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 units 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 failures of more than 30,000 hours; and post-installation there are no scheduled annual maintenance or servicing costs.

PRODUCT FEATURES AND BENEFITS

- 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
- Subsea variant also available

A member of Teledyne Marine
Meridian Standard

The heart of the Meridian gyrocompass is the element, which is a dynamically tuned gyroscope (DTG). The DTG is 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 vessels. Highly suited for survey applications providing 0.2° dynamic heading accuracy, the Meridian Surveyor offers higher performance and guaranteed reliability.

Remote Control Unit Option

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 step (5 - 70Vdc)
- Environmental and EMC: Meets or exceeds IEC 60945 weather exposed equipment
- Physical: Dimensions: 287mm x 388mm x 388mm

**Digital Repeater**
- Power Supply Unit: 18 - 36Vdc (10W)
- Signal Inputs: 1 x IEC 61162 (NMEA 0183) Heading, 1 x IEC 61162 (NMEA 0183) Magnetic correction
- Signal Outputs: 1 x step (5 - 70Vdc)
- 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 step (5 - 70Vdc)
- Environmental and EMC: Meets or exceeds IEC 60945
- Physical: Dimensions: 96mm x 192mm x 145mm

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

**Dial Repeater**
- Power Supply Unit: 18 - 32Vdc (4W)
- Signal Inputs: 1 x IEC 61162 (NMEA 0183)
- Environmental and EMC: Meets or exceeds IEC 60945
- Physical: Dimensions: 144mm x 144mm x 100mm

**Dial Repeater (Twin Speed)**
- Power Supply Unit: 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 22mm

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

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

**Data Distribution Unit**
- Power Supply Unit: 18 - 32Vdc (main / standby supplies)
- Signal Inputs: 2 x IEC 61162 (NMEA 0183), 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

**Data Distributor**
- Power Supply Unit: 18 - 32Vdc (main / standby supplies)
- Signal Inputs: 2 x IEC 61162 (NMEA 0183), 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 Accuracy**: 20ns RMS
- **Velocity Accuracy**: 0.50m/s RMS
- **Velocity Range**: 515m/s
- **Measurement Precision**: 5cm (L1 C/C code)

- **Data Rate**: 1Hz
- **Time to First Fix (typical)**: <50s (cold start), <35s (hot start)
- **Default TSS configuration**: NMEA VTG, GGA, ZDA, 4800 baud, 1 HZ

**Uninterruptible Power Supply**

- **Input Voltage**: 85 - 264V A.C.
- **Input Frequency**: 47 - 63Hz
- **Output Voltage**: 24Vdc
- **Output Power**: 250W (maximum), 240 min. at 50W, 30 min. at 250W
- **Alarm Signals**: Voltage free relay contacts: Input fail, charge fail and low battery
- **Dimensions**: 400mm (h) x 400mm (w) x 200mm (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
- **Signal Inputs**: 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, HDH, ROT sentences) (Input 1 requires heading)
  - 1 x Analogue rate of turn (+10Vdc)
  - 1 x Alarm and acknowledge relay interface
  - 1 x Status relay
- **Physical Dimensions**: 400mm (h) x 340mm (w) x 120mm (d)
- **Power Outputs**: Serial Data (heading and rate of turn) 15 x IEC 61616-1 or IEC 61616-2 (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), 2 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 61616-1
- **Alarm**: 1 x IEC 61616-1 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 SRU 1 x RS422
- **Display**: Display Type 7" widescreen colour TFT touch panel
- **Physical Dimensions**: 144mm (h) x 196mm (w) x 100mm (d)
- **Weight**: 1.6kg
# Meridian Gyrocompasses

