

TR12

Palm-Sized Receiver
with Dual-Camera & Laser Positioning



Precision you can build on.

Tarrius | TR12

Palm-Sized Receiver with Dual-Camera & Laser Positioning

TarriFlow APP

Field Survey Software

Your all-in-one field solution for engineering survey, construction stakeout, and road design – integrating high-precision RTK positioning, CAD mapping, and 20+ COGO tools in a single seamless workflow.



Overview

TR12 is a palm-sized GNSS receiver purpose-built for surveyors and construction professionals who demand uncompromising precision and versatile connectivity.

Combining high-precision positioning, built-in radio communication, cellular connectivity, dual-camera and integrated laser rangefinder, TR12 consolidates the capabilities of multiple instruments into one rugged, field-proven device.



Highlights and Features

1 Calibration-Free IMU with 60° Tilt Compensation

The high-performance IMU is immune to magnetic interference up to 60°, enabling point collection without leveling the pole.

- Power on and start working instantly
- Adapts to complex terrain



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Dual-Camera CAD+AR Real-Scene Stakeout

Fusing GNSS, IMU and 3D vision for centimeter-level non-contact collection at hard-to-reach points.

- Intelligent switching for navigation and AR stakeout
- Cuts stakeout time by reducing repeated positioning walks

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RTKHOLD Outage Bridging – 10 Minutes of Centimeter-Level Accuracy

RTKHOLD maintains centimeter-level accuracy for up to 10 minutes after the RTK link drops.

- Seamless transition in and out of obstructed environments
- Eliminates downtime from repeated initialization cycles

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50m Laser Rangefinder – Non-Contact Measurement

The built-in Class 3R visible green laser rangefinder delivers 2cm@10m accuracy for non-contact measurement in GNSS-denied environments.

- Contactless surveying improves safety
- Complements GNSS for complete workflow coverage



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All-Constellation GNSS
with Dual-Mode PPP



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Ultra-Portable Design –
Palm-Sized & Ruggedness



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All-Day Battery Life

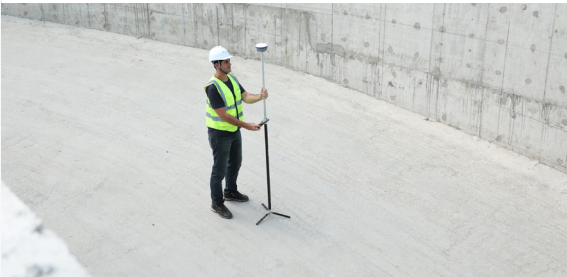


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Full-Stack Connectivity –
Wi-Fi, Bluetooth,
4G & UHF Radio

Application Scenarios

Surveying & Mapping



GIS Data Collection



Mining Survey



Forestry Survey



Technical specifications

GNSS performance	
Satellites tracking	Channels: 1040
	GPS: L1C/A,L2C,L5
	BDS: B1I,B1C,B2I,B2a,B2b,B3I
	GLONASS: G1,G2Galileo: E1,E5a,E5b,E6
	QZSS: L1C/A,L2C,L5,L6
	NavIC: L5
	SBAS: L-band
	PPP: BDSB2b-PPP,GalileoE6B-HAS
Accuracy ¹	
Real time kinematic (RTK)	Horizontal: 8 mm + 1 ppm RMS
	Vertical: 15 mm + 1 ppm RMS
	Initialization time: <10 s
	Initialization reliability: > 99.9%
RTKHOLD technology ²	Up to 10 min bridging of RTK outages H: 2.5 cm V: 5 cm
Post-processing kinematic (PPK)	Horizontal: 3 mm + 1 ppm RMS
	Vertical: 5 mm + 1 ppm RMS
Static	Horizontal: 2.5 mm + 0.5 ppm RMS
	Vertical: 5 mm + 0.5 ppm RMS
PPP	H: 10 cm V: 20 cm
Positioning rate	Up to 20Hz
Time to first fix	Cold start: <30 s; Hot start: < 10 s; Signal re-acquisition: < 1 s
Tilt survey performance	Additional horizontal pole-tilt uncertainty: 8 mm + 0.3 mm/° tilt (total horizontal accuracy < 2 cm within 30° tilt)
Laser measurement	2 cm within range 10 m
Cameras	
Sensor pixels	Front camera: 5 MP Bottom camera: 2 MP
Frame rate	30 fps
Features	Support visual navigation, CAD AR Stakeout
Electrical	
Internal battery	Built-in lithium-ion battery, 7.2V, 6800mAh, full charge in 2 hours
Operating time on internal battery ³	UHF/4G RTK Rover w/o camera: up to 17 h
	Visual Stakeout: up to 15 h
	Laser survey: up to 15h
	Static: up to 22 h

Communications	
NFC	Receive only
Wi-Fi	Wi-Fi 5G 802.11ac /a/b/g/n
Bluetooth®	Bluetooth V5.0/V4.0 /4.2/EDR
Ports	1× USB Type-C port
	1× SMA antenna port
LTE	FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19 /B20/B25/B26/B28
	TDD: B38/39/40/41
	WCDMA: B1/B2/B4/B5/B6/B8/B19 850/900/1800/1900MHz
UHF radio	Standard Internal Tx/Rx: 410 – 470 MHz
	Protocol: TRIMTALK, TRANSEOT, TRIMMARK3
	Power: 0.5W, 1W
	Link rate: 9,600 bps to 19,200 bps
	Range: Typical 3km, up to 5 km with optimal conditions
Data formats	RTCM 3.x
	RINEX 2.11, 3.02, 3.04
	NMEA 0183 output
Data storage	8 GB internal memory
Physical	
Dimensions (W x H)	135 mm × 80 mm
Weight	800 g
Control panel	3 synchronized LED lights, 1 physical button
Operating temperature	−40°C to +75°C
Storage temperature	−45°C to +85°C
Humidity	100% non-condensation
Water/dust proof	IP67
Shock	Survive 2 m pole-drop onto the concrete
Vibration	MIL-STD-810H
Tilt sensor	Calibration-free IMU for pole-tilt compensation. Immune to magnetic disturbances.
Tilt angle	0-60°
Laser sensor	Class 3R, avoid direct eye exposure
	Laser range ≥ 50 m

All specifications are subject to change without notice.

1. Accuracy and reliability are determined by multipath, obstructions, satellite geometry, interference and atmospheric conditions.

2. Accuracies are dependent on GNSS satellite availability. RTKHOLD positioning ends up to 10 minutes without differential data.

3. Operating time varies with environment, temperature, and battery condition.