

The SIMRAD logo is displayed in white capital letters on a red rectangular background.

## Simrad HS60

### GPS Compass - heading and positioning smart antenna

The Simrad HS60 brings a series of new features to a traditional heading sensor including rate of turn, pitch and roll output. The HS60 uses SBAS (WAAS, EGNOS, MSAS, etc.) for differential GPS positioning providing a low cost, yet highly effective heading and position based smart antenna. The rugged and low profile enclosure provides two multipath-resistant antennas for accuracy, portability and simple installation. The maintenance free smart antenna, mounts easily to a flat surface or pole.

#### Main Features

- Provides heading, Pitch, roll and position
- SimNet/NMEA2000 communication
- All in one antenna –no black box needed
- Excellent in-band and out-of-band interference rejection
- 2 degree (RMS) heading accuracy in amazingly small form factor
- Extremely quick time-to-first-fix
- Differential positioning accuracy of 1 m, 95% of the time
- Integrated gyro and tilt sensors deliver fast start-up times and provide heading updates during temporary loss of GPS and satellites
- SBAS compatible (WAAS, EGNOS, MSAS, etc.)



Technical specifications overleaf.



# Technical Specifications

► SENSOR	
Receiver Type	GPS L1 Compass
Signals Received	GPS
Channels	Two 12-channel, parallel tracking (two 10-channel when tracking SBAS)
GPS Sensitivity	-142 dBm
SBAS Tracking	2-channel, parallel tracking
Update Rate	10 Hz standard (position & heading)
Rate of Turn	90°/s maximum
Compass Safe Distance	30 cm (11.8 in)
Cold Start	<60 s (no almanac or RTC)
Warm Start	<20 s typical (almanac and RTC)
Hot Start	<1 s typical (almanac, RTC and position)
Heading Fix	<10 S typical (valid position)
Maximum Speed	1,850 kph (999 kts)
Maximum Altitude	18,288 m 60,000 ft)
► ACCURACY	
Position:	
• Single Point <sup>1</sup>	3 m (95%)
• SBAS <sup>2</sup>	1 m (95%)
Heading	2° (RMS)
Pitch/Roll	2° (RMS)
► COMMUNICATIONS	
Ports	1 NMEA 2000
LEN	3
Correction I/O Protocol	RTCM SC-104
Data I/O Protocol	NMEA 2000
► POWER	
Input Power	8 to 36 VDC
Power Consumption	~2.0 W nominal
Current Consumption	165mA @12 VDC
Power Isolation	Isolated to enclosure
Reverse Polarity Protection	Yes

► ENVIRONMENT	
Operating Temperature	-30°C to +70°C (-22°F to +158°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Humidity	100% non-condensing
Shock & Vibration	IEC 60945
EMC	CE (IEC 60945 Emissions and Immunity), FCC Part 15 Subpart B, CISPR22
IP Rating	IP69
Enclosures	UV resistance, white plastic, Gelyo CR7520 (ASA)
► MECHANICAL	
Dimensions	
• Not including mount	25.9 L x 12.9W x 4.5H (cm) 10.2 L x 5.1W x 1.8H (in)
• Including Mount	25.9 L x 12.9W x 12.8H (cm) 10.2 L x 5.1W x 5.0H (in)
Weight	
• Not including Mount	0.42 kg (0.9 lb)
• Including Mount	0.51 kg (1.1 lb)
Power/Data Connector	5 Pin Male NMEA 2000 Micro-connector
► AIDING DEVICES	
Gyro	Provides smooth heading, fast heading reacquisition and reliable 2° per minute heading for period up to 3 minutes when loss of GPS has occurred
Tilt Sensors	Provide Pitch and roll data, assist in fast start-up and reacquisition of heading solution

1. Depends on multipath environment, number of satellites in view, satellite geometry, no SA, and ionospheric activity
2. Depends on multipath environment, number of satellites in view, SBAS coverage, and satellite geometry
3. Based on 40-second time constant

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