



*GNSS Receiver*  
**T50basic**  
Palm-Sized AR IMU RTK

# T50basic GNSS Receiver

T50basic is a portable multi-functional GNSS. It has a built-in high-precision positioning module that supports tracking satellite signals from all systems and frequency bands. It is equipped with 4G full network access, bluetooth, WIFI and built-in data transmission radio. The high-precision IMU integrates AR to achieve tilt measurement, tilt measurement and AR real-Time Stakeout, making the measurement work more convenient and efficient.

## CHARACTERISTIC

### Linux Intelligent System

Linux+ARM Cortex-A7 intelligent system platform offers efficient computation and unlimited product functionality expansion.

### Full System GNSS Reception

The receiver integrates a high-precision positioning module, utilizing 1408 channels to support a comprehensive range of signals including BDS (B1I/B2I/B3I/B1C/B2a/B2b), GPS (L1/L2/L5), GLONASS (L1/L2/L3), Galileo (E1/E5a/E5b/E6), QZSS (L1/L2/L5), SBAS and NavIC.

### Tilt Measurement

Built-in intelligent high-precision inertial navigation module for real-time tilt compensation, eliminating "fly points" in RTK measurement.

### AR Real-Time Stakeout

Utilizes a professional ultra-wide-angle camera to provide high-definition real-time plotting functionality, making stakeout tasks more accurate and convenient.

### 4C Full NetCom

The 4G NetCom solution based on the Linux platform fully supports 2/3/4G networks, offering better compatibility, stronger signals, and more stable connections.

### Long Endurance

Industrial design, solid magnesium alloy shell, in line with IP68 design requirements, safe and reliable.

# T50basic GNSS Receiver

## Palm-Sized AR IMU RTK

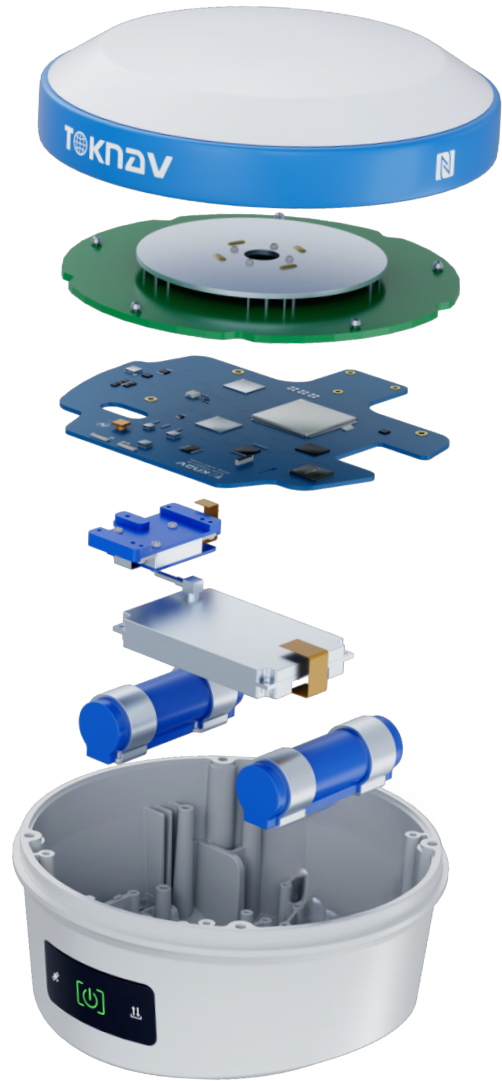
Main body magnesium alloy  
ABS/PC top cover

**1408 Channel**  
GPS GLONASS BDS GALILEO  
QZSS SBAS

**Portable and smart**  
Weight 770g

**7.4V, 6500mAh**  
Over 16 hours (Rover)

**2.5mm static accuracy**  
High-precision positioning module



## Palm-Sized AR IMU



|        |          |        |
|--------|----------|--------|
| HEIGHT | DIAMETER | WEIGHT |
| 83 mm  | 132 mm   | 770    |

AR Real-Time Stakeout  
Long Endurance, over 16 hours  
13cm palm-sized, weighing only 770g.

