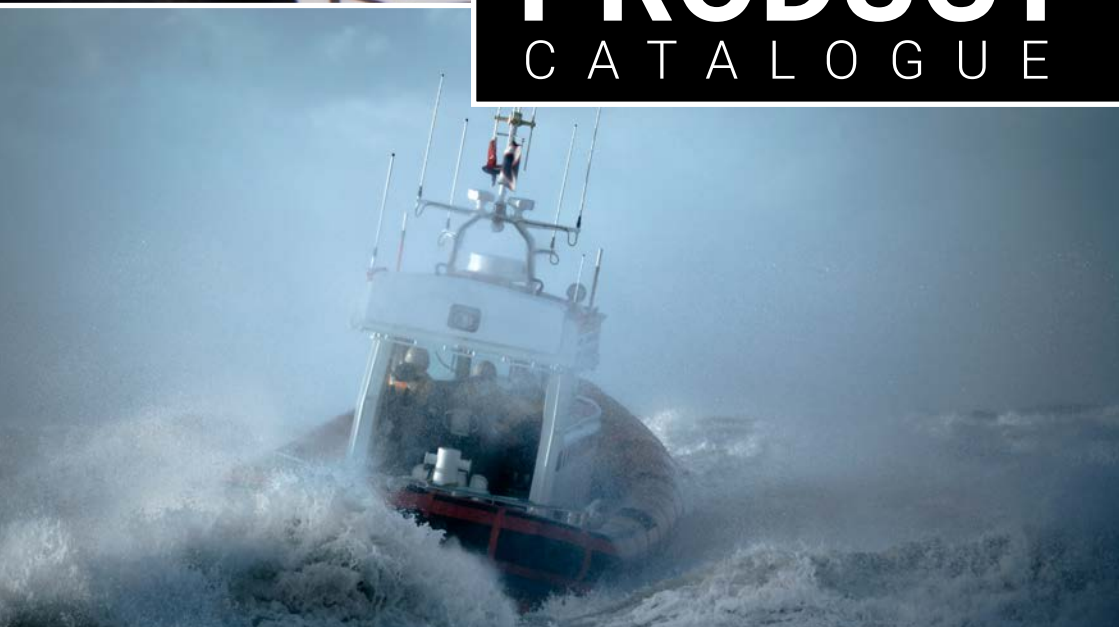




PRODUCT CATALOGUE



ABOUT MARINE DATA SYSTEMS



Established in 1978 and based on the Isle of Wight, England, Marine Data has earned a worldwide reputation for excellence in the manufacture and supply of reliable and adaptable marine navigation and control systems for commercial ships, military vessels and workboats.

Our expert design and engineering team can always provide innovative solutions to complex marine navigation and control system requirements.

Our equipment is fitted in the military naval ships of NATO, the Gulf States, Far East and Australasia. We work together with defence agencies and prime contractors for seamless product integration in new builds and retrofit projects.

ABOUT COMAR SYSTEMS

Comar Systems Ltd manufacture a range of Marine Automatic Identification (AIS) products. With a selection of Class A and Class B Transponders.



Comar Systems also manufactures AIS receivers, splitters and antenna to suit all applications from large marine traffic and intelligence information providers to the work boat, fishing and private yacht industries. With a worldwide network of distributors and a manufacturing facility in the UK, Comar is the go - to company for AIS equipment worldwide.

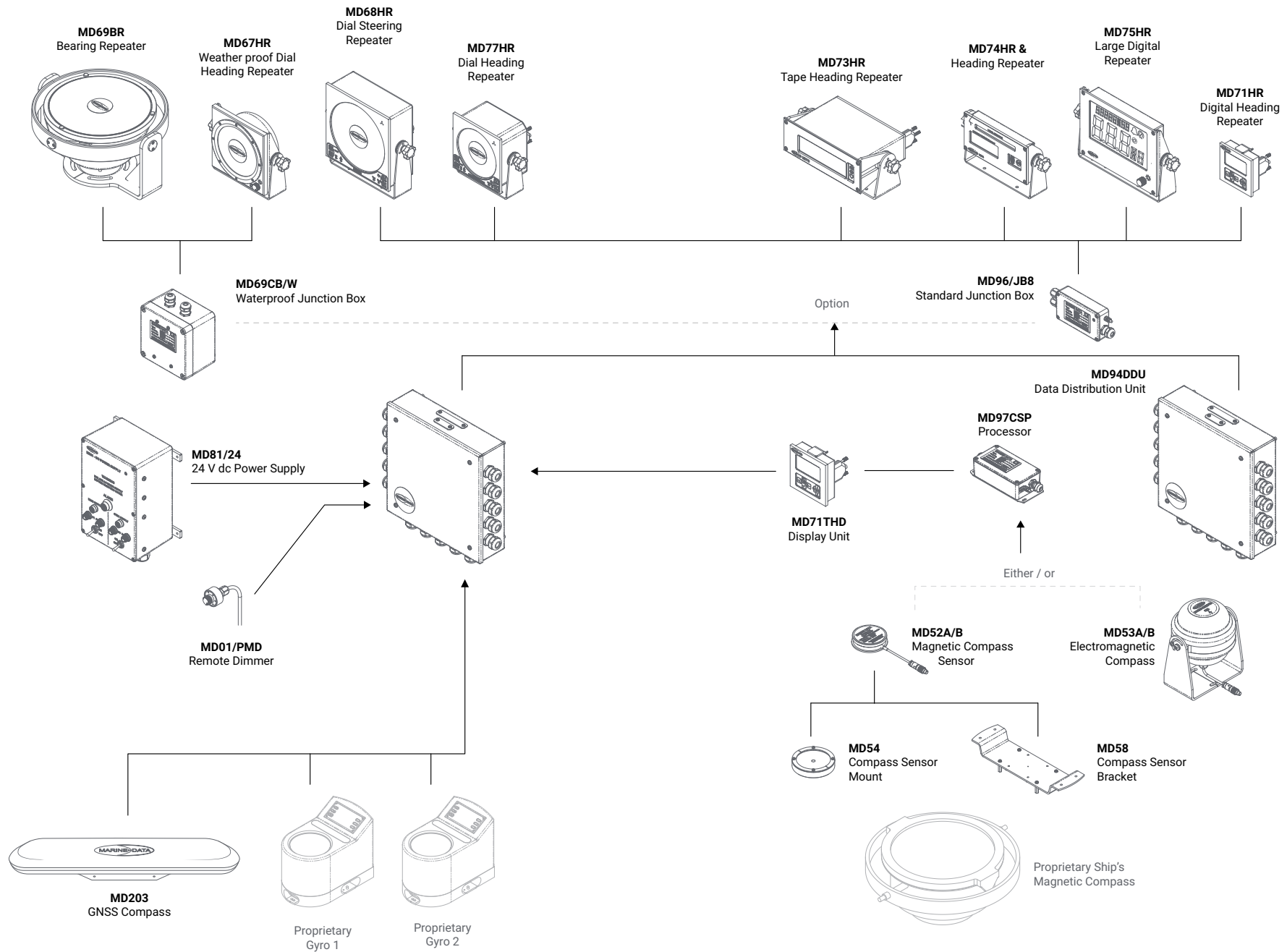


Our quality management system is approved to ISO 9001:2015, which ensures we meet our customers' extremely high standards - every time. Instrumental to this, we utilise our own in-house environmental test facility, allowing us to qualify our products to the most rigorous of standards.

CONTENTS

COMPASS & HEADING	Compass Heading System	4
	Bearing Repeaters & Sights	6
	Dial Repeaters	24
	Digital Repeaters	32
	Tape Repeaters	38
	Rate of Turn Repeaters	42
TRANSMITTING HEADING DEVICES	Transmitting Magnetic Compass System	48
	Electro-Magnetic Compass System	52
	GNSS Compass	56
RUDDER INSTRUMENTATION	Rudder Angle Indication System	58
	Rudder Angle Indicators	60
	Rudder Angle Sensors	68
NAVIGATION DISPLAYS	Multi-function Displays	70
POWER & DATA DISTRIBUTION	Data Distribution	74
	Power Supplies	76
	Interfaces	80
AUTOMATIC IDENTIFICATION SYSTEMS	Transponders	92
	Splitters	96
	Receivers	98

COMPASS HEADING SYSTEM





COMPASS & HEADING / BEARING REPEATERS

MD69/21 PELORUS STAND BEARING COMPASS REPEATER

SKU: F021008

OVERVIEW

The MD69/21 Pelorus Stand Assembly is a complete Bearing Repeater solution with a fitted gimbal and a precision dual-scale bearing repeater bowl. Available with a range of options for all types of vessel

The MD69/21 Pelorus Stand Assembly is lightweight, easy to install and extremely rugged, rated to IPX6 and suitable for wheelhouse and exterior deck environments.

Fitted as standard is an IPX6 weatherproof terminal box to connect with the vessel's cabling.

The MD69/21 Pelorus Stand Assembly from Marine Data: Flexible in application, easy to install and simple to maintain.

FEATURES

- Rugged GRP Pelorus Stand with Bearing Repeater
- Includes MD69BR Precision Dual-Scale 36:1 Repeater Bowl
- With Fully Gimballed Bearing Repeater Mount and Integral Terminal Box
- Built-in Dimmer Control
- NMEA 0183 Digital Connection
- Optional Weather Dome or Flexible Canvas Cover
- Ingress protected to IPX6

APPLICATIONS

- Provides a rugged Bearing Repeater solution on a deck or on a bridge

ACCESSORIES



RELATED PRODUCTS

- [MD69/22](#) - Bearing Compass Repeater on Bulkhead Mount
- [MD69BR](#) - Bearing Compass Repeater on Trunnion Mount

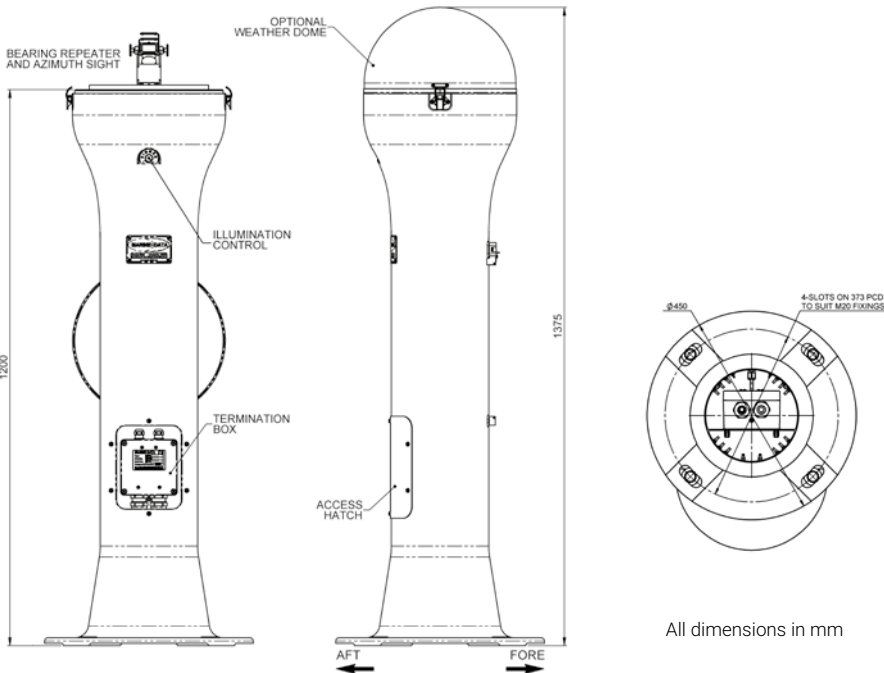
PHYSICAL	
Weight:	22 kg complete assembly (including optional dome); 12 kg (stand only)
Dimensions:	H 1200 mm (H 1375 mm with optional Weather Dome); max Ø 450 mm
Repeater Bowl:	Model MD69BR Precision Dual Scale 36:1
Mounting:	Deck; 4x M20 bolts (not supplied)
Connections:	Integral Terminal Box
Construction:	Glass Reinforced Plastic (GRP)
Finish:	RAL7040 Window Grey, semi-gloss

ELECTRICAL	
Earth Bond:	M4 stud on cable terminal box
Illumination:	Built-in rotary dimming control 0-24 V dc Red tint illumination colour
Heading Data:	NMEA 0183

ENVIRONMENTAL	
IP rating:	IPX6 (Repeater Bowl); IPX6 (Terminal Box)
Operating temp:	-25°C to +55°C
Storage temp:	-25°C to +70°C
RoHS:	Compliant
Magnetic	Magnetic Permeability: Category 'A'
Compass:	Safe Distance 50 cm

APPROVALS	
Complies with:	IEC 60945
Type Approval:	Germanischer Lloyd (GL)

ADDITIONAL	
Supplied:	MD69CB/W IPX6 rated waterproof terminal box



All dimensions in mm

CERTIFICATIONS



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COMPASS & HEADING / BEARING REPEATERS

MD69/24 PEDESTAL STAND BEARING COMPASS REPEATER

SKU: F024001

OVERVIEW

The MD69/24 Pedestal Stand Assembly is a complete Bearing Repeater solution with a fitted gimbal and a precision dual-scale bearing repeater bowl. The MD69/24 Pedestal Stand Assembly is extremely rugged, easy to install and suitable for both wheelhouse and exterior deck environments.

Integrated into the assembly is an IPX6 waterproof terminal box to connect with the vessel's cabling. A range of sighting instrumentation and protective covers are available as accessories.

The MD69/24 Pedestal Stand Assembly from Marine Data: Flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Provides a rugged Bearing Repeater solution on a deck or bridge

ACCESSORIES



RELATED PRODUCTS

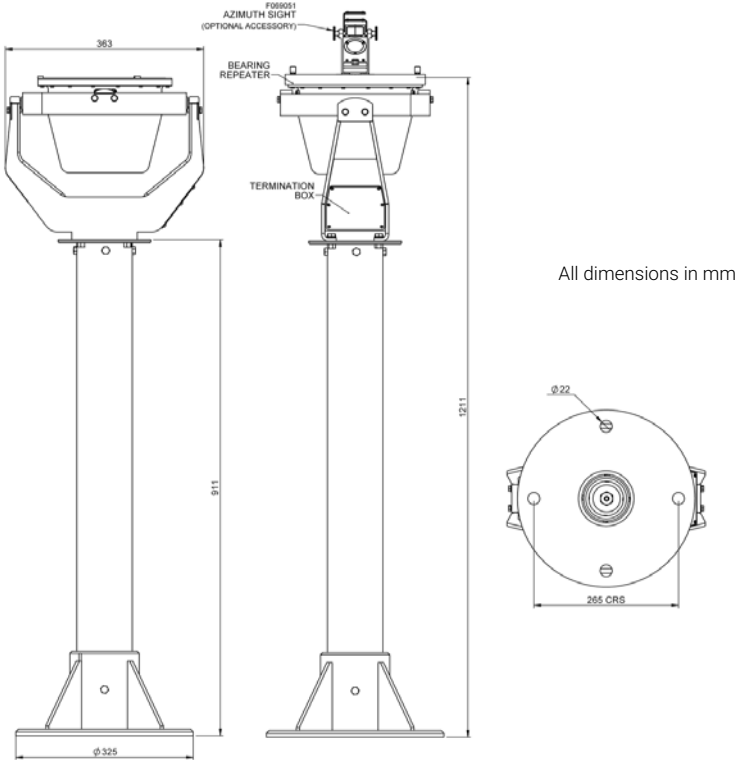
- [MD69/21](#) - Bearing Compass Repeater in Pelorus Stand
- [MD69/22](#) - Bearing Compass Repeater on Bulkhead Mount
- [MD69BRX](#) - Bearing Compass Repeater for Retrofit

PHYSICAL	
Weight:	17 kg complete assembly; 10 kg (stand only)
Dimensions:	H 1200 mm; W 365 mm
Repeater Bowl:	Model MD69BRX Precision Dual Scale 36:1
Mounting:	Deck; 4x M20 bolts (not supplied)
Connections:	Integral Terminal Box
Construction:	Aluminium Alloy
Finish:	RAL7040 Window Grey, semi-gloss

ELECTRICAL	
Earth Bond:	M4 stud on cable terminal box
Illumination:	Built-in rotary dimming control 0-24 V dc Red tint illumination colour
Heading Data:	NMEA 0183

ENVIRONMENTAL	
IP rating:	IPX6 (Repeater Bowl); IPX6 (Terminal Box)
Operating temp:	-25°C to +55°C
Storage temp:	-25°C to +70°C
RoHS:	Compliant
Magnetic	Magnetic Permeability: Category 'A'
Compass:	Safe Distance 50 cm

APPROVALS	
Complies with:	IEC 60945



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COMPASS & HEADING / BEARING REPEATERS

MD69BR TRUNNION MOUNT BEARING COMPASS REPEATER

SKU: F069018

OVERVIEW

The MD69BR from is a dual scale NMEA-based heading repeater designed for taking celestial and terrestrial bearings. Equipped with a 36:1 precision dual scale compass card display, digital heading data (ship's heading) may be conveniently displayed at any suitable location on a vessel.

