MGC® R2 COMPASS





The MGC R2 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.

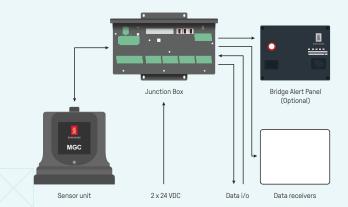
The system is delivered with configuration software. In this software the user selects output formats on the different communication lines in addition to other configuration purposes.

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
			ertificate No:
EC-TYPE EXA			REDB00000F3
CERTIFICATE	(MODULE	B) 3	
Application of: Directive 2014/9 om Skipsutstyr" by the Norwegi authority of the Government of	an Maritime Authority. This		
This is to certify:			
That the Gyro compass; Gyro	compass for HSC		
with type designation(s) MGC COMPASS R-series			
Issued to			
Kongsberg Seatex	AS		
Trondheim, Norway			
is found to comply with the requ	irements in the following Re	oulations/Standards:	
Regulation (EU) 2020/1170, item No. MED/4.3, SOLAS 74			A 434/VI) TMO
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- 0.1° 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



TECHNICAL SPECIFICATIONS

MGC R2 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

HEAVE OUTPUT

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

Heave accuracy (real-time)

Heave accuracy (delayed)

POSITION OUTPUT

Free inertial (GNSS aided)

ELECTRICAL

Voltage input

Power consumption

COM1 through COM8

Replica COM ports

Baud rate Ethernet

Output data rate (max) Timing accuary

Analog output

Ü

Relays

0.15° RMS sec.lat 0.1° RMS sec.lat

<5 min from start-up

17 min from start-up

0.01°

±90° 0.001° 0.020°/s

0.020°/s RMS 0.02° RMS

±50 m, adjustable 0 to 25 s

0 to 50 s 5 cm or 5% whichever

is highest 2 cm or 2% whichever

is highest

5 nm/hr

24 V DC (nominal (18 to 32 V DC)

Max. 13 W (typical

11 W)

Serial port, bidirectional

RS-422/IEC 61162-1 and TEC 61162-2

8x3 (max. 24 ports) RS-422 output Max. 115200 Baud

3x10/100 Mbps 200 Hz

3 user configurable
channels, +/-10 V
3, 60 Volt, 1 A solid

state relays

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.

