

# RT-3010S

gps products



NavCom's RT-3010S geodetic quality RTK GPS sensor provides high performance in a robust cost effective package. This fully integrated solution with 64MB of internal memory is ideally suited as a pole mounted RTK rover or a tripod mounted RTK base station for rapid centimeter-level accuracy.

## APPLICATIONS

The highly integrated RT-3010S solution is designed for productivity with minimal setup time. Two removable, rechargeable batteries provide more than 15 hours RTK performance to get you through more than a full day of surveying without the need to carry spare batteries. The housing is rugged and waterproof, designed to survive a 2m-poledrop and can survive temporary immersion in water. The RT-3010S supports high precision survey applications such as construction stakeout, boundary surveys, machine control, high-order control surveys, and topographic surveys. The centimeter-level accuracy is achieved by computing an independent solution at each epoch on a real GPS measurement. There is no interpolation at the rover, so you see the full dynamic picture.

## BENEFITS

The RT-3010S receiver uses our NCT-2100D GPS Engine, the fourth generation of the Touchstone™ ASIC family, of which more than 25,000 are in use worldwide. This proven receiver technology provides leading edge interference suppression, multi-path mitigation, geodetic quality measurements, and up to 50Hz raw data rate. With a signal-to-noise ratio advantage over competing technology, the user benefits from improved real-time positioning with instantaneous centimeter-level accuracy.

The antenna uses a dipole element with integral ground plane. Similar to a much larger choke ring antenna element, this new antenna provides excellent phase center stability.

The RTK algorithm developed by NavCom provides fast initialization and the NCT ultra compact binary data format for RTK ensures robust data throughput on the built-in spread spectrum radio. The sensor can utilize NCT, RTCM, CMR and CMR+ data streams from other base stations to minimize base rover separation. Each RT-3010S can be used as either a Base or a Rover to meet your changing needs as the survey progresses.

For GIS applications, your base station can be used as another rover. The two onboard WAAS/EGNOS channels, NavCom's enhanced SBAS algorithm and dual frequency GPS typically provide half-meter real-time accuracy.

## FLEXIBLE INTERFACE

The RT-3010S receiver is easily configured by the provided Windows®-based utility program. For system integrators needing maximum flexibility, the NCT binary user interface allows complete command and control of the GPS receiver and spread spectrum radio, thus enabling customization of the interface and receiver operation.

## FEATURES

- Fully integrated receiver in robust housing
- "All-in-view" tracking on 26 channels (12 L1/L2 GPS + 2 SBAS)
- 2 dedicated WAAS/EGNOS channels
- L1 & L2 full wavelength carrier phase tracking
- C/A, P1 & P2 code tracking
- RTK processing with on-the-fly initialization
- User configurable as base or rover
- User programmable measurement and navigation data rates
- Integrated Spread Spectrum Radio (SSR)
- Two "hot-swappable", rechargeable lightweight battery packs
- 64MB internal memory for data recording
- NavCom's ultra compact RTK format, RTCM, CMR or CMR+
- Output NMEA 0183 or NavCom binary format
- Superior interference suppression
- Patented multipath rejection
- LED Display for GPS, Link, Base and Batteries
- TruBlu™ Wireless Connectivity, Bluetooth® compatible

## UPGRADES

- Raw measurement data rates up to 50Hz
- Positioning rates up to 25Hz



**Integrated, survey**

**pole RTK GPS**

**sensor delivers**

**reliable, centimeter-**

**level accuracy**

**instantaneously**



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## RT-3010S TECHNICAL SPECS

### PHYSICAL/ENVIRONMENTAL

- Size: .....10.4"W x 5.5"H  
(264mm x 140mm)
- Weight: .....5.5lb (2.5kg)
- External Power:  
Input Voltage: .....10 VDC to 30 VDC  
Consumption: .....< 5 W
- Connectors:  
I/O: .....2 x 7 pin Lemo  
DC Power: .....4 pin Lemo  
SSR Antenna: .....TNC-F
- Temperature (ambient):  
Operating: .....-40° to +55°C (-40° to +131°F)  
Storage: .....-40° to +85°C (-40° to +185°F)
- Humidity: .....95% non-condensing
- Tested in accordance with MIL-STD-810F for:  
low pressure, solar radiation, rain, humidity, salt fog,  
sand & dust, and vibration

### PERFORMANCE <sup>1</sup>

- Measurement Precision (RMS):  
Raw C/A code: .....20 cm @ 42 dB-Hz  
Raw carrier phase noise: .....L1: 0.95 mm @ 42 dB-Hz  
.....L2: 0.85 mm @ 42 dB-Hz
- Velocity: .....0.01 m/s
- Enhanced SBAS (WAAS/EGNOS) Positioning Accuracy:  
Horizontal: .....0.5m  
Vertical: .....0.7m
- RTK Positioning <10kms (Software option) (RMS):  
Horizontal: .....1 cm + 1ppm  
Vertical: .....2 cm + 1ppm
- Code Differential GPS Positioning <200kms (RMS):  
Horizontal: .....12 cm + 2ppm  
Vertical: .....25 cm + 2ppm

- User programmable output rates:  
Position Velocity Time: .....5 Hz (10Hz, 25Hz Optional)  
Raw measurement data: .....5 Hz (10Hz, 25Hz, 50Hz Optional)
- Data Latency:  
Position Velocity Time: .....< 20 ms at all rates  
Raw measurement data: .....< 20 ms at all rates
- Time-to-first-fix:  
Cold Start, Satellite Acquisition: .....< 60 seconds (typical)  
Satellite Reacquisition: .....< 1 second
- Dynamics: (Speed & Altitude restricted by export laws)  
Acceleration: .....up to 6g  
Speed: .....< 1,000 knots (515 m/s)  
Altitude: .....< 60,000 ft (18.3km)

<sup>1</sup> Performance dependent on location, satellite geometry, atmospheric conditions and GPS corrections.

### COMMUNICATIONS

- Messages:  
Data/Control: .....NCT Binary Messages  
NMEA: .....ALM, GGA, GLL, GSA, GST, GSV,  
RMC, VTG, ZDA
- Corrections: .....RTCM Code (Msg. 1, 3 & 9)  
SBAS (WAAS/EGNOS)
- RTK Corrections: .....NCT Proprietary  
(Optional) .....RTCM (Msg. 18/19 or 20/21)  
CMR (Msg. 0, 1, 2)  
CMR+
- Built in Radio Performance (Subject to Country Licensing):  
Frequency Band: .....2.400GHz - 2.485GHz  
Modulation: .....Frequency Hopping Spread Spectrum  
Data Rate: .....9600bps default  
Transmit Power: .....1watt Max.  
Receiver Sensitivity: .....-105dBm  
Range @ Max. Power: .....10km Line of Sight (typical)  
Maximum EIRP: .....6dBW (Using high gain antenna)

