

# Specifications

## Positioning

Channels	1408
GPS	L1C/A,L1C,L2P(Y), L2C,L5
GLONASS	G1,G2,G3
BDS	B1I,B2I,B3I,B1C, B2a,B2b
GALILEO	E1,E5a,E5b,E6
QZSS	L1,L2C,L5,L6
NAVIC(IRNSS)	L5
SBAS	L1C/A
PPP	B2B-PPP   E6-HAS
Data Update Frequency	50Hz
Positioning Frequency	1Hz 2Hz 5Hz 10Hz 20Hz 50Hz
Cold Start Time	<12s
Initialization Time	<5s
Initialization Confidence	>99.9%

## Measurement Accuracy

Static Mode Accuracy	H: $\pm 2.5\text{mm}+0.5\text{ppm}$ V: $\pm 5.0\text{mm}+0.5\text{ppm}$
Single Point Solution Accuracy	H:1.5m V:2.5m
Differential Solution Accuracy	H:0.4m V:0.8m
RTK Accuracy	H: $\pm 8.0\text{mm}+1\text{ppm}$ V: $\pm 15.0\text{mm}+1\text{ppm}$
Time Accuracy	20ns

## System

Operating System	Linux
RAM	1GB DDR3L
Storage	32GB
External Storage	Supports up to 128GB

## Interface & Communication

Antenna TNC Connectors	2(4G antenna port, GNSS antenna port)
DB9	RS232 output with flow control, for easy debugging and configuration
Waterproof RJ45 Port	Supports 100M Ethernet. Includes dust cap to prevent oxidation of RJ45 contacts.
M12 Connectors	2x RS232, 1x RS485, 1x PPS signal, 1x EVENT signal
Waterproof Type-C Port	For power supply and charging
Lemo 2-pin Connector	For power supply and charging
Communication	Bluetooth: BT2.1+EDR / 3.0 / 4.1 / 4.2 / 5.0 BLE WiFi: 2.4GHz / 5GHz, 802.11 a/b/g/n/ac
4G Network	LTE-FDD: B1/B2/B3/B4/B5/B7/ B8/B12/B13/B18/ B19/B20/ /B25/B26/B28 LTE-TDD: B38/B39/B40/B41 UMTS: B1/B2/B4/B5/B6/B8/ /B19 GSM: B2/B3/B5/B8
Other Interfaces	External Storage Card Slot External SIM Card Slot

## Physical

Operating Temperature	-40 °C ~ +80 °C
Storage Temperature	-45 °C ~ +85 °C
Waterproof Dustproof	IP67
Humidity	5% to 95%, non-condensing
Drop Test	1.5m free fall onto concrete at room temperature
Weight	850g

## Power

External Power Supply	9-36V DC
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# GC10

GNSS Reference Station Receiver



# GC10

## GNSS Reference Station Receiver



The GC10 is a rugged automotive-grade CORS platform (built on the ST MP157 vehicle-certified chipset) engineered for relentless reliability in extreme environments. It achieves IP67-rated protection, guaranteeing complete dust/water resistance, 100% condensation resilience, and survival from 1.5m concrete drops—while hardened interfaces shield power, signals, and indicators for 24/7 outdoor operation.

Intelligent safeguards include power-loss reporting and data-state protection during outages, complemented by wide-voltage input and backup battery support. Deployment is streamlined via tool-free mounting, while advanced network services (OTA updates, secure remote access, NTP/SNMP) enable zero-touch maintenance. As a precision reference station, it integrates high-accuracy GNSS (1PPS output), dual FD CAN, industrial RS232/RS485, and IP67-rated Gigabit Ethernet—all optimized for critical geospatial applications demanding uncompromising durability and connectivity.

### CORS Management Platform

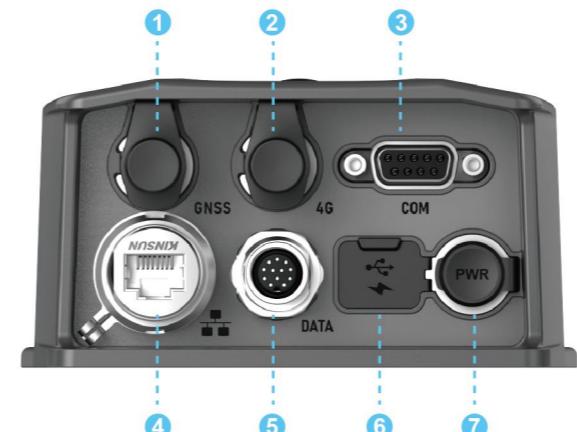


**Easy to Get Started**  
User-friendly interface and free license for up to 3 reference stations, minimizing startup costs.

**High-Precision**  
Delivers extremely accurate measurements or positioning with minimal error.

**Affordable**  
Provides good value and functionality at a reasonable cost.

## GC10 CORS Explanation of Port and Signal Indicators



- ① GNSS Antenna Interface
- ② TNC 4G Antenna Interface
- ③ 2x RS 232 Serial Port
- 1x RS 485 Serial Port
- 1x EVENT Interface
- 1x PPS
- ④ RJ45 100Mbps
- ⑤ Data Interface (Digital Input/Output)
- ⑥ TYP-C Port Power Supply/Data Transmission
- ⑦ 2-Pin LEMO Connector Power Supply /Charging



