

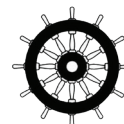
# MGC® R1 COMPASS



KONGSBERG



TYPE APPROVED COMPASS  
FOR SHIPS AND HIGH-SPEED CRAFTS



0575

The MGC R1 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.

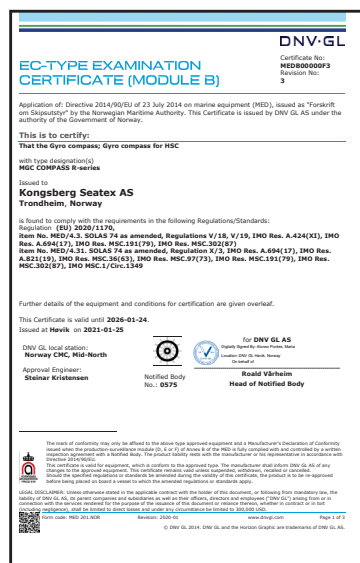
## Function

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.

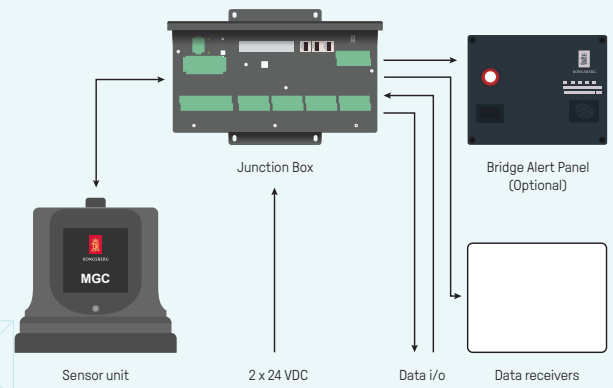
## Digital I/O protocols

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.



## FEATURES

- 0.2° heading accuracy GNSS aided
- 0.05° roll and pitch accuracy (Subject to license)
- 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 R1 COMPASS

#### HEADING OUTPUT

Accuracy heading (speed aided)	0.25° RMS sec.lat
Accuracy heading (GNSS aided)	0.2° RMS sec.lat
Heading settling time to data available	<5 min from start-up
Heading settling time to full accuracy (typical)	30 min from start-up
Resolution	0.01°

#### ROLL AND PITCH OUTPUT (Subject to license)

Output range	±90°
Resolution	0.001°
Accuracy (unaided)	0.05° RMS

#### HEAVE OUTPUT (Subject to license)

Output range	±50 m, adjustable
Periods (real-time)	0 to 18 s
Heave accuracy (real-time)	10 cm or 10% whichever is highest

#### 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
Replica COM ports	8x3 (max. 24 ports) RS-422 output
Baud rate	Max. 115200 Baud
Ethernet	3x10/100 Mbps
Output data rate (max)	200 Hz
Timing accuracy	1 ms
Analog output	3 user configurable channels, +/-10 V
Relays	3, 60 Volt, 1 A solid state relays

#### 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 MARITIME

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@km.kongsberg.com

[kongsberg.com/maritime](http://kongsberg.com/maritime)



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