Meridian Gyrocompasses

Marine Navigation Systems

Highly accurate performance with low cost of ownership

The Meridian gyrocompass product range is suitable for the ever-changing needs of a modern integrated bridge system. This includes highly accurate performance with low cost of ownership and system flexibility. Due to the Meridian’s small size and fast settle time of less than 45 minutes, there are no limits to the type of vessel for which it is suitable.

The Meridian gyrocompass can be installed as a stand-alone unit or, together with any of the TSS range of repeaters and ancillaries, it becomes a single, dual or triple gyro system. The Meridian can also be used as a retrofit unit.

For simple installation the Meridian offers a large array of digital and analogue outputs plus easy set-up and self-test modes that are activated via the control unit. The versatility and flexibility of the Meridian can be clearly demonstrated with the remote control unit option which gives freedom to install the main unit in the most convenient location whilst installing the remote control unit where it can be seen and regularly used.

Unlike other marine navigation gyrocompasses available, the Meridian has a maintenance-free dry element with a meantime between failure of more than 30,000 hours: and post-installation there are no scheduled annual maintenance and servicing costs.

PRODUCT FEATURES

- Type approved to Marine Equipment Directive
- Economic one-box solution
- Fast initial settle time
- Small, lightweight and versatile
- High dynamic heading accuracy
- Versatile range of repeaters and ancillaries available
- Subsea variants also available
**Meridian Standard**

The heart of the Meridian gyrocompass is the element, which is a dynamically tuned gyroscope (DTG). The DTG is a high precision technology which, due to its size, accuracy, reliability and shock resistance, is used in many different applications.

The guaranteed accuracy of the Meridian gyrocompass is obtained through specialised high quality engineering. This gives exceedingly stable heading and means that the gyro will follow a high turn rate of up to 200° per second.

**Meridian Surveyor**

The Meridian Surveyor boasts a wide range of interfaces to enable use on any marine vessel. The unit utilises a DTG gyro element which provides exceptional performance with an accuracy unmatched by even the latest fibre optic designs.

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### Remote Control Unit Option

- Speed Log
- GPS
- D.C.
- A.C.
- P.S.U.
- Synchro
- Step
- 11 off RS422 NMEA
- 5 off RS232 NMEA
- Alarm/Status
- R.O.T.
- Printer

For simple installation the Meridian offers a large array of digital and analogue outputs plus easy to use digital set-up and self-test modes that are activated via the control unit.

The versatility and flexibility of the Meridian gyrocompass can be clearly demonstrated with the remote control unit option, which is supplied with the gyrocompass system. This gives freedom to install the main unit in the most convenient location whilst installing the remote control unit where it can be seen and regularly used.
Meridian Gyrocompass Repeaters and Ancillaries

**Bearing Repeater**
- **Power Supply Unit**: 18 – 36Vdc (15W)
- **Signal Inputs**: 1 x IEC 61162 (NMEA 0183)
- **Signal Outputs**: 1 x IEC 61162 (NMEA 0183)
- **Environmental and EMC**: Meets or exceeds IEC 60945 weather exposed equipment
- **Physical**: Dimensions: 287mm x 388mm x 145mm

**Digital Repeater**
- **Power Supply Unit**: 18 – 36Vdc (10W)
- **Signal Inputs**: 1 x IEC 61162 (NMEA 0183) Heading
- **Signal Outputs**: 1 x IEC 61162 (NMEA 0183) Magnetic correction
- **Environmental and EMC**: Meets or exceeds IEC 60945
- **Physical**: Dimensions: 96mm x 192mm x 145mm

**Data Repeater**
- **Power Supply Unit**: 18 – 36Vdc (8W)
- **Signal Inputs**: 1 x IEC 61162 (NMEA 0183)
- **Signal Outputs**: 1 x IEC 61162 (NMEA 0183)
- **Environmental and EMC**: Meets or exceeds IEC 60945
- **Physical**: Dimensions: 96mm x 192mm x 145mm

**Rate of Turn Indicator**
- **Power Supply**: 18 – 32Vdc (6W)
- **Signal Inputs**: 1 x IEC 61162 (NMEA 0183)
- **Signal Outputs**: External Alarm Loop (optional)
- **Environmental and EMC**: Meets or exceeds IEC 60945
- **Physical**: Dimensions: 200mm x 87mm x 166mm (Bulkhead mounted)

