HEADING SENSOR
Simrad HS50 GPS Compass

SIMRAD

True heading, maintenance free GPS Compass

ALWAYS AT THE FOREFRONT OF TECHNOLOGY

SIMRAD
A KONGSBERG Company

A new economic and flexible GPS Compass...

The HS50 is a north seeking GPS compass outputting true heading with no moving parts, reducing the requirement for service dramatically. Position, speed and rate of turn information are extras that come standard with this product.

Economic and reliable

The HS50 replaces several vessel instruments, such as a gyrocompass, GPS navigator and speed log in one compact navigation package. In addition the HS50 provides added position redundancy with two complete GPS receivers.

Perfect accuracy

Precision heading is derived from the fixed-distance dual GPS antenna arrangement in the Sensor Unit, using carrier phase data to generate heading information independent of latitude and vessel dynamics. GPS position and velocity are calculated from both of the two antennas, which gives total redundant position and velocity sources in this product.

DGPS signals may be input to the HS50 to improve position and velocity accuracy. The inertial rate element provides yaw information. In case of short GPS signal loss, the inertial rate sensor automatically takes over as the prime source for heading determination until the GPS comes back on line. The rate element and GPS are working together seamlessly to ensure accurate, continuous and robust heading information even when the vessel is stationary.

Easy to install and operate

The HS50 requires no scheduled maintenance or re-calibration. The HS50 offers a flexible configuration of the outputs and interface setups, depending on the application and vessel. It is easy to operate, install and align.

Features

- *True heading anywhere on earth*
- *Heading accuracy unaffected by the latitude*
- *Heading available in periods of GPS drop-outs*
- *Accurate heading during and after turns compared to heading from standard gyrocompasses*
- *20 Hz update rate on heading, rate of turn and position measurements*
- *Four individually configurable RS-232 or 422 output serial lines*
- *Output data on Ethernet*
- *Distribution of data by High Speed network*

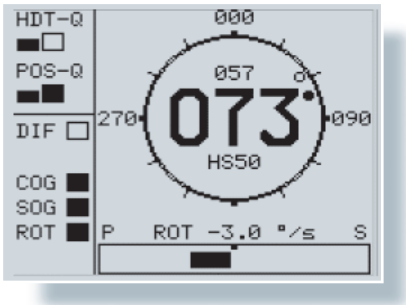
HS50 Antenna

J50 Processing unit

HS50 Display unit

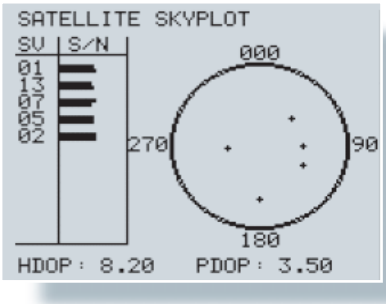
The HS50 consists of an Antenna, a Processing unit and a Display unit. The Antenna contains two GPS sensors and an inertial rate element. The Processing unit contains the main computer, serial interfaces and high speed communication, and the Display unit has a LCD for navigation information and user control buttons.

- Gyro, GPS and speed log in one compact navigation package!

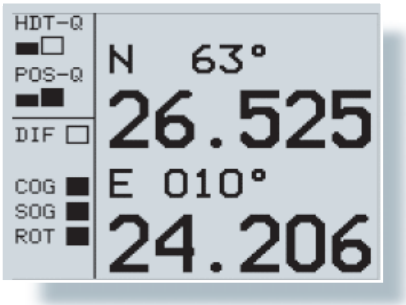


True heading is shown as a big number in the center of the compass with the COG value above it.

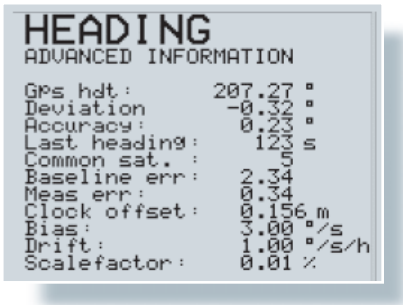
Heading display with extra big characters makes it easier to read.



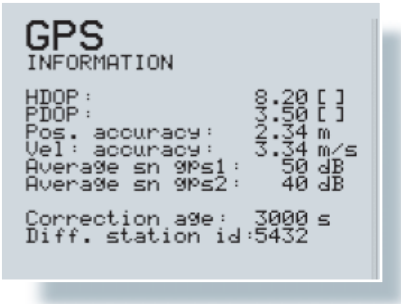
Position display with satellites in sight information