# SPECIFICATION

| SYSTEM                       |   |
|------------------------------|---|
| HARDWARE SYSTEM              | ARM Cortex-A7 1.8GHz  |
| OS                           | Linux   |
| GNSS                         |   |
| GPS                          | L1 C/A, L1C, L2P(Y), L2C, L5  |
| GLONASS                      | L1, L2, L3  |
| BDS                          | B1I, B2I, B3I, B1C, B2a, B2b(PPP)   |
| GALILEO                      | E1, E5a, E5b, E6(PPP)   |
| QZSS                         | L1, L2, L5  |
| SBAS                         | L1(PPP)   |
| NavIC (IRNSS)                | L5(IRNSS support in future)   |
| Channel                      | 1408  |
| Standard Output              | NMEA-0183   |
| Correction I/O Protocol      | RTCM 3.X  |
| Frequency                    | 20Hz(max)   |
| Reacquisition Time           | <1s   |
| Cold Start Time              | <40s  |
| ACCURACY                     |   |
| SINGLE (RMS)                 | Horizontal: 1.5m / Vertical: 2.5m   |
| DGPS (RMS)                   | Horizontal: 0.4m / Vertical: 0.8m   |
| RTK (RMS)                    | Horizontal: $\pm$ (8mm+1ppm)<br>Vertical: $\pm$ (15mm+1ppm)   |
| Timing Precision (RMS)       | 20ns  |
| Static Mode Precision (RMS)  | Horizontal: $\pm$ (2.5mm+1ppm)<br>Vertical: $\pm$ (5mm+1ppm)  |
| Velocity Estimation (RMS)    | 0.03m/s   |
| Tilt Correction (Within 60°) | <2cm  |
| AR Stakeout                  | Horizontal: $\pm$ (8mm+1ppm)<br>Vertical: $\pm$ (15mm+1ppm)   |
| SYSTEM PLATFORM              |   |
| Bluetooth                    | BR+EDR+BLE  |
| WIFI                         | 802.11 b/g/n  |
| Network                      | LTE FDD: B1/2/3/4/5/7/8/12/13/<br>18/19/20/25/26/28<br>LTE TDD: B38/39/40/41<br>WCDMA: B1/2/4/5/6/8/19<br>GSM: B2/3/5/8 |

|           |  |
|-----------|--|
| Storage   | 32GB storage   |
| Radio     | Integrated transceiver radio<br>Frequency Range: 410~470MHz<br>Power: 0.5W/1.5W<br>Protocols: TRIMTALK, TRIMMK3,<br>SOUTH, TRANSEOT, SATEL, LORA<br>Air Baud Rate: 4800, 9600, 19200 |
| AR Camera | Supports AR real scene stakeout<br>Sensor size: 1/2.8 inch<br>Aperture: f/2.5<br>Resolution: 1920*1080<br>Field of view: 69.3° $\pm$ 3°<br>Distortion: <0.38%                        |

| BATTERY / CHARGE |                                     |
|------------------|-------------------------------------|
| Capacity         | 7.4V, 6500mAh                       |
| Endurance        | Over 16 hours (Typical, Rover, GSM) |
| Charging         | USB PD 15V/2A 5V/3A                 |

| ENVIRONMENT           |  |
|-----------------------|--|
| Operating Temperature | -30°C~+65°C                                      |
| Storage Temperature   | -40°C~+85°C                                      |
| Shock Resistance      | Can withstand a 1.5m drop at normal temperatures |
| Protection Rating     | IP68   |

| PHYSICAL   |  |
|------------|--|
| Materials  | Magnesium alloy casing with ABS/PC plastic top cover |
| Dimensions | $\Phi$ 132 * 83mm                                    |
| Weight     | 770g   |

| ACCESSORIES          |        |
|----------------------|--------|
| T50basic             | 1 Unit |
| Type-C power adapter | 1 PCS  |
| Type-C To Type-C     | 1 PCS  |
| Radio Antenna        | 1 PCS  |

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Manufacturers may update parameters at any time, please refer to the latest product information.



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