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**TOKNAV**



# *GNSS Receiver* **T40**

Laser Dual-camera RTK

# T40 GNSS Receiver

T40 is a versatile GNSS receiver equipped with dual-laser cameras. It integrates a high-precision positioning module, IMU, AR, laser technology, and laser visualization to enable high-precision positioning, tilt measurement, AR real-world staking, and visualized laser point measurement. It boasts a maximum testing radius of up to 30 meters. The receiver features a robust magnesium-aluminum alloy design, offering durability and reliability. It supports hot-swappable batteries, allowing quick recharging without power interruption, thereby extending operational time.

## CHARACTERISTIC

### Full-System, Multi-Frequency GNSS Receiver

The receiver integrates a high-precision positioning module with 1,408 high-speed channels. It supports full-system and multi-frequency signal reception and processing, including: BDS: B1I, B2I, B3I, B1C, B2a, B2b, GPS: L1 C/A, L1C, L2C, L5, GLONASS: L1, L2, L3, Galileo: E1, E5a, E5b, E6, QZSS: L1, L2, L5, SBAS and NavIC systems.

### Tilt Measurement

Equipped with an intelligent high-precision inertial navigation (IMU) module, the device offers real-time tilt compensation, eliminating the issue of "floating points" in RTK surveys.

### AR Stake Out

A professional ultra-wide-angle camera provides HD real-world stake out capabilities. Its user-friendly AR stake out application ensures precise, one-shot staking performance.

### Visualized Laser Measurement

Featuring a high-precision, millimeter-grade laser ranging module and a high-definition camera, the receiver enables precise point-and-measure functionality. The combination of high-accuracy inertial navigation and the camera's HD visuals ensures seamless operation even in complex environments.

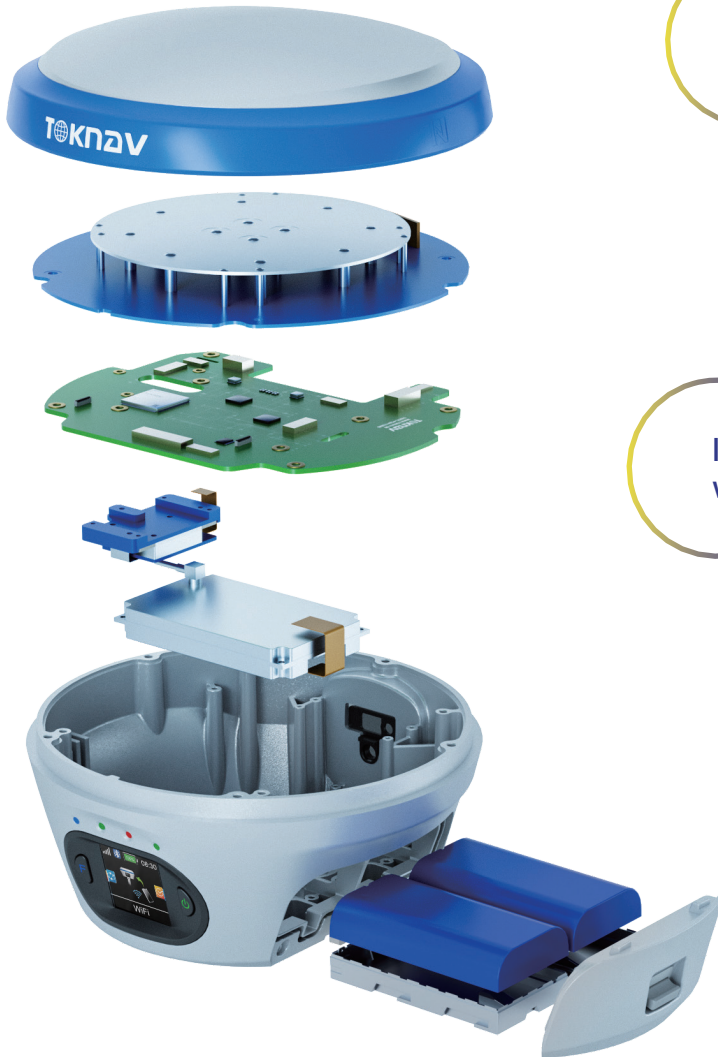
### Extended Battery Life

The receiver supports two detachable batteries that allow hot-swapping without power interruption. This enables quick battery replacement, significantly extending operational endurance.