With a range of mounting options and accessories, the MD69BR offers a bearing repeater solution for most locations and may be bulkhead, surface or stand mounted. Finished in grey to complement other external marine navigation equipment.

The MD69BR Bearing Repeater from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Repeats the heading display of a ship's magnetic or gyro compass at a convenient location on a vessel
- Allows celestial and terrestrial bearings to be taken when used in conjunction with the MD69AZI Azimuth Sight or the MD69BC Bearing Circle. The MD60A2K Telescopic Alidade is recommended for making detailed azimuth measurements

ACCESSORIES



RELATED PRODUCTS

- [MD69/21](#) - Bearing Compass Repeater Pelorus Stand Assembly
- [MD69/22](#) - Bulkhead Mounted Bearing Compass Repeater

FEATURES

- IPX6 Weatherproof Marineised Bearing Repeater
- Dual scale 36:1 precision concentric dial display
- Balanced for taking bearings using our optional sights
- Automatic selection and prioritisation of NMEA heading data type
- Automatic warning of loss of valid heading data
- Automatic detection of a previously lost heading data type without requiring a reset
- True / Magnetic Source Indication
- Local and Remote dimming control

CERTIFICATIONS

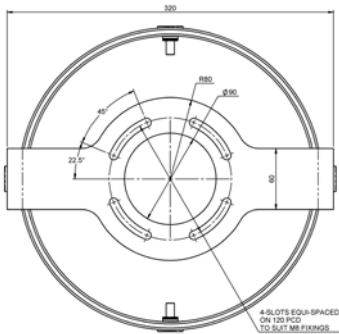


GL Type Approved

PHYSICAL	
Weight:	7.0 kg (optimally balanced for Azimuth Sight)
Dimensions:	H 164 mm W 325 mm; Body Ø 246 mm Outer dial Ø 185 mm; Inner dial Ø 95 mm Verge ring 20 mm (visible)
Mounting:	Gimbal & Trunnion (standard); Pelorus Stand and Bulkhead Bracket options available
Connections:	Multicore cable through watertight gland
Construction:	Aluminium alloy enclosure
Finish:	RAL7040 Window Grey, semi-gloss

ENVIRONMENTAL	
IP rating:	IPX6
Operating temp:	-25°C to +55°C
Shock:	STANAG 4549 - NS (0.03; 3.0; 300)
Vibration:	MIL-Std-167-1A / IEC 60945
EMC:	MIL-Std-461E / IEC 60945
Thermal:	MIL-Std-810F / IEC 60945
Noise:	MIL-Std-1474D <= 53 dB
Compass:	Safe Distance 100 cm

ELECTRICAL	
Power Supply:	24 V dc 8 W nominal (22-31 V dc)
Data input:	RS422 NMEA 0183; Automatic Baud rate detection (4800 to 38400)
Data sentences:	HDT, HDG and HDM; selected in descending order of priority
Cable:	2.5 m multicore data cable tail



OPERATIONAL	
Performance:	± 0.01° resolution
Follow-Up Rate:	20° per second
Gimbal Action:	±45° pitch and roll
Display:	Dual scale 36:1 rotating dial display
Heading LEDs:	Blue = True Heading; Yellow = Magnetic Heading
Resolution:	Outer scale marked at 1°, 5°, 10° & 45°; Inner scale marked at 0.1° & 1°
Illumination:	LED array with local & remote dimming control; red tint
Error Indication:	Loss of valid data: Dial oscillates ±35° about the last known good heading; dial illumination flashes

APPROVALS	
Complies with:	IEC 60945
Type Approval:	Germanischer Lloyd (GL)

ADDITIONAL	
Supplied:	MD69CB/W IP65 rated waterproof terminal box



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COMPASS & HEADING / BEARING REPEATERS

MD69/22 BULKHEAD MOUNT BEARING COMPASS REPEATER

SKU: F069033

OVERVIEW

The MD69/22 Bulkhead Bearing Repeater Assembly is a complete bracket-mounted Bearing Repeater solution with fitted precision, dual-scale MD69BR Bearing Repeater on gimbal and trunnion mount. In the back plate of the bracket there are 6x holes suitable for M8 fixings (not supplied) for securing to a bulkhead.

Fitted as standard is an IP65 waterproof terminal box to connect with the vessel's cabling.

The MD69/22 Bulkhead Bearing Repeater Assembly from Marine Data: Flexible in application, easy to install and simple to maintain.

APPLICATIONS

- To locate a rugged Bearing Repeater on an interior or exterior bulkhead where space may be limited and provide terminations for ships cabling
- To provide a platform suitable for taking bearings using a Marine Data Azimuth device or bearing circle

ACCESSORIES



MD69AZI
Azimuth Sight



MD69BC
Bearing Circle



MD60A2K
Telescopic Alidade



MD69CPC
Protective Cover

RELATED PRODUCTS

[MD69/21](#) - Bearing Compass Repeater in Pelorus Stand

[MD69BR](#) - Bearing Compass Repeater on Trunnion Mount

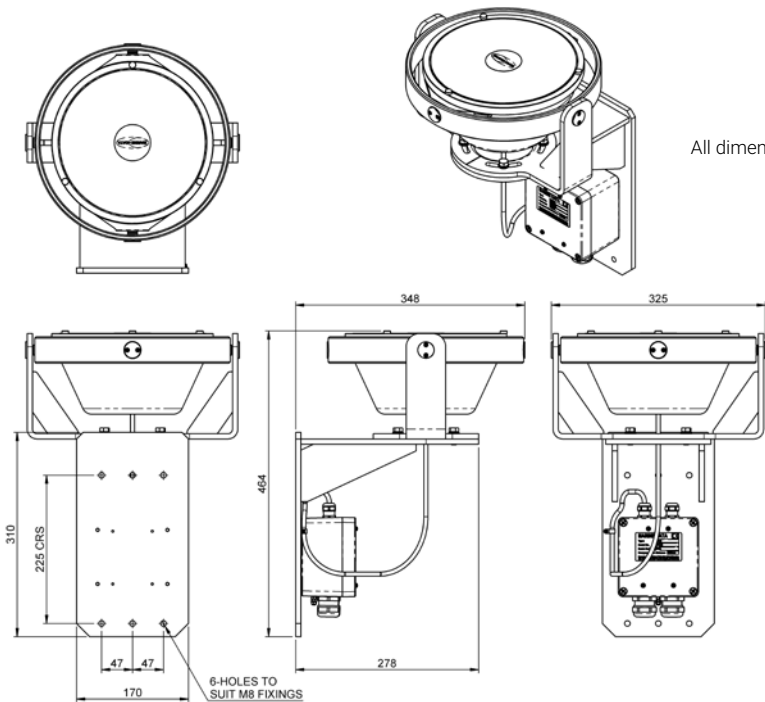
PHYSICAL	
Weight:	10.5 kg including Terminal Box and Repeater
Dimensions:	H 464 mm; W 325 mm; D 348 mm; 8mm plate thickness
Repeater Bowl:	Model MD69BR Precision Dual Scale 36:1
Mounting:	6x Ø 8.5 holes suitable for M8 fixings (not supplied)
Connections:	Integral Terminal Box
Construction:	Marine Grade Aluminium, stainless fixings
Finish:	RAL7040 Window Grey Powder Coat paint

ELECTRICAL	
Earth Bond:	M4 stud on cable terminal box
Illumination:	Built-in rotary dimming control 0-24 V dc Red tint illumination colour
Heading Data:	NMEA 0183

ENVIRONMENTAL	
IP rating:	IP67 (Repeater Bowl); IP65 (Terminal Box)
Operating temp:	-25°C to +55°C
Storage temp:	-25°C to +70°C
RoHS:	Compliant
Magnetic	Magnetic Permeability: Category 'A'
Compass:	Safe Distance 50 cm

APPROVALS	
Complies with:	IEC 60945
Type Approval:	Germanischer Lloyd (GL)

ADDITIONAL	
Supplied:	MD69CB/W IP65 rated waterproof terminal box



All dimensions in mm

CERTIFICATIONS



GL Type Approved



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Gimbal Bearing
Retrofitting Kit



Gimbal Pin
Retrofitting Kit

FEATURES

- Fits a range of third party gimbal rings
- Dual scale 36:1 precision concentric dial display
- Balanced for taking bearings using our optional sights
- Automatic selection and prioritisation of NMEA heading data type
- Automatic warning of loss of valid heading data
- Automatic detection of a previously lost heading data type without requiring a reset
- True / Magnetic Source Indication
- Local and Remote dimming control

COMPASS & HEADING / BEARING REPEATERS

MD69BRX COMPASS BEARING REPEATER BOWL FOR RETROFIT

SKU: F069036

OVERVIEW

The MD69BRX compass bearing repeater is equipped with dual scale 36:1 precision compass card display, and provided as a bowl-only option for retrofit or replacement into third party gimbal rings. Ship's Digital NMEA heading data may be conveniently displayed at any suitable location on a vessel to take celestial and terrestrial bearings. Available retrofitting kits come with either gimbal bearings or pins, to fit most third party gimbal rings. Contact us for more information.

APPLICATIONS

- Repeats the heading display of a ship's magnetic or gyro compass at a convenient location on a vessel
- Allows celestial and terrestrial bearings to be taken when used in conjunction with the MD69AZI Azimuth Sight or the MD69BC Bearing Circle. The MD60A2K Telescopic Alidade is recommended for making detailed azimuth measurements

ACCESSORIES



RETROFITTING KITS

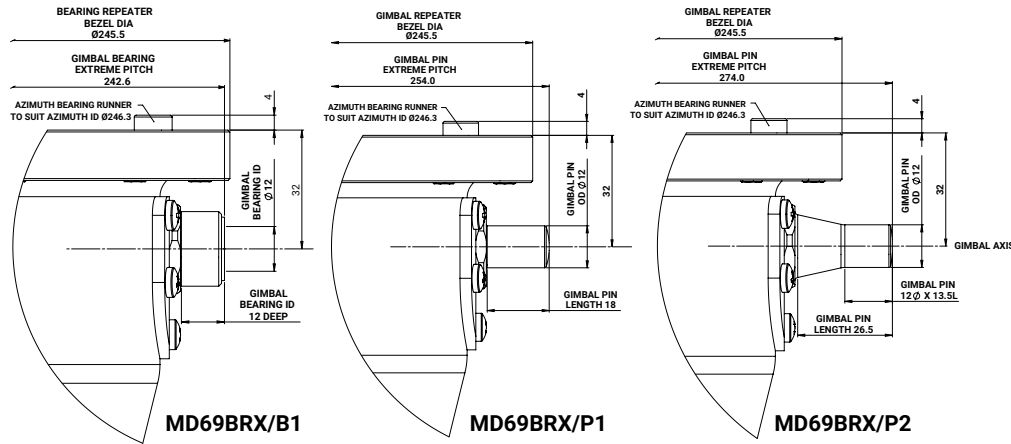
- MD69BRX/B1 - Gimbal Bearings Retrofitting Kit
- MD69BRX/P1 - Gimbal Pins Retrofitting Kit for 254mm pitch Pins
- MD69BRX/P2 - Gimbal Pins Retrofitting Kit for 273mm pitch Pins

PHYSICAL	
Weight:	7.0 kg (optimally balanced for Azimuth Sight)
Dimensions:	H 176 mm; W 245.5 mm**; Body Ø 246 mm. Outer dial Ø 185 mm; Inner dial Ø 95 mm. Verge ring 20 mm (visible) * See below dimensions for mounting kits. **Suits Azimuth ID Ø246.3 mm
Mounting:	Third Party Gimbal & Trunnions
Connections:	Multicore cable through watertight gland
Construction:	Aluminium alloy enclosure
Finish:	RAL7040 Window Grey, semi-gloss

ENVIRONMENTAL	
IP rating:	IPX6
Operating temp:	-25°C to +55°C
Shock:	STANAG 4549 - NS (0.03; 3.0; 300)
Vibration:	MIL-Std-167-1A / IEC 60945
EMC:	MIL-Std-461E / IEC 60945
Thermal:	MIL-Std-810F / IEC 60945
Noise:	MIL-Std-1474D <= 53 dB
Compass:	Safe Distance 100 cm

OPERATIONAL	
Performance:	± 0.01° resolution
Follow-Up Rate:	20° per second
Gimbal Action:	±45° pitch and roll
Display:	Dual scale 36:1 rotating dial display
Heading LEDs:	Blue = True Heading; Yellow = Magnetic Heading
Resolution:	Outer scale marked at 1°, 5°, 10° & 45°; Inner scale marked at 0.1° & 1°
Illumination:	LED array with local & remote dimming control; red tint
Error Indication:	Loss of valid data: Dial oscillates ±35° about the last known good heading; dial illumination flashes

ELECTRICAL	
Power Supply:	24 V dc 8 W nominal (22-31 V dc)
Data input:	RS422 NMEA 0183; Automatic Baud rate detection (4800 to 38400)
Data sentences:	HDT, HDG and HDM; selected in descending order of priority
Cable:	2.5 m multicore data cable tail



All Dimensions in mm



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COMPASS & HEADING / BEARING REPEATERS

MD69BR/BO BEARING COMPASS REPEATER BOWL ONLY

SKU: F069032

FEATURES

- **IPX6 Weatherproof Marinised Bearing Repeater Bowl**
- **Dual scale 36:1 precision concentric dial display**
- **Balanced for taking bearings using our optional sights**
- **Automatic selection and prioritisation of NMEA heading data type**
- **Automatic warning of loss of valid heading data**
- **Automatic detection of a previously lost heading data type without requiring a reset**
- **True / Magnetic Source Indication**
- **Local and Remote dimming control**

CERTIFICATIONS



GL Type Approved

OVERVIEW

The MD69BR/BO is a dual scale NMEA-based heading repeater available as a bowl-only option, ideal for retrofit, replacement or panel mounting. Designed for taking celestial and terrestrial bearings. Equipped with a 36:1 precision dual scale compass card display, digital heading data (ship's heading) may be conveniently displayed at any suitable location on a vessel.

