

P2 Pro

GNSS Sensor Positioning and Heading



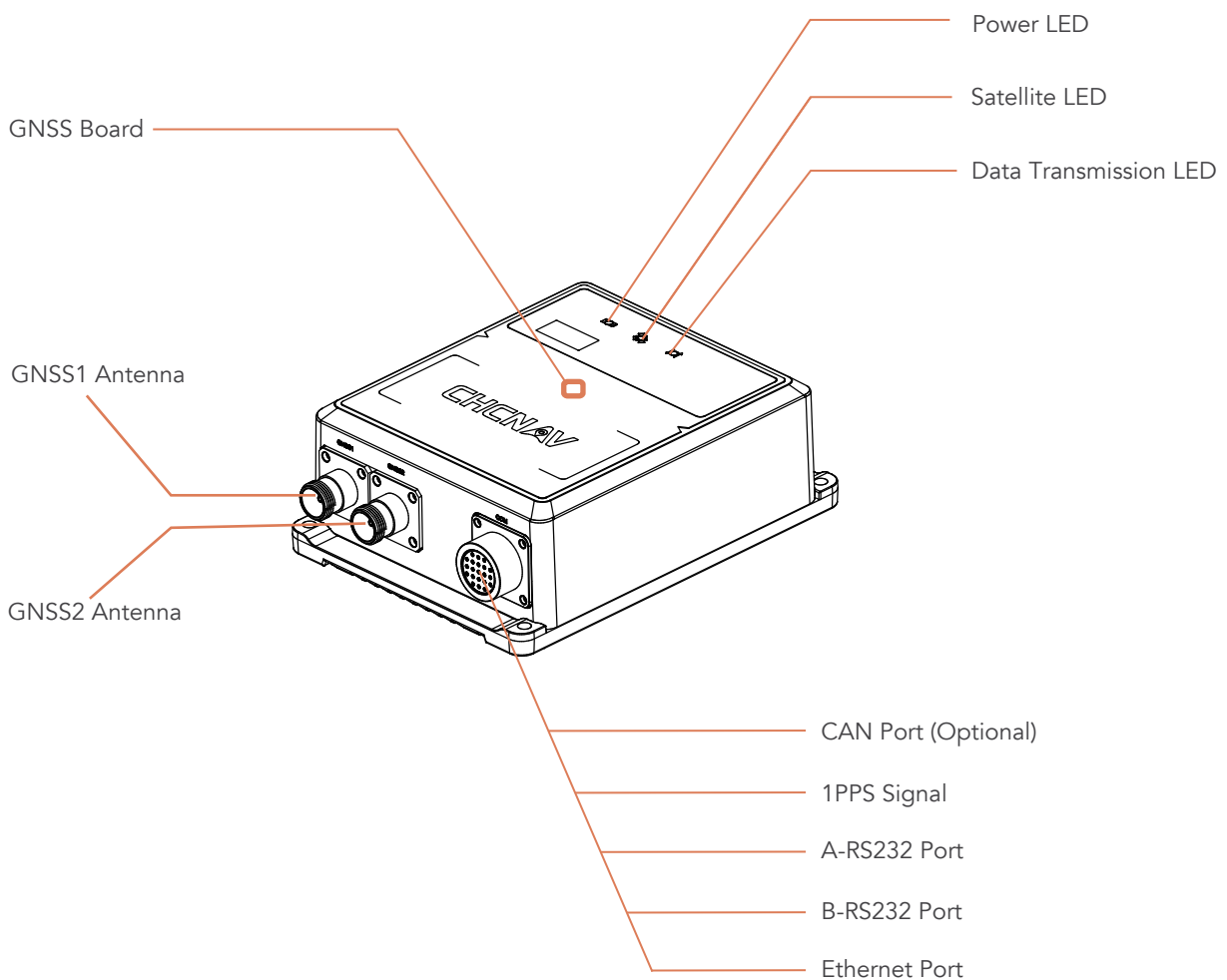
Hardware Description

P2 Pro GNSS Sensor

The P2 Pro GNSS sensor is a dual-antenna high-precision receiver designed to provide reliable and precise heading and positioning solutions to demanding applications.

Integrating the latest GNSS technology in an extremely rugged IP67 and lightweight enclosure, the P2 Pro GNSS sensor is built to match the toughest protection standards to ensure uninterrupted performances. It outputs up to 50Hz precise positioning and heading data (0.15° accuracy with 1 m antenna baseline).

The CHCNAV's P2 Pro GNSS sensor is a highly cost-effective solution for many positioning and navigation applications: marine, industrial automation, robotics, machine control, harbor automation...



