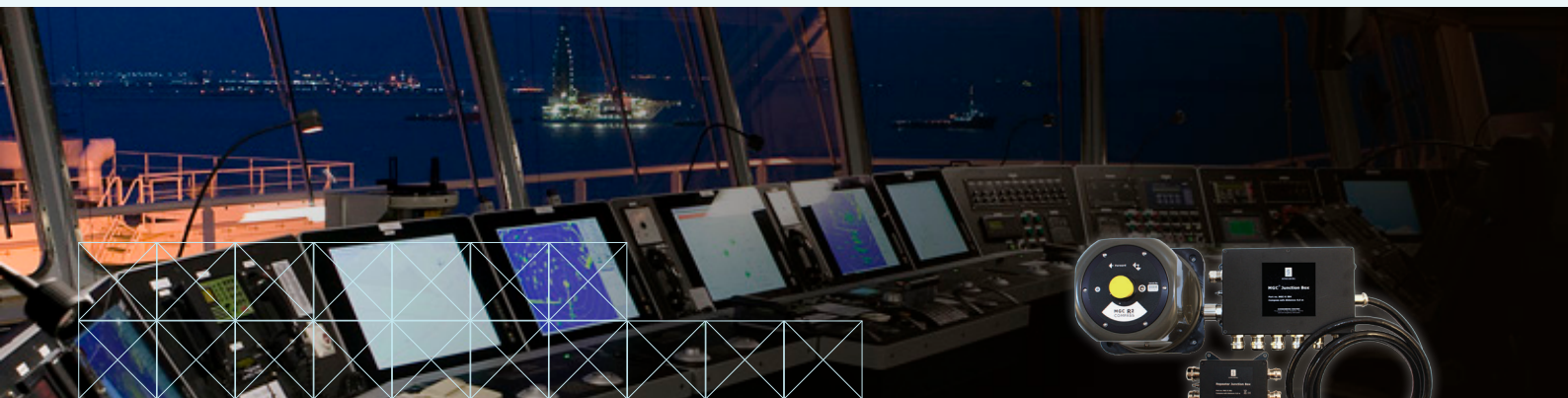


MGC[®] R3 COMPASS



KONGSBERG



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.

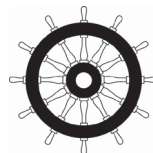
Function

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.

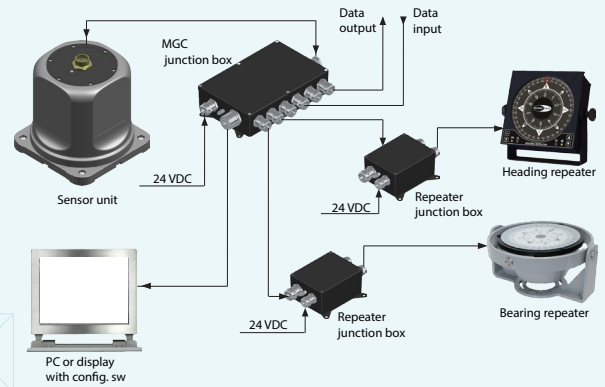


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DNV-GL	
Certificate No: MED000000F3 Revision No: 1	
EC-TYPE EXAMINATION CERTIFICATE (MODULE B)	
Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skippassater" by the Norwegian Maritime Authority. 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 / MGC R3	
Issued to Kongsberg Seatex AS Trondheim, Norway	
is found to comply with the requirements in the following Regulations/Standards: Regulation (EU) 2017/206, Item No. MED/4.3, SOLAS 74 as amended, Regulations V/18, V/19, IMO Res. A.424(XI), IMO Res. A.694(17), IMO Res. MSC.191(79), IMO Res. MSC.302(87)	
Further details of the equipment and conditions for certification are given overleaf.	
This Certificate is valid until 2020-12-17 . Issued at Havik on 2017-04-07	
DNV GL local station: Trondheim	 For DNV GL AS Digitally Signed By: Grimstad, Jan Tore Location: DNV GL, Havik, Norway Signature Date: 20-04-2017, on behalf of:
Approval Engineer: Alis Eijerstedt Bulukin	 Vidar Dolonen Head of Notified Body
Notified Body No.: 0575	
<small>A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (Module C, 2 of 2), as allowed by the "Agreement between the United States of America and the EEA-ETB states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 12 October 2009. The manufacturer's Declaration of Conformity, issued when the production surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a notified body. The product liability rests with the manufacturer or the representative in accordance with (Annex B) of the MED.</small>	
<small>This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled. Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.</small>	
<small>Form code: MED 201-NGS Revision: 2017-02 www.dnvgl.com Page 1 of 3 © DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.</small>	

FEATURES

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



TECHNICAL SPECIFICATIONS

MGC R3 COMPASS

HEADING OUTPUT

Accuracy heading	0.08° RMS sec.lat
Accuracy heading (GNSS aided)	0.04° 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	0.010°/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
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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

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.

KONGSBERG SEATEX

Switchboard: +47 73 54 55 00
 Global support 24/7: +47 33 03 24 07
 E-mail sales: km.seatex.sales@km.kongsberg.com
 E-mail support: km.support.seatex@kongsberg.com

km.kongsberg.com/seatex



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