# T40 GNSS Receiver

## Laser Dual-camera RTK



Main body magnesium alloy  
ABS/PC top cover

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

Integrates precise laser ranging  
with HD visualization

**7.2V, 3400mAh\*2**  
Over 20 Hours

Supports dual removable  
powerful batteries for  
extended operation

## LASER MEASUREMENT



| HEIGHT | DIAMETER | WEIGHT |
|--------|----------|--------|
| 103 mm | 160 mm   | 850 g  |

≤2.5cm 3D error within 5m range  
Enhanced with Green Laser.  
Expands the range of measurable objects.

# SPECIFICATION

## SYSTEM

|                         |                                   |
|-------------------------|-----------------------------------|
| HARDWARE SYSTEM         | ARM Cortex-A7 1.8GHz              |
| OS                      | Linux                             |
| <b>GNSS</b>             |                                   |
| GPS                     | L1C/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*(Requires firmware support)    |
| 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: $\pm (8\text{mm}+1\text{ppm})$<br>Vertical: $\pm (15\text{mm}+1\text{ppm})$  |
| Time Accuracy(RMS)                    | 20ns                                                                                     |
| Static(RMS)                           | Horizontal: $\pm (2.5\text{mm}+1\text{ppm})$<br>Vertical: $\pm (5\text{mm}+1\text{ppm})$ |
| Speed Accuracy(RMS)                   | 0.03m/s                                                                                  |
| Tilt Compensation ( $\leq 60^\circ$ ) | <2cm                                                                                     |
| AR Stake Out Accuracy                 | Horizontal: $\pm (8\text{mm}+1\text{ppm})$<br>Vertical: $\pm (15\text{mm}+1\text{ppm})$  |
| Laser Measurement                     | $\leq 2.5\text{cm}$ 3D error within 5m range                                             |

## 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 high-power transceiver<br>Frequency Range: 410~470MHz<br>Power: 1W/2W/5W                                     |

|                     |                                                                                                                                                                          |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Radio               | Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT<br>Air Baud Rate: 9600, 19200bps                                                                                           |
| Laser Module        | Type: Class 3R<br>Range: 30m<br>Precision: $\pm 5\text{mm} \pm 100 \times 10^{-6} \times D$ ,<br>(D: Measurement Distance)<br>Wavelength: 520 $\pm$ 20nm<br>Power: 3.8mW |
| Laser Assist Camera | Sensor: 1/3.06 inch<br>Resolution: 4224x3200<br>FOV: D44°H35°V26.5°<br>Distortion: <1%                                                                                   |
| AR Camera           | AR Stakeout Supported<br>Sensor: 1/2.8 inch<br>Aperture: f/2.5<br>Resolution: 1920*1080<br>FOV: 70.3°H62.7°V38.6°<br>Distortion: <0.38%                                  |

## DISPLAY

|           |                                             |
|-----------|---------------------------------------------|
| LCD Panel | Sensor: 1.3 inch<br>Resolution: 240*RGB*240 |
|-----------|---------------------------------------------|

## BATTERY / CHARGE

|           |                                                      |
|-----------|------------------------------------------------------|
| Capacity  | 7.2V, 3400mAh*2<br>(Removable, dedicated charger)    |
| Endurance | Over 20 hours(when applying controller network mode) |
| Charging  | 9~24VDC                                              |

## ENVIRONMENT

|                       |                                                  |
|-----------------------|--------------------------------------------------|
| Operating Temperature | -20°C~+60°C                                      |
| Storage Temperature   | -20°C~+70°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 | $\Phi 160 \times 103\text{mm}$                       |
| Weight     | 850g(without battery)                                |

## ACCESSORIES

|                         |        |
|-------------------------|--------|
| T40                     | 1 Unit |
| External Battery        | 2 PCS  |
| Battery Charging Cradle | 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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