

# C-Nav<sup>®</sup>

[oceanengineering.com/cnav](http://oceanengineering.com/cnav)

## C-Nav5000<sup>™</sup>

GNSS Receiver



### FEATURES

Integrated GNSS capable of tracking GPS, GLONASS, Beidou, and Galileo

Triple L-Band channels for correction tracking

Software configurable to user requirements

Connecting What's Needed with What's Next<sup>™</sup>

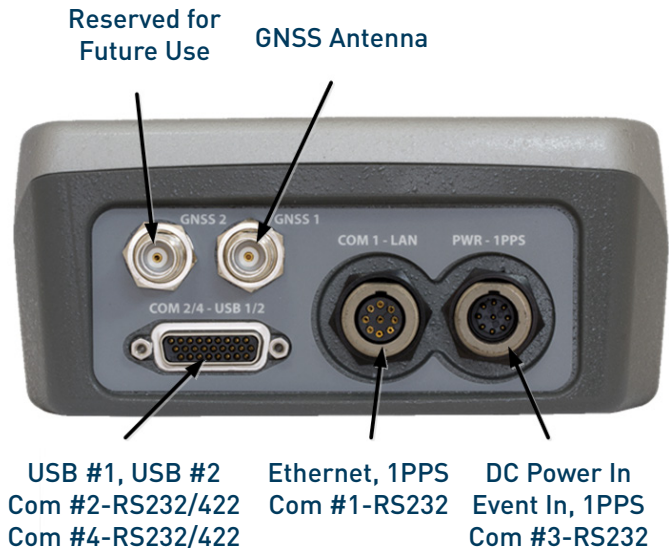
**OCEANENGINEERING<sup>®</sup>**

# C-Nav5000™ GNSS Receiver

## Technical Specifications

### Features

- » All-in-view parallel tracking with 252-channels for navigation and SBAS, plus 3 channels for C-Nav® correctors
- » Satellite-based augmentation system (SBAS) tracking (WAAS/EGNOS/MSAS/GAGAN/SNAS)
- » Integral 3-channel L-Band receiver for C-NavC<sup>1</sup> and C-NavC<sup>2</sup> reception
- » C-NavC<sup>2</sup> operating mode with automatic fail-safe to C-NavC<sup>1</sup>
- » Multi-constellation carrier and code tracking of:
  - » GPS: L1 – CA, P1, L2- P2, L2CL, L2CM, L5 – L5I, L5Q
  - » GLONASS: G1 – G1C, G1P, G2 – G2C, G2P
  - » Beidou: B1 – B1I, B2 – B2I
  - » Galileo: E1 – E1B, E1C, E5A- E5AI, E5AQ, E5B – E5B1, E5BQ
- » Navigation using all FOC constellations (currently GPS and GLONASS)
- » C-Nav® corrections over internet
- » High-sensitivity/low-signal level tracking
- » Fast signal acquisition/re-acquisition
- » Superior interference suppression (both in- and out-of-band) using custom-tuned antennas



- » Patented multipath rejection
- » RTK Extend™
- » C-Nav® over-the-air activation capabilities
- » Configurable as real-time kinematic (RTK) base or rover
- » Programmable output rates
- » Event marker input/1 pulse-per-second (PPS) output
- » Removable SD data storage
- » C-Setup PC control software included

### Specifications

Dimensions/weight	Not including mounting bracket or BT/WiFi antennae
Length	6.9 in / 176.3 mm
Width	6.6 in / 168 mm
Height	2.8 in / 72 mm
Weight	3.8 lb / 1.72 kg

### Front status indication

Power/GNSS status, correction service status, navigation status, RTK mode, interface status

■ For more information: [oceanering.com/cnav](http://oceanering.com/cnav)

External Power	
Input	8 W 9–32 VDC 110/220 VAC, 18W 1.5 A autoranging
Output	5V +/- 0.5V, 100 mA for each GNSS/L-Band antenna port 400 mA USB port

Connectors	
I/O ports	1 x 9 pin Positronic 1 x 26 pin high-density D-Type
DC ports	1 x 9 pin Positronic
RF connectors	2 x TNC (with 5VDC bias for antenna/LNA)

Temperature (ambient)	
Operating	-40 to 158°F / -40 to 70°C
Humidity	95% non-condensing

Accuracy (1σ) horizontal/vertical	
RTK (< 40 km)	1 cm + 0.5 ppm / 2 cm + 1 ppm
C-Nav® services (1σ)	5 cm / 8 cm
Code DGNSS (< 200-km RMS)	45 cm + 3 ppm / 90 cm + 3 ppm
Velocity (all DGPS)	0.01 m/s
RTK extend (< 15 mins 1σ)	3 cm + 1 ppm / 6 cm + 2 ppm

User-programmable output rate	
Position/velocity/time	1, 5, opt 10, 25 Hz
Raw data	1, 5, opt 10, 25 Hz

Data latency	
Position/velocity/time	10 mS at all rates
Raw data	10 mS at all rates

Time to first fix	
Cold/warm/hot	< 65 s / < 55 s / < 20 s (Typical values measured per ION- STD 101)

I/O connector assignments	
Data interfaces	2 x RS232 changeable to RS422, (4800–115200 baud rates) 2 x RS 232 4800–115200 baud 2 x USB 2.0 (host or device) Ethernet (10/100)

Input/output data messages	
NMEA-0183	ALM, GBS, GGA, GLL, GRS, GSA, GST, GSV, RMC, RRE, VTG, ZDA, GFA, DTM, GNS, MLA
Differential correction	RTCM 2.3 and 3.0, SBAS and C-Nav® (proprietary)
RTK connection	RTCM, C-Nav® Ultra RTK
Receiver control	C-Nav® proprietary commands (ASCII)

Compliance/Approvals	
IEC 60945	
NMEA-0183 compatibility up to V4.1	
FCC Part 15 Class B	
Vibration/Shock: MIL-STD-810G	
QC message strings comply with the recommendations in OGP 373-19 and IMCA S015 (July 2011)	

MBRTK—Range and bearing option	
High-accuracy range and bearing data between vessels	
Multiple rovers can use a common base	
RTK levels of accuracy for range, irrespective of differential correctors	
Converter available to emulate a Fanbeam output	
Heading accuracy (degrees at 1 sigma) + 0.6 / baseline length in meters	
Baseline horizontal accuracy + 1 cm + 1 ppm	
MBRTK NMEA-0183 Outputs: HDT, TTM, ROT	



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