C-Nav®
WORLD DGPS

C-NAV2050

C-NAV DGPS

The C-Nav2050 sensor consists of a 10-channel dual-frequency precision GPS receiver, two additional channels for receiving Satellite Based Augmentation System (SBAS) signals and an L-Band demodulator for reception of C-Nav correction service. The sensor can output raw data as fast as 50Hz and Position Velocity Time (PVT) data as fast as 25Hz through two 115kbps serial ports.

THE C-NAV2050 FAMILY OF RECEIVERS:

- The **C-Nav2050G** provides 64MB internal memory for data storage and provides the user with up to 5Hz measurement and position solutions. In addition, optional 10Kz and 25Hz Fast Positioning Update rates are available as well as raw data measurement outputs at 10Hz, 25Hz or 50Hz.
- The **C-Nav2050M** has all the standard features of the C-Nav2050G plus a 1PPS output port and a combined Event/CAN Bus interface port. In addition, 25Hz Fast Position Update rate is available and optional raw data measurement outputs up to 50Hz, and optional RTK Position Velocity and Time (PVT) solution at up to 5Hz are available.
- The **C-Nav2050R** has all the standard features of the C-Nav2050G but provides for two L-Band signal connections, one for the Dual Frequency GPS antenna and the second for a hi-gain L-Band communication satellite antenna.

The C-Nav2050 GPS family of receivers provides survey positioning services on a global basis.

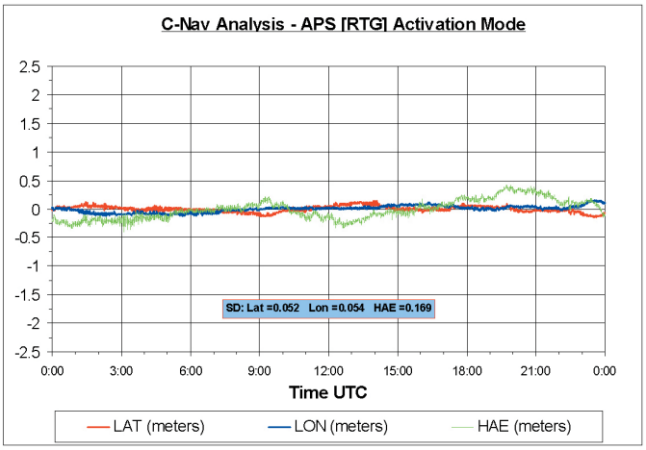
TECH SPECS

FEATURES

- "All-in-view" tracking
- Global decimeter-level accuracy using RTG corrections
- Fully automatic acquisition of satellite broadcast corrections
- Configurable for global L-band satellite coverage – RTG, WAAS, EGNOS
- Rugged and lightweight package for mobile applications
- Accepts external GPS correction input in NCT, RTCM v2.2 or CMR format
- L1 & L2 full wavelength carrier tracking
- C/A, P1 & P2 code tracking
- User programmable output rates
- Minimal data latency
- 2 separate SBAS (WAAS/EGNOS) channels
- Superior interference suppression
- Patented multipath rejection
- Supports NMEA 0183 v3.01 messages
- Self-survey mode (position averaging)
- CAN bus interface (C-Nav2050M only)
- 1PPS Output (C-Nav2050M only)
- Event Marker (C-Nav2050M only)

PHYSICAL/ENVIRONMENTAL

- Size (L x W x H): 8.18" x 5.67" x 3.06" (20.8 x 14.4 x 7.8 cm)
- Weight: 4 lbs (1.81 kg)
- External Power
  - Input Voltage: 10 VDC to 30 VDC
  - Consumption: <10 W
- Connectors
  - I/O Ports: 2 x 7 pin Lemo
  - DC Power: 4 pin Lemo
  - RF Connector: TNC (with 5 VDC bias for antenna/LNA)
- Temperature (ambient)
  - Operating: -40° C to +55° C
  - Storage: -40° C to +85° C
- Humidity: 95% non-condensing
- Tested in accordance with MIL-STD-810F for: Low pressure, solar radiation, rain, humidity, salt fog, sand and dust, and vibration



PERFORMANCE

GPS RECEIVER PERFORMANCE

- Real-time Kinematic Accuracy (RTK Option Only)
  - Relative position: Centimeter level
- Real-time StarFire DGPS Accuracy
  - Position (H): <10 cm
  - Position (V): <30 cm
  - Velocity: 0.01 m/s
- Pseudo-range Measurement Precision (RMS)
  - Raw C/A code: 20cm @ 42 dB-Hz
  - Raw carrier Phase noise: L1: 0.95 mm @ 42 dB-Hz; L2: 0.85 mm @ 42 dB-Hz
- User Programmable Output Rates
  - PVT: 25Hz, 10Hz, 5 Hz, 2Hz, 1Hz, or slower
  - Raw data: 50Hz, 25Hz, 10Hz, 5Hz, 2Hz, 1Hz, or slower
- Data Latency
  - PVT: < 20 ms at all nav rates
  - Raw data: < 20 ms at all rates
- Time-to-first-fix
  - Cold Start, Satellite Acquisition: < 60 seconds (typical)
  - Satellite Reacquisition: < 1 second
- Dynamics
  - Acceleration: up to 6g
  - Speed*: < 300 m/s
  - Altitude*: < 60,000 ft
- 1PPS Resolution 12.5nS (C-Nav2050M only)

*Restricted by export laws

I/O CONNECTOR ASSIGNMENTS

- Data Interfaces: 2 serial ports; from 1200 bps to 115.2 kbps
  CAN Bus I/F (C-Nav2050M only)
  Event Marker I/P (C-Nav2050M only)

COMMUNICATIONS PORT FUNCTIONS

- NCT Proprietary: Data, Control
- RTCM I/O: Code Corrections
- NMEA Output: Data

INPUT/OUTPUT DATA MESSAGES

- NCT Proprietary Data: PVT
  Raw Measurement
  Satellite Messages
  Nav Quality
  Receiver Commands
- NMEA Messages (Output): ALM, GGA, GLL, GSA, GSV, RMC, VTG, ZDA, and GST
- Code Corrections: RTG (proprietary) – Internal LBM
  WCT (proprietary) – Internal LBM
  SBAS (WAAS/EGNOS) – Internal GPS
  DGPS (RTCM Type 1 or 9) – External I/O
  RTK (RTCM, CMR, NCT)

LED DISPLAY FUNCTIONS (DEFAULT)

- Link (Selectable)
- Base Station
- GPS Position Quality

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