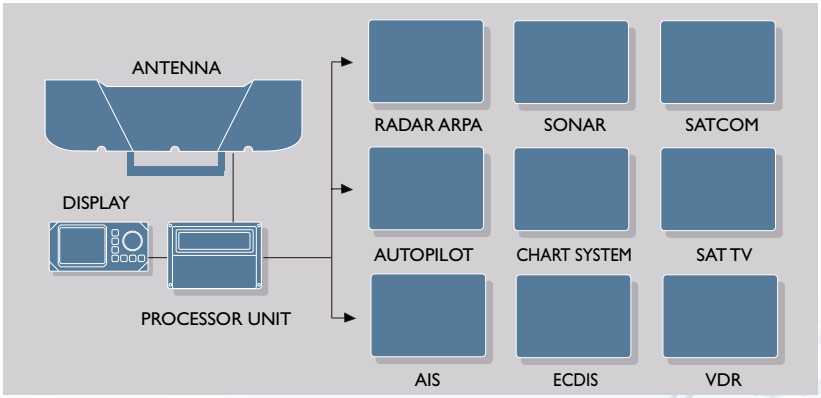
Position display with main navigation information.



Shows information on the heading solution.



Shows GPS information on the position solution.

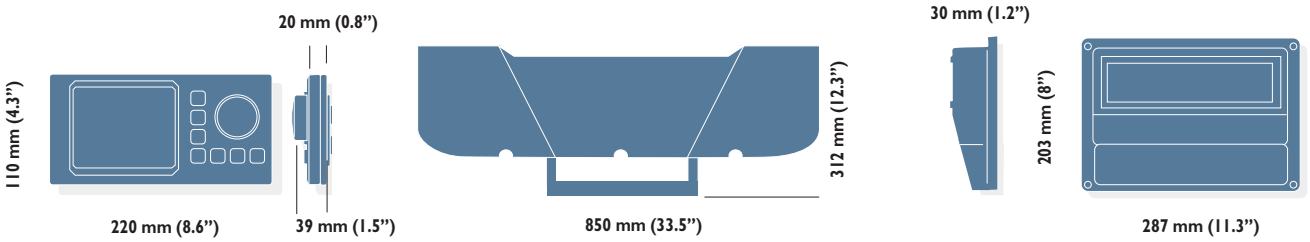


EXPANDED HS50 CONFIGURATION

The HS50 provides a stable heading to all the onboard navigation equipment.

The new system has already been installed and tested in several European rescue vessels with exellent feedback from the operators.

Technical Specifications



Performance Data

Heading accuracy, static: 0.3° RMS
Heading accuracy, dynamic: 0.5° RMS
Heading resolution: 0.01°
Heading operational measurement range: Roll/pitch within ±30°
Rate of turn accuracy: 0.5°/s + 5%
Position accuracy: 5 m 95% CEP
Velocity accuracy: 0.1 m/s 95% CEP

The performance figures are valid with a minimum of four visible satellites, HDOP less than 4, high quality DGPS corrections and otherwise normal conditions. Excessive multipath, GPS signal obstructions or interference may reduce the performance.

Display Unit

Width: 220 mm. **Height:** 110 mm
Depth: 39 mm. **Weight:** 0.5 kg
Color: Black
Enclosure protection: IP-56 from front, IP-43 from back
Operating temperature range: 0 to +55°C
Storage temperature range: -30 to +80°C
Safe distance to compass: 0.35 m

Sensor Unit

Width: 850 mm. **Height:** 312 mm
Depth: 262 mm. **Weight:** 8 kg
Color: White
Enclosure material sensor housing: Polyethylene
Enclosure protection: IP-65
Operating temperature range: -30 to +55°C
Operating humidity (max.): 100%
Storage temperature range: -30 to +70°C
Storage humidity (max.): 100%
Safe distance to compass: 0.2 m

Processing Unit

Width: 287 mm. **Height:** 203 mm
Depth: 60 mm. **Weight:** 1.3 kg
Color: Black
Power Voltage: 10 to 32 VDC
Power consumption: 15 W
Enclosure material: Anodised aluminum
Enclosure protection: IP-44
Operating temperature range: 0 to +55°C
Storage temperature range: -20 to +60°C
Safe distance to compass: 0.2 m

Data I/O

Configuration: Display Unit connected to the Processing Unit
Data outputs: Three RS-232 and three RS-422 serial lines and Ethernet UDP/IP
Data inputs: One RS-232 and one RS-422 serial line
DGPS corrections: RTCM 104 version 2.2
Baud rate: Max. 38.4 kBaud
HDT, ROT, GGA and GLL data update rates: Up to 20 Hz
HDT, ROT, GGA and GLL data delay: Less than 50 ms
ZDA and VTG data update rate: Max 1 Hz
ZDA and VTG data delay: TBD

Data output formats:
- NMEA 0183 ZDA, GGA, GLL, VTG, HDT, ROT, GSA, GRS and proprietary messages.
- RD Instrument ADCP proprietary NMEA format, "PRDID".
- Clock-Data (AD-10 format)

Specifications subject to change without notice