## Marine Navigation Systems

## TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Performance</th>
<th>Standard</th>
<th>Surveyor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heading accuracy</td>
<td>0.10° secant latitude RMS</td>
<td>0.05° secant latitude RMS</td>
</tr>
<tr>
<td>Roll &amp; pitch accuracy</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Settle time</td>
<td>&lt;45 minutes to within 0.7° from +/-30° initial heading offset</td>
<td></td>
</tr>
<tr>
<td>Angular rate</td>
<td>~200°/s</td>
<td></td>
</tr>
<tr>
<td>Settle point error</td>
<td>0.25° secant latitude</td>
<td>0.10° secant latitude</td>
</tr>
<tr>
<td>Settle point repeatability</td>
<td>0.25° secant latitude</td>
<td>0.10° secant latitude</td>
</tr>
<tr>
<td>Compensation</td>
<td>Latitude</td>
<td>Speed</td>
</tr>
<tr>
<td></td>
<td>80°N to 80°S</td>
<td>0 - 90 knots</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Power</th>
<th>Power supply</th>
<th>Power consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24Vdc (19 - 36Vdc)</td>
<td>&gt;3A at power on / 1.3A in ready mode</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interface</th>
<th>Outputs</th>
<th>Serial data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S type</td>
<td>11 x RS422, NMEA 0183 (IEC 61162-1/2)</td>
</tr>
<tr>
<td></td>
<td>Synchro</td>
<td>5 x RS422, NMEA 0183 (IEC 61162-1/2)</td>
</tr>
<tr>
<td></td>
<td>Status / Alarm</td>
<td>1 x printer port, NMEA 0183</td>
</tr>
<tr>
<td></td>
<td>Alarm</td>
<td>5 x 20mA current loop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 x ROT (+10V)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical Characteristics</th>
<th>Dimensions</th>
<th>Weight in air</th>
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<tr>
<td></td>
<td>344mm (h) x 267mm (w) x 440mm (d)</td>
<td>15.5kg</td>
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<tr>
<td></td>
<td>Weight in water</td>
<td>N/A</td>
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<tr>
<td></td>
<td>Rating</td>
<td>N/A</td>
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<table>
<thead>
<tr>
<th>Environmental and EMC</th>
<th>Operating temperature</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0°C to +45°C (-15°C to +55°C with reduced accuracy)</td>
<td>-25°C to +80°C</td>
</tr>
<tr>
<td></td>
<td>Environmental</td>
<td>Meets or exceeds IEC 60945</td>
</tr>
<tr>
<td></td>
<td>EMC</td>
<td>Meets or exceeds IEC 60945</td>
</tr>
<tr>
<td></td>
<td>Gimbal limits</td>
<td>±45° roll and pitch</td>
</tr>
<tr>
<td></td>
<td>MTBF</td>
<td>&gt;30,000 hours (calculated); &gt;100,000 hours (in service data)</td>
</tr>
<tr>
<td></td>
<td>Shock (survival)</td>
<td>10g</td>
</tr>
</tbody>
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<thead>
<tr>
<th>Options</th>
<th>An extensive range of gyrocompass repeaters and ancillaries available</th>
<th>Remote control mounting kit</th>
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<thead>
<tr>
<th>Compliance</th>
<th>Standards</th>
<th>Export</th>
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<tr>
<td></td>
<td>IMO A424(XI), IMO A821(19), IMO A694(17), MSC 191(79), ISO 8728, ISO 16328, IEC 60945, IEC 62288, IEC 61162, US Coast Guard MRA, Marine Equipment Directive 96/98/EC</td>
<td>UK</td>
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<tr>
<td></td>
<td></td>
<td>ECCN 7A103.a1</td>
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<td></td>
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<td>USA</td>
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<tr>
<td></td>
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<td>ECCN 7A994</td>
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| Warranty                     | 24 months international warranty including parts and labour             |                                    |

Specifications subject to change without notice

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The Full Meridian Gyrocompass System

COMPANY WITH MANAGEMENT SYSTEMS CERTIFIED BY DNV
= ISO 9001 =
= ISO 14001 =
= OHSAS 18001 =

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