SPECIFICATIONS

▶ GNSS Performance[1]

Channels	1408 channels with iStar2.0
GPS	L1C/A, L1C, L2C, L2P(Y), L5
GLONASS	G1,G2,G3
Galileo	E1, E5a, E5b, E6*
BeiDou	B1I, B2I, B3I, B1C, B2a, B2b
QZSS	L1C/A, L1C, L2C, L5
NavIC/ IRNSS	L5*
SBAS	L1C/A*

▶ GNSS Accuracies[2]

Real time kinematic (RTK)	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	Support B2b-PPP, E6B-HAS 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
Autonomous	H: 1.5 m RMS | V: 2.5 m RMS
SFix survey[3]	With GNSS signal: ±3 cm (2σ) Without GNSS signal: ±5 cm (2σ) @20 m radius Supports seamless SFix initialization, tilt compensation 0-360°
Vi-LiDAR survey	Visual-fusion survey, multiple points per shot, range up to 20 m With GNSS signal: typical accuracy ±5 cm @15 m Without GNSS signal: powered by SFix, reliable in all obstructed scenarios
IMU update rate	200 Hz, AUTO-IMU
IMU tilt angle	0-60°
IMU tilt-compensated	8 mm + 0.3 mm/° tilt down to 30°

▶ LiDAR

Range	30 m @ 10% reflectivity 70 m @ 80% reflectivity
FOV	H: 360° | V: 90°
Eye - Safety Class	Class 1 (IEC60825 - 1:2014)
Point Frequency	860,544 points/second (single - echo mode)
Number of Lines	96

▶ Vi-LiDAR Camera

FOV	8 MP HD telephoto
Eye - Safety Class	F/2.2
Point Frequency	77.5°(H)* 48.8°(V)
Optimal Imaging Range	5 - 20 m
Feature	Vi-LiDAR contactless survey, AR visual navigation

▶ Color Camera

Pixel	2 MP, dual-camera
FOV	Dual-camera combined FOV 130° (H) × 46° (V)
Feature	Wide-angle coloring, true-color point cloud

▶ Bottom Camera

Pixel	2 MP
FOV	90°
Feature	AR visual stakeout

▶ Environments

Operating temperature	-20°C to +55°C(-4°F to +131°F)
Storage temperature	-40°C to +75°C(-40°F to +167°F)
Ingress protection	IP67[4] (according to IEC 60529)
Shock resistance grade	IK08

▶ Hardware

Range	208 mm × 162.0 mm × 95.5 mm (8.19 in × 6.38 in × 3.76 in)
Weight	1.39 kg (3.06 lb)
LiDAR Protection	Standard protective cover
Front panel	2 LED, 1 physical button

▶ Electrical

Battery	7.2V/ 9900mAh/ 71.28Wh
Range	SFix / Vi-LiDAR / Point Cloud Scan: ~15W UHF/ 4G RTK Rover: ~4W
Operating time on internal battery [5]	SFix / Vi-LiDAR / Point Cloud Scan: up to 5h UHF/4G RTK Rover: typical 22h
Quick charge	Supports up to 30W PD fast charging, full charge in in 5h

▶ Communication

Range	IEEE 802.11g IEEE 802.11ac VHT80 CH42 & 155
Bluetooth®	5.0 & 4.2 +EDR, backward compatible
Built-in UHF radio	Standard Internal Rx only: 410 - 470 MHz Protocol: CHC, Transparent, TT450
Data storage	64GB internal (up to 1h scan on-site or 30h point cloud data storage), expandable to1TB
Ports	1 x USB V3.0 Type-C port (data download) 1 x UHF antenna port (SMA male)
Data formats	RTCM 2.x / 3.x, CMR input/output HCN, RINEX 2.11 / 3.02 NMEA 0183 output, NTRIP client Post-processing free LAS point cloud output with GEO coordinates

▶ Compliance with Laws and Regulations

International standards	RE Directive 2014/53/EU, IEC 62133-2:2017, EN 18031-1/-2：2024, IEC 62368-1:2014, IEC 60825-1-2014, FCC Rules and Regulations Part 15, Radio Equipment in JAPAN, UN Manual Section 38.3

♺ CE FC ⚠

CHC Navigation Headquarter

577 Songying Road, Qingpu
201703 Shanghai, China
+ 86 21 5426 0273
inquiry@chcnav.com

CHC Navigation Europe

Office Campus, Building A, Gubashi ut 6
1097 Budapest, Hungary
+36 20 421 6430
europe_office@chcnav.com

CHCNAV

Geospatial

ViLi i100

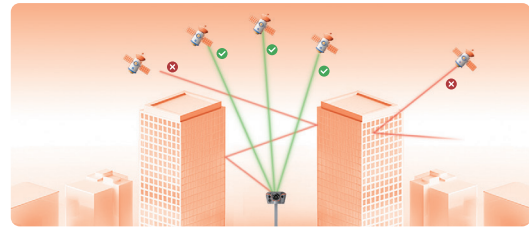## Versatile Visual-LiDAR GNSS Receiver with Consistent Accuracy in Obstruction

NOW, YOU CAN TRUST EVERY FIX!

The ViLi i100 is CHCNAV's flagship Visual-LiDAR GNSS RTK receiver for next-generation of high-precision surveying. With advanced GNSS satellite signal filtering, multi-sensor fusion, SFix 2.0 algorithms, and integrated Vi-LiDAR, it ensures consistent centimeter-level accuracy.

Designed for complex environments, the ViLi i100 enables precise data collection across diverse terrains, enabling users to work confidently even beyond the traditional limits of GNSS.