**Dial Repeater**
- **Power Supply**: 18 – 32Vdc (4 W)
- **Signal Inputs**: 1 x IEC 61162 (NMEA 0183)
- **Environmental and EMC**: Meets or exceeds IEC 60945
- **Physical**: Dimensions: 144mm x 144mm x 100mm including connector Weight: 1.25 Kg
- **Mounting**: 15-way subminiature plug (2.5m cable supplied)

**Dial Repeater (Twin Speed)**
- **Power Supply**: 18 – 32Vdc (6W)
- **Signal Inputs**: 1 x IEC 61162 (NMEA 0183)
- **Environmental and EMC**: Meets or exceeds IEC 60945
- **Physical**: Dimensions: 235mm x 78mm x 220mm Mounting: Bulkhead or Panel mounted Connections: 1 x data cable to 15-pin D-dub plug

**Step Retransmission Unit**
- **Power Supply**: 18 – 36Vdc (100W)
- **Signal Inputs**: 1 x step (5Vdc) 6 steps per degree
- **Signal Outputs**: 4 x step (24V, 35V, 50V or 70V)
- **Environmental and EMC**: Meets or exceeds IEC 60945
- **Physical**: Dimensions: 400mm x 300mm x 120mm

**Heading Repeater**
- **Power Supply**: 18 – 36Vdc (15W)
- **Signal Inputs**: 2 x IEC 61162 (NMEA 0183)
- **Signal Outputs**: 1 x Step (5-70Vdc)
- **Environmental and EMC**: Meets or exceeds IEC 60945
- **Physical**: Dimensions: 144mm x 228mm x 130mm

**Data Distribution Unit**
- **Power Supply**: 18 – 32Vdc (main / standby supplies)
- **Signal Inputs**: 2 x IEC 61162 (NMEA 0183)
- **Signal Outputs**: 9 x IEC 61162 (NMEA 0183)
- **Environmental and EMC**: Meets or exceeds IEC 60945
- **Physical**: Dimensions: 254mm x 254mm x 70mm Mounting: M6 Fixings on 220mm sq centres
- **Connectors**: Multicore cable through M20 watertight gland to internal screw terminals
### GPS

**SMART GNSS ANTENNA**

- **Power Supply Voltage**: 9 – 36Vdc
- **Power Consumption**: < 3W
- **Dimensions**: 90mm (H) x 116mm (W) x 116mm (D)
- **Mounting**: Masthead via supplied adaptor and brackets
- **Channel Configuration**: 14 channels, GPS L1, GLONASS L1, SBAS
- **Horizontal Position Accuracy**: 1.5m (single point L1), 0.6m (SBAS)
- **Time to First Fix (typical)**: <50s (cold start), <35s (hot start)
- **Velocity Range**: 515m/s
- **Velocity Accuracy**: 0.50m/s RMS
- **Input Voltage**: 85V to 264V A.C.
- **Input Frequency**: 47-63Hz
- **Output Voltage**: 24V DC
- **Output Power**: 250W (maximum)
- **Output Support Time**: 240 min. at 50W, 30 min. at 250W
- **Alarm Signals**: Voltage free relay contacts: Input fail, charge fail and low battery
- **Dimensions**: 300m (H) x 300m (W) x 200m (D)
- **Weight**: 32Kg

### Uninterruptible Power Supply

- **Input Voltage**: 85V to 264V A.C.
- **Input Frequency**: 47-63Hz
- **Output Voltage**: 24V DC
- **Output Power**: 250W (maximum)
- **Output Support Time**: 240 min. at 50W, 30 min. at 250W
- **Alarm Signals**: Voltage free relay contacts: Input fail, charge fail and low battery
- **Dimensions**: 400m (H) x 400m (W) x 200m (D)
- **Weight**: 32Kg

### Bearing Repeater Ancillaries

- **Azimuth Circle** (Prism and Vane Types)
- **Pedestal Stand**
- **Bulkhead Bracket**

### Changeover System

**SIGNAL INTERFACE UNIT**

- **Power Supply Input**: Primary Power Supply 18 – 36Vdc
- **Standby Power Supply**: 18 – 36Vdc
- **Connected Heading Devices**: 4 x Gyrocompasses or THD
- **Data Inputs From Each Heading Device**: 4 x IEC 61162-1 or IEC 61162-2 data channels (THS, HDT, HDG, DHX, ROT sentences) (Input 1 requires heading)
  - 1 x Analogue rate of turn (±10Vdc)
  - 1 x Alarm and acknowledge relay interface
  - 1 x Status relay
- **Illumination**: 1 x IEC 61162-1
- **Physical Dimensions**: 400mm (H) x 540mm (W) x 120mm (D)

