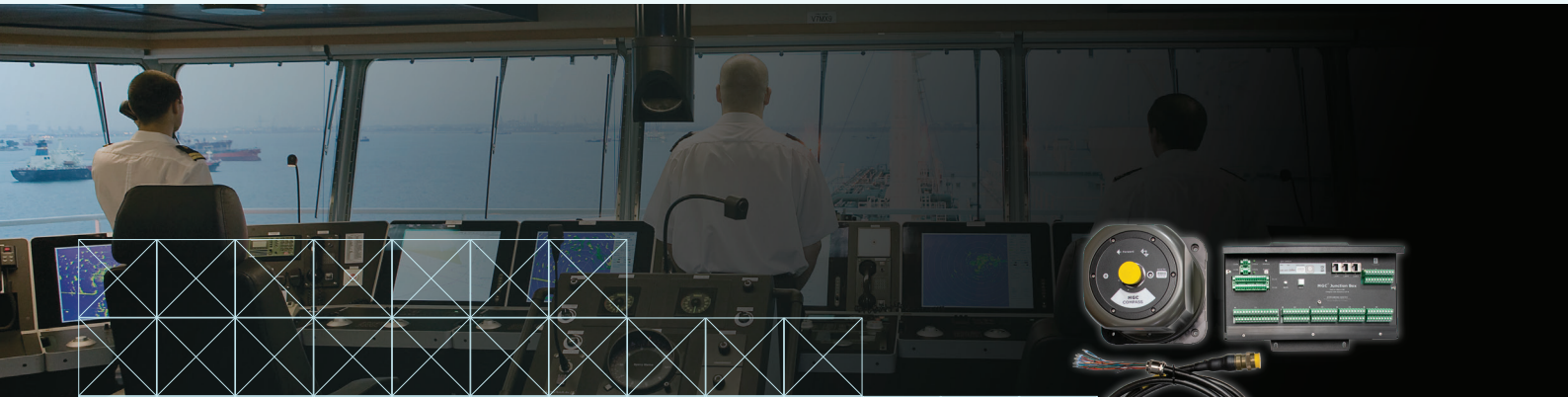


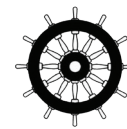
MGC® R4 COMPASS



KONGSBERG



TYPE APPROVED COMPASS FOR SHIPS AND HIGH-SPEED CRAFTS



0575

The MGC R4 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.

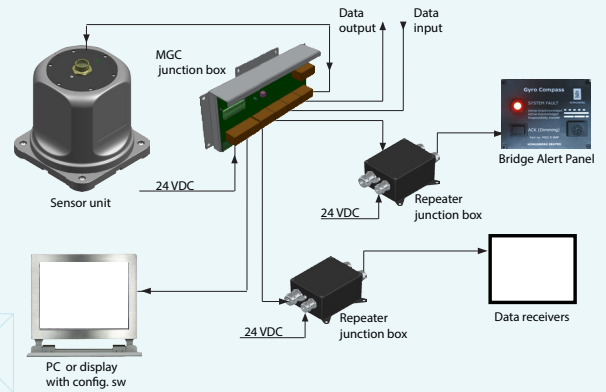
Digital I/O protocols

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.

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)		DNV-GL Certificate No: HE808000073 Revision No: 3
Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forårkrutt om Skipsutrustning" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.		
This is to certify: That the Gyro compass; Gyro compass for MSC with type identification(s): MGC COMPASS R-series		
Issued to: Kongsberg Seatex AS Trondheim, Norway		
Is found to comply with the requirements in the following Regulations/Standards: Regulation (EU) 2020/1170, Annex No. MED(A.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), Annex No. MED(A.3), SOLAS 74 as amended, Regulation X/3, IMO Res. A.694(17), IMO Res. A.821(19), IMO Res. MSC.345(83), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87), IMO MSC.1/Con.1.140		
Further details of the equipment and conditions for certification are given overleaf.		
This Certificate is valid until: 2026-01-24 .		
Issued at Narvik on 2021-01-25		
DNV GL local station: Norway CNC Mid-North		For DNV GL AS Notified Body for marine equipment
Approved Engineer: Steinar Kristiansen		Raold Vårheim Head of Notified Body
<small>The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued under the applicable regulatory requirements (EU, or if it falls under the MED, EEC) corresponding with and controlled by a notified body. The product shall comply with the manufacturer's or the manufacturer's or the manufacturer's or the manufacturer's instructions for use. The product shall comply with the manufacturer's or the manufacturer's or the manufacturer's or the manufacturer's instructions for use. The product shall comply with the manufacturer's or the manufacturer's or the manufacturer's or the manufacturer's instructions for use. The product shall comply with the manufacturer's or the manufacturer's or the manufacturer's or the manufacturer's instructions for use. The product shall comply with the manufacturer's or the manufacturer's or the manufacturer's or the manufacturer's instructions for use.</small>		
<small>LEGAL DISCLAIMER: Issues presented herein are the property of the manufacturer and are not intended to constitute an offer of insurance. DNV GL is not liable for any damages or losses incurred by the use of this product. © 2021 DNV GL. All rights reserved. Page 4 of 5</small>		

FEATURES

- 0.008° roll and pitch accuracy
- 0.02° 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 R4 COMPASS

HEADING OUTPUT

Accuracy heading (speed aided)	0.04° RMS sec.lat
Accuracy heading (GNSS aided)	0.02° RMS sec.lat
Heading settling time to data available	<5 min from start-up
Heading settling time to full accuracy (typical)	8 min from start-up
Resolution	0.001°

ROLL AND PITCH OUTPUT

Output range	±90°
Resolution	0.001°
Angular rate noise	0.0004°/s RMS
Accuracy	0.008° 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 (GNSS aided)	0.4 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 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 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 (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°C
MGC junction box	-25 to +70°C
Repeater junction box	-25 to +70°C

Enclosure protection

Sensor unit	IP66
Repeater junction box	IP54

Specifications subject to change without any further notice.

KONGSBERG SEATEX

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