

C-NAV DGPS

The C-Nav2050 is an “All-in-view” receiver with 26 tracking channels (12 channels for L1 GPS, 12 channels for L2 GPS and two channels for Satellite Based Augmentation System [SBAS]) 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** navigation system is fully compliant with IMO and IEC specifications for shipboard GPS (Wheelmark and US Coast Guard compliant).
- 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 Real-Time Kinematic PVT solution is available at 5Hz.
- The **C-Nav2050R** has all the standard features of the C-Nav2050G yet provides 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 positioning services on a global basis.

*IMO require all SOLAS class ships to carry a type-approved GPS and further that any new GPS installation shall be compliant with the new performance standard for GPS. This was defined by MSC 112(73) and resulted in the associated test standard IEC 61108-1 Ed. 2.



FEATURES

- "All-in-view" tracking on 26 channels (12-channels for L1/L2 GPS + 2-channels for SBAS)
- Global decimeter-level accuracy using C-Nav 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: 10-30 VDC
 - Consumption: <8 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)
 - CAN bus + Event: 5 pin Lemo (2050M only)
 - 1PPS Output: BNC (2050M only)
- 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 C-Nav DGPS Accuracy
 - Position (H): <10 cm
 - Position (V): <15 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, 5Hz, or slower
 - Raw data: 50Hz, 25Hz, 10Hz, 5Hz, 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*: < 515 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

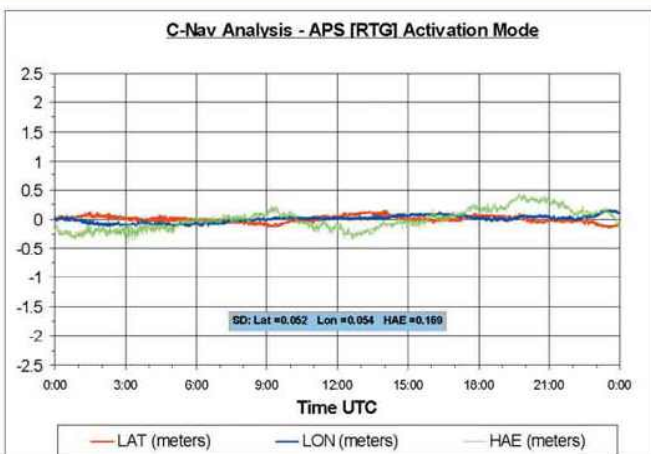
- NCT Proprietary
 - Data: PVT, Raw Measurement, Satellite Messages
Nav Quality, Receiver Commands
- NMEA Messages (Output): ALM, GGA, GLL, GSA, GSV, RMC, VTG, ZDA, and GST
- Code Corrections:
 - RTG (proprietary) – Internal LBM
 - WCT (proprietary) – Internal LBM
 - SBAS (WAAS/EGNOS) – Internal GPS
 - DGPS (RTCM Type 1, 3 & 9) – External I/O
 - RTK (RTCM, CMR, NCT)

LED DISPLAY FUNCTIONS (DEFAULT)

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

COMPLIANCE/APPROVALS

- Compliance with the following standards:
 - > IMO performance standard for GPS > IEC 60945
 - > IEC 61108 > IEC 61162
- Type approvals:
 - > Wheelmark
 - > USCG



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