

# 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



**TELEDYNE TSS**  
Everywhereyoulook™

## 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)  
 1 x step (5 - 70Vdc)  
 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 388mm

## Digital Repeater



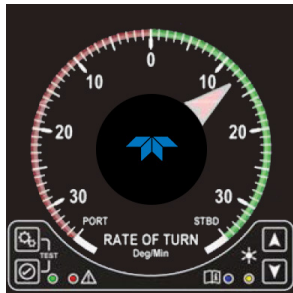
Power Supply Unit 18 - 36Vdc (10W)  
 Signal Inputs 1 x IEC 61162 (NMEA 0183) Heading  
 1 x IEC 61162 (NMEA0183) Magnetic correction  
 1 x step (5 - 70Vdc)  
 Signal Outputs 1 x IEC 61162 (NMEA 0183)  
 Environmental and EMC Meets or exceeds IEC 60945  
 Physical Dimensions: 96mm x 192mm x 145mm

## Data Repeater



Power Supply Unit 18 - 36Vdc (8W)  
 Signal Inputs 1 x IEC 61162 (NMEA 0183)  
 1 x step (5 - 70Vdc)  
 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)  
 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 (4W)  
 Signal Inputs 1 x IEC 61162 (NMEA 0183)  
 Environmental and EMC Meets or exceeds IEC 60945  
 Physical Also available in Weatherproof version  
 Dimensions: 144mm x 144mm x 100mm including connector  
 Weight: 1.25kg  
 Connector: 15-way subminiature plug (2.5m cable supplied)  
 Dial marking: 1°, 5°, 10°, 45°

## 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 22mm  
 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)  
 1 x step (5Vdc)  
 1 x alarm relay (voltage free contacts)  
 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)  
 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 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 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)
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	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 ( $\pm 10$ Vdc) 1 x Alarm and acknowledge relay interface 1 s Status relay 1 x IEC 61162-1
Physical	Dimensions	400mm (h) x 540mm (w) x 120mm (d)
Power Outputs	Repeater Power	6 x 18 - 36Vdc
Signal Outputs	Serial Data (heading and rate of turn)	15 x IEC 61162-1 or IEC 61162-2 (depending on input) 1 x Analogue ( $\pm 10$ Vdc)
	Rate of Turn	1 x Analogue ( $\pm 10$ Vdc)
	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 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





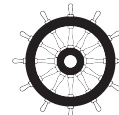
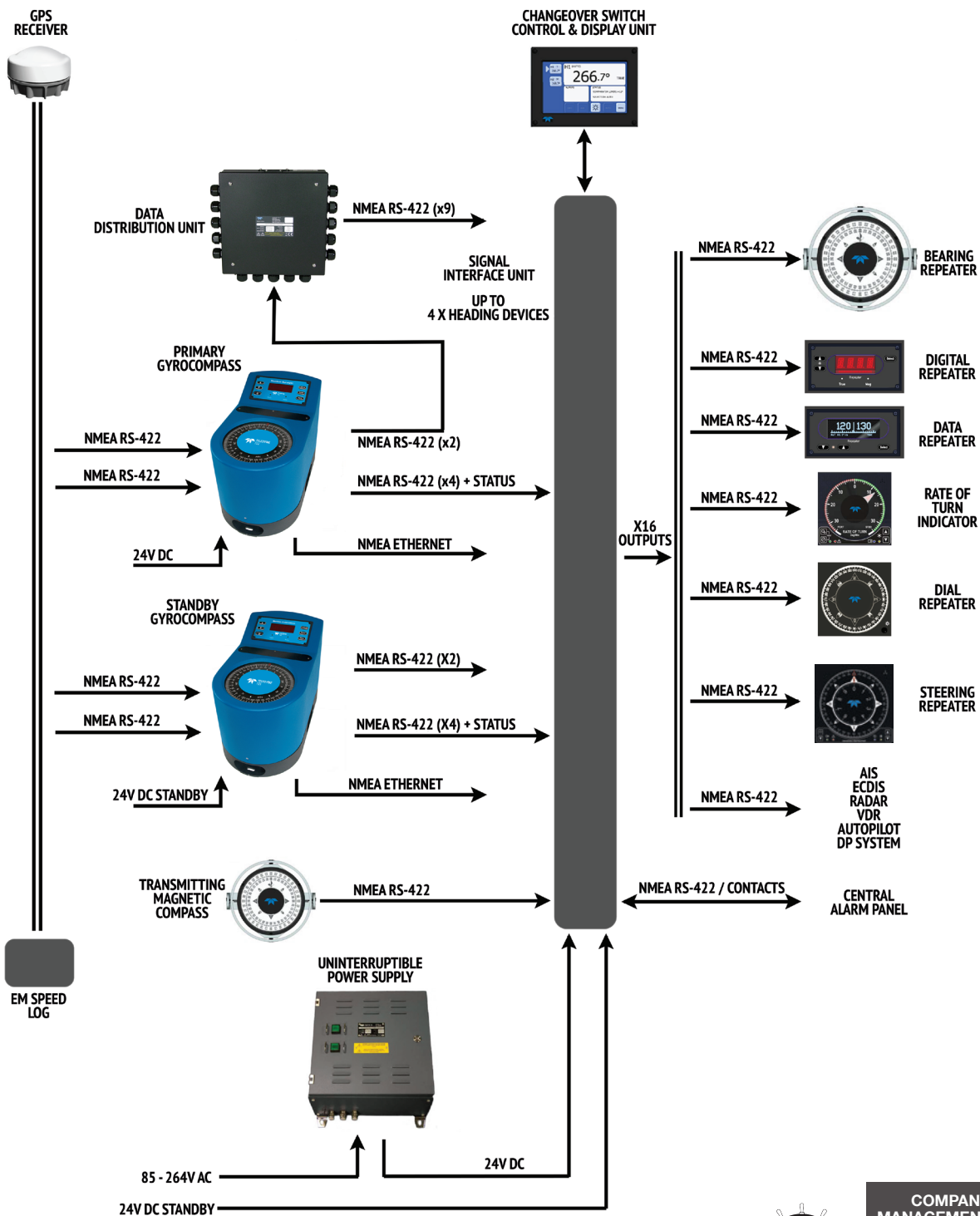
# Meridian Gyrocompasses

