TOKNAV
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GNSS Application Solution
PRODUCT BROCHURE

TOKNAV

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- GNSS Receiver Manufacturer
- Professional OEM&ODM
- Over 15 years experience in R&D and manufacturing

ABOUT US

Company Introduction

Guangzhou Toksurvey Information Technology Co., Ltd. was founded in 2019 by a team of R&D engineers. The company team has nearly 15 years of R&D background. At present, the company has nearly 2,500 square meters of office and factory, complete set of research equipment, and strong technical background.

Our company is committed to the R&D, production and sales of high-precision satellite positioning terminal products. More than 60% of the employees are engineers. Driven by technological innovation, the company maintains a steady growth rate of 60% every year.

At present, the company has successfully launched high-precision GNSS RTK (T5 series, T10 series, T20 series and T30 series), portable RTK receiver (P8 series), high-precision CORS station (NET660 series), data controller, GNSS antenna, and pre-marking robot to the market. We not only provide positioning products, but also provide a series of application solutions.

Our Targets

Mission
Make positioning more precise and easier.

Vision
Working together to improve global surveying quality.

Value
To become a leader in the global surveying and mapping service.

Slogan
Your reliable supplier in positioning!

Fields of Application

TOKNAV products can be widely used in precision surveying & mapping, mining operations, deformation monitoring, autonomous driving and other fields. We currently have a number of mature GNSS application solutions, such as deformation monitoring, CORS network, pre-marking robots, etc. TOKNAV products have passed CE, FCC, KC, NGS, IGS and other certifications, and are exported to more than 70 countries and regions around the world. Our products are well received in the global market, and now we have become a system integration supplier in the global market.

Construction   **Monitoring**

Mapping & GIS   **Surveying**

Agriculture   **Marine**

Certifications

TOKNAV

CONTENT

Products

Deformation Monitoring

The GNSS based monitoring system is widely applied in the fields of landslide geological hazard monitoring, dam deformation monitoring, mining area surface subsidence monitoring, tailings reservoir deformation monitoring, bridge deformation monitoring and high-rise building deformation monitoring and other fields with potential safety hazards, which can effectively prevent and avoid disasters and ensure safety of important facilities and people's property.

Characteristic

Flexible control
There is no need for line-of-sight between the stations, and the positioning options are flexible.

High real-time
For the collected data, output data results in real time.