Key feature

Confident and Consistent Accuracy in Obstruction. Once Right, Always Right.

SFix 2.0: Reliable 5 cm Accuracy within 20 m in GNSS-Denied Areas.

Real-Time 3D Point Cloud Earthwork Calculation: Accurate, Fast & Safe.

Vi-LiDAR: Take a Photo, Capture Points to Survey, No Need to Aim or Stay Rock-Steady.

All-in-One Flagship GNSS Receiver with All Conventional Features Involved.

CONFIDENT AND CONSISTENT ACCURACY IN OBSTRUCTION

3 × Better, Multipath Auto-filtering

Next-gen 860,000 pts/sec LiDAR fusion accurately captures 3D spatial data of surrounding buildings in GNSS-obstructed environments, while real-time satellite path analysis automatically filters signals affected by multipath errors from obstructions or reflections.

< 5 cm Absolute Accuracy

Ensure stable, jump-free positioning with consistent 5cm absolute accuracy, even in narrow alleys, dense forests, or near high-rise buildings.

ENHANCED SFix 2.0 ENGINE

5 cm @20 m in GNSS-denied Areas

Enhanced SFix 2.0 engine ensures 5cm accuracy within 20m even in GNSS-denied areas, using 860,000pts/sec 3D laser data and SLAM-based angular constraints to reconstruct precise positioning without satellites.

Total Station ✕   ViLi i100 ✓
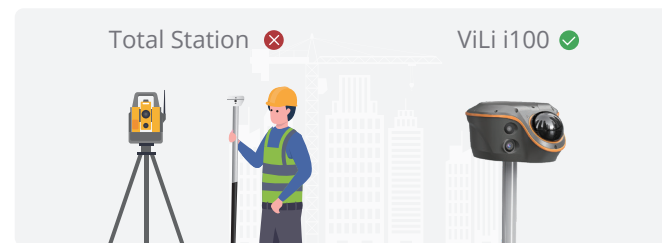
Total Station ✕   ViLi i100 ✓

No need Total Station switching, offer a true 'GNSS anywhere' experience, even under eaves, under viaducts or dense construction sites.

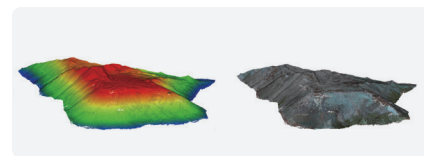## 3D POINT CLOUD EARTHWORK CALCULATION

99.98% Accuracy

High-precision LiDAR scanning and intelligent LandStar APP filter out noise and enable real-time cut/fill volume calculations directly on site.

Real-time Earthwork

Just scan, define boundary, and get instant earthwork results directly on site.

Non-contact Measurement

No surface contact needed, combining precision, efficiency, and safety in one workflow.

Vi-LiDAR CONTACTLESS SURVEY

### Batch Point Capture, Say Goodbye to Hand Tremors

Vi-LiDAR captures one photo and extract multiple 3D coordinates instantly, no need to aim, stay steady, or align the range pole. Eliminating hand tremors, fewer human errors, providing faster, more reliable results from a safe distance.
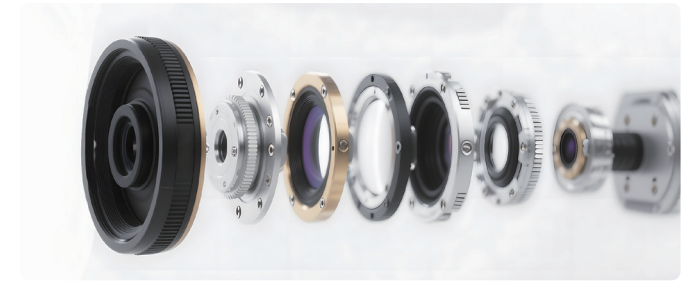
8 MP Telephoto Camera @ 15 m

Provides clear visuals at 15 m with 5 cm accuracy, keeping data collection efficient in complex environments and hard-to-reach areas.

ALL-IN-ONE FLAGSHIP GNSS RECEIVER

Radio Base-rover   NTRIP   PPP
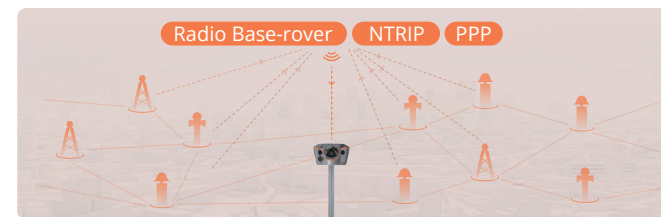
All-in-One Flagship, Full Mode Support

All conventional RTK functions and next-gen features in one compact device, LandStar-compatible, with NTRIP, UHF, and PPP for versatile sites.
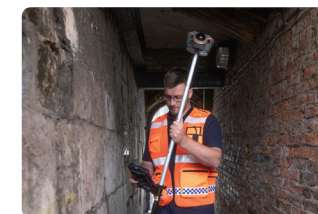
+50% Efficiency

Dual cameras for CAD+AR visual stakeout accelerate workflows by up to 50%.
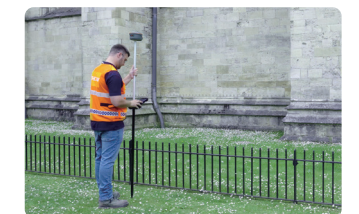
Use Cases

GNSS Signal-Obstructed Areas   GNSS Signal-Denied Areas   Earthwork Calculation   Contactless Surveying