HANNON GeoX

Marine RTK Satellite Compass · AHRS

PRODUCT DATASHEET
Doc. HGX-DS-EN · Rev. A
hannon-tech.com

0.01 m	400 Hz	Dual-antenna	N2K · 0183
RTK position	Attitude computation	Magnetic-free heading	CAN · BLE outputs

More than a GPS — your vessel's motion reference.

Hannon GeoX delivers heading, position, roll, pitch and heave with professional-grade accuracy and speed, so that radar, sounder, autopilot and charting finally work on data they can trust. Two GNSS antennas provide a true heading that is immune to the magnetic disturbances that affect a conventional compass, while embedded inertial fusion keeps the reference stable in heavy seas, tight turns and at standstill — exactly where a GPS alone drops out.

GeoX is a technology platform, not just an antenna: every measurement is time-stamped, fused on board and published to your systems over NMEA 2000, NMEA 0183 / High-Speed Serial, CAN and BLE. An integrated Blackbox continuously records position, attitude and N2K traffic for later replay.

Hannon GeoX with stainless mounting bar

Key Features

- Dual-antenna GNSS heading, immune to magnetic interference — no calibration, no motion required.
- Centimeter-level RTK positioning with full-band L1/L2/L5 multi-constellation reception.
- Embedded marine AHRS fusing GNSS, IMU and magnetometer for heading, roll, pitch and heave.
- Attitude computed up to 400 Hz; selectable 5 / 10 / 20 / 50 Hz output profiles.
- Single underside N2K / CAN connector for a clean, fast marine install.
- Wireless NMEA gateway to navigation software (e.g. TimeZero®).
- Integrated 128-Mbit Blackbox logging with download & replay.
- Android + Windows apps; OTA firmware updates.

Applications

- Radar image stabilization — fast, stable heading keeps echoes from smearing in turns and rough seas.
- Sounder & sonar — heave and attitude compensation for a clean seabed and true depths.
- Autopilot — faster, more precise heading for finer steering with fewer corrections.
- Bathymetry & hydrography — accurate geo-referencing of every ping.
- Safety & analysis — continuous Blackbox recording of position and attitude.
- Multi-domain — marine, agriculture and other high-precision guidance uses.

Technical Specifications

GNSS & Positioning

Receiver architecture	Dual-antenna, multi-band GNSS RTK receiver
Constellations	GPS, GLONASS, Galileo, BeiDou, QZSS
Frequency bands	Full-band L1 / L2 / L5
RTK position accuracy	0.01 m + 1 ppm (CEP), corrections available
Standalone GNSS accuracy	0.4 m horizontal
Velocity accuracy	0.05 m/s RMS
Position update rate	5 / 10 / 20 / 50 Hz (selectable)
GNSS receiver rate	20 Hz
Time to first fix	< 30 s (cold), RTK convergence < 10 s typ.
Timing output	1 PPS

Heading & Attitude (AHRS)

Heading source	Dual-antenna GNSS — magnetic-interference-free
Heading accuracy	0.3° RMS
Roll / pitch accuracy	0.4° RMS
Heave accuracy	5 % or 0.05 m, whichever is greater
Rate of turn	Supported
Sensor fusion	Dual GNSS + IMU (gyro / accel) + magnetometer
Attitude computation rate	Up to 400 Hz
Attitude output rate	5 / 10 / 20 / 50 Hz (selectable)
Operation	No vessel motion or calibration required

Interfaces, Power & Software

Primary connector	Single underside connector, NMEA 2000 / CAN bus
Marine outputs	NMEA 2000, NMEA 0183 / High-Speed Serial, CAN, BLE
NMEA gateway	Wireless NMEA gateway to navigation software (e.g. TimeZero®)
Wireless	Bluetooth Low Energy — configuration, RTK, OTA, log access
Power input	9–32 V DC via N2K / CAN
Power consumption	≈ 0.15 A @ 12 V DC (≈ 3 LEN)
Data logging	Integrated 128-Mbit Blackbox — position, attitude & N2K traffic, user-enabled
Applications software	Android + Windows apps; download & replay logs
Firmware	OTA updates delivered through the app

NMEA 2000 PGN Support

Transmit (output): 126992 System Time · 127250 Vessel Heading · 127251 Rate of Turn · 127252 Heave · 127257 Attitude · 129025 Position Rapid · 129026 COG/SOG · 129029 GNSS Position · 129539 GNSS DOP · 129540 Sats in View.

Receive (input): 059392 / 060928 ISO · 126208 Request/Command · 126464 PGN List · 126996 Product Info.

Positioning vs. Market Satellite Compasses

Reference marine satellite compasses are reliable but often closed to their own ecosystem, slower, and without RTK positioning or an open configuration app. GeoX combines RTK, very-high-rate attitude and software openness.

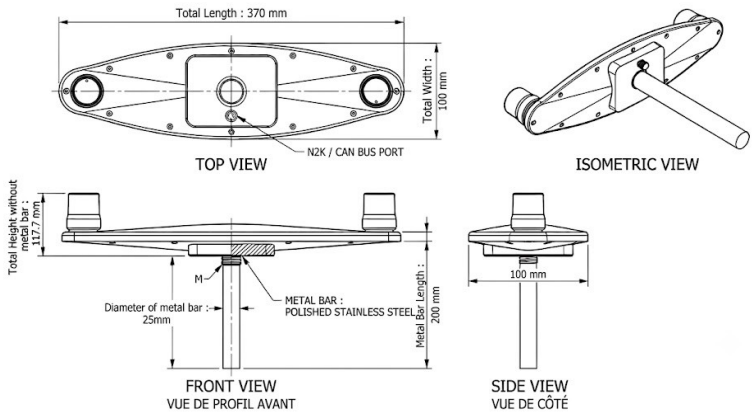
Feature	Hannon GeoX	Brand F-20	Brand G-10	Brand S-75
Attitude rate	**Computed 400 Hz · 5/10/20/50 Hz**	50 Hz fixed	10 Hz fixed	10 Hz fixed
Position rate	**5/10/20/50 Hz selectable**	10 Hz fixed	10 Hz fixed	10 Hz fixed
RTK cm position	**✓ ≈0.01 m**	✗	✗	✗
GNSS position	**L1/L2/L5 · 5 const. · 0.4 m**	L1 · ≈3 m	Multi-band	L1 · ≈0.6 m
Heading/roll/pitch/heave	✓	✓	✓	Partial
Open config app	**✓ Android + Windows**	Closed	Closed	✗
Blackbox / onboard logs	✓	✗	✗	✗
Outputs	**N2K · 0183/HS · CAN · BLE**	N2K / 0183	N2K	N2K
NMEA gateway	✓	✗	✗	✗
Multi-domain	✓	✗	✗	✗

Data from manufacturer datasheets. Competitor references are anonymized (Brand F-20, Brand G-10, Brand S-75) and cited for technical comparison only.

Physical, Mechanical & Environmental

Overall dimensions (L × W × H)	370 × 100 × 117.7 mm (without mounting bar)
Mounting bar	316L stainless steel, Ø25 mm × 200 mm
Weight	≈ 1.3 kg (incl. mounting bar)
Housing	Marine-grade, UV-stable polymer, streamlined low-profile
Primary connector	Single, centered underside, N2K / CAN
Ingress protection	IP66
Operating temperature	−20 °C to +70 °C
Storage temperature	−40 °C to +85 °C
Humidity	95 % RH, non-condensing
EMC	Designed to IEC 60945

Dimensions (mm)



Top, front, side and isometric views.

Performance figures are engineering targets pending final certification.