MGC® R5 COMPASS





The MGC R5 COMPASS system is IMO type approved as a gyro compass for navigation purposes for use together with a heading and bearing repeater. Very high reliability is achieved by using Ring Laser Gyros with no rotational or mechanical wear-out parts.

Typical applications

The system can be operated as an inertial navigation system as well as a gyro compass with output of position and heading. Linear position and velocity measurements can then be output in up to four different points on the vessel.

Function

The MGC is a strap-down based gyro compass including three Ring Laser Gyros (RLG) and three linear accelerometers. The system can operate in Attitude and Heading Reference System (AHRS) mode and Inertial Navigation mode. In the AHRS mode input of speed and latitude data (VBW/VTG and GGA/GLL) is required. External time input is also required (ZDA). In this mode the system will output heading, roll, pitch and heave. In the Inertial Navigation mode input of latitude, longitude, height and time (GGA and ZDA) and PPS from a GNSS receiver is required. In this mode the product will output heading, roll, pitch, heave and position. In free inertial mode (GNSS denied environment) the position drift is less than 20 meters DRMS for a period of 15 minutes (proven performance).

The system is delivered with configuration software. In this software the user selects output formats on the different communication lines in addition to other configuration purposes.

Digital I/O protocols

MGC data is available through both Ethernet interface and serial lines enabling easy distribution of data to multiple users on board the vessel. Output protocols for commonly used equipment are available on five individually configurable serial lines and five Ethernet/UDP ports.

			DNV·GL
EC-TYPE EXA	MINIATION		Certificate No: MEDB00000F3
CERTIFICATE			Revision No:
CERTIFICATE	(MODULE)	D)	3
Application of: Directive 2014/90/ om Skipsutstyr" by the Norwegiar authority of the Government of No	Maritime Authority, This C		
This is to certify:			
That the Gyro compass; Gyro o	compass for HSC		
with type designation(s) MGC COMPASS R-series			
Issued to			
Kongsberg Seatex A	NS .		
Trondheim, Norway			
is found to comply with the requir	ements in the following Re	gulations/Standards	:
Regulation (EU) 2020/1170, item No. MED/4.3. SOLAS 74 a	e amonded Regulations	V/10 V/10 TMA	Pag A 424(VT) TMO
Res. A.694(17), IMO Res. MSC	.191(79), IMO Res. MSC	.302(87)	
item No. MED/4.31, SOLAS 74			
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FEATURES

- 0.008° roll and pitch accuracy
- 0.008° heading accuracy GNSS aided
- No rotational or mechanical wear-out parts
- Outputs on RS-422 and Ethernet
- High output data rate (200 Hz).
- Small size, light weight and low power consumption
- IMO type approved
- Each MGC delivered with Calibration Certificate
- Selectable communication protocols in the configuration software

0.02° RMS sec.lat

0.008° RMS sec.lat

<5 min from start-up

8 min from start-up

0.001°

±90°

0.001°

0.0003°/s RMS

±50 m, adjustable

5 cm or 5% whichever

2 cm or 2% whichever

<20 m/15 minutes DRMS

0.008° RMS

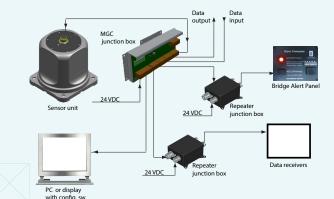
0 to 25 s

0 to 50 s

is highest

is highest

0.25 nm/hr DRMS



TECHNICAL SPECIFICATIONS

MGC R5 COMPASS

HEADING OUTPUT

Accuracy heading (speed aided) Accuracy heading (GNSS aided) Heading settling time to data

available Heading settling time to full

accuracy (typical)
Resolution

ROLL AND PITCH OUTPUT

Output range

Resolution
Angular rate noise
Accuracy (unaided)

HEAVE OUTPUT

Output range
Periods (real-time)
Periods (delayed)
Heave accuracy (real-time)

heave accuracy (real-cline)

Heave accuracy (delayed)

POSITION OUTPUT

Free inertial (GNSS aided)
Free inertial drift (GNSS aided)

ELECTRICAL

Voltage input 24 V DC (nominal (18 to 32 V DC) Power consumption Max. 13 W (typical

11 W)
COM1 through COM8 Serial port,

bidirectional RS-422/IEC 61162-1 and

| IEC 61162-2 | Baud rate | Max. 115200 Baud | Ethernet UDP/IP (5 ports) | 10/100 Mbps

Output data rate (max) 200 Hz
Timing accuary 1 ms

INPUT FORMATS

NMEA sentences GGA, GLL, VBW, VTG, ZDA

OUTPUT FORMATS

NMEA sentences GGA, GLL, VTG, HCR, HDT,

ROT, THS

OTHER DATA

MTBF (service history

based) 100 000 h MTBF (computed) 50 000 h

WEIGHTS AND DIMENSIONS

Sensor unit 188.9 x 189.5 x 189.5 mm, 8 kg MGC junction box 67 x 308 x 155 mm, 1.5 kg Repeater junction box 57.1 x 115 x 104 mm, 0.5 kg

ENVIRONMENTAL SPECIFICATIONS
Operating temperature range

Sensor unit -15 to +55°C MGC junction box -15 to +55°C Repeater junction box -15 to +55°C

Storage temperature range

Sensor unit -25 to $+70^{\circ}\mathrm{C}$ MGC junction box -25 to $+70^{\circ}\mathrm{C}$ Repeater junction box -25 to $+70^{\circ}\mathrm{C}$

Enclosure protection

Sensor unit IP66 Repeater junction box IP54

Specifications subject to change without any further notice.