

MGC[®] R2 COMPASS



KONGSBERG



TYPE APPROVED COMPASS FOR SHIPS AND HIGH-SPEED CRAFTS

The MGC R2 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.

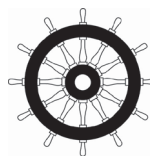
Function

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.

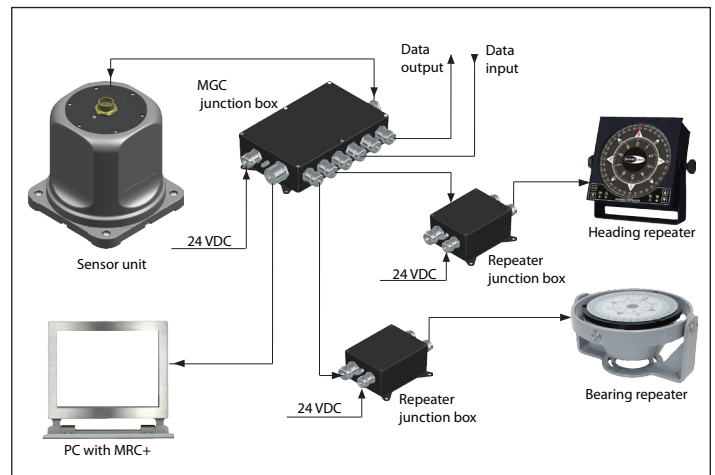


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EC-TYPE EXAMINATION CERTIFICATE (MODULE B)		DNV-GL
Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsskilt" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.		Certificate No: MED0000003 Revision No: 2
This is to certify:		
That the Gyro-compass		
with type designation(s)		
MGC R2 / MGC R3		
Issued to		
Kongsberg Seatex AS Trondheim, Norway		
is found to comply with the requirements in the following Regulations/Standards:		
Regulation (EU) 2017/2016, Item No. MED/4.3. SOLAS 74 as amended, Regulations V/18, V/19, IMO Res. A.424(XI), IMO Res. A.694(XV), IMO Res. MSC.191(79), IMO Res. MSC.362(87)		
Further details of the equipment and conditions for certification are given overleaf.		
This Certificate is valid until 2020-12-31.		
Issued at Trondheim on 2017-04-07		
DNV GL Local station: Trondheim		for DNV GL AS Signed and sealed by: Location: DNV GL, Sandnessveien 140, Trondheim, Norway Registration No. 0575
Approval Engineer: Aste Bjørnstad Bulviken	Notified Body No.: 0575	Widar Dolmen Head of Notified Body
<small> A U.S. Coast Guard approved notice will be applied to the equipment when the production module has been completed and will appear on the production module (module B) only, as defined by the regulations between the vessel builder or owner and the U.S. Coast Guard. In the event of a change of ownership of the vessel, the U.S. Coast Guard will require the manufacturer to provide a Declaration of Conformity. This certificate is issued to the manufacturer only for the production of the equipment. It is not intended for use as a certificate of conformity for the vessel. The product is not intended for use as a replacement for the manufacturer's instructions. The product is not intended for use as a replacement for the manufacturer's instructions. The product is not intended for use as a replacement for the manufacturer's instructions. </small>		
<small> Form code: MED-201-NOR Revision: 2017-02 © DNV GL 2016. DNV GL and the Notation Symbols are trademarks of DNV GL AS. </small>		

FEATURES MGC R2 COMPASS

- 0.02° roll and pitch accuracy
- 0.2° secant latitude heading accuracy
- 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 Windows based configuration software, MRC+



TECHNICAL SPECIFICATIONS

HEADING OUTPUT

Accuracy heading	0.2° RMS sec.lat
Heading settling time (typical)	17 min from start-up
Resolution	0.01°

ROLL AND PITCH OUTPUT

Output range	±90°
Resolution	0.001°
Angular rate noise	0.020°/s RMS
Accuracy	0.02° 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	20 nm/hr
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ELECTRICAL

Voltage input	24 V DC (nominal (18 to 32 V DC)
Power consumption	Max. 13 W (typical 11 W)
COM1 through COM4	Serial port, bidirectional RS-422/IEC 61162-1 and IEC 61162-2
COM5	Serial port output RS-422 and PPS port input RS-422 electrical levels
Baud rate	Max. 115200 Baud
Ethernet UDP/IP (5 ports)	10/100 Mbps
Output data rate (max)	200 Hz
Timing accuracy	1 ms

INPUT FORMATS

NMEA sentences	GGA, GLL, VBW, VTG, ZDA
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OUTPUT FORMATS

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

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

WEIGHTS AND DIMENSIONS

Sensor unit	188.9 x 189.5 x 189.5 mm, 8 kg
MGC junction box	57.1 x 236 x 146 mm, 2 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°C
MGC junction box	-25 to +70°C
Repeater junction box	-25 to +70°C

Enclosure protection

Sensor unit	IP 66
MGC junction box	IP 54
Repeater junction box	IP 54

Specifications subject to change without any further notice.

