

# eRTK25

## THE VISUAL GNSS RECEIVERS 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 ( $-30^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ ), 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 rod tilted up to  $60^{\circ}$ .

- **Adapts to Complex Terrain:**

Easily access confined spaces (e.g., building corners, slopes) to boost efficiency.

- **Dynamic Stability:**

Maintains precision even if the rod 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 10 km with 1W 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 Specification

## eRTK25

### THE VISUAL GNSS RECEIVERS WITH LASER PRECISION



#### 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 <sup>1</sup>  |
| 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      |         | <ul style="list-style-type: none"> <li>H: 2.5 mm + 0.1 ppm (RMS)</li> <li>V: 3.5 mm + 0.4 ppm (RMS)</li> </ul> |
| Static and fast static     |         | <ul style="list-style-type: none"> <li>H: 2.5 mm + 0.5 ppm (RMS)</li> <li>V: 5 mm + 0.5 ppm (RMS)</li> </ul>   |
| RTK                        |         | <ul style="list-style-type: none"> <li>H: 8 mm + 1 ppm (RMS)</li> <li>V: 15 mm + 1 ppm (RMS)</li> </ul>        |
| Standard point positioning |         | <ul style="list-style-type: none"> <li>H: 1.5 m (RMS)</li> <li>V: 2.5 m (RMS)</li> </ul>                       |
| Code differential          |         | <ul style="list-style-type: none"> <li>H: 0.4 m (RMS)</li> <li>V: 0.8 m (RMS)</li> </ul>                       |
| SBAS                       |         | <ul style="list-style-type: none"> <li>H: 0.8 m (RMS)</li> <li>V: 0.8 m (RMS)</li> </ul>                       |
| Correction data            |         | RTCM V3.X, RTCM2, CMR  |
| Data output                |         | GGA, ZDA, GSA, GSV, GST, VTG, RMC, GLL, Binary   |

#### Power Supply

|               |   |
|---------------|---|
| Battery       | Rechargeable<br>Built-in Lithium-ion battery x 1<br>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<br>LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/<br>B13/B18/B19/B20/B25/B26/B28<br>LTE TDD: B38/B39/B40/B41<br>WCDMA: B1/B2/B4/B5/B6/B8/B19<br>GSM: 850/900/1800/1900 MHz |
|----------------|--|

#### 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<br>Fast initialization, dynamic tilt survey up to 60°             |

#### Physical

|                       |  |
|-----------------------|--|
| Dimension             | Φ136 mm x H74 mm   |
| Weight                | 950 g  |
| Operating temperature | -30°C ~ +70°C  |
| Storage temperature   | -40°C ~ +80°C  |
| Water / dust proof    | IP67   |
| Shock                 | <ul style="list-style-type: none"> <li>Withstand topple over from a 2 m survey pole onto hard surfaces</li> <li>Survive a 1.2 m free drop</li> </ul> |
| 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  | 2 W   |
| Operation range | 3-5 km typically<br>up to 15 km with optimal conditions <sup>2</sup>  |
| Frequency range | 410 ~ 470 MHz   |
| Channel spacing | 6.25 kHz <sup>3</sup> / 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_AD, SATEL_AD |

#### 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<br>Accuracy: ±1cm+5mm/m                     |

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".



+86 400-999-8088

**e-survey**  
esurvey-gnss.com