C−NAV DGPS

The C-Nav 2050 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.
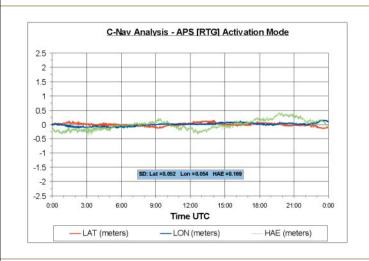
THE C-NAV 2050 FAMILY OF RECEIVERS:

- The **C-Nav 2050 G** provides 64MB internal memory for data storage and provides the user with up to 5Hz measurement and position solutions. In addition, optional 10Hz and 25Hz Fast Positioning Update rates are available and addition of optional Raw data measurement outputs at 10Hz, 25Hz or 50Hz are available.

- The **C-Nav 2050 M** has all the standard features of the C-Nav [G] plus a 1PPS output port and a combined Event/CAN Bus interface port. In addition, 25Hz Fast Position Update rate is available and addition of 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-Nav 2050 R** has all the standard features of the C-Nav [G] 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-Nav 2050 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 v3.1 messages
- Self-survey mode (position averaging)
- CAN bus interface (C-Nav[M] Only)
- 1PPS Output (C-Nav[M] Only)
- Event Marker (C-Nav[M] Only)

PHYSICAL/ENVIRONMENTAL

- Size (L x W x H):   < 8.18" x 5.67" x 3.06"
- 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: -40º C to +55º C
    - Storage: -40º C to +85º C
- 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

GPS RECEIVER PERFORMANCE

- Real-time Kinematic Accuracy (RTK Option Only):
    - Relative Position: cms
- Real-time StarFire DGPS Accuracy:
    - Position (H):   <15 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-Nav[M] 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-Nav [M] Only)
    - Event Marker I/P (C-Nav [M] Only)

COMM. 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

LED DISPLAY FUNCTIONS (DEFAULT)

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

C-Nav Analysis - APS [RTG] Activation Mode

SD: Lat =0.052   Lon =0.054   HAE =0.169

LAT (meters)   LON (meters)   HAE (meters)