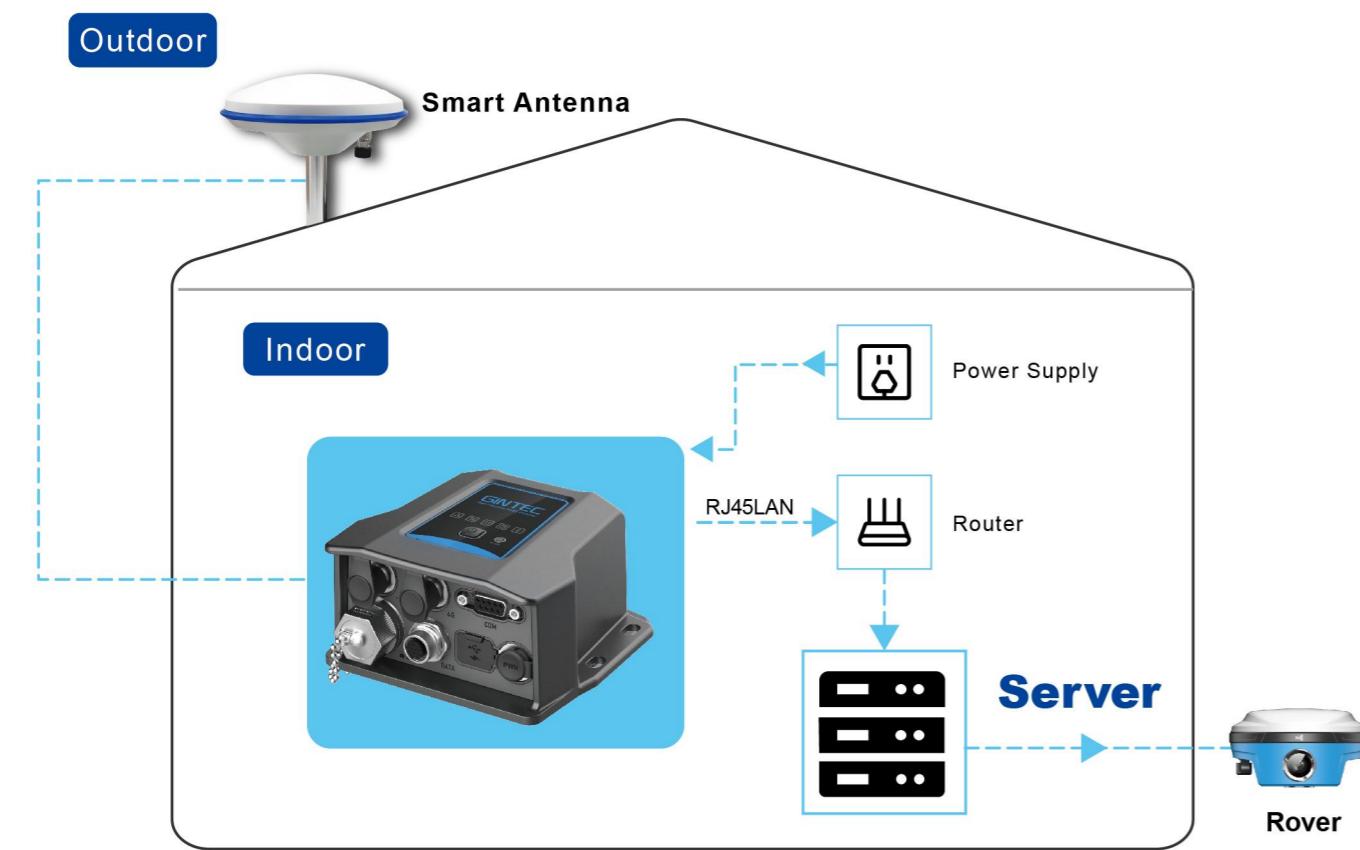
- ① Ethernet Port Indicator Light
- ② Always on: Float/Fixed Solution  
Flash: Single Solution  
OFF: Invalid Solution
- ③ Data Transmission Indicator Light
- ④ Data Storage
- ⑤ Battery
- ⑥ Power Button : ON/OFF
- ⑦ Factory Reset



- ① Global SIM Card
- ② Maximum 128GB Micro SD Expansion

## Installation and Data Flow Diagram

### Product Parts Diagram



## Industrial-Grade High-Precision Positioning Solution

The GC10 GNSS reference receiver is engineered to deliver high-precision positioning and unparalleled reliability across a diverse spectrum of demanding industries. Its advanced capabilities make it a foundational tool for numerous critical applications:



### Infrastructure Health and Deformation Monitoring

It is extensively used for real-time, millimeter-to-centimeter-level monitoring of structural health and ground movement. This includes applications in landslide and geological hazard early warning, as well as the stability monitoring of large-scale infrastructure like dams, bridges, mines, and buildings. The receiver's low failure rate and robust design ensure continuous operation in harsh field environments.



### Ground-Based Augmentation Systems

The receiver serves as a high-quality reference station for GBAS, such as the BeiDou Ground-Based Augmentation System. These systems enhance satellite navigation signals to provide decimeter or even centimeter-level real-time positioning accuracy, which is crucial for aviation precision approach (e.g., GBAS), smart transportation, and geospatial information systems.



### Atmospheric and Seismic Research

By tracking satellite signals, the receiver contributes to atmospheric research, particularly in estimating precipitable water vapor and ionospheric observation, aiding weather forecasting and climate studies. In seismic studies, dense networks of such receivers are integral to modern earthquake monitoring systems. They enable rapid tremor detection, early warning generation within seconds of an event, and detailed research into crustal deformation and tectonic activity.



### Intelligent Agriculture and Machine Control

It is a key enabler of precision farming. The receiver provides the precise location data necessary for guiding autonomous agricultural machinery, enabling operations like variable-rate seeding, fertilization, and harvesting to improve efficiency and crop yields. This same high-precision positioning technology is also fundamental for automated machine control in construction and industrial settings.



### Navigation and Scheduling for Vehicles and Ships

The receiver supports high-accuracy navigation solutions for road vehicles and ships, facilitating efficient route planning, real-time tracking, fleet management, and the development of autonomous navigation systems.