**POWER OUTPUTS**

- **Repeater Power**: 6 x 18 – 36Vdc
- **Serial Data (heading and rate of turn)**: 16 x IEC 61162-1 or IEC 61162-2 (depending on input)
- **Rate of Turn**: 1 x Analogue (±10Vdc)
- **Alarm and Status**: 1 x Alarm and acknowledge interface to central alarm panel (for active heading device), 2 x Alarm (for active heading device), 2 x Status (for active heading device), 4 x Alarm (1 x relay for each connected heading device), 4 x Status (1 x relay for each connected heading device), 2 x Auto changeover, 1 x Heading comparison alarm, 1 x Standby PSU alarm, 1 x General system alarm

**VDR**: 1 x IEC 61162-1

**Alarm**: 1 x IEC 61162-1 alarm and acknowledge interface to central alarm panel

**CONTROL AND DISPLAY UNIT(S)**

- **Power Supply Input**: Redundant Power Supply 18 – 36Vdc (supplied from SIU)
- **Communications**: Communication with SIU 1 x RS422
- **Display**: Display Type 7” widescreen colour TFT touch panel
- **Physical Dimensions**: 144mm (H) x 196 (W) x 100mm (D)
- **Weight**: 1.6Kg

### Additional Information

- **Data Rate**: 1Hz
- **Time to First Fix (typical)**: <50s (cold start), <35s (hot start)
- **Default TSS configuration**: NMEA VTG, GGA, ZDA, 4800 baud, 1Hz
- **Power Consumption**: <3W
- **Time to First Fix (typical)**: <50s (cold start), <35s (hot start)
## TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Standards</th>
<th>Meridian Gyrocompasses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Display</strong></td>
<td>Standard</td>
</tr>
<tr>
<td>360° compass card and digital display</td>
<td>360° compass card and digital display</td>
</tr>
<tr>
<td><strong>Performance</strong></td>
<td>Settle point error</td>
</tr>
<tr>
<td>0.25° secant latitude</td>
<td>0.25° secant latitude</td>
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<tr>
<td>Static accuracy</td>
<td>0.10° RMS secant latitude</td>
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<tr>
<td>Dynamic accuracy</td>
<td>0.30° secant latitude</td>
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<tr>
<td>sorsby/intercardinal motion</td>
<td>sorsby/intercardinal motion</td>
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<tr>
<td>Follow-up speed</td>
<td>~200°/second</td>
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<tr>
<td>Settling time</td>
<td>&lt;45 minutes to within 0.70° (from initial 30°)</td>
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<tr>
<td>Outputs</td>
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<tr>
<td>1 x RS422, NMEA 0183 (IEC 61162-1/2)</td>
<td>5 x RS422, NMEA 0183 (IEC 61162-1/2)</td>
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<tr>
<td>1 x RS232, NMEA 0183</td>
<td>5 x RS232, NMEA 0183</td>
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<td>1 x printer port, NMEA 0183</td>
<td>5 x 20mA current loop</td>
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<td>Status/alarm</td>
<td>5V TTL power fail/gyro fail</td>
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<tr>
<td>5V TTL system ready</td>
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<td>Potential free status and alarm relays</td>
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<tr>
<td>Inputs</td>
<td>Latitude</td>
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<tr>
<td>Speed</td>
<td>Automatic - via RS232 or RS422, NMEA 0183 from log or pulse/contact closure at 100, 200 or 400/NM from log or manual</td>
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<td>Compensation</td>
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<td>Speed</td>
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<td>Environmental</td>
<td>Ambient operating temperature</td>
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<td>Storage temperature</td>
<td>-25°C – +80°C</td>
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<td>Gimbal limits</td>
<td>±45° roll and pitch</td>
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<td>Mean time between failures (MTBF)</td>
<td>&gt;30,000 hours (calculated); &gt;100,000 hours (in service data)</td>
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<td>Shock (survival)</td>
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<td>Operating Voltage</td>
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<td>Power</td>
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<td>Dimensions</td>
<td>Size</td>
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<tr>
<td>Weight</td>
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<td>Accessories</td>
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<tr>
<td>Optional</td>
<td>Remote control unit, various repeaters and accessories</td>
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<td>Standards</td>
<td>IMO A 424(X1), IMO A 821(19), IEC 60945, ISO 8728, ISO 16328, IEC 62288, Marine Equipment Directive 96/98/EC</td>
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<tr>
<td>Warranty</td>
<td>24 months international warranty including parts and labour</td>
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Specifications subject to change without notice.
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