



IMO Compliant D/GNSS (GPS+GLONASS) Compass HS80A and MX575D

The Simrad HS80A and MX575D D/GNSS compass solutions are designed to provide reliable heading, ROT (Rate of Turn), and position information to Simrad Autopilots and the MX Series of navigation and AIS transponder systems. These GNSS compasses have enhanced heading and position performance with GPS and GLONASS sensors.

The Simrad HS80A and MX575D D/GNSS compasses are type-approved to the latest IMO regulations including RAIM (Receiver Autonomous Integrity Monitoring). Both models deliver heading accuracy of better than 0.5° and provide sub-meter DGPS positioning accuracy. This level of accuracy is achieved in the MX575D by using the RTCM correction data supplied from its internal beacon demodulator or from SBAS (Satellite-Based Augmentation System). The HS80A accuracy simply comes from SBAS.

TYPE APPROVALS:

Both the MX575D and HS80A have two IMO compliance certifications which is a big advantage for Simrad customers. A separate IMO compliant antenna is not required as the compasses meet both navigation and heading function approvals.

SUPPLEMENTARY SENSORS:

Integrated gyro and tilt sensors deliver fast start-up times and provide heading updates during temporary loss of satellites.

INTERFACE:

The HS80A is supplied with NMEA 2000 adaptor as the standard interface, but can be used as a NMEA 0183 device with an optional cable. The standard interface on the MX575D is NMEA 0183, but can also be used as a NMEA 2000 device with an optional adaptor.

KEY FEATURES

- IMO Type-Approved as a primary positioning AND heading device when used with SIMRAD CDU
- Compatible with new MX610/MX612/GN70 CDU's
- Enhanced heading and positioning performance with GLONASS
- Pitch, roll and heave as standard output
- Heading accuracy <0.5° RMS with GPS and GLONASS
- Heading updates 1-20 Hz
- DGPS Position accuracy (no SA) <1.0m 95% confidence
- GPS Position accuracy (no SA) <3.0m 95% confidence
- Fast start-up times
- Integrated DGPS source including SBAS (HS80A & MX575D), and Beacon (MX575D)
- Provision for external RTCM SC104 corrections
- More satellites tracking means better geometry
- NMEA 2000 adaptor with HS80A (standard), and NMEA 0183 serial cable with MX575D (standard)



Technical specifications overleaf.



 Wheelmark Approved

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COMPARISON TABLE:

	System Description	DGPS Corrections from Beacon Stations	SBAS DGPS corrections	IMO Certification as Navigation Device*	IMO certification as Heading Device	NMEA 2000 Interface	NMEA 0183 Interface	USCG Certification as Navigation Device	1 PPS Output
MX575D 000-11644-001	IMO Compliant DGNSS Compass	Yes (default setting)	Yes (can be set from MX display)	Yes	Yes	Optional adaptor is needed	Yes	Yes	Standard with power/data cable
HS80A 000-11643-001	IMO Compliant GNSS Compass	No	Yes	Yes	Yes	Yes	Optional (Power/data cable is needed)	Yes	Optional with power/data cable

* IMO compliant display is needed in order to display RAIM information.

HS80A/MX575D TECHNICAL SPECIFICATIONS:

▶ GNSS SENSOR SPECIFICATIONS	
Receiver Type:	GNSS L1 Compass
Signals Received:	GPS and GLONASS
Channels:	540
GPS Sensitivity:	-142 dBm
SBAS Tracking:	2-channel, parallel tracking
Update Rate:	10 Hz standard Heading
▶ POSITIONING ACCURACY	
RMS:	Horizontal
Single Point ¹ :	3.0 m
SBAS ² :	1 m
Heading Accuracy (RMS):	0.5°
Pitch/Roll Accuracy (RMS):	1°
Heave Accuracy (RMS):	30 cm ³
Timing (1 PPS) Accuracy:	20 ns
Rate of Turn:	90°/s maximum
Compass Safe Distance:	75 cm (with enclosure) ⁴
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 mph (999 kts) Maximum
Altitude:	18,288 m (60,000 ft.)
Differential Options:	SBAS, Beacon, External RTCM
▶ BEACON SENSOR SPECIFICATIONS	
Channels:	2-channel, parallel tracking
Frequency Range:	283.5 to 325 kHz
Operating Modes:	Manual, Automatic, and Database
Compliance:	IEC 61108-4 beacon standard
▶ COMMUNICATIONS	
Serial Ports:	1 full-duplex RS232; 1 full-duplex RS422 and 1 half-duplex RS422 (Tx only)
Baud Rates:	4800 - 38400
Correction I/O Protocol:	RTCM v2.3 (DGPS), RTCM SC-104
Data I/O Protocol:	NMEA 0183, NMEA 2000
Timing Output:	1 PPS (CMOS, active high, rising edge sync, 10 kΩ, 10 pF load)

▶ POWER	
Input Voltage:	9 to 36 VDC
Power Consumption:	4.3 W nominal (GPS L1 + GLONASS L1) 4.6 W nominal (GPS L1 + GLONASS L1 + Beacon)
Current Consumption:	0.36 A nominal (GPS L1 + GLONASS L1) 0.38 A nominal (GPS L1 + GLONASS L1 + Beacon)
Power Isolation:	Yes
Reverse Polarity Protection:	Yes
▶ ENVIRONMENTAL	
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:	95% non-condensing
Shock and Vibration:	Mechanical Shock: EP455 Section 5.14.1
Vibration:	EP455 Section 5.15.1 Random
EMC:	CE (IEC 60945 Emissions and Immunity) FCC Part 15, Subpart B CISPR22
IMO Wheelmarked Certification:	Yes ⁵
▶ MECHANICAL	
Dimensions:	66.3 L x 20.9 W x 14.6 H (cm) 26.1 L x 8.3 W x 5.8 H (in)
Weight:	2.4 Kg (5.4 lb)
Power/Data Connector:	18-pin, environmentally sealed
▶ AIDING DEVICES	
Gyro:	Provides smooth heading, fast heading reacquisition and reliable 1° per minute heading for periods up to 3 minutes when loss of GPS has occurred
Tilt Sensors:	Provide pitch and roll data and 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 (WAAS, EGNOS, MSAS, etc) coverage and satellite geometry

³ Based on a 40 second time constant

⁴ This is the minimum safe distance measured when the product is placed in the vicinity of the steering magnetic compass. The ISO 694 defines "vicinity" relative to the compass as within 5 m (16.4 ft) separation.

⁵ NMEA 0183 only

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Navico Asia Pacific Tel: +64 9 925 4500 Email: sales.apacnz@navico.com
 Navico Americas Tel: +1 832 377 9578 Email: sales.americas@navico.com
 Navico EMEA Tel: +44 1794 510 010 Email: sales.emea@navico.com

