e-survey

eRTK25

THE VISUAL GNSS RECEIVER WITH LASER PRECISION



eSurvey eRTK25 is a high-precision GNSS receiver integrating laser ranging and a wide-angle dual-camera vision measurement system, designed for efficient operation in challenging environments such as daylight conditions, confined spaces, and extreme temperatures.

GNSS Receiver

Laser + CAD AR Dual-Tech Integration

- **AR Stakeout:**
Overlay CAD designs onto real-world environments via AR, boosting on-site efficiency by 40%.
- **Laser Precision:**
Achieve centimeter-level accuracy with non-contact measurements, ideal for extreme temperatures or tight spaces.
- **High performance and stability:**
The eSurvey eRTK25 integrates laser ranging technology and AR vision stakeout, enabling robust centimeter-level positioning even in harsh or constrained settings. Its multimodal sensor fusion ensures operational adaptability across diverse scenarios, including full daylight visibility, narrow spaces, and extreme temperature ranges (-30°C to 70°C), making it ideal for industrial, construction, and geospatial applications requiring precision in dynamic environments.

Max 60° Tilt Survey

- **No-Leveling Measurement:**
Capture data while standing or moving, even with the pole tilted up to 60°.
- **Adapts to Complex Terrain:**
Easily access confined spaces (e.g., building corners, slopes) to boost efficiency.
- **Dynamic Stability:**
Maintains precision even if the pole shakes, as long as the tip remains stationary.

Advanced Long-Range Tx/Rx UHF Modem

Integrated with the long range UHF modem, the eRTK25 is compatible with traditional major radio protocols. The maximum communication distance can reach 15 km with 2W transmit power in urban environments.

Multi-Constellation & Multi-Frequency Support

1408 GNSS Channels: Simultaneously processes signals from GPS, BDS, GLONASS, Galileo, QZSS, NavIC, SBAS, and L-Band, ensuring stable centimeter-level accuracy for global positioning.

Product Video

Website & Social media

Product Specification

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GNSS Performance

Satellites tracking	GPS	L1 C/A, L1C, L2P (Y), L2C, L5
	BDS	B1I, B2I, B3I, B1C, B2a, B2b
	GLONASS	L1, L2, L3
	Galileo	E1, E5a, E5b, E6
	QZSS	L1, L2, L5
	NavIC	L5
	SBAS	WAAS, GAGAN, MSAS, EGNOS, SDCM, BDS
	L-Band	B2b PPP (Only for the Asian-Pacific region),HAS[1]
Channels		1408
Signal reacquisition		< 1 second
Cold start		< 30 seconds
Warm start		< 20 seconds
Hot start		< 5 seconds
RTK signal initialization		< 5 seconds
Initialization reliability		> 99.9%
Update rate		20Hz
High precision static		■ H: 2.5 mm + 0.1 ppm (RMS) ■ V: 3.5 mm + 0.4 ppm (RMS)
Static and fast static		■ H: 2.5 mm + 0.5 ppm (RMS) ■ V: 5 mm + 0.5 ppm (RMS)
RTK		■ H: 8 mm + 1 ppm (RMS) ■ V: 15 mm + 1 ppm (RMS)
Standard point positioning		■ H: 1.5 m (RMS) ■ V: 2.5 m (RMS)
Code differential		■ H: 0.4 m (RMS) ■ V: 0.8 m (RMS)
SBAS		■ H: 0.8 m (RMS) ■ V: 0.8 m (RMS)
Correction data		RTCM V3.X, RTCM2, CMR
Data output		GGA, ZDA, GSA, GSV, GST, VTG, RMC, GLL, Binary

Power Supply

Battery	Rechargeable Built-in Lithium-ion battery x 1 3.6 V ~ 13400 mAh
Voltage	Type-C PD 12V/1.5A
Working time	10 hours as UHF with AR and Laser working
Charging time	Typically 5 hours

Internet Modem

Supported band	Global 4G LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/ B13/B18/B19/B20/B25/B26/B28 LTE TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B6/B8/B19 GSM: 850/900/1800/1900 MHz

1: It will be supported through future firmware update.
2: It varies with the obstacle, terrain and protocols.
3: It is only available for radio protocol "Satel".

System

Operation system	Linux
Internal memory	8 GB
Bluetooth	BT 5.0 BR + EDR, BLE
Wi-Fi	IEEE 802.11 a/b/g/n/ac
SIM card	✓
TNC	Connect internal radio with antenna
Type-C port	Charge and data transmission
Web UI	View status, update firmware, set up working mode, download data, etc.
Intelligent voice	Broadcast working mode and status
Tilt sensor	MEMS Fast initialization, dynamic tilt survey up to 60°

Physical

Dimension	Φ136 mm x H74 mm
Weight	950 g
Operating temperature	-30℃ ~ +70℃
Storage temperature	-40℃ ~ +80℃
Water / dust proof	IP68
Shock	■ Withstand topple over from a 2 m survey pole onto hard surfaces ■ Survive a 1.2 m free drop
Vibration	Vibration resistant
Humidity	Up to 100%
Indicators	Satellites, datalink, battery, Bluetooth
Button	Power button, short press to voice broadcast working mode and status
Certificate	FCC, CE, KC, ANATEL

Internal Radio

Type	TX and RX
Emitting power	1 W/2 W
Operation range	3-5 km typically up to 15 km with optimal conditions[2]
Frequency range	410 - 470 MHz
Channel spacing	6.25 kHz[3]/ 12.5 KHz / 25 KHz
Protocol	elink_Ultra, geotalk_Ultra, FARLINK, TRIMTALK, TRIMMK III , SOUTH, TRANSEOT, GEOTALK, GEOMK3, SATEL, HITARGET, HZSZ, PCCEOT, PCCEOT_SATEL, PCCFST, PCCFST_ADL, SATEL_ADL

Visual Configuration

Pixel	Dual cameras with 5MP for the bottom and 5MP for the front
FOV	72° for the bottom and 90° for the front
Laser accuracy	Range: 0.1-50m Accuracy: ±1cm+5mm/m

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