MGC® R3 COMPASS

KONGSBERG

September 2016

TYPE APPROVED COMPASS FOR SHIPS AND HIGH-SPEED CRAFTS

The MGC R3 COMPASS system is IMO type approved as 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 Windows based configuration software, MRC+. 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.

0575

DNV·GL

EC-TYPE EXAMINATION CERTIFICATE

Certificate No:
MEDB00000F3

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2014/93/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:
That the Gyro compass

with type designation(s)
MGC R3

Issued to
Kongsberg Seatex AS
TRONDHEIM, Norway

is found to comply with the requirements in the following Regulations/Standards:
Annex A.1, item No. A.1/4.3 and Annex B, Module B in the Directive. SOLAS 74 as amended, Regulation V/18 & V/19, IMO Resolution A.424 (XI) & A.694(17), IMO Resolution MSC. 191 (79)

Further details of the equipment and conditions for certification are given overleaf.

Høvik, 2015-12-18
for **DNV GL AS**

Vidar Dolonen
Head of Department

Notified Body No.: **0575**

DNV GL local office:
Trondheim

This Certificate is valid until
2020-12-17

For **Atle Bjørnstad Bulukin**
Surveyor

The Certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this Certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended. The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.

Form code: MED.Ba Revision: 2015-07 www.dnvgl.com Page 1 of 3
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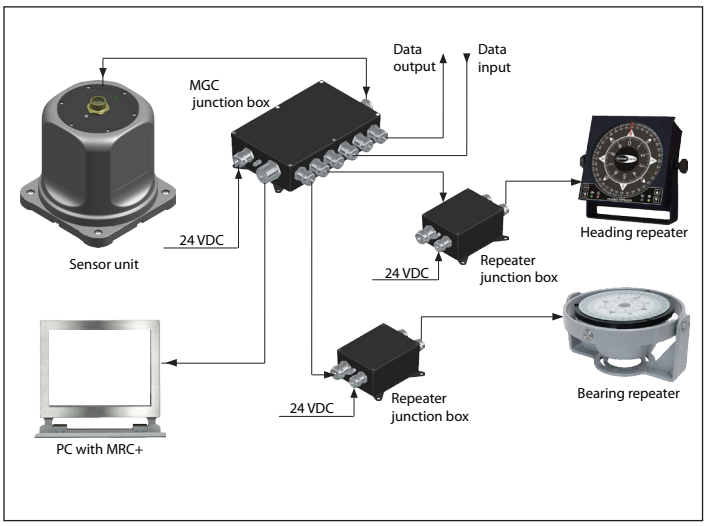
FEATURES MGC R3 COMPASS

- No rotational or mechanical wear-out parts
- 0.08° heading accuracy with GNSS aiding
- Outputs on RS-232, RS-422 and Ethernet
- High output data rate (200 Hz).
- Small size, light weight and low power consumption
- 2-years warranty
- Each MGC delivered with Calibration Certificate
- Selectable communication protocols in the Windows based configuration software, MRC+



TECHNICAL SPECIFICATIONS

HEADING OUTPUT

Accuracy heading (GNSS aided)	0.08° RMS sec.lat
Heading settling time (typical)	17 min from start-up
Resolution	0.1°

ROLL AND PITCH OUTPUT

Output range	±90°
Resolution	0.001°
Angular rate noise	0.010°/s RMS
Accuracy	0.01° RMS

HEAVE OUTPUT

Output range	±50 m, adjustable
Periods (real-time)	0 to 25 s
Periods (delayed)	0 to 50 s
Heave accuracy (real-time)	5 cm or 5% whichever is highest
Heave accuracy (delayed)	2 cm or 2% whichever is highest

POSITION OUTPUT

Free inertial	5 nm/hr

ELECTRICAL

Power requirements	24V DC, Max. 13 W
COM1 through COM4	Serial port, bidirectional RS-422/IEC 61162
COM5	Serial port output RS-422 and PPS port input RS-422
Baud rate	Max. 115200 Baud
Ethernet UDP/IP (5 ports)	10/100 Mbps
Output data rate (max)	200 Hz
Timing accuary	1 ms

OPERATING TEMPERATURE

Sensor unit	-5 to +55°C
MGC junction box	-15 to +55°C
Repeater junction box	-5 to +55°C

HUMIDITY

Sensor unit	Sealed
MGC junction box	IP 54
Repeater junction box	IP 54

DIMENSION (HXLXW)

Sensor unit	188.9x189.5x189.5 mm
MGC junction box	57.1x236x146 mm
Repeater junction box	57.1x115x104 mm

OTHER DATA

MTBF (computed)	100 000 h

INPUT FORMATS

NMEA sentences GGA, GLL, VBW, VTG, ZDA

OUTPUT FORMATS

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

Specifications subject to change without any further notice.

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