Key Features

High-Performance Positioning and Heading

Advanced and field-proven 336-channel GNSS dual antenna positioning and heading technology supporting all current and upcoming GNSS signals. The P2 Pro GNSS sensor initializes within seconds.



Industrial Design

Integrated industrial-grade power management circuit to provide reliable and constant performances in difficult construction machine environment. The P2 Pro GNSS sensor matches the IP67 protection standards to fit onboard applications such as marine survey and machine control.



Easy to Install

Connect to the P2 Pro GNSS sensor via industry standard ethernet port and get full control to its configuration via a standard web interface. Virtually no learning curve for faster integration process.



Extended Connectivity

Rich hardware interfaces make the integration seamless in all applications: serial ports, CAN Bus protocol (optional), RJ45 for ethernet connectivity and low latency PPS output.



Applications



Specifications

GNSS Characteristics ⁽¹⁾	
Position Antenna	
Channels	336
GPS	L1 C/A, L2E, L2C, L5
GLONASS	L1 C/A, L2 C/A, L3 CDMA
Galileo	E1, E5A, E5B, E5AltBOC, E6
BeiDou	B1I, B1C, B2I, B2C, B3I
SBAS	L1 C/A, L5
QZSS	L1 C/A, L1 SAIF, L2C, L5, LEX
IRNSS	L5
MSS L-Band	OmniSTAR®, Trimble RTX™
Vector Antenna	
Channels	336
GPS	L1 C/A, L2E, L2C, L5
GLONASS	L1 C/A, L2 C/A, L3 CDMA
Galileo	E1, E5A, E5B, E5AltBOC, E6
BeiDou	B1, B2, B3
IRNSS	L5
QZSS	L1 C/A, L1 SAIF, L2C, L5, LEX
GNSS Accuracies ⁽²⁾	
Real time kinematic (RTK)	Horizontal: 8 mm + 1 ppm RMS Vertical: 15 mm + 1 ppm RMS Initialisation time: typically < 8 s Initialisation reliability: > 99.9%
Autonomous	Horizontal: 1.0 m RMS Vertical: 1.5 m RMS
SBAS	Horizontal: 0.50 m RMS Vertical: 0.85 m RMS
Code differential	Horizontal: 0.25 m + 1 ppm RMS Vertical: 0.50 m + 1 ppm RMS
Time to first fix ⁽³⁾	Cold start: < 45 s Warm start: < 30 s Signal re-acquisition: < 2 s
Heading accuracy	0.5m baseline 0.30° / 1.0m baseline 0.15° 3.0m baseline 0.05° / >5m baseline 0.02°
Hardware	
Size (L x W x H)	162 mm x 120 mm x 53 mm (6.4 in x 4.7 in x 2.1 in)
Weight	≤ 1.0 kg (35.3 oz)
Environment	Operating: -40 °C to +75 °C (-40 °F to +167 °F) Storage: -55 °C to +85 °C (-67 °F to +185 °F)
Humidity	100%
Ingress protection	IP67 waterproof and dustproof
Shock	Survive a 1.2m drop in hard ground

Communications	
1 x Ethernet port	Network protocols supported > HTTP/HTTPS (WebUI) > NTP Server > NMEA, GSOFF, CMR etc over TCP/IP or UDP > NTripCaster, NTripServer, NTripClient
2 x RS232 ports	Up to 460,800 bps
1 x 1PPS	3.3V TTL level positive slope pulse 8ms pulse wide and 20ns latency
Control software	HTML web browser, Internet Explorer, Firefox, Safari, Opera,
Web user interface	Allows remote configuration, data retrieval and firmware updates, setup of multiple streaming/monitoring ports
Data Formats	
Reference outputs/inputs	CMR, CMR+, sCMRx, RTCM 2.x, RTCM 3.x
Navigation outputs	ASCII: NMEA-0183 Binary: Trimble GSOFF
Observation output	RT17, RT27
Maximum position/attitude update rate	20Hz Standard(50Hz optional)
Electrical	
Power consumption	4.2 W (depending on user settings)
External power input	9 V DC to 36 V DC
Certifications	
CE; FCC Part 15 (class B Device), MIL-STD-810G, Method 514.7	

*Specifications are subject to change without notice.

- (1) Subject to availability of BDS ICD and Galileo commercial service definition. B1C will be supported by V5.37 or higher firmware and B2A is optional. GLONASS L3 and Galileo E6 will be provided through future firmware upgrade.
- (2) Accuracy and reliability are determined under open sky, free of multipaths, optimal GNSS geometry and atmospheric condition. Performances assume minimum of 5 satellites, follow up of recommended general GPS practices.
- (3) Typical observed values.



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