Finished in grey to complement external marine navigation equipment.

The MD69BR/BO Bearing Repeater Bowl from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Repeats the heading display of a ship's magnetic or gyro compass at a convenient location on a vessel
- Allows celestial and terrestrial bearings to be taken when used in conjunction with the MD69AZI Azimuth Sight or the MD69BC Bearing Circle. The MD60A2K Telescopic Alidade is recommended for making detailed azimuth measurements

ACCESSORIES

MD69AZI
Azimuth SightMD69BC
Bearing CircleMD60A2K
Telescopic AlidadeMD69CPC
Protective Cover

RELATED PRODUCTS

[MD69BR](#) - Trunnion Mounted Bearing Compass Repeater

[MD69/21](#) - Pelorus Stand Assembly with Bearing Compass Repeater

[MD69/22](#) - Bulkhead Mounted Bearing Compass Repeater

PHYSICAL	
Weight:	7.0 kg (optimally balanced for Azimuth Sight)
Dimensions:	H 127 mm W 271 mm; Body Ø 246 mm Outer dial Ø 185 mm; Inner dial Ø 95 mm Verge ring 20 mm (visible)
Mounting:	Gimbal & Trunnion; Pelorus Stand and Bulkhead Bracket options available
Connections:	Multicore cable through watertight gland
Construction:	Aluminium alloy enclosure
Finish:	RAL7040 Window Grey, semi-gloss

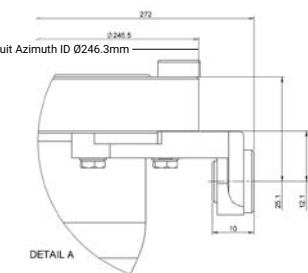
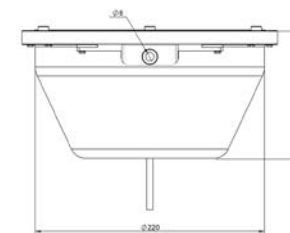
ENVIRONMENTAL	
IP rating:	IPX6
Operating temp:	-25°C to +55°C
Shock:	STANAG 4549 - NS (0.03; 3.0; 300)
Vibration:	MIL-Std-167-1A / IEC 60945
EMC:	MIL-Std-461E / IEC 60945
Thermal:	MIL-Std-810F / IEC 60945
Noise:	MIL-Std-1474D <= 53 dB
Compass:	Safe Distance 100 cm

ELECTRICAL	
Power Supply:	24 V dc 8 W nominal (22-31 V dc)
Data input:	RS422 NMEA 0183; Automatic Baud rate detection (4800 to 38400)
Data sentences:	HDT, HDG and HDM; selected in descending order of priority
Cable:	2.5 m multicore data cable tail

OPERATIONAL	
Performance:	± 0.01° resolution
Follow-Up Rate:	20° per second
Gimbal Action:	±45° pitch and roll
Display:	Dual scale 36:1 rotating dial display
Heading LEDs:	Blue = True Heading; Yellow = Magnetic Heading
Resolution:	Outer scale marked at 1°, 5°, 10° & 45°; Inner scale marked at 0.1° & 1°
Illumination:	LED array with local & remote dimming control; red tint
Error Indication:	Loss of valid data: Dial oscillates ±35° about the last known good heading; dial illumination flashes

APPROVALS	
Complies with:	IEC 60945
Type Approval:	Germanischer Lloyd (GL)

ADDITIONAL	
Supplied:	Bowl only, with 2.5 m captive cable. Mountings and junction boxes are optional extras



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FEATURES

- 7 x 38 mm Magnification
- Anti-glare Polarising Filters
- Fully sealed and pressurised optics
- Adjustable eyepiece
- Telescope has internal reticule wire
- Equipped with bubble spirit level
- Conforms with Military Specifications
- Supplied with durable plastic instrument case
- Rated to IP67

COMPASS & HEADING / BEARING REPEATERS / ACCESSORIES

MD60A2K TELESCOPIC ALIDADE FOR BEARING COMPASS REPEATERS

SKU: F060001

OVERVIEW

The MD60A2K is a precision Telescopic Marine Alidade for taking terrestrial bearings of distant objects. Designed for the Marine Data MD69 Series of Bearing Compass Repeater.

The MD60A2K Telescopic Alidade is a navigational instrument used on board a ship. In use it is mounted on a bearing repeater compass or a bearing compass. It is equipped with a telescopic sight and a prismatic optical system which superimposes a sectional view of the compass card on a distant object viewed through the telescope. In this way, an accurate bearing can be taken of the distant object.

The MD60A2K Telescopic Alidade from Marine Data: Reliable in use, simple to install and easy to maintain.

APPLICATIONS

- For taking accurate terrestrial bearings of distant objects
- To fit the Marine Data MD69BR Bearing Repeater Compass

RELATED PRODUCTS



MD69AZI
Azimuth Sight



MD69BC
Bearing Circle



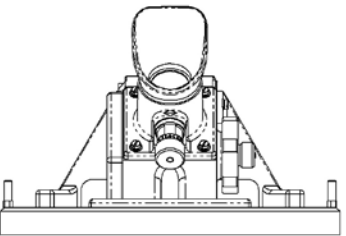
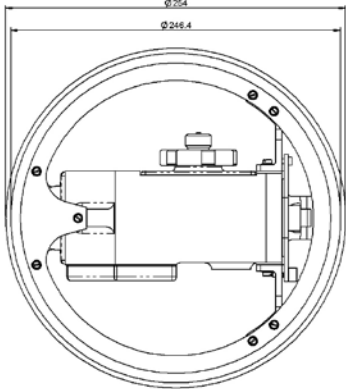
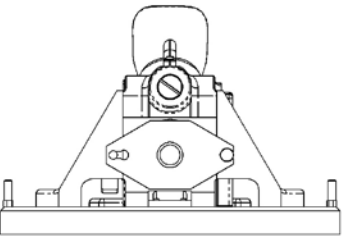
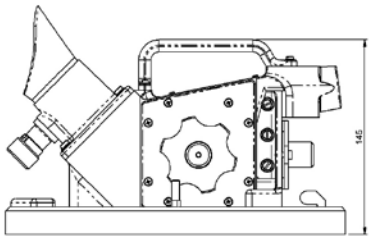
MD69BR
Bearing Repeater

PHYSICAL	
Weight:	2.75 kg
Dimensions:	OD Ø 254 mm; ID Ø 246.4 mm (9.7 inch) H 150 mm
Mounting:	Fits the MD69BR Compass Repeater; bezel Ø 9.7 inch (246.4 mm)
Finish	RAL7040 Window Grey, semi-gloss

OPERATIONAL	
Card View:	20°- 25° compass card viewable
Optics:	7x38mm
Filters:	Polarising type; anti-glare (adjustable for intensity and glare)
Prism:	Amici type
Eyepiece Display:	Compass card; spirit level bubble; reticule wire
MTBF:	>30,000 hours

ENVIRONMENTAL	
IP rating:	IP67
Operating temp:	-10°C to +70°C
Compass:	Safe Distance 50 cm

ADDITIONAL INFORMATION	
Supplied:	Durable plastic instrument case
Option:	Custom Paint Finish



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FEATURES

- A Precision Azimuth Reading Device
- For taking accurate bearings of the Sun, other Celestial Bodies and Terrestrial Landmarks
- William Thomson (Lord Kelvin) Pattern
- For use with the Marine Data MD69BR Bearing Repeater
- Equipped with UV Sun Filter and Neutral Density Filters
- Marine Grade Naval Brass Construction

COMPASS & HEADING / BEARING REPEATERS / ACCESSORIES

MD69AZI AZIMUTH SIGHT FOR BEARING COMPASS REPEATERS

SKU: F069051

OVERVIEW

The MD69AZI is a precision Azimuth reading device designed for taking accurate bearings of the sun and other celestial bodies and landmarks.

Based on the William Thomson (Lord Kelvin) Pattern, the MD69AZI is designed for use with the MD69BR Bearing Repeater and finished in satin jet black paint to complement other marine equipment. The MD69AZI is supplied complete with a varnished marine plywood instrument case for safe and convenient storage.

The MD69AZI Azimuth Sight from Marine Data: easy to use and simple to maintain.

APPLICATIONS

- For taking accurate bearings of the Sun, other Celestial Bodies and Terrestrial Landmarks with the Marine Data MD69BR Bearing Repeater.

RELATED PRODUCTS

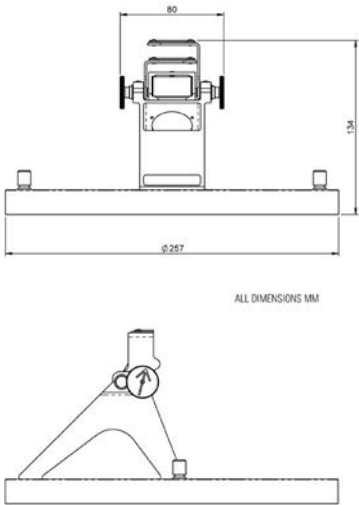
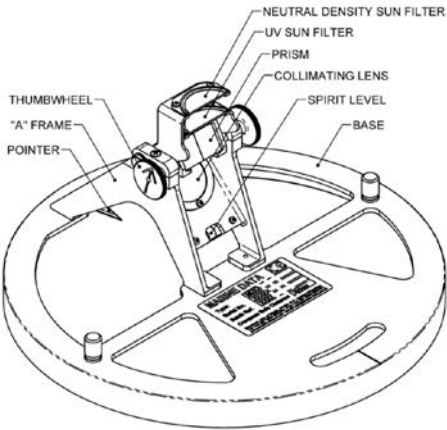


PHYSICAL	
Type:	Thomson pattern azimuth reading device, Group II
Weight:	1.93 kg
Dimensions:	OD Ø 257mm; ID Ø 246.4 mm (9.7 inch); H 134 mm
Mounting:	Fits the MD69BR Bearing Repeater; bezel Ø 9.7 inch (246.4 mm)
Reflector:	Rotating 60° triangular prism, 30 mm length
Sun Filters:	1x UV filter (SchottTM RG780); 1x neutral density filter (SchottTM NG1)
Collimating Lens:	Focal length 100 mm; Ø 33 mm
Spirit level:	Sensitive to tilt of <1°
Construction:	Marine Grade Naval Brass
Finish:	RAL9005 satin black paint

ENVIRONMENTAL	
IP rating:	n/a
Operating temp:	-10°C to +70°C
Compass:	Safe Distance 50 cm

ADDITIONAL INFORMATION	
The MD69AZI meets ISO 25862 for the testing and certification of Group II azimuth reading devices	
Always use the sun filters when taking azimuth bearings of the sun; never attempt to take bearings of the sun with unprotected eyes	
This pattern of azimuth sight was originally developed by the British physicist Sir William Thomson (Lord Kelvin) (1824-1907) and introduced in the early 1880s	
Supplied in a wooden instrument case MD69AZI-BX	

OPERATIONAL	
METHOD 1 - To take bearings of landmarks or low luminosity objects near to or on the horizon (set the arrow on prism adjustment thumbwheels = DOWN). A distant object is sighted directly by the eye and the compass card simultaneously viewed indirectly through the prism. Max. altitude approx. 34° above horizon.	
METHOD 2 - To take bearings of the sun or other celestial objects high in the sky (set the arrow on prism adjustment thumbwheels = UP). The compass card is viewed directly through the collimating lens and a distant object simultaneously viewed indirectly through the prism. Max. altitude approx. 60° above horizon.	



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COMPASS & HEADING / BEARING REPEATERS / ACCESSORIES

MD69BC BEARING CIRCLE FOR BEARING COMPASS REPEATERS

SKU: F069052

FEATURES

- Traditional Vane Type Bearing Circle
- Complete with Removable Shadow Pin, Folding Vanes and Reflecting Mirror
- Non-Magnetic Naval Brass Construction

OVERVIEW

The MD69BC is a traditional vane type Bearing Circle which allows an observer to take a compass bearing, by aligning the two sighting vanes with a distant object. The near vane contains a peep sight while the far vane contains a vertical sighting wire. A diametric horizontal wire from the near vane to the far vane enables the observer to read the bearing from the Compass Repeater card.

A reflector vane positioned behind the far vane allows the observer to observe azimuths of luminous celestial bodies (stars and planets) at various altitudes by picking up their reflection in the black mirror. When the body is observed, its reflection appears behind the vertical wire in the far vane. The MD69BC is supplied with a removable shadow pin which indicates the azimuth of the sun by the direction of its shadow.

The instrument is finished in a semi-gloss black paint to complement other external marine navigation equipment and is supplied in a wooden instrument box.

The MD69BC Bearing Circle from Marine Data: flexible in application, easy to use and simple to maintain.

APPLICATIONS

- For taking accurate terrestrial bearings of distant objects
- To fit the Marine Data MD69BR Bearing Repeater Compass

RELATED PRODUCTS



MD69AZI
Azimuth Sight



MD60A2K
Telescopic Alidade

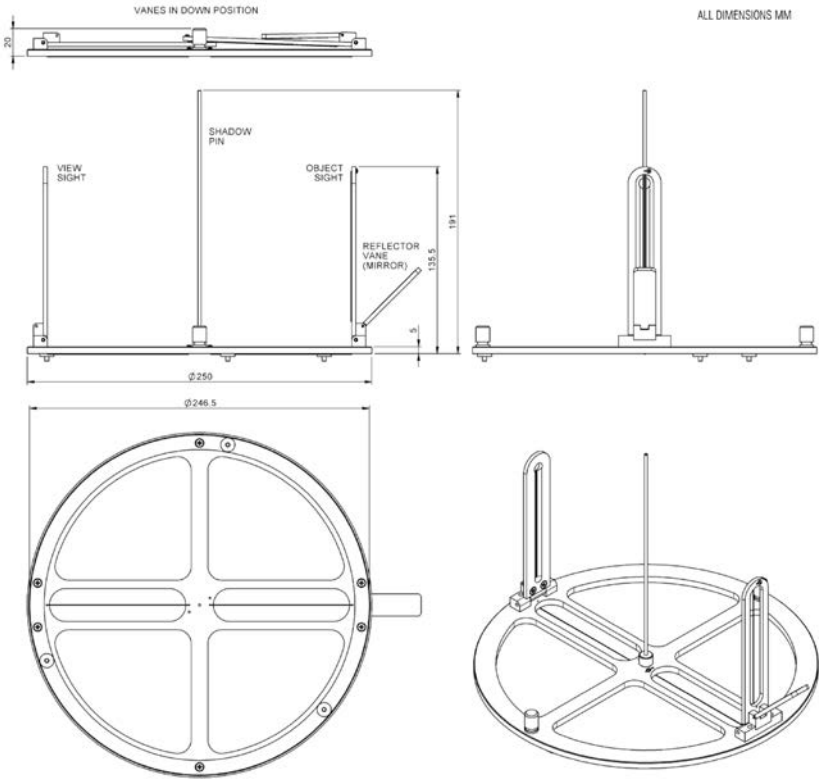


MD69BR
Bearing Repeater

PHYSICAL	
Weight:	1.0 kg
Dimensions:	OD Ø 254 mm; H 143 mm (with shadow pin)
Mounting:	Fits the MD69BR Bearing Repeater; bezel Ø 9.7 inch (246.4 mm)
Construction:	Marine Grade Naval Brass
Finish:	RAL9005 satin black paint

ENVIRONMENTAL	
IP rating:	n/a
Operating temp:	-10°C to +70°C
Compass:	Safe Distance 50 cm

ADDITIONAL INFORMATION	
Supplied:	Wooden Instrument Box
Supplied:	Shadow Pin (removable)



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COMPASS & HEADING / DIAL REPEATERS

MD67HR

WEATHERPROOF DIAL COMPASS REPEATER

SKU: F067001

FEATURES

- IPX6 Weatherproof Marineised Heading Repeater
- Traditional Marine Compass Card Display
- NMEA Digital Input
- User-Replaceable Faceplate
- True and Magnetic Heading Source Indicators
- Bulkhead or Panel Mount Options
- Rotary Dimming Control

CERTIFICATIONS



GL Type Approved

OVERVIEW

The MD67HR is a weatherproof, IPX6-rated, NMEA-based heading repeater for external use. Digital heading data (ship's heading) may be conveniently displayed at any location on a vessel. The MD67HR has a tough polycarbonate faceplate which is user-replaceable and a rotary encoder for varying the background illumination.

