# MGC® R3 COMPASS





The MGC R3 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.

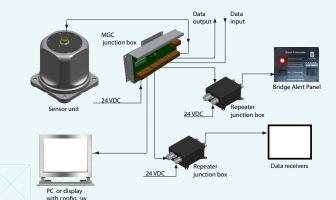
#### Digital I/O protocols

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.

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## **FEATURES**

- 0.01° roll and pitch accuracy
- 0.04° 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 R3 COMPASS

**HEADING OUTPUT** 

Accuracy heading (speed aided) Accuracy heading (GNSS aided) Heading settling time to data available

Heading settling time to full

accuracy (typical)

Resolution

ROLL AND PITCH OUTPUT

Output range Resolution Angular rate noise Accuracy

HEAVE OUTPUT

Output range Periods (real-time) Periods (delayed)

Heave accuracy (real-time)

Heave accuracy (delayed)

POSITION OUTPUT

Free inertial (GNSS aided)

**ELECTRICAL** 

Voltage input

Power consumption

COM1 through COM8

Baud rate

Ethernet UDP/IP (5 ports) Output data rate (max)

Timing accuary

0.08° RMS sec.lat 0.04° RMS sec.lat

<5 min from start-up

17 min from start-up

0.001°

±90° 0.001° 0.002°/s RMS

0.01° RMS

 $\pm 50$  m, adjustable 0 to 25 s

0 to 50 s

5 cm or 5% whichever is highest

2 cm or 2% whichever

is highest

2 nm/hr

24 V DC (nominal (18 to 32 V DCl

Max. 13 W (typical

11 W) Serial port,

bidirectional RS-422/IEC 61162-1 and

TFC 61162-2 Max. 115200 Baud 10/100 Mbps

200 Hz 1 ms

INPUT FORMATS

GGA, GLL, VBW, VTG, ZDA NMEA sentences

**OUTPUT FORMATS** 

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

ROT. THS

OTHER DATA

MTBF (service history

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

WEIGHTS AND DIMENSIONS

 $188.9 \times 189.5 \times 189.5 \text{ mm}, 8 \text{ kg}$ Sensor unit 67 x 308 x 155 mm, 1.5 kg MGC junction box

Repeater junction box 57.1 x 115 x 104 mm, 0.5 kg

**ENVIRONMENTAL SPECIFICATIONS** Operating temperature range

-15 to +55°C Sensor unit MGC junction box -15 to  $+55^{\circ}C$ Repeater junction box -15 to +55°C

Storage temperature range

-25 to +70°C Sensor unit -25 to +70°C MGC junction box Repeater junction box -25 to +70°C

Enclosure protection

TP66 Sensor unit Repeater junction box IP54

Specifications subject to change without any further notice.