Marine Navigation Systems

## TECHNICAL SPECIFICATIONS

		Standard	Surveyor	
Performance	Heading accuracy	Static	0.10° secant latitude RMS	
		Dynamic	0.30° secant latitude RMS	
	Roll & pitch accuracy	N/A		
	Settle time	<45 minutes to within 0.7° from +/-30° initial heading offset		
	Angular rate	~200°/s		
	Settle point error	0.25° secant latitude	0.10° secant latitude	
	Settle point repeatability	0.25° secant latitude	0.10° secant latitude	
	Compensation	Latitude	80°N to 80°S	
Speed		0 - 90 knots		
Power	Power supply	24Vdc (19 - 36Vdc)		
	Power consumption	>3A at power on / 1.3A in ready mode		
Interface	Outputs	S' type	1 x Step by Step (5V TTL), 6 steps per degree	
		Synchro	1 x 26V 400Hz sector value 360° (1:1 ratio) 11.8V line to line	
		Serial data	11 x RS422, NMEA 0183 (IEC 61162-1/2)	5 x RS422, NMEA 0183 (IEC 61162-1/2)
			5 x RS232, NMEA 0183	
			1 x printer port, NMEA 0183	5 x 20mA current loop
	Status / Alarm	Alarm - 5V TTL and potential free relay		
		Status - 5V TTL and potential free relay		
	Inputs	Latitude	Automatic - via RS232 or RS422, NMEA 0183 from GPS or manual	
Speed		Automatic - via RS232 or RS422, NMEA 0183 from log or pulse/contact closure at 100, 200 or 400/NM from log or manual		
Physical Characteristics	Dimensions	344mm (h) x 267mm (w) x 440mm (d)		
	Weight in air	15.5kg		
	Weight in water	N/A		
	Rating	N/A		
Environmental and EMC	Operating temperature	0°C to +45°C (-15°C to +55°C with reduced accuracy)		
	Storage temperature	-25°C to +80°C		
	Environmental	Meets or exceeds IEC 60945		
	EMC	Meets or exceeds IEC 60945		
	Gimbal limits	±45° roll and pitch		
	MTBF	>30,000 hours (calculated); >100,000 hours (in service data)		
	Shock (survival)	10g		
Options	An extensive range of gyrocompass repeaters and ancillaries available			
	Remote control mounting kit			
Compliance	Standards	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		
	Export	UK	ECCN 7A103a1	
		USA	ECCN 7A994	
Warranty	24 months international warranty including parts and labour			

# The Full Meridian Gyrocompass System



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

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