Compact and rugged, the MD67HR offers a heading repeater solution for locations where the available space is limited and may be either bulkhead or panel mounted. Finished in jet black to complement other marine navigation equipment. Equipped with LED indicators and automatically displays the heading source in use (True or Magnetic).

The MD67HR from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- External use on a seagoing vessel
- Repeats the heading display of a ship's magnetic compass, electromagnetic compass or gyro compass at any convenient location on a vessel

ACCESSORIES

- Panel Mounting Kit (Supplied)
- Remote Dimmer Control (0-24 V dc)
- Bulkhead Bracket Mounting Kit
- Sun Shield MD67

RELATED PRODUCTS

- The complete range of Marine Data [Heading Repeaters](#)
- Transmitting Heading Device (THD) Systems ([TMC](#) and [EMC](#))

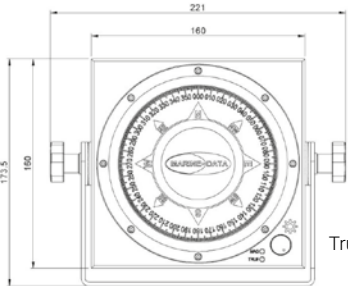
PHYSICAL	
Weight:	1.5 kg (with bulkhead mounting bracket)
Dimensions:	H 174 mm; W 221.5 mm; D 100 mm Fascia 160 x 160 x 16 mm; Dial Ø 118 mm
Mounting:	Panel or optional Bulkhead mounted
Connections:	Multicore cable through watertight gland
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V dc (18-32 V) 4 W max
Data input:	Digital RS422
Data Protocol:	Digital RS422 NMEA 0183; 4800 / 9600 / 19200 / 38000 Baud, auto-selecting
Data sentences:	Accepted in order of priority: THS, HDT (true), HDG (true heading corrected and uncorrected) and HDM (magnetic uncorrected) NMEA Talker IDs HE (gyro, north seeking) and HC (compass, magnetic)
Cable:	2.5 m captive data cable to bare tails

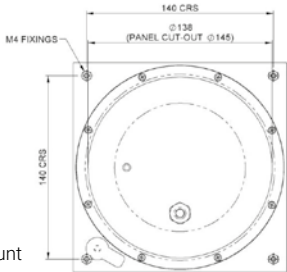
OPERATIONAL	
Performance:	±0.5°/min accuracy; Alignment rate in excess of 20° per second
Dial Illumination:	LED array with local and remote dimming control. Red tint
Display:	Ship's Heading; 0-359° Rotating compass card dial display marked in 1°, 5°, 10° and 45° increments
LED Indicator:	True Heading= Blue (BU); Magnetic Heading = Yellow (YE)
Error Indication:	Loss of valid data: Dial oscillates ±35° about the last known good heading. Dial illumination flashes

ENVIRONMENTAL	
IP rating:	IPX6
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 100 cm

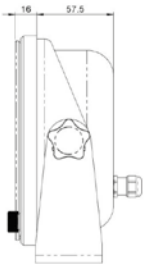
APPROVALS	
Conforms with:	IEC 61162-1; (IEC 61162-2 compatible) IEC 60945; IEC 62288; IEC 61162; ISO 8728 IMO Resolution A1021 (26)
Type Approval:	Germanischer Lloyd (GL)



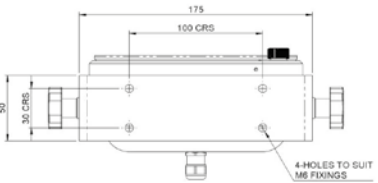
Trunnion Mount



Panel Mount



All dimensions in mm



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COMPASS & HEADING / DIAL REPEATERS

MD77HR DIAL COMPASS REPEATER DISPLAY

SKU: F077052

FEATURES

- Traditional Marine Compass Card Display
- Main and Emergency power supplies; with monitoring of both
- Automatic Baud Rate Detection
- Automatic warning of loss of valid heading data
- Automatic detection of a previously lost heading data type without requiring a reset
- Prioritisation of heading type
- Local and Remote Dimming Control
- Rugged, Marinised Aluminium Construction

CERTIFICATIONS



GL Type Approved

OVERVIEW

The MD77HR is a NMEA-based Compact Heading Repeater. Digital heading data (ship's heading) may be conveniently displayed and monitored at any location on a vessel.

When multiple heading sources are available in the heading data (e.g. True and Magnetic) the MD77HR allows the user to select the heading source and indicates which heading source is in current use.

Compact and rugged, the MD77HR offers a heading repeater solution for locations where the available space is limited and may be either bulkhead or panel mounted. Finished in jet black to complement other marine navigation equipment.

The MD77HR from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- The MD77HR displays True or Magnetic Heading Data transmitted from marine equipment compatible with NMEA 0183 (IEC 61162-1) (Gyro compass, TMC, EMC, GPS Compass etc.)

ACCESSORIES

- Panel Mounting Kit (Supplied)
- Bulkhead Bracket Mounting Kit
- Remote Dimmer Control (0-24 V dc)

RELATED PRODUCTS

- The complete range of Marine Data [Heading Repeaters](#)
- Transmitting Heading Device (THD) Systems ([TMC](#) and [EMC](#))

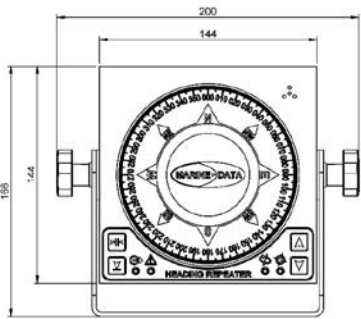
PHYSICAL	
Weight:	1.25 kg (with bulkhead mounting bracket)
Dimensions:	H 166mm; W 200 mm; D 81mm; Fascia 144 x 144 mm; Dial Ø 118 mm
Mounting:	Panel or optional Bulkhead mounted
Connections:	1x data cable to 15-pin D-sub plug
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V dc 4 W nominal (18-32 V dc)
Data Input:	Digital RS422
Data Protocol:	NMEA 0183 protocol 4800 / 9600 / 19200 / 38000 Baud (auto-sensing)
Data Sentences:	THS, HDT, HDG and HDM; detected on start-up in descending order of priority
Cable:	2.5 m multicore data cable

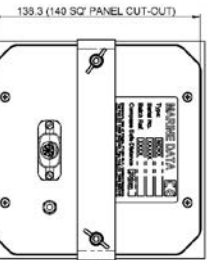
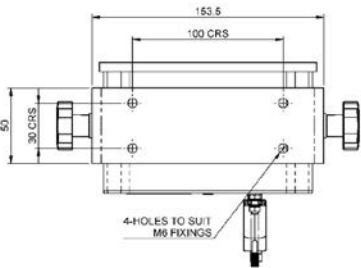
OPERATIONAL	
Performance:	± 0.5° accuracy
Follow Up Rate:	>20° per second
Dial Illumination:	LED array with local and remote dimming control. Red tint
Dial Resolution:	Scale marked at 1°, 5°, 10° & 45°
Display:	Rotating compass card dial display
Alarm:	Power supply failure: Audible and visible indications
Error Indication:	Dial oscillates ±35° about the last known good heading. Dial illumination flashes
Heading Type:	LED indicator for heading source type: Gyro Compass / Magnetic Compass
MTBF:	30,000 hours

ENVIRONMENTAL	
IP Rating:	IP54
Operating Temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 100 cm

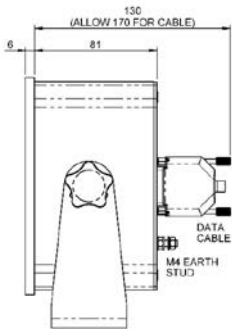
APPROVALS	
Conforms with:	IEC 60945; IEC 62288; IEC 61162-1 ISO 8728; IMO Resolution A1021 (26)
Type Approval:	Germanischer Lloyd (GL)



BULKHEAD MOUNT OPTION



PANEL MOUNT OPTION



All dimensions in mm



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COMPASS & HEADING / DIAL REPEATERS

MD77HRB DIAL COMPASS HEADING REPEATER DISPLAY

SKU: F077058

- FEATURES
- Traditional Marine Compass Card Display
 - NMEA Digital Input
 - Automatic Baud Rate Detection
 - Automatic warning of loss of valid heading data
 - Automatic detection of a previously lost heading data type without requiring a reset
 - Prioritisation of heading type
 - Local and Remote Dimming Control
 - Rugged, Marineised Aluminium Construction



OVERVIEW

The MD77HRB is a NMEA-based Compact Heading Repeater with a clear and easy to read analogue dial display of heading data. The 118mm diameter dial is graduated in 1 degree increments. The MD77HRB is housed in a robust, compact aluminium enclosure fitted with a rotary encoder for controlling the level of background illumination. Finished in jet black to complement other marine navigation equipment.

When multiple heading sources are available in the heading data (e.g. True and Magnetic) the MD77HRB automatically prioritises and indicates which heading source is in current use. The encoder has a pushbutton facility for an internal self-test.

Compact and rugged, the MD77HRB offers a heading repeater solution for digital heading data (ship's heading) to be displayed and monitored at any convenient location on a vessel. Suitable for locations where the available space is limited and may be either bulkhead or panel mounted.

The MD77HRB from Marine Data: Flexible in application, easy to install and simple to maintain.

APPLICATIONS

- The MD77HRB displays True or Magnetic Heading Data transmitted from marine equipment compatible with NMEA 0183 (IEC 61162-1) (Gyro compass, TMC, EMC, GPS Compass etc.)

ACCESSORIES

- Panel Mounting Kit (Supplied)
- Bulkhead Bracket Mounting Kit
- Remote Dimmer Control (0-24 V dc)

RELATED PRODUCTS

- The complete range of Marine Data [Heading Repeaters](#)
- Transmitting Heading Device (THD) Systems ([TMC](#) and [EMC](#))

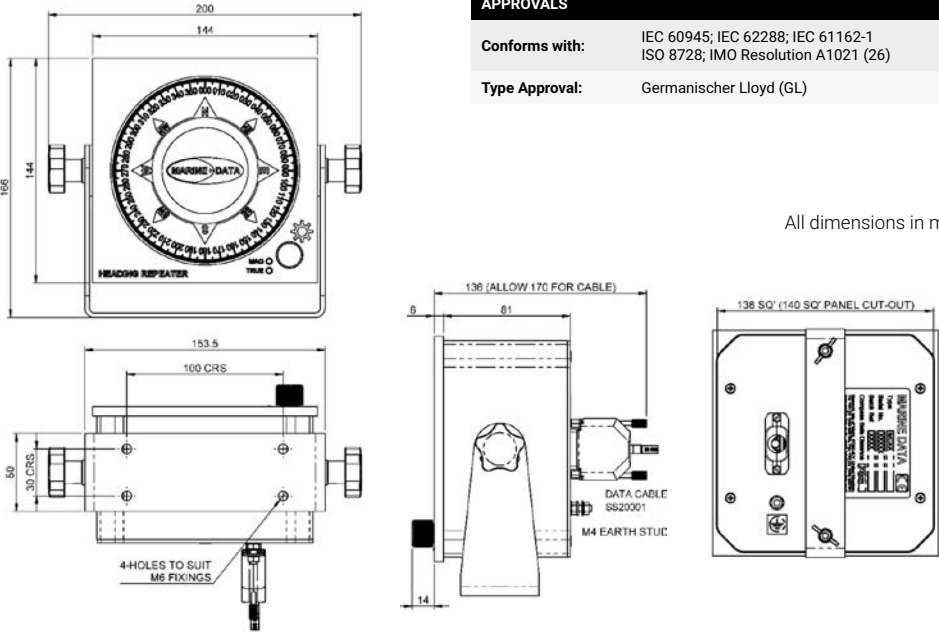
PHYSICAL	
Weight:	1.25 kg (with bulkhead mounting bracket)
Dimensions:	H 166 mm; W 200 mm; D 101 mm; Fascia 144 x 144 mm; Dial Ø 118 mm
Mounting:	Panel or optional Bulkhead mounted
Connections:	1x data cable to 15-pin D-sub plug
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V dc 4 W nominal (18-32 V dc)
Data Input:	Digital RS422
Data Protocol:	NMEA 0183 protocol 4800 / 9600 / 19200 / 38000 Baud (auto-sensing)
Data Sentences:	THS, HDT, HDG and HDM; detected on start-up in descending order of priority
Cable:	2.5 m multicore data cable

OPERATIONAL	
Performance:	± 0.5° accuracy
Follow Up Rate:	>20° per second
Dial Resolution:	Scale marked at 1°, 5°, 10° & 45°
Dial Illumination:	LED array with local and remote dimming control. Red tint
Display:	Rotating compass card dial display
Error Indication:	Dial oscillates ±35° about the last known good heading. Dial illumination flashes
Heading Type:	LED indicator for heading source type: Gyro Compass / Magnetic Compass
MTBF:	30,000 hours

ENVIRONMENTAL	
IP Rating:	IP54
Operating Temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 100 cm

APPROVALS	
Conforms with:	IEC 60945; IEC 62288; IEC 61162-1 ISO 8728; IMO Resolution A1021 (26)
Type Approval:	Germanischer Lloyd (GL)



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COMPASS & HEADING / DIAL REPEATERS

MD68HR LARGE DUAL SCALE STEERING REPEATER DISPLAY

SKU: F068052

FEATURES

- Precision Dual Scale 36:1 Marine Compass Card Display
- Designed for Vessel Steering
- NMEA 0183 Digital Input
- Automatic Baud Rate Detection
- True and Magnetic Source Indication
- Membrane Touch Controls with Remote Dimming Option
- Rugged, Marinated Aluminium Construction

CERTIFICATIONS



GL Type Approved

OVERVIEW

The MD68HR is a dual-scale NMEA-based Steering Repeater. Digital heading data may be displayed and monitored at any location on a vessel. The inner dial has a resolution of one tenth of a degree.

When multiple heading sources are available in the heading data (e.g. True and Magnetic), the MD68HR allows the user to select the heading source and indicates which heading source is in current use.

Compact and rugged, the MD68HR offers a heading repeater solution for locations where the available space is limited and may be either bulkhead or panel mounted. Finished in jet black to complement other marine navigation equipment.