Simple operation platform
Easy to operate, data is intuitive and easy to understand.
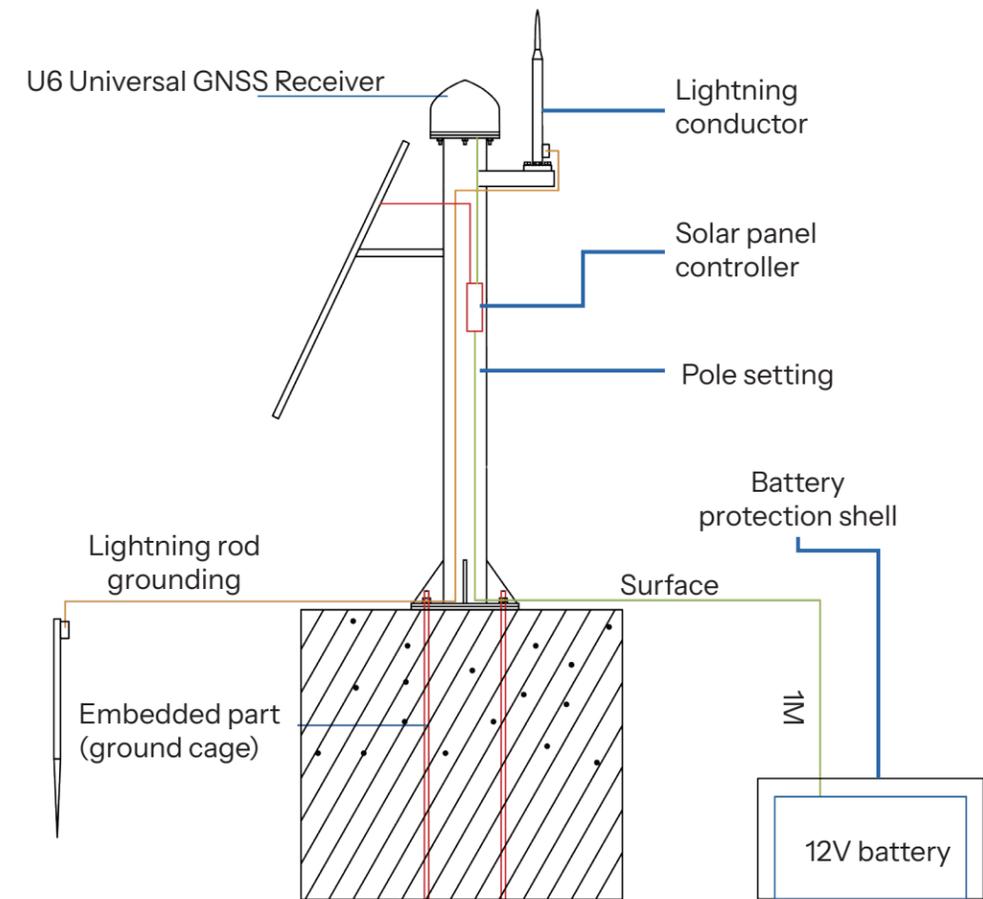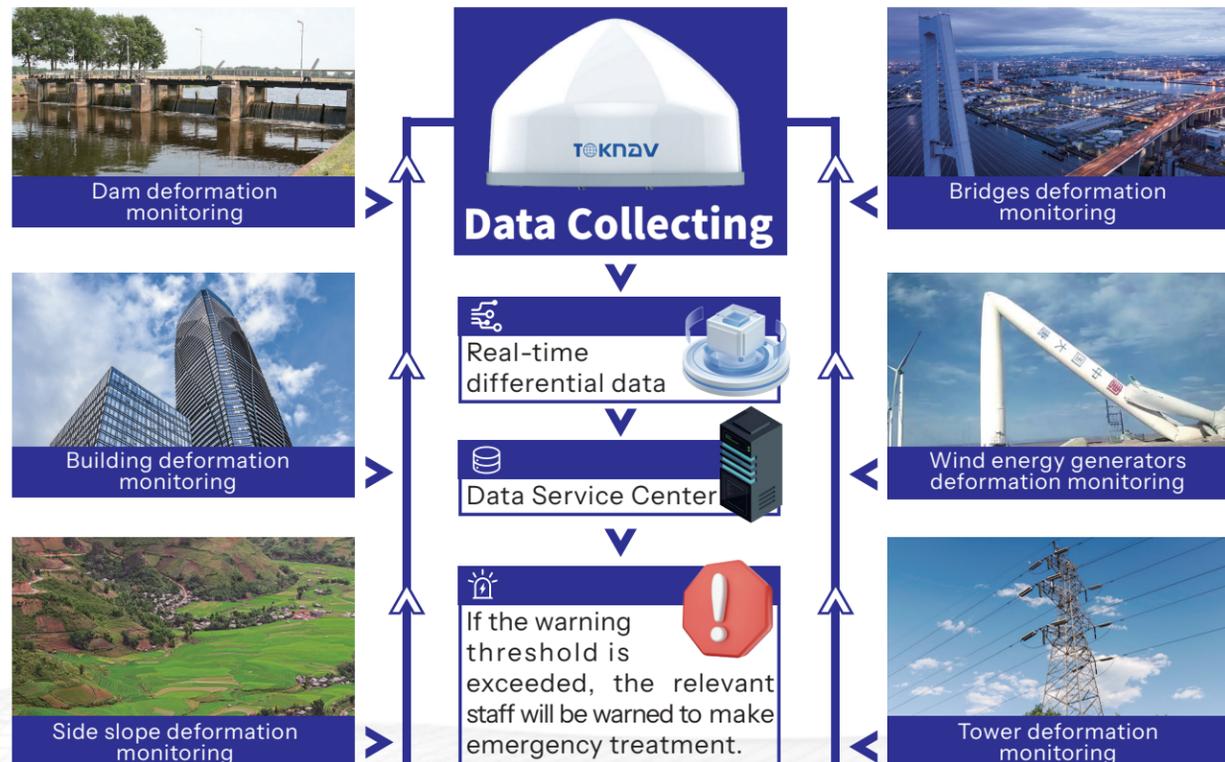
Automatic monitoring
Automatic acquisition, processing, analysis and early warning of horizontal displacement and vertical displacement.
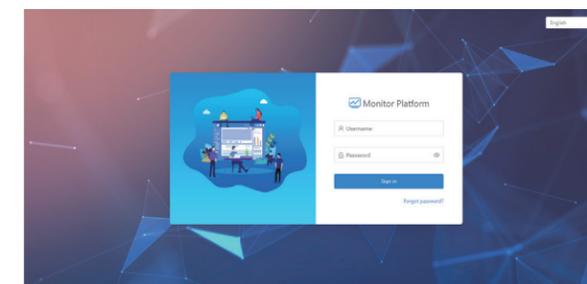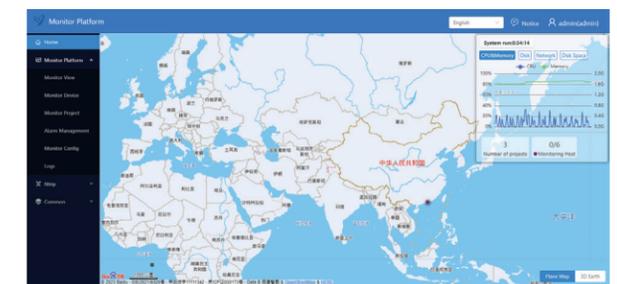
Product Schematic Diagram

