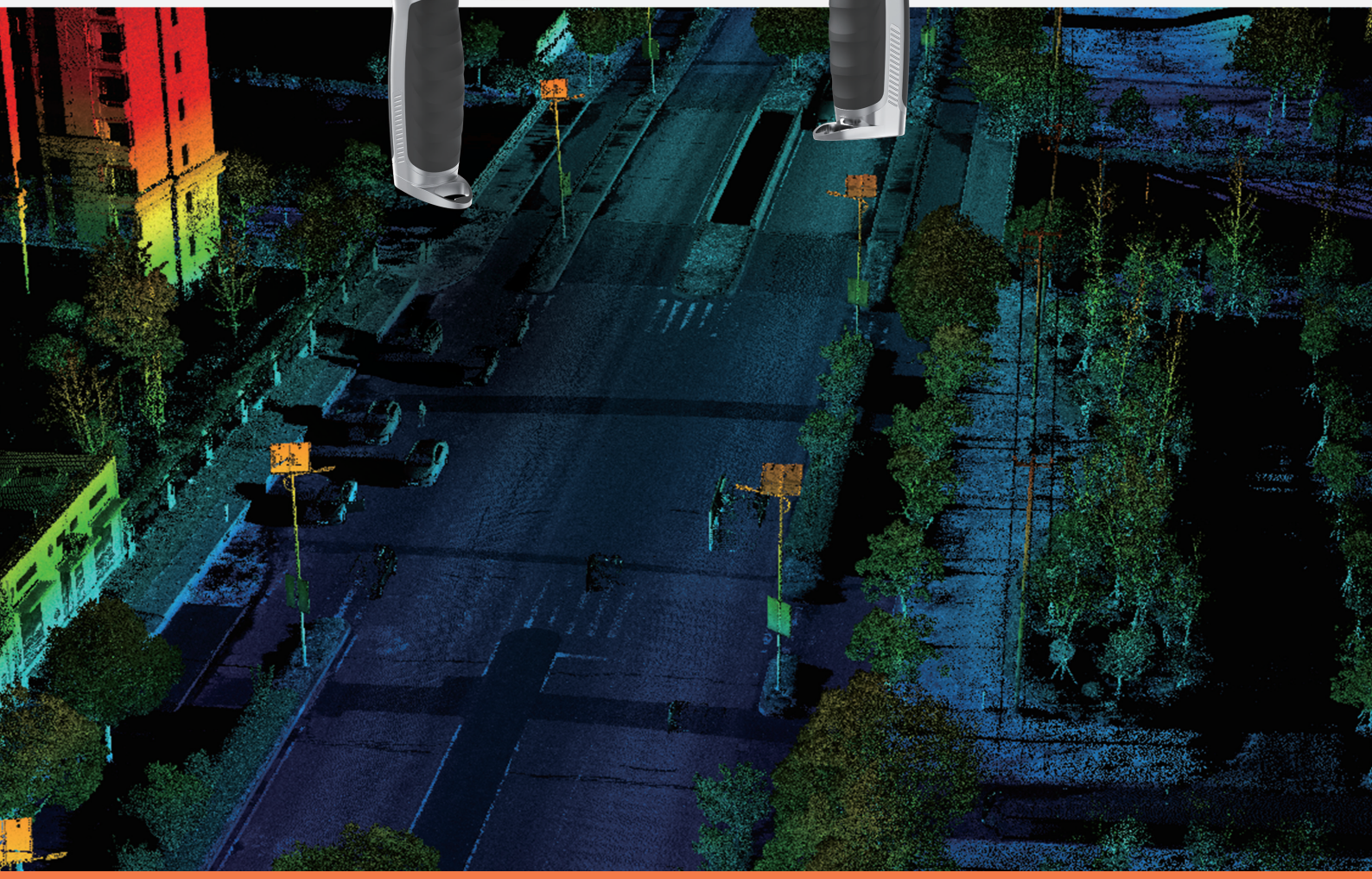
CHCNAV

Geospatial

RS10

Handheld SLAM 3D Laser Scanner + GNSS RTK System





RS10 Surveying System

The RS10 brings a new approach to geospatial surveying by integrating GNSS RTK, laser scanning, and visual SLAM technologies into a single platform, delivering high-precision, loop-free surveying and a completely new field experience.



High-Precision RTK and Laser SLAM Integration, Unmatched Accuracy

3 cm

20 Years of CHCNAV RTK expertise delivering < 3 cm accuracy even in challenging environments



5 cm

Full-scenario SLAM performance, achieving 5 cm absolute accuracy

Real-Time SLAM Processing



1.2 T
Embedded data computing power

13,000 m²
Continuous, uninterrupted SLAM processing

No Post-processing
Copy point cloud results straight from the RS10

Post-processing for Secondary Refinement

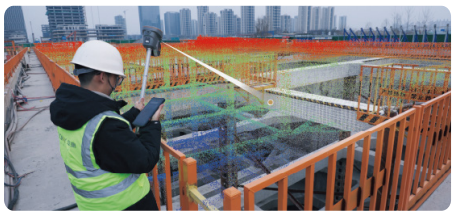
Twice
Secondary refinement processing

2 cm
Point cloud thickness

1 cm
Relative accuracy

Innovative SFix and Vi-LiDAR Technology





SFix Technology
Survey Anywhere, Even Without GNSS

Innovative SFix combines LiDAR ranging with SLAM angular constraints, achieving 5 cm precision within 1 minute without satellites signals.

Vi-LiDAR Technology, Contactless Surveying

Performs precise target measurements like a total station, achieving 5 cm accuracy within 15 m.

Ready for RTK Users



Operates in rover mode with CHCNAV LandStar™ software for easy use and minimal training.

Application Scenario


Road surveying


Underground Information acquisition


Stockpile measurement


Old community redevelopment


As-Built surveying


Topographic surveying


Energy facility surveying


Forestry asset management

SPECIFICATIONS

General System Performance

	RS10(16 lines)	RS10(32 lines)
Absolute accuracy	H: < 5 cm RMS(1) V: < 5 cm RMS(1)	H: < 2 cm RMS(1) V: < 2 cm RMS(1)
Relative accuracy	<1cm	
Power supply mode	Lithium battery, supports hot-swapping and portable charger	
Working time from a single battery(2)	1 h	
Data storage	512 GB	
Field of view	360° × 270°	
Weight	1.9 kg (including RTK and battery)	1.7 kg (including RTK and battery)
Loop-free data acquisition	Yes	
Real-time accuracy assessment	Yes	

Laser Scanner

	RS10(16 lines)	RS10(32 lines)
Laser product classification	Class 1 eye safe	
Range	0.05 to 120 m	0.5 to 300 m
Channel	16	32
Point cloud thickness	2 cm	1 cm
Range capability	80 m @10% reflectivity (Channels 5 to 12) 50 m @10% (Channels 1 to 4, 13 to 16)	80 m @10% reflectivity
FOV (Horizontal)	360°	
Horizontal angle resolution	0.18° (10 Hz)	
FOV (Vertical)	30° (-15° to +15°)	40.3° (–20.8° ~ +19.5°)
Max. effective measurement rate	320 000 pts/sec	640 000 pts/sec
Max. Number of return pulses	2	3
Selectable scan speed	10 Hz	
Wavelength	905 nm	

GNSS Performance(3)

Channels	1408 channels with iStar2.0
GPS	L1C/A, L2C, L2P(Y), L5
GLONASS	L1, L2, L3*
Galileo	E1, E5a, E5b, E6*
BeiDou	B1I, B2I, B3I, B1C, B2a, B2b
QZSS	L1C/A, L1C, L2C, L5, L6*
NavIC/ IRNSS	L5*
PPP	B2b-PPP
SBAS	EGNOS (L1, L5)

Electrical

Input voltage	9-20 V DC
Power consumption	< 30 W
Battery capacity	24.48 Wh

GNSS Accuracies

Real time kinematic (RTK)(4)	H: 8 mm + 1 ppm RMS V: 15 mm + 1 ppm RMS Initialization time: <10 s Initialization reliability: >99.9%
Post-processing kinematic (PPK)	H: 3 mm + 1 ppm RMS V: 5 mm + 1 ppm RMS
PPP	H: 10 cm | V: 20 cm
High-precision static	H: 2.5 mm + 0.1 ppm RMS V: 3.5 mm + 0.4 ppm RMS
Static and rapid static	H: 2.5 mm + 0.5 ppm RMS V: 5 mm + 0.5 ppm RMS
Code differential	H: 0.4 m RMS | V:0.8 m RMS
Visual-assisted positioning	Yes

IMU

IMU update rate	200 Hz
Auto initialization	Yes
Attitude accuracy after post-processing	0.005° RMS pitch/roll, 0.010° RMS heading
Position accuracy after post-processing	0.010 m RMS horizontal, 0.020 m RMS vertical

Camera

Operating temperature	3
Resolution	15 MP (5 MP*3)
Sensor size	2592 (H) × 1944 (V)
Pixel size	2.0 μm
FOV	210°×170°

Environments

Operating temperature	-20 °C to +60 °C
Storage temperature	-20 °C to +60 °C
Ingress protection	IP64 (5) (according to IEC 60529)
Humidity (operating)	80%, non-condensing

Equipped Software

SmartGo software	Data acquisition control, real-time point cloud display, etc
CoPre intelligent processing software	POS process, Adjust & Refine, Generate point cloud, modeling, etc
CoProcess efficient feature extraction software	Building feature extraction, road feature extraction, volume calculation, etc
LandStar field survey APP	Topographic survey, Point stakeout, Line stakeout, Elevation check, Facade survey

***Specifications are subject to change without notice.**

(1) According to CHCNAV test condition.
(2) Typical observed values.
(3) Compliant, but subject to availability of BDS ICD, GLONASS, Galileo, QZSS and IRNSS commercial service definition. GLONASS L3, Galileo E6, QZSS L6 and IRNSS L5 will be provided through future firmware upgrade.
(4) Accuracy and reliability are determined under open sky, free of multipaths, optimal GNSS geometry and atmospheric condition. Performances assume minimum of 5 satellites, follow up of recommended general GPS practices.
(5) Splash, water, and dust resistant and were tested under controlled laboratory conditions with a rating of IP64 under IEC standard 60529.

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