The MD68HR from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- The MD68HR displays True or Magnetic Heading Data transmitted from marine equipment compatible with NMEA 0183 (IEC 61162-1) (Gyro compass, TMC, EMC, GPS Compass etc.)

ACCESSORIES

- Panel Mounting Kit (Supplied)
- Bulkhead Bracket Mounting Kit

RELATED PRODUCTS

- [MD68HRB - Dual Scale Steering Repeater with rotary control](#)
- [MD69BR - Dual Scale Bearing Repeater](#)
- [MD67HR - Watertight Heading Repeater](#)
- [MD77HR - Heading Repeater](#)
- [MD77HRB - Heading Repeater with rotary control](#)

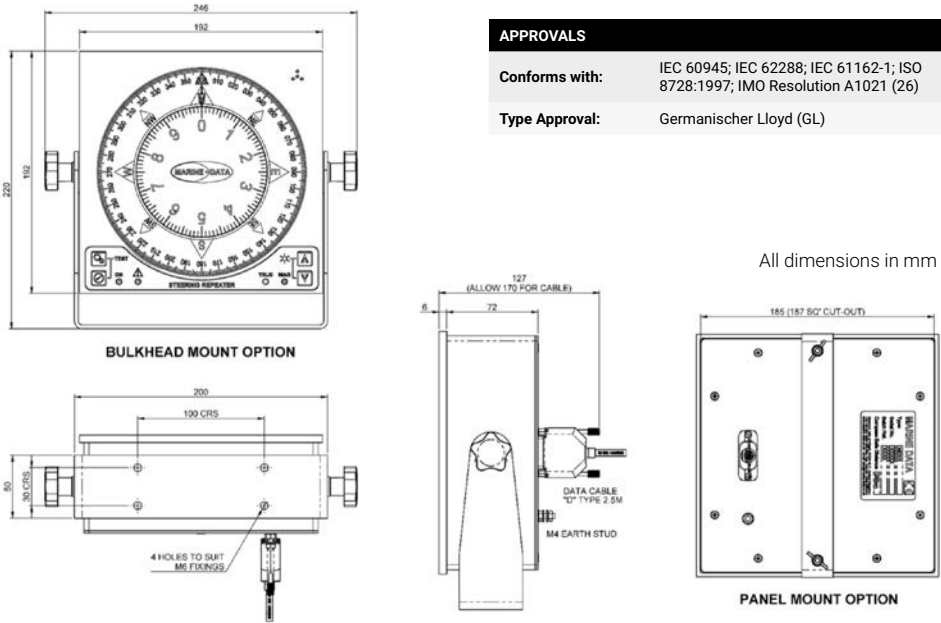
PHYSICAL	
Weight:	2.0 kg (with bulkhead mounting bracket)
Dimensions:	H 220 mm W 235mm; D 78 mm Fascia 192mmx192mmx6mm Outer dial Ø 164 mm; Inner dial Ø 103 mm
Mounting:	Bulkhead or Panel mounted
Connections:	1 x data cable to 15-pin D-sub plug
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V dc 6 W nominal (18-31 V dc)
Data input:	Digital RS422; NMEA 0183 protocol 4800 / 9600 / 19200 / 38400 Baud (auto-sensing)
Data sentences:	THS, HDT, HDG and HDM; detected on start up in descending order of priority
Cable:	2.5 m multicore data cable

OPERATIONAL	
Performance:	± 0.05° accuracy
Follow-Up Rate:	>20° per second
Display:	Concentric dual scale 36:1 rotating dials
Dial Resolution:	Outer scale marked at 1°, 5°, 10°, 45°; Inner scale marked at 0.1°, 1°
Dial Illumination:	LED array with local and remote dimming control. Red tint.
Alarm:	Off Course / Loss of Data / Power Supply Failure: Audible sounder and LED indicator
Heading Type:	LED indicator for heading source type: Gyro Compass / Magnetic Compass
MTBF:	30,000 hours

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 100 cm

APPROVALS	
Conforms with:	IEC 60945; IEC 62288; IEC 61162-1; ISO 8728:1997; IMO Resolution A1021 (26)
Type Approval:	Germanischer Lloyd (GL)



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COMPASS & HEADING / DIGITAL REPEATERS

MD71HR DIGITAL COMPASS HEADING REPEATER DISPLAY

SKU: F071010

FEATURES

- Compact Size
- OLED Display for Super Bright, High Contrast Display
- Six button membrane-type keypad
- Low Power Consumption
- NMEA 0183 Input
- Displays True or Magnetic Source
- Rugged, Marinised Construction
- Supports NMEA2000 / CAN Bus

OVERVIEW

The MD71HR is a modular NMEA-based OLED Digital Heading Repeater, housed in a robust, compact aluminium enclosure with a multi-function keypad. The compact 1-DIN size makes it an ideal addition to any work boat, enabling digital heading data (ship's heading) to be displayed and monitored at any location on a wide range of vessel types.

Compact and rugged, the MD71HR offers a heading repeater solution for locations where space is limited and may be either panel mounted or flat surface mounted. Finished in jet black to complement other marine navigation equipment.

The MD71HR from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Repeats the display of a ship's magnetic or gyro compass at any convenient location on a vessel
- Provides the heading display in an Electro-magnetic Compass System

ACCESSORIES

- Panel Mounting Kit (Supplied)
- MD71TB - Trunnion Mounting Bracket
- MD01PMD - Remote Rotary Dimmer

RELATED PRODUCTS

- [MD71MFD](#) - Multi-Function Display (Same Enclosure)
- Transmitting Heading Device (THD) Systems ([TMC](#) and [EMC](#))
- [MD75HR](#) - Large Format Digital Heading Repeater

PHYSICAL	
Weight:	0.4 kg
Dimensions:	H 96 mm; W 96 mm; D 35 mm; Allow 80 mm at rear for cable; Fascia 96 x 96 x 6 mm deep
Mounting:	Panel mount (standard); Surface mount (option)
Connections:	1x 15-way D-type connector; M4 Earth stud
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	12-24 V dc; 2.5 W max (0.1 A; 24 V dc) Low Power alarm trigger: 9.0 V Low Power alarm cancel: 11.5 V
Data input:	Digital RS422; NMEA 0183 (IEC 61162-1) compliant; 4800 / 9600 / 19200 / 38000 Baud; Auto selecting
Data sentences:	THS, HDT, HDG and HDM; detected on start-up in descending order of priority
Data Output:	Visual OLED Display and Status Indicator Data: RS422 (IEC 61162-1) NMEA 0183 Audible Alarm
Remote Dim:	Optional; 0-24 V dc (with respect to supply negative)
Cable:	Supplied with 2.5 m multicore data cable

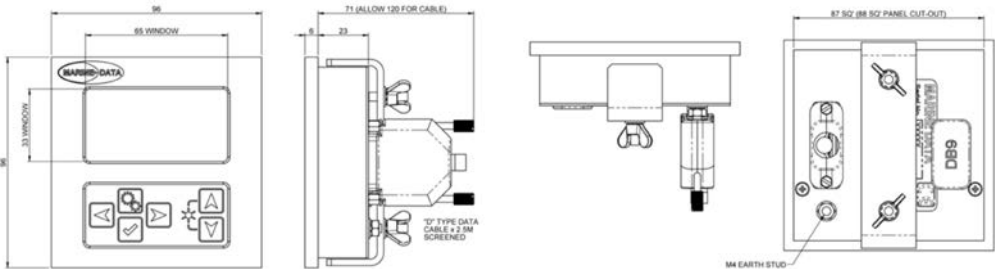
OPERATIONAL	
Performance:	Dependant on received data
Display:	2.7" 128 x 64 Pixel OLED – Yellow
Error Indication:	Flashing Warning Message + Audible Alarm Fixed Warning Message (acknowledged alarm)
MTBF:	30,000 hours

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
Magnetic	Magnetic Permeability: Category 'A'
RoHS:	Compliant
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 60945

ADDITIONAL	
Option:	NMEA2000 / CAN Bus Input
Option:	Front panel sealed to IP67 rating
Option:	Alarm solid state relay: 1 A / 60 V rated

All dimensions in mm



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FEATURES

- Large Format LCD Digital Display; 60 mm Characters
- Low Power Consumption
- Heading to 0.01° Resolution
- True or Magnetic Heading Source Indicator
- Push / Rotary Control and Status Indicator
- Local / Remote Dimming
- NMEA 0183 Digital Input
- Automatic selection and prioritisation of NMEA heading data types
- Automatic warning of lost valid heading data
- Automatic detection of previously lost heading data without requiring a reset

COMPASS & HEADING / DIGITAL REPEATERS

MD75HR DIGITAL COMPASS REPEATER DISPLAY

SKU: F075001

OVERVIEW

The MD75HR is a NMEA 0183 Digital Heading Repeater. Housed in a robust aluminium enclosure with a push / rotary control, it has a large 175 x 98 mm digital display with a resolution of 0.01° giving a clear and precise display of the Ship's Heading.

The MD75HR offers a heading repeater solution for locations where visibility over large distances is required and may be either bulkhead or panel mounted. Finished in jet black to complement other marine navigation equipment.

The MD75HR from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Provides a large, precision ship's heading display for a gyro-compass or transmitting magnetic compass system at any convenient location on a vessel

ACCESSORIES

- Panel Mounting Kit (Supplied)
- Bulkhead Mounting Kit (Optional)

RELATED PRODUCTS

- [MD74HR](#) - Digital Heading Repeater
- [MD71MFD](#) - Multi-Function Display
- Transmitting Heading Device (THD) Systems ([TMC](#) and [EMC](#))
- The complete range of Marine Data [Heading Repeaters](#)

PHYSICAL	
Weight:	1.25 kg
Dimensions:	H 183 mm; W 296 mm; D 27 mm 120mm clearance required behind panel Fascia 170 x 235 x 6 mm; Panel cut-out: 204 x 160 mm
Display:	LCD; 60 mm character height; Green backlight Window 98 x 175 mm; Status LED Indicator
User Control:	Push / Rotary
Mounting:	Bulkhead or panel mounted
Connections:	1 x data cable to 15-pin D-sub plug
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

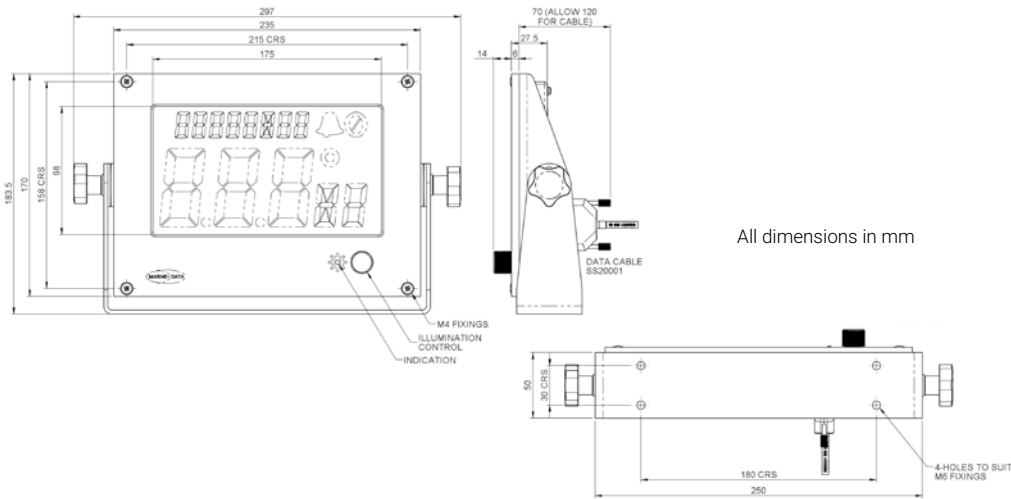
ELECTRICAL	
Power Supply:	24 V dc (18-32 V dc) 6 W (Main and Standby)
Inputs:	NMEA 0183; 4800 - 38400 Baud; auto-sensing
Data sentences:	THS, HDT, HDG and HDM; selectable as True only; Magnetic only; Automatic (prioritised to True)
Data Output:	Optional Active Alarm output (Solid State Relay)
Remote Dim:	Optional; 0-24 V dc (with respect to supply negative)
Cable:	Supplied with 2.5 m multicore data cable

OPERATIONAL	
Performance:	Displays Heading to 2 decimal places
Display:	8" 800 x 480 Pixel OLED – Green
Error Indication:	Loss of Valid Data / Power

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 60945; IEC 61162-1 IEC 62288

ADDITIONAL	
Option:	NMEA2000 / CAN Bus Connection
Option:	Dual power supply inputs for safeguarded operation
Option:	Additional ingress protection to IPX6
Option:	Acknowledge (Control Input Switch)
Option:	Alternative backlight colours available



All dimensions in mm



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FEATURES

- Back-lit LCD Heading Display and Heading Type with red tint
- High visibility red LED Turn Indicator
- Environmentally Protected to IPX6
- No internal moving parts
- NMEA 0183 Digital Input
- Automatic selection and prioritisation of NMEA heading data type
- Automatic warning of loss of valid heading data
- Automatic detection of previously lost heading data without requiring a reset
- True / Magnetic Source Indication
- Rugged Construction
- Local Dimming Control

COMPASS & HEADING / DIGITAL REPEATERS

MD74HR/W
WEATHERPROOF
DIGITAL COMPASS
REPEATER DISPLAY

SKU: F074025

OVERVIEW

The MD74HR/W is the weatherproof version of the MD74HR NMEA-based heading repeater with an LCD display. Digital heading data (ship's heading) may be conveniently displayed at any location on a vessel. The MD74HR/W features a high visibility LED Turn Indicator which can display either Rate of Turn or Course to Steer.

Compact and rugged, the MD74HR/W offers a heading repeater solution for locations where the available space is limited and may be either bulkhead or panel mounted. Finished in jet black to complement other marine navigation equipment.

