CHCNAV

Geospatial

CTS-R100

Robotic Total Station





Keep Work Moving. Connect Design and Field.

Engineered for construction surveying, this robotic total station features intelligent trajectory prediction and automatic prism reacquisition for uninterrupted operation. LandStar 8 enables direct CAD stakeout and a unified project database for GNSS and total station workflows. SiteCloud connects office design, field operations, and as-built verification into one integrated digital construction workflow.



Key feature

Keep Tracking.
Recover Fast.

Pick It on CAD.
Stake It on Site.

One Site. One Software.
Dual Devices.

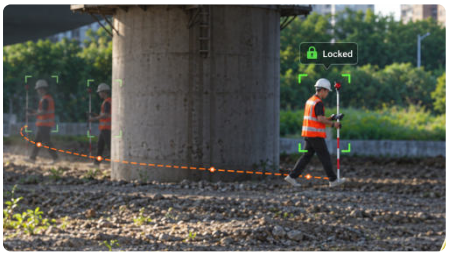
One Design. Every Machine.
Results Back.

Keep Tracking. Recover Fast.



Fast Prism Reacquisition

Trajectory prediction and multiple search strategies help reacquire a lost prism target, typically within 15 seconds.



Seamless Tracking Recovery

Less manual prism searching after obstructions; faster return to tracking.



Enhanced Field Productivity

Reduce measurement interruptions and manual intervention to help improve field productivity.

Pick It on CAD. Stake It on Site.



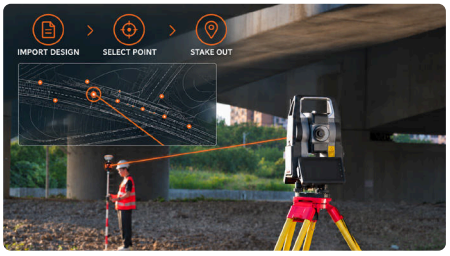
Direct File Stakeout

Import DWG, DXF and PDF files; quickly open drawings and select design elements directly from the map view for stakeout.



No Manual Coordinate Entry

No need to extract, organize or type in coordinates before fieldwork.



Streamlined Stakeout Workflow

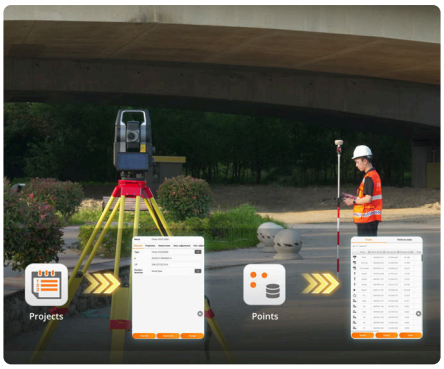
Move from drawing to stakeout with fewer manual entries and a lower risk of transcription errors.

One Site. One Software. Dual Devices.



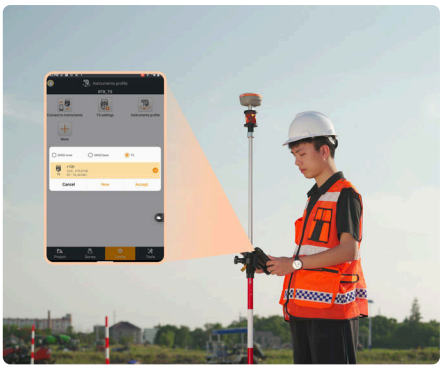
One Software. Dual Devices.

LandStar 8 brings GNSS and total station measurements into a single application.



Unified Data and RTK-Assisted Setup

One project and shared database for both instruments.
Faster total station setup assisted by RTK measurements.



Seamless Instrument Switching

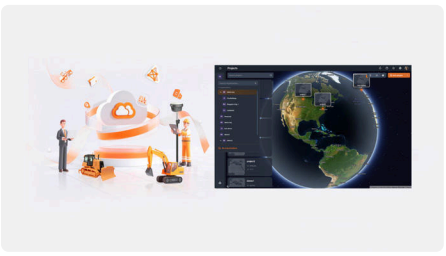
Switch instruments, not projects — and avoid repeated preparation.

One Design. Every Machine. Results Back.



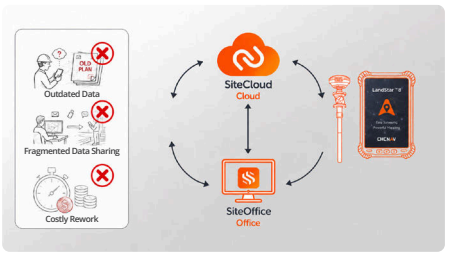
Seamless Cloud Data Exchange

Cloud-based design delivery to the field; automatic or manual upload of survey, construction and verification results.



Always Up-to-Date Design Files

Ensures that all field members automatically sync and operate on the latest design files.



Prevent Costly Rework

Helps prevent the use of outdated design files and reduce costly rework on site.

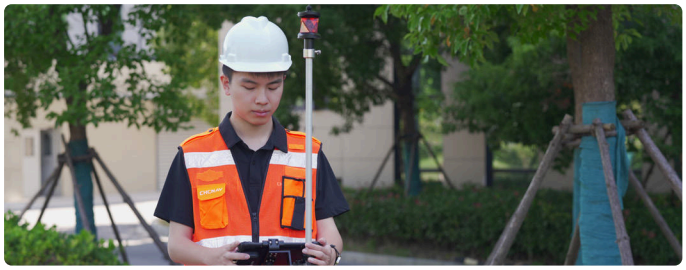
Use Cases



Road



Topographic Surveying



Construction



Landscaping Stakeout

SPECIFICATIONS

Angle Measurement

Accuracy	2″
Measurement Method	Absolute encoding
Minimum Reading	0.1″

Prism Measurement

Measurement Range [1]	Prism array: 5000 m; Single prism: 3500 m
Accuracy	Fine: 2 mm + 2 ppm Tracking: 5 mm + 2 ppm
Typical Measurement Time	Continuous: < 0.7 s; Tracking: < 0.3 s

Reflectorless Measurement

Measurement Range [1]	Reflective sheet (NF10): 1000 m
Accuracy	0–300 m: 2 mm + 2 ppm 300–500 m: 5 mm + 2 ppm 500–1000 m: 10 mm + 2 ppm
Typical Measurement Time	0–300 m: 6 s; 300–500 m: 12 s; 500–1000 m: 35 s

ATR System

Range	Standard circular prism: 1000 m
Positioning Accuracy (80 m)	1″
Search Time (within ATR Field of View)	0.3 s

PS System

Range	Standard circular prism: 300 m
Typical Search Time	5–25 s, with the prism within the vertical search range, outside ±1° of the current pointing direction in the horizontal plane, and at a distance of 50–150 m.
Search Range	±10°

Servo System

Maximum Acceleration	180°/s²
Maximum Rotation Speed	180°/s
Face Change Time	≤ 3 s

Telescope

Image	Erect
Magnification	30×
Resolving Power	3″
Field of View	1°30′
Focusing Range	1.6 m to infinity
Reticle	Illuminated
Effective Objective Aperture	Telescope: 40 mm; EDM: 45 mm

Level

Circular Level	6′/2 mm
Plummet	Visible red laser plummet, Class 2
Plummet Accuracy	Deviation from the plumb line: ≤ 0.4 mm at an instrument height of 1.5 m

Corrections

Compensator	Dual-axis
Compensator Setting Accuracy	±6″
Compensation Range	±4″
Resolution	0.1″
Atmospheric Correction	Manual input of temperature and atmospheric pressure

Display

Type	High-definition graphical LCD
Size	6.0 inches
Resolution	1280 × 720
Operating System	Android 9.0
Processor	MSM8953, octa-core, 1.8 GHz
Memory	RAM: 3 GB; ROM: 32 GB

Imaging System

Imaging	Off-axis imaging
Camera	Fixed-focus lens, 21 mm focal length, 5 MP
Field of View	Horizontal: ±6.0°; vertical: ±3.0°

Communication

Interfaces	1 × Type-C (USB host); 1 × Type-A (USB host); 1 × RS232 serial port; Speaker; Microphone

Battery

Lithium Battery Capacity	Rechargeable lithium battery 4720 mAh, 14.4 V DC
Continuous Operating Time [2]	4 h
Charging Time [3]	Type-C: 3 h; Type-A: 4 h

Environmental Specifications

Ambient Temperature	−20°C to + 50°C (−4°F to + 122°F)
Water and Dust Resistance [4]	IP54

Dimensions and Weight

Dimensions (including Tribrach)	225 × 230 × 385 mm (8.86 × 9.06 × 15.16 in)
Weight (including Battery and Antenna)	8.0 kg

Regulatory Compliance

International Standard	UN Manual Section 38.3

***All specifications are subject to change without notice.**

(1) All measurement ranges are based on the following environmental conditions: overcast skies, no fog, visibility of approximately 40 km, and no heat shimmer. Reflectorless range conditions are based on Kodak standard gray with 90% diffuse reflectance. (2) Battery life is optimized at 25°C and may vary depending on operating temperature and battery cycle life. (3) Battery charging times were measured using the Type-C and Type-A ports of the supplied charger, respectively. (4) Splash, water, and dust resistance were tested under controlled laboratory conditions with an IP54 rating according to IEC standard 60529.

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