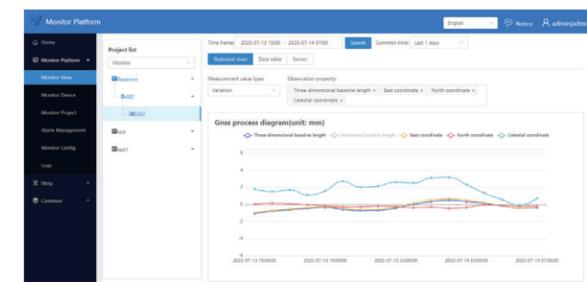Dam deformation monitoring

Building deformation monitoring

Side slope deformation monitoring

Data Collecting

Real-time differential data

Data Service Center

If the warning threshold is exceeded, the relevant staff will be warned to make emergency treatment.

Bridges deformation monitoring

Wind energy generators deformation monitoring

Tower deformation monitoring

Product Mix

U6 Universal GNSS Receiver

Lightning conductor

Solar panel controller

Pole setting

Battery protection shell

Lightning rod grounding

Surface

Embedded part (ground cage)

1M

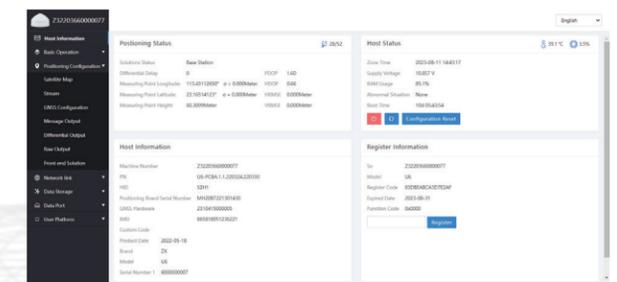12V battery

Platform Display

Login interface

Position display
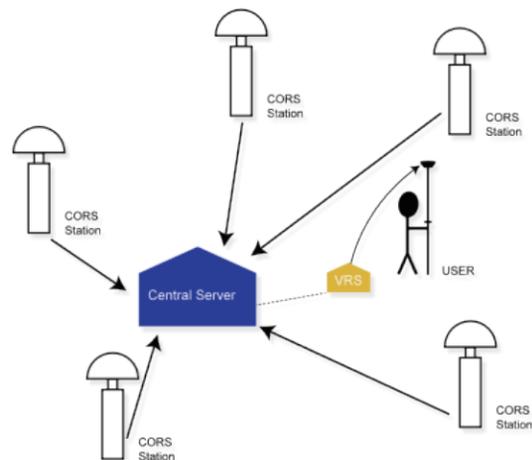
Monitoring

Device management

CORS and VRS Service

VRS Service

Definition
VRS is a kind of Network Real Time Kinematic (NRTK) technology.
- VRS generate and provide a virtual reference station data near user's position based on the regional real reference station for user to calculate RTK.
- VRS requires 3G/4G/5G to support communication.

Features & Benefits
- Instant access to RTK corrections.
- Centimeter-accurate corrections tailored to your geographic location.
- Built-in redundancy to ensure connectivity, consistency and quality.
- Cost-effective and simple to use.
- Professionally-managed and secure.
- Streamlined workflows, done right the first time.

Working Principle

Definition
We provide instant access to RTK corrections using a CORS GNSS network, proprietary software platform and VRS service monitoring platform.

VRS SERVICES	Monitoring Platform
	Software Platform
	CORS GNSS Network

Application Areas

Infrastructure

Economy

Transportation

Agriculture

Advantage of Our Technology

### Full-stack self-developed software and hardware technology
- The algorithms, software, and hardware used in our VRS service are independently developed.

### Meeting various high-precision application needs
- Includes surveying users, agricultural drones for crop protection, building monitoring, geological disaster monitoring, car lane-level navigation, electric bicycles, and other types of users.

Ability to serve a massive number of users
- Data management, data processing, and user services are independent of each other through a data bus.
- Not only possesses powerful service capabilities of individual servers, but also supports a massive number of concurrent users through server expansion.
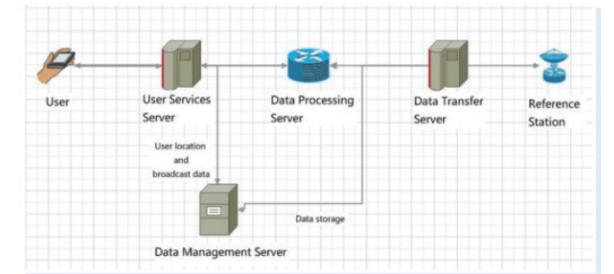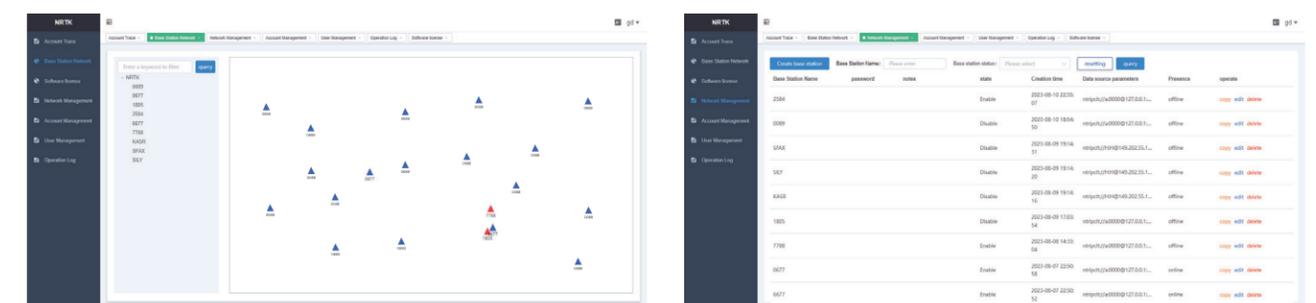

Capability of satellite-based and ground-based fusion processing
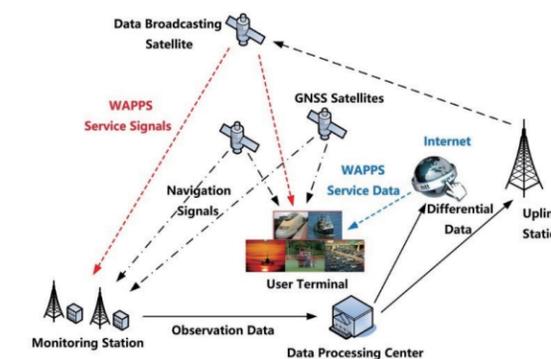
- Capable of satellite-based and ground-based fusion processing, enabling network RTK and PPP-RTK fusion processing.
- Ensures high-performance positioning in low-latitude area through processing multi-GNSS data and refining ionospheric models.

Platform Display

Base station network

Device management

Marking Robot

The TR10Pro Line Marking Robot is an auxiliary work robot capable of automatically measuring, marking, and drawing lines. It is equipped with an adjustable-width nozzle, making it suitable for various application scenarios such as sports fields, highways, municipal roads, airport runways, and more. The software comes with a variety of built-in templates, including sports field designs, icons, arrows, and numbers, while also supporting user-defined editing or template importing. This significantly improves the efficiency of road marking, pre-marking, and spray printing, while reducing labor pressure and costs.

Characteristic

High-precision Positioning

The TR10Pro supports full constellation and full band frequency signal tracking with 1408 channels. Its antenna can simultaneously receive signals from BDS, GPS, GLONASS, GALILEO, SBAS, and QZSS satellites, enabling full constellation positioning. The robot also supports Real-Time Kinematic(RTK) differential positioning and can access the Beidou ground-based augmentation system for high-precision positioning. By combining high-precision positioning with robotic operations, it achieves reliable and repeatable centimeter-level line marking accuracy.

Long Battery Life and High Speed

The TR10Pro is equipped with a built-in 24V/20Ah lithium battery, offering a top speed of 3.6km/h, a range of 28.8km, and a battery life up to 8 hours.

Multi-functional

The TR10Pro can accommodate different sizes of spraying devices and can achieve different types of markings, such as dots, lines, curves, numbers, letters, and patterns. It has built-in models of various sports fields, such as soccer and tennis courts. It supports custom editing of sports field models and is easy to use.

High Adaptability

The TR10Pro is compact and equipped with two 200W hub motors, enabling it to perform operations smoothly on rough surfaces like grass and gravel roads, with the ability to make sharp turns and climb slopes up to 20 degrees.

Easy to Operate

Combining a controller with an Android tablet and our custom-developed app allows field operators to easily learn and operate the device with minimal training.
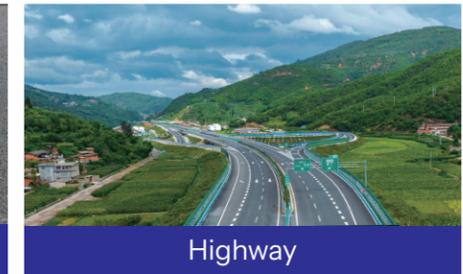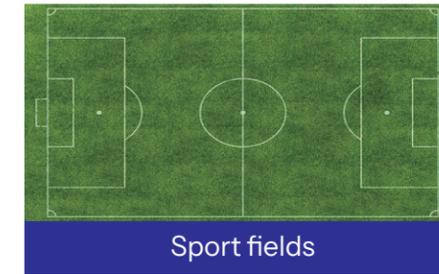
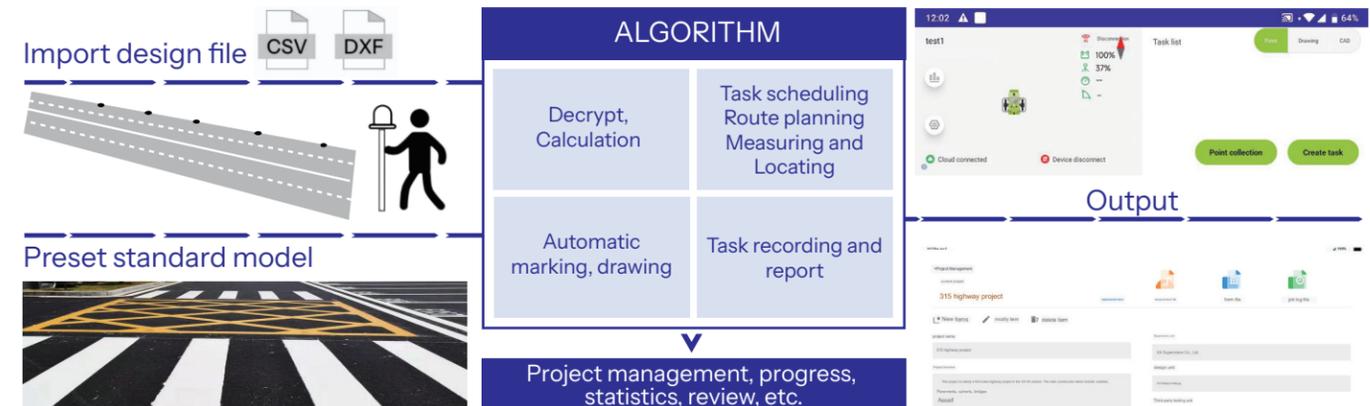### Supports Multiple File Formats

The app supports various file formats, including dxf, csv etc., enabling the robot to follow designed construction plans for seamless implementation.

Application

Sport fields

Measurement guidance

Highway

Parking lot

Special marking

Municipal road

System Architechure

Import design file — CSV DXF

Preset standard model

ALGORITHM

Decrypt, Calculation

Task scheduling Route planning Measuring and Locating

Automatic marking, drawing

Task recording and report

Project management, progress, statistics, review, etc.

Output

System

Physical

- Dimensions L*W*H: 692mm*982mm*649mm
  (Removable side scribing mechanism with a width of 388mm)
- Wheelbase: 400mm
- Wheel Track(mm): 465mm
- Weight: 36kg

Battery

- Battery type: Lithium 24V/20Ah
- Battery Life: 8 hours
- Endurance: 28.8km

Environment

- Communication: CAN
- Operating temperature: -10℃~60℃
- Storage temperature: -10℃~45℃
- IP rating: IP3X

Mobility

- Motor specification: 200W*2
- Maximum speed(m/s): 1m/s
- Minimum turning radius: 0°(Turn in place)
- Maximum climbing ability: 20°

Performance

- Speed: 1km/s
- Materials: Latex paint/Titanium white slurry
- Hopper capacity: 10L
- Accuracy: ≤1.5cm
- Line types: Dots, lines, curves, numbers, letters, patterns.
- Sports Field Type: Running track, tennis court, soccer field, (Field Marking) football field, lacrosse court, baseball field
- Drawing Width: 5cm~15cm adjustable side nozzle (Field Marking)