The MD74HR/W Heading Repeater from Marine Data: compact and rugged, flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Repeats the heading display of a ship's magnetic or gyro compass at any convenient location on a vessel

ACCESSORIES

- MD74TB - Bulkhead Mounting Kit
- MD74DIM - Remote Dimming Control

RELATED PRODUCTS

- [MD74HR](#) - Digital Heading Repeater (IP54)
- [MD75HR](#) - Large Format Digital Heading Repeater
- The complete range of Marine Data [Heading Repeaters](#)
- Transmitting Heading Device (THD) System ([TMC](#) and [EMC](#))

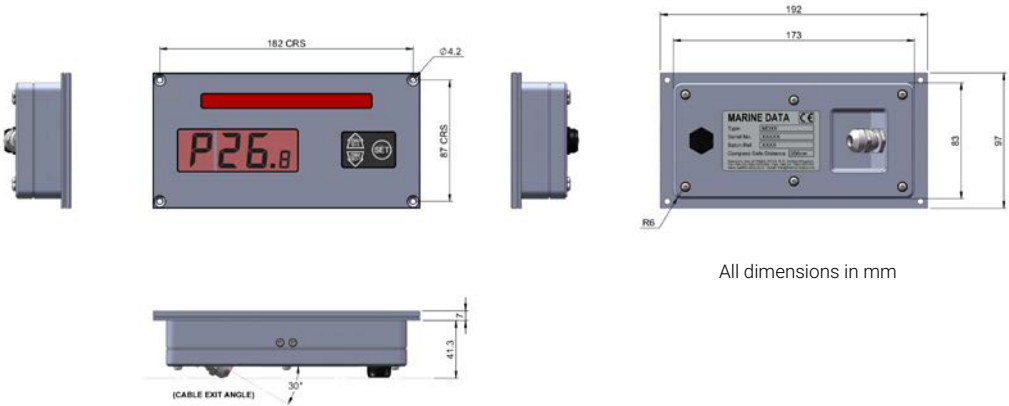
PHYSICAL	
Weight:	1.0 kg
Dimensions:	H 137 mm; W 250 mm; D 78 mm (on bracket) Fascia: 192 x 97 x 6 mm
Mounting:	Panel mount or Bulkhead mount (accessory)
Connections:	1 x 5-way screened cable to D-sub connector
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V dc nominal; 4 watts max; 18-32 V dc
Data input:	RS422 NMEA 0183; 4800 Baud; others available
Data sentences:	THS, HDT, HDG and HDM; detected on start-up in descending order of priority
Cable:	2.5 m multicore data cable with D-sub connector to bare tail

OPERATIONAL	
Performance:	± 0.1° resolution
Follow-Up Rate:	>20° per second
LCD Display:	Numeric Heading Data with Heading Type
LED Display:	Visual Turn Indicator (24 segments)
Resolution:	LCD Display ±0.1°, LED Turn Indicator: 1°
Illumination:	LCD Backlight: Red tint; LED Display: Red; variable dimming
Error Indication:	LCD display flashes at 1 Hz whilst showing the last known good heading (alert condition)

ENVIRONMENTAL	
IP rating:	IPX6 (IP54 option available)
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC60945; IEC 62288 IEC 61162-1; IMO Resolution A821 (19)



All dimensions in mm



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COMPASS & HEADING / TAPE REPEATERS

MD73HR TAPE COMPASS HEADING REPEATER

SKU: F073043

FEATURES

- Large Format, High Contrast True Moving Tape Display
- LED Course to Steer Display
- NMEA Digital Input
- Automatic selection and prioritisation of NMEA heading data type
- Automatic warning of loss of valid heading data
- Automatic detection of previously lost heading data without requiring a reset
- True / Magnetic Source Indication
- Rugged Construction
- Local Dimming Control

CERTIFICATIONS



GL Type Approved

OVERVIEW

The MD73HR is a NMEA-based heading repeater with a true moving tape display. Digital heading data (ship's heading) may be conveniently displayed at any location on a vessel.

The MD73HR can be set to show the course to steer over a $\pm 30^\circ$ range on an illuminated LED bar-type display.

Compact and rugged, the MD73HR offers a heading repeater solution for locations where the available space is limited and may be either bulkhead or panel mounted. Finished in jet black to complement other marine navigation equipment.

The MD73HR from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Repeats the heading display of a ship's magnetic or gyro compass at any convenient location on a vessel
- Heading display for an Electro-magnetic Compass System

ACCESSORIES

- Panel Mounting Kit (Supplied)
- Bulkhead Bracket Mounting Kit

RELATED PRODUCTS

- [MD73SR](#) - Submarine Tape Compass Repeater
- The complete range of Marine Data [Heading Repeaters](#)
- [Transmitting Heading Device \(THD\) System](#)

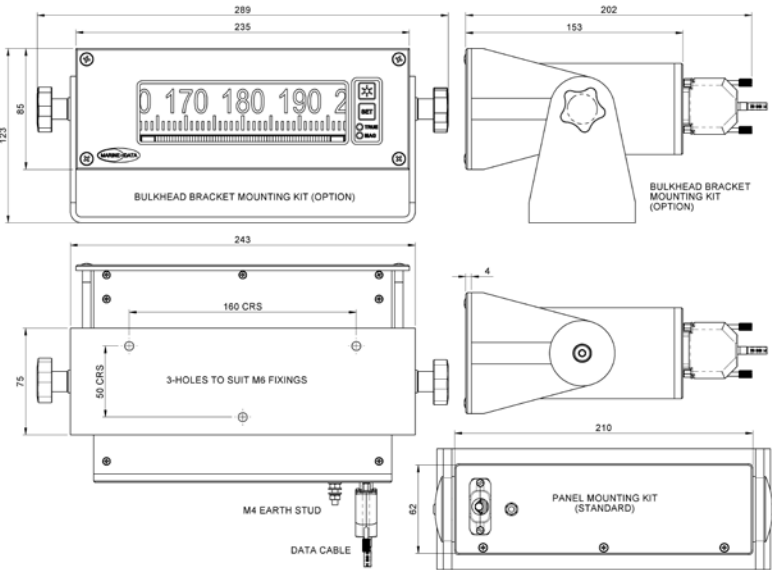
PHYSICAL	
Weight:	2.5 kg
Dimensions:	H 123 mm; W 290 mm; D 202 mm Fascia 235 x 85 x 4 mm
Mounting:	Panel mount or Bulkhead mount (accessory)
Connections:	1x data cable to 15-pin D-sub plug; M4 earth stud
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V dc 6 W nominal (22 V -31 V dc)
Data input:	Digital RS422 NMEA 0183; 4800 & 9600 Baud
Data sentences:	HDT, HDG and HDM; detected on start-up in descending order of priority
Cable:	2.5 m multicore data cable

APPROVALS	
Conforms with:	IEC 60945
Type Approval:	Germanischer Lloyd (GL)

OPERATIONAL	
Performance:	$\pm 0.1^\circ$ resolution
Follow-Up Rate:	10° per second
Display:	Continuous moving tape; H 44mm; L 1440mm
Resolution:	Scale marked at 1°, 5° and 10° (1° = 4 mm)
Illumination:	LED array; dimming control; red tint
LED Display:	Course to Steer; 61 Yellow LEDs; Heading range $\pm 30^\circ$; Out of range LED indicators: Red (port) and Green (starboard) LED Resolution: 1 element = 1°
Loss of valid data:	LED bar display shows a repeated cycle of diverging lights moving from centre (error condition)

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Magnetic:	Magnetic Permeability Category 'A'
Vibration:	1.00 - 12.5 Hz ± 1.60 mm 12.5 - 25.0 Hz ± 0.38 mm 25.0 - 50.0 Hz ± 0.10 mm



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All dimensions in mm



COMPASS & HEADING / TAPE REPEATERS

MD73SR SUBMARINE TAPE COMPASS HEADING REPEATER

SKU: F073050

FEATURES

- Compact Format, True Moving Tape Display with auxiliary LCD Display
- Fully EMC Screened
- Direction of Turn Indication
- True or Magnetic Heading Indication
- Automatic selection and prioritisation of NMEA heading data type
- Automatic detection of lost heading data without requiring a reset
- Ultra Compact Size, Low Power
- Factory Custom Background Illumination Colour
- Factory adjustable Baud Rate
- Remote Dimming Control

OVERVIEW

The MD73SR is a NMEA-based ultra-compact Heading Repeater with moving tape and LCD digital displays. Housed in a robust aluminium enclosure, its compact size makes it an ideal addition to any bridge, enabling digital heading data (ship's heading) to be conveniently displayed and monitored at any location on a vessel.

When multiple heading source data is available (e.g. True and Magnetic) the MD73SR prioritises the available data and indicates the heading source in current use. (Priorities are factory set, according to user requirements.)

The MD73SR has been designed to have very low EMC signature, with a specially shielded PCB and selected components; the enclosure has EMC gaskets and special EMC glass.

Compact and rugged, the MD73SR offers a heading repeater solution for locations where space is limited. Panel mounted and finished in jet black, to complement other marine navigation equipment.

The MD73SR from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Repeats the display of a ship's magnetic or gyro compass at any convenient location on a vessel

RELATED PRODUCTS

- [MD73HR](#) - Tape Compass Repeater (IP54)
- The complete range of Marine Data [Heading Repeaters](#)

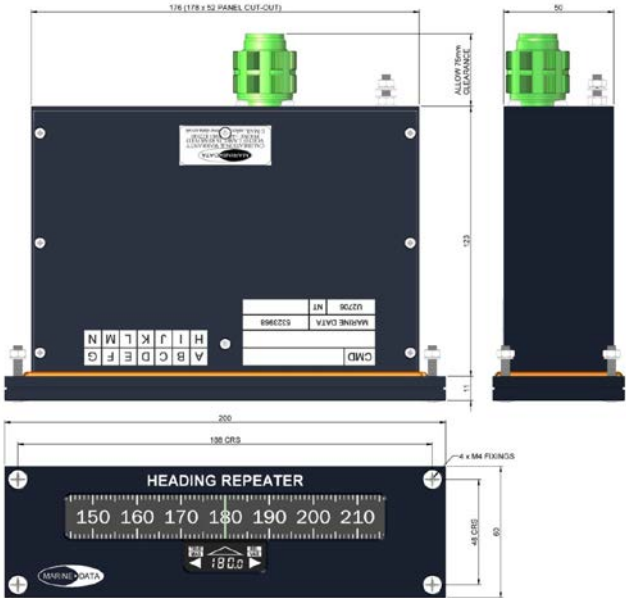
PHYSICAL	
Weight:	1.25 kg
Dimensions:	H 60 mm; W 200 mm; D 134 mm; Fascia 200 x 60 mm; Display windows 145 x 20 mm (tape) & 37 x 15 mm (LCD)
Mounting:	Panel mount only
Connections:	Military 13-pin D38999 / 20WB35PN fixed plug
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V 10 W max; 18-31 V dc
Data input:	RS422 NMEA 0183; 4800 Baud; others available
Data sentences:	HDT, HDG and HDM; selected in descending order of priority
Cable:	2.5 m multicore data cable

OPERATIONAL	
Performance:	±0.5° accuracy (Tape) ±0.1° accuracy (LCD)
Display:	Continuous moving tape 25 x 720 mm Graduations at 1°, 5°, 10° (scale 1°=2 mm) LCD display (4-digit) 5 mm high; 1 decimal place
Illumination:	Green tint as standard; other colours available
Error Indication:	Tape oscillates ±35° about last known good heading, LCD shows 'Err1'

ENVIRONMENTAL	
IP rating:	IP55
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Magnetic:	Magnetic Permeability Category 'A'

APPROVALS	
Conforms with:	IEC 60945; IEC 61162-1
EMC:	AECTP500



All dimensions in mm



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COMPASS & HEADING / RATE OF TURN REPEATERS

MD67ROT WEATHERPROOF DIAL RATE OF TURN INDICATOR

SKU: F067201

FEATURES

- IPX6 Weatherproof Marineised Rate of Turn Indicator
- User-Replaceable Faceplate
- Rate of Turn up to 30°/min
- Panel or Bulkhead Mounted
- Rotary Dimmer with Push Control
- Local and Remote Dimming Control
- Digital NMEA 0183

OVERVIEW

The MD67ROT is a watertight, IPX6-rated, NMEA-based Rate of Turn Indicator displaying Rate in degrees per minute. Housed in a robust, compact aluminium enclosure for external or internal use.

The MD67ROT provides a clear and easy to read 118 mm diameter analogue dial display graduated in 1 degree per minute rate increments. Rate range: Up to 30 degrees per minute to Port and Starboard. It features a tough polycarbonate faceplate which is user-replaceable and a rotary encoder control for varying the background and pointer illumination.

May be either bulkhead or panel mounted. Finished in jet black to complement other marine navigation equipment.

The MD67ROT from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- External use on a seagoing vessel
- To display Rate of Turn (ROT) data transmitted from NMEA 0183 compatible marine equipment at a convenient location

ACCESSORIES

- Panel Mounting Kit (Supplied)
- Remote Dimmer Control (0-24 V dc)
- Bulkhead Bracket Mounting Kit
- Sun Shield MD67

RELATED PRODUCTS

- [MD68ROT](#) - Rate of Turn Indicator (Dial Ø 164 mm)
- [MD77ROT](#) - Rate of Turn Indicator (Dial Ø 118 mm)
- [MD77ROT120](#) - Rate of Turn Indicator (Dial Ø 118mm; 0-120°/min)

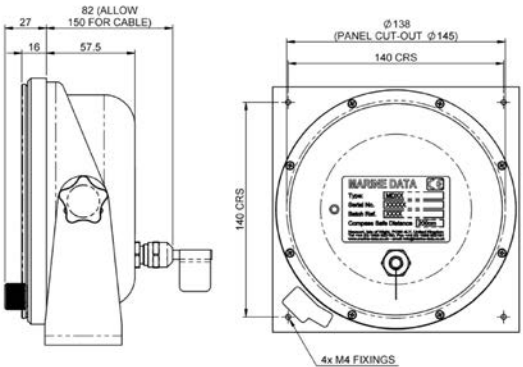
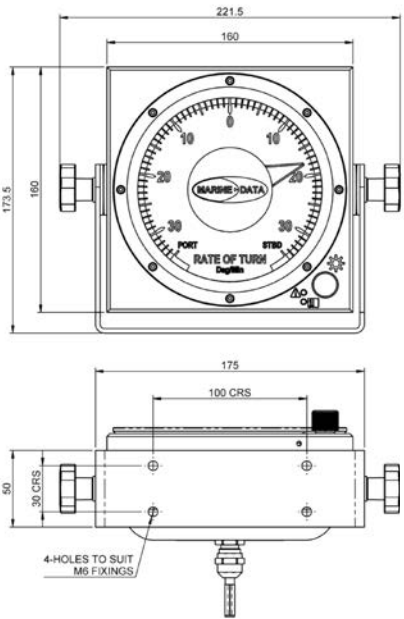
PHYSICAL	
Weight:	1.5 kg (with bulkhead mounting bracket)
Dimensions:	H 174 mm; W 221 mm; D 100 mm (on bracket) Fascia 160 mm x 160 mm; Dial Ø 118 mm
Mounting:	Panel or optional Bulkhead mounted
Connections:	Multicore cable through watertight gland
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V dc (18-32 V) 4 W nominal
Data input:	Digital RS422 NMEA 0183; 4800 / 9600 / 19200 / 38000 Baud; auto selecting
Data sentence:	ROT (\$-ROT,x,x,A*hh<CR><LF>)
Cable:	2.5 m captive data cable to bare tails

OPERATIONAL	
Performance:	±0.5°/min accuracy; Alignment rate in excess of 40° per second
Dial Illumination:	Backlit white
Display:	Rate of Turn; range 0-30°/min; scale graduated in 1° per minute rate increments; full scale deflection 35°/min
LED Indicators:	Alarm Fault Indication = Red (RD); Set-up Mode = Blue (BU)
Error Indication:	Loss of valid data: Pointer assumes a vertical downward position; flashing red LED

ENVIRONMENTAL	
IP rating:	IPX6
Operating temp:	-15°C to +55°C
Storage temp:	-25°C to +70°C
RoHS:	Compliant
Compass:	Safe Distance 100 cm

APPROVALS	
Conforms with:	IEC60945; IEC61162-1
Type Approval:	Pending



All dimensions in mm



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COMPASS & HEADING / RATE OF TURN REPEATERS

MD77ROT DIAL RATE OF TURN INDICATOR

SKU: F077201

FEATURES

- Clear and Easily Read Dial Display
- Rate of Turn up to 30°/min
- Panel or Bulkhead Mounted
- Touch Controls
- Local and Remote Dimming Control
- Automatic Detection of Previously Lost Data
- Digital NMEA 0183

CERTIFICATIONS



GL Type Approved

OVERVIEW

The MD77ROT is a NMEA-based Rate of Turn Indicator, displaying the Rate in degrees per minute. Housed in a robust, compact aluminium enclosure with a touch panel for background and pointer illumination, the MD77ROT is ideal for any vessel.

The MD77ROT provides a clear and easy to read 118 mm diameter analogue dial display graduated in 1 degree per minute rate increments. Rate range: Up to 30 degrees per minute to Port and Starboard.

Compact and rugged, the MD77ROT offers a solution for locations where the available space is limited and may be either bulkhead or panel mounted. Finished in jet black to complement other marine navigation equipment.

The MD77ROT from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- To display Rate of Turn (ROT) data transmitted from NMEA 0183 compatible marine equipment at a convenient location

ACCESSORIES

- Panel Mounting Kit (Supplied)
- Bulkhead Bracket Mounting Kit
- Remote Dimmer Control (0-24 V dc)

RELATED PRODUCTS

- [MD68ROT](#) - Rate of Turn Indicator (Dial Ø 164 mm)
- [MD67ROT](#) - Weatherproof Rate of Turn Indicator (Dial Ø 118 mm)
- [MD77ROT120](#) - Rate of Turn Indicator (Dial Ø 118mm; 0-120°/min)

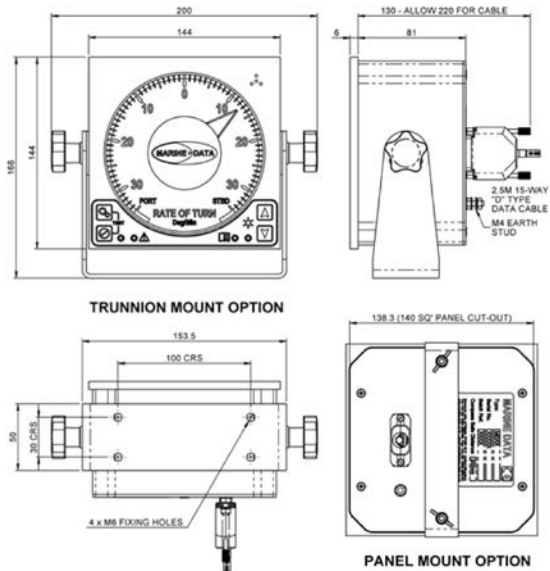
PHYSICAL	
Weight:	1.25 kg (on bracket)
Dimensions:	H 166 mm; W 200 mm; D 87 mm (on bracket) Fascia 144 x 144 mm; dial Ø 118 mm 140 mm square panel cut out
Mounting:	Panel or optional Bulkhead mounted
Connections:	1 x data cable to 15-pin D-sub plug; M4 earth stud
Construction:	Aluminium alloy enclosure, Polycarbonate face
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V dc (18-32 V); 6 W
Data Input:	Digital RS422; NMEA 0183; 4800 / 9600 / 19200 / 38000 Baud; auto-selecting
Data Sentence:	ROT (\$-ROT,x,x,A*hh<CR><LF>
Output:	External Alarm Loop (optional)
Cable:	Supplied with 2.5 m multi-core data cable

OPERATIONAL	
Performance:	±0.5°/min accuracy; Alignment rate in excess of 40° per second
Dial Illumination:	Backlit white
Display:	Rate of Turn; range 0-30°/min; scale graduated in 1° per minute rate increments; full scale deflection 35°/min
LED Indicators:	Alarm Fault Indication = Red (RD); Set-up Mode = Blue (BU)
Error Indication:	Loss of Valid Data: Pointer assumes a vertical downward position and illumination flashes (alert condition)

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
Storage temp:	-25°C to +70°C
RoHS:	Compliant
Compass:	Safe Distance 100 cm

APPROVALS	
Conforms with:	IEC60945; IEC61162-1
Type Approval:	Germanischer Lloyd (GL)



All dimensions in mm



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COMPASS & HEADING / RATE OF TURN REPEATERS

MD77ROT120 DIAL
RATE OF TURN
INDICATOR

SKU: F077203

FEATURES

- Clear and Easily Read Dial Display
- Rate of Turn up to 120°min-1
- Panel or Bulkhead Mounted
- Touch Controls
- Local and Remote Dimming Control
- Automatic Detection of Previously Lost Data
- Digital NMEA 0183

CERTIFICATIONS



GL Type Approved

OVERVIEW

The MD77ROT120 is a NMEA-based Rate of Turn Indicator, displaying the Rate in degrees per minute. Housed in a robust, compact aluminium enclosure with a touch panel for background and pointer illumination, the MD77ROT120 is ideal for any vessel.

The MD77ROT120 provides a clear and easy to read 118 mm diameter analogue display graduated in 4 degrees per minute rate increments. Rate range: Up to 120 degrees per minute to Port and Starboard.

Compact and rugged, the MD77ROT120 offers a solution for locations where the available space is limited and may be either bulkhead or panel mounted. Finished in jet black to complement other marine navigation equipment.

The MD77ROT120 from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- To display Rate of Turn (ROT) data transmitted from NMEA 0183 compatible marine equipment at a convenient location

ACCESSORIES

- Panel Mounting Kit (Supplied)
- Bulkhead Bracket Mounting Kit
- Remote Dimmer Control (0-24 V dc)

RELATED PRODUCTS

- [MD68ROT](#) - Rate of Turn Indicator (Dial Ø 164 mm)
- [MD67ROT](#) - Weatherproof Rate of Turn Indicator (Dial Ø 118 mm)
- [MD77ROT](#) - Rate of Turn Indicator (Dial Ø 118mm)

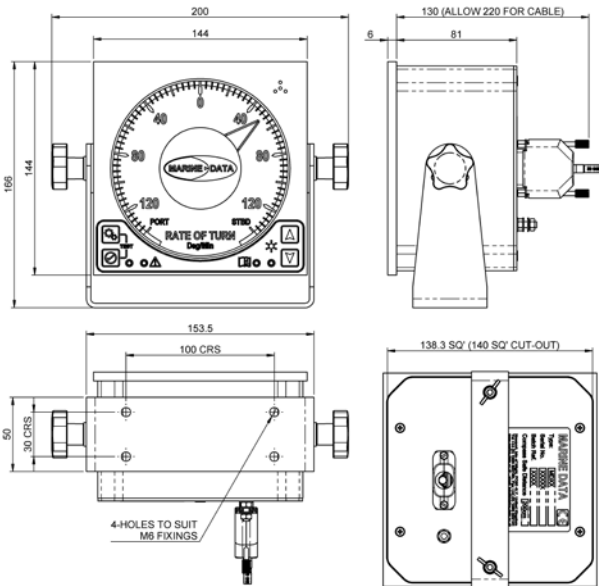
PHYSICAL	
Weight:	1.25 kg (on bracket)
Dimensions:	H 166 mm; W 200 mm; D 87 mm (on bracket) Fascia 144 x 144 mm; dial Ø 118 mm 140 mm square panel cut out
Mounting:	Panel or optional Bulkhead mounted
Connections:	1 x data cable to 15-pin D-sub plug; M4 earth stud
Construction:	Aluminium alloy enclosure, Polycarbonate face
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V dc (18-32 V); 6 W
Data Input:	Digital RS422; NMEA 0183; 4800 / 9600 / 19200 / 38000 Baud; auto-selecting
Data Sentence:	ROT (\$-ROT,x,x,A*hh<CR><LF>)
Output:	External Alarm Loop (optional)
Cable:	Supplied with 2.5 m multi-core data cable

OPERATIONAL	
Performance:	±0.5°/min accuracy; Alignment rate in excess of 40° per second
Dial Illumination:	Backlit white
Display:	Rate of Turn, dial scale graduated in 4° per minute rate increments: full scale deflection 140°/min
Error Indication:	Loss of Valid Data: Pointer assumes a vertical downward position and illumination flashes (alert condition)

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
Storage temp:	-25°C to +70°C
RoHS:	Compliant
Magnetic:	Magnetic Permeability: Category 'A'
Compass:	Safe Distance 100 cm

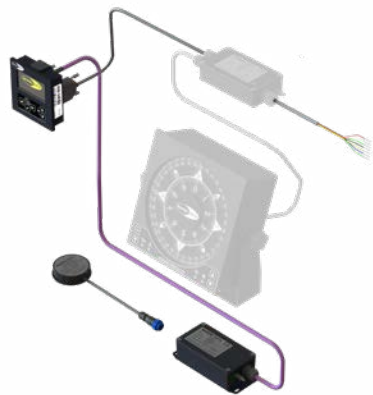
APPROVALS	
Conforms with:	IEC60945; IEC61162-1
Type Approval:	Germanischer Lloyd (GL)



All dimensions in mm



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TRANSMITTING HEADING DEVICES / TMC SYSTEM

MD71TMC TRANSMITTING MAGNETIC COMPASS SYSTEM

SKU: F071100

OVERVIEW

The MD71TMC is a Transmitting Magnetic Compass (TMC) System which uses the latest technology to accurately process and convert the ship's magnetic compass heading to NMEA 0183 heading data with unparalleled accuracy to one or more Heading Repeaters (Compass Repeaters) at any convenient location on a vessel.

Instead of using inflexible and bulky optical apparatus (reflectors, periscopes etc.) to view the magnetic compass, electronic remote displays may be used in the form of a Compass Repeater.

TMC systems from Marine Data are simple and intuitive to use with quick and easy installation and on-board calibration.

APPLICATIONS

- Provides a digital NMEA heading output to drive a Heading Repeater (or other devices) at a convenient location
- An elegant alternative to using an optical reflector in a ship's magnetic compass installation

ACCESSORIES

- Trunnion Bracket Kit for MD71THD Control Head
- MD54 Compass Sensor Adhesive Mount
- MD58 Compass Sensor Bracket Mount

RELATED PRODUCTS

- [MD96JB/8](#) - Junction Box – to supply power and act as breakout box for 2x NMEA 0813 data channels
- [MD94DDU](#) - Data Distribution Unit – to supply power and for feeding several Heading Repeaters
- The complete range of Marine Data [Heading Repeaters](#)

FEATURES

- Provides Digital Heading Data from a Ship's Magnetic Compass
- Unparalleled Accuracy; Intuitive Operator Controls
- Correction of Magnetic Deviation and Variation
- Automatic Sensor-to-Compass Calibration
- Rugged, IP65 rated Magnetic Sensors
- Industry Proven Design
- Bright OLED display provides high contrast and wide viewing angles

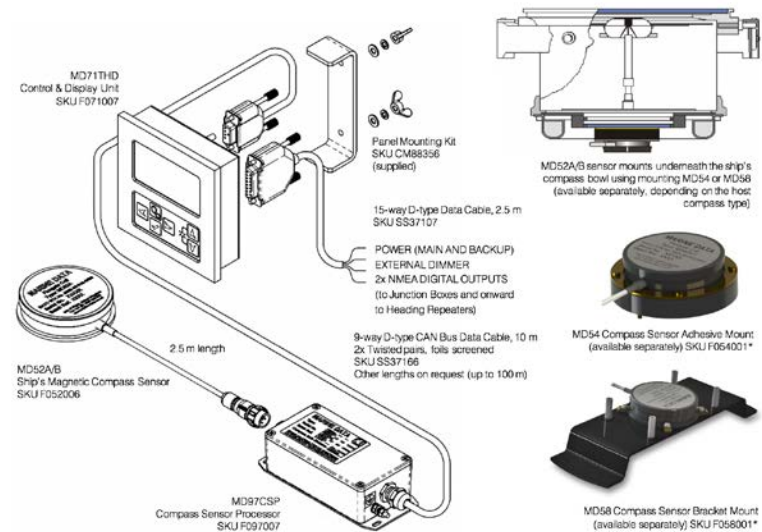
Increasingly, Maritime Authorities are accepting the use of Transmitting Heading Device (THD) Systems on board vessels.

Marine Data offers two types of THD system:

- A system which senses the angular position of a ship's magnetic compass card; known as a Transmitting Magnetic Compass System (TMC)
- A system which directly senses the Earth's magnetic field; known as an Electro-Magnetic Compass System (EMC)

PHYSICAL	
Weight & Dimensions:	MD71THD: H 96; W 96; D 35 (mm); 0.50 kg
	MD97CSP: L 146; W 64; D 41 (mm); 0.35 kg
	MD52A/B: H 18; Ø 69 (mm); 0.12 kg
	Excludes cables & connectors
Mounting:	MD71THD: Panel mount; Trunnion (optional)
	MD52A/B: MD54 or MD58 Mountings direct to compass
Connections:	MD71THD: 15-way D-type plug; 9-way D-type socket;
	MD52A/B: Buccaneer™ type male
	MD97CSP: Buccaneer™ type female; 1x Gland
Finish:	RAL7040 Window Grey, semi-gloss
ELECTRICAL	
Power Supply:	24 V dc; 6 W
Data Output:	2x NMEA 0183 Data Channels
Data Sentences:	HDT, HDG and HDM
APPROVALS	
Conforms with:	IEC 60945; IEC 61162-1

OPERATIONAL	
Performance:	± 1.0° resolution
Accuracy:	<= 0.5° after ADC (depending on sensor)
Display:	2.7" (128 x 64 pixels); OLED - Yellow
Alarms:	Audible sounder
ENVIRONMENTAL	
IP rating:	MD71THD: IP54 MD97CSP: IP65 MD52A/B: IP65
Operating temp:	-15°C to +55°C
Storage temp:	-25° C to +70° C
RoHS:	Compliant
Compass:	Safe Distance: (MD71THD & MD97CSP): 50cm
ADDITIONAL	
Supplied:	Panel Mounting Kit
Supplied:	15-way D-type data cable, 2.5 m
Supplied:	9-way D-type CAN Bus data cable; 10 m



*One sensor mount is a required option (available separately) - depending on the type of host magnetic compass; please contact Marine Data to obtain the correct mount

**The MD71THD Control and Display Unit can display the heading in numeric form as a basic heading repeater (compass repeater). However, we always recommend using a dedicated Marine Data Heading Repeater suitable for the precise purpose to which it will be put (e.g. a repeater for steering the vessel; a repeater for taking bearings; a repeater to be mounted on the bridge wing, etc.)



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TRANSMITTING HEADING DEVICES / TMC SYSTEM

MD52A/B MAGNETIC COMPASS SENSOR

SKU: F052006

FEATURES

- **A Magnetic Fluxgate Coil (Compass Pickoff Coil)**
- **Transmitting Heading Device (THD)**
- **Provides Digital NMEA 0183 Heading Data as part of the complete MD71THD System**
- **The magnetic sensing component in a Marine Data Transmitting Magnetic Compass System (TMC)**
- **Senses the movement of a ship's Magnetic Compass Card**
- **Rugged Acetal Case**

OVERVIEW

The MD52A/B Ship's Magnetic Compass Sensor is the sensing element at the heart of a Marine Data Transmitting Magnetic Compass System (TMC). The MD52A/B contains a highly sensitive magnetic fluxgate coil which detects and follows the movement of the ship's compass card. The MD52A/B is mounted concentrically on a gimballed host magnetic compass - usually inside the standard ship's binnacle. The MD52A/B must be connected with the MD97CSP Compass Sensor Interface which drives the coil and provides NMEA 0183 Heading Data to be forwarded to the ship's Compass Repeaters.

The MD52A/B can be used in a simple TMC to drive a precision Steering Repeater at the ship's steering position, providing a convenient and accurate display of the ship's magnetic compass.

The MD52A/B fits inside most standard compass binnacles without requiring any modifications. Optional mountings are available: the MD54 Mounting Spacer and the MD58 Mounting Bracket.

APPLICATIONS

- Provides a source of NMEA 0183 Digital Heading Data as part of the complete the Marine Data Transmitting Heading Device (THD) System; an alternative, or backup system to a gyrocompass as a source of Heading

RELATED PRODUCTS & ACCESSORIES

- [MD54](#) - Compass Sensor Mounting Spacer (Self Adhesive)
- [MD58](#) - Compass Sensor Mounting Bracket
- [MD71THD](#) - Control & Display Unit - Required for magnetic corrections and for fluctuation damping
- [MD97CSP](#) - Compass Sensor Processor – Required
- [MD86HCU](#) - Heading Comparator Unit - Option for extensive functionality

PHYSICAL	
Weight:	0.12 kg
Dimensions:	H 18 mm; Ø 69 mm
Mounting:	Fixed to the host magnetic compass
Connections:	5-way screened captive cable; 2.5 m
Construction:	Black Acetal

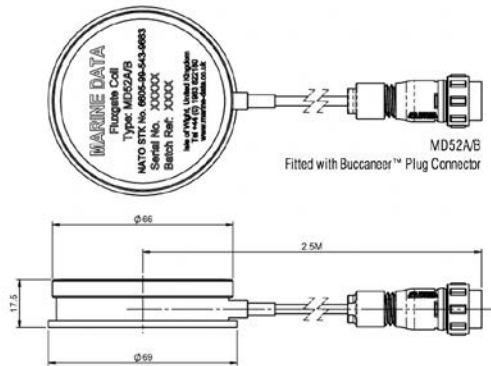
ELECTRICAL	
Power Supply:	Power is supplied by the Marine Data MD97CSP Compass Sensor Processor; 10 V; 400 - 500 Hz
Data input:	Local magnetic field from host compass card
Data Output:	3 phase positional signal
Cable:	2.5 m multicore data cable tail

OPERATIONAL	
Performance:	± 1° of the host compass card when fitted centrally with respect to the compass and 90 mm axially from a host compass card of 2000 Gauss (CGS); 0.2 Tesla (SI)
Follow-Up Rate:	Near instantaneous (limited by host compass card)

ENVIRONMENTAL	
IP rating:	IP65
Operating temp:	-15°C to +55°C
RoHS:	Exempt

APPROVALS	
Compass system can be supplied in a Class A1 Binnacle to ISO 25862 and IEC 60945	

ADDITIONAL	
<ul style="list-style-type: none">• Requires the MD97CSP Compass Sensor Processor to drive the coil, dampen heading fluctuations and provide a digital NMEA heading output• Requires the MD71THD to integrate the THD system components, calibrate the system for variation and deviation and display the Heading• Requires host compass manufacturer's fixing bracket or MD58 Mounting Bracket or MD54 Mounting Spacer• Heading may be forwarded to a range of Marine Data Heading Repeaters for display at a convenient location on a vessel	



All dimensions in mm



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TRANSMITTING HEADING DEVICES / EMC SYSTEM

MD71EMC
ELECTROMAGNETIC
COMPASS SYSTEM

SKU: F071101

OVERVIEW

The Marine Data MD71EMC is an Electro-Magnetic Compass (EMC) System which detects the Earth's magnetic field directly. It then transmits the ship's Heading over a NMEA 0183 digital connection to one or more Heading Repeaters installed at any convenient location on a vessel. The EMC has no moving parts – unlike a TMC (Transmitting Compass) which detects the moving compass card of a ship's compass in its binnacle.

The MD71EMC uses the latest technology to accurately process and convert the ship's magnetic compass heading to NMEA 0183 heading data with unparalleled accuracy at speeds of up to 70 knots and rates of turn up to 20° per second. The system has been developed with improved magnetic correction facilities to reduce deviation effects caused by the magnetic influence of the craft.

APPLICATIONS

- Provides a digital NMEA heading output to drive a Heading Repeater (or other devices) at a convenient location
- A solution for when size of the craft makes it physically impossible or financially imprudent to install a gyro

ACCESSORIES

- Trunnion Bracket Kit for MD71THD Control Head

RELATED PRODUCTS

- [MD96JB/8](#) - Junction Box – to supply power and act as breakout box for 2x NMEA 0183 data channels
- [MD94DDU](#) - Data Distribution Unit – to supply power and for feeding several Heading Repeaters
- The complete range of Marine Data [Heading Repeaters](#)

FEATURES

- Provides Digital Heading Data from the Electro-Magnetic Compass
- No Moving Parts
- Unparalleled Accuracy
- Intuitive Operator Controls with Bright OLED display with high contrast and wide viewing angles
- 2x power supply inputs; 2x NMEA 0183 data channels output
- Correction of Magnetic Deviation and Variation
- Automatic Calibration
- A Backup or an Alternative to a Gyro

Increasingly, Maritime Authorities are accepting the use of Transmitting Heading Device (THD) Systems on board vessels.

Marine Data offers two types of THD system:

- A system which senses the angular position of a ship's magnetic compass card; known as a Transmitting Magnetic Compass System (TMC)
- A system which directly senses the Earth's magnetic field; known as an Electro-Magnetic Compass System (EMC)

PHYSICAL	
Weight & Dimensions:	MD71THD: H 96; W 96; D 35 (mm); 0.50 kg
	MD97CSP: L 146; W 64; D 41 (mm); 0.35 kg
	MD53A/B: H 166; W 142; Ø 123 (mm); 1.00 kg
	Excludes cables & connectors
Mounting:	MD71THD: Panel mount; Trunnion (optional)
	MD53A/B: Integral Trunnion Bracket
Connections:	MD71THD: 15-way D-type plug; 9-way D-type socket;
	MD53A/B: Buccaneer™ type male
	MD97CSP: Buccaneer™ type female; 1x Gland
Finish:	RAL7040 Window Grey, semi-gloss

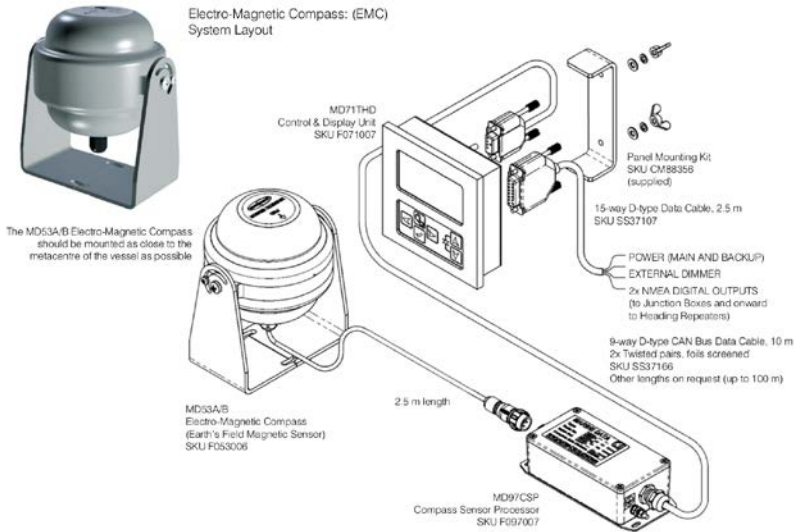
ELECTRICAL	
Power Supply:	24 V dc; 6 W
Data Output:	2x NMEA 0183 Data Channels
Data Sentences:	HDT, HDG and HDM

APPROVALS	
Conforms with:	IEC 60945; IEC 61162-1

OPERATIONAL	
Performance:	± 1° (static) accuracy
Display:	2.7" (128 x 64 pixels); OLED - Yellow
Accuracy:	<= 0.5° after ADC (depending on sensor)
Alarms:	Audible sounder

ENVIRONMENTAL	
IP rating:	MD71THD: IP54
	MD97CSP: IP65
	MD53A/B: IP65
Operating temp:	-15°C to +55°C
Storage temp:	-25° C to +70° C
RoHS:	Compliant
Compass:	Safe Distance: (MD71THD & MD97CSP): 50cm

ADDITIONAL	
Supplied:	Panel Mounting Kit
Supplied:	15-way D-type data cable, 2.5 m
Supplied:	9-way D-type CAN Bus data cable; 10 m



**The MD71THD Control and Display Unit can display the heading in numeric form as a basic heading repeater (compass repeater). However, we always recommend using a dedicated Marine Data Heading Repeater suitable for the precise purpose to which it will be put (e.g. a repeater for steering the vessel; a repeater for taking bearings; a repeater to be mounted on the bridge wing, etc.)



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TRANSMITTING HEADING DEVICES / EMC SYSTEM

MD53A/B
ELECTROMAGNETIC
COMPASS

SKU: F053006

FEATURES

- The independent compass component in a Marine Data Electro-Magnetic Compass System (EMC)
- Directly senses the Earth's Magnetic Field
- Generates Digital NMEA 0183 Heading Data
- Does not require a ship's host magnetic compass
- An alternative or a backup to a gyro
- Rugged, marinised IP65 housing

OVERVIEW

The MD53A/B is an Earth's Field Electro-Magnetic Compass which directly senses the Earth's magnetic field. It has no moving parts and does not require a host magnetic compass. In this way, the MD53A/B forms the sensing element of a solid-state Electro Magnetic Compass (EMC) system – an alternative or a backup to a Gyro system.

The MD53A/B provides digital NMEA 0183 heading data (HDT, HDG, HDM) when used with the MD97CSP Compass Sensor Processor. Vessel heading may be transmitted to any location on the vessel and displayed with a Marine Data compass repeater. Magnetic corrections and heading fluctuation damping are applied with the MD71THD Variation and Deviation Corrector or the MD86HCU Heading Comparator Unit.

Constructed from robust aluminium alloy and finished in RAL7040 Window Grey semi-gloss paint, to complement existing marine navigation equipment.

The MD53A/B Electro-Magnetic Compass from Marine Data: Flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Provides the source of NMEA 0183 Digital Heading Data as part of a Marine Data Transmitting Heading Device (THD) System
- An alternative or backup to a gyro compass as source of Heading

RELATED PRODUCTS & ACCESSORIES

- [MD71EMC](#) - Electro-Magnetic Compass System
- [MD97CSP](#) - Compass Sensor Processor
- [MD71THD](#) - Control & Display Head Unit for TMC & EMC Systems

PHYSICAL	
Weight:	1.0 kg
Dimensions:	H 166 mm; W 142 mm; D 123 mm
Mounting:	Bulkhead, surface, or deck head
Connections:	2.5 m 5-core screened captive cable
Construction:	Aluminium alloy housing and bracket
Finish:	RAL7040 Window Grey, semi-gloss

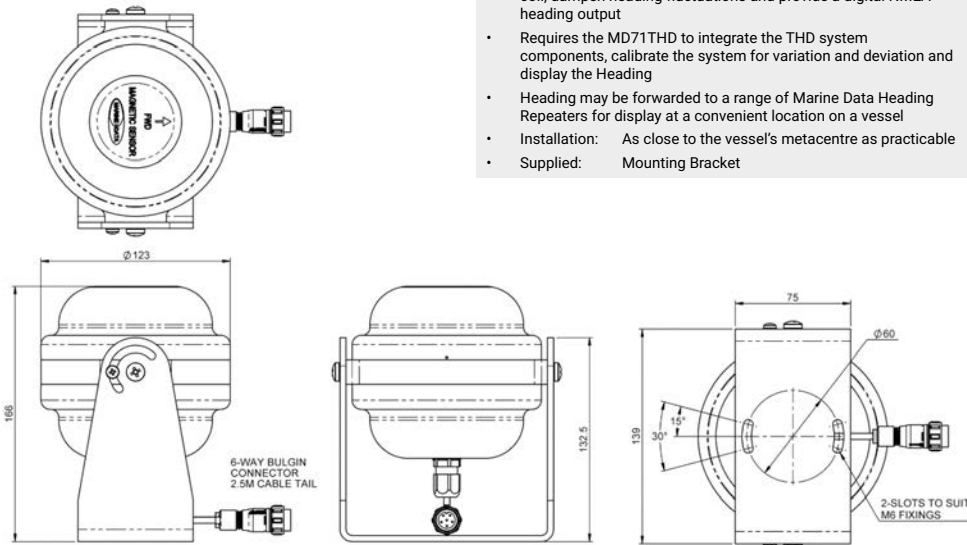
ELECTRICAL	
Power Supply:	Power is supplied by the Marine Data MD97CSP Compass Sensor Processor; 10 V; 400 - 500 Hz
Sensor Type:	Magnetic Fluxgate coil, 3 phase
Data Input:	Earth's Magnetic Field
Data Output:	3 phase positional signal

OPERATIONAL	
Performance:	± 1° (static) accuracy
Follow-Up Rate:	Instantaneous (limited by the processor unit)
Display:	None, requires an external display (e.g. a Marine Data Compass Repeater or the MD71THD Control & Display Unit)
Magnetic Flux Density:	Operates from 0.12 to 0.38 Gauss (CGS) (12x10 ⁻⁶ to 38x10 ⁻⁶ Tesla)
MTBF:	>30,000 Hours

ENVIRONMENTAL	
IP rating:	IP65
Operating temp:	-15°C to +55°C
RoHS:	Exempt

APPROVALS	
Complies with:	IEC 60945

- ADDITIONAL
- Normally supplied as part of the MD71EMC Transmitting Magnetic Compass System (Electro-magnetic)
 - Requires the MD97CSP Compass Sensor Processor to drive the coil, dampen heading fluctuations and provide a digital NMEA heading output
 - Requires the MD71THD to integrate the THD system components, calibrate the system for variation and deviation and display the Heading
 - Heading may be forwarded to a range of Marine Data Heading Repeaters for display at a convenient location on a vessel
 - Installation: As close to the vessel's metacentre as practicable
 - Supplied: Mounting Bracket



All dimensions in mm



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TRANSMITTING HEADING DEVICES / GNSS COMPASS

MD203 GNSS COMPASS & POSITION SENSOR

SKU: F203002

FEATURES

- True heading anywhere on earth
- 0.5° heading accuracy
- Heading accuracy unaffected by the latitude
- Heading available in periods of GNSS drop-outs
- Compliant to WAAS, EGNOS and MSAS Satellite Based Augmentation Systems
- Replaces several instruments with one robust, integrated product
- Only paired cable (no coax) between the mast unit and the equipment on the bridge
- 20 Hz update rate on heading, rate of turn and position measurements (configurable)
- Output of data on Ethernet
- 1PPS out synchronization signal

OVERVIEW

The MD203 GNSS Compass delivers heading and positioning information, and provides unparalleled continuous performance using Global Navigation Satellite Systems (GNSS). The robust, rugged housing is sealed for the harshest environments. It incorporates fixed and pole mounting capability for both marine and land applications. The MD203 is suitable for both dynamic positioning and professional marine survey.

The MD203 supports both NMEA 0183 and NMEA 2000 protocols and the unit delivers accurate and continuous performance, including position, heading, heave, pitch, and roll. Integrated gyro and tilt sensors give fast start-up times and heading updates. During periods of short satellite signal loss, the inertial sensor automatically takes over as the prime source for heading determination until the GNSS comes back on line.

The MD203 is capable of replacing several vessel instruments with one compact navigation tool. The stability and maintenance-free design replaces traditional gyrocompasses and stand-alone GPS units at a fraction of the cost.

APPLICATIONS

- Provides a source of NMEA 0183 Digital Heading Data to be used as a replacement, or alongside the Marine Data Transmitting Heading Device (THD) System; an alternative (or a backup) system to a gyrocompass as a source of Heading.

RELATED PRODUCTS

- [MD71EMC](#) - Electromagnetic Compass System
- [MD71TMC](#) - Transmitting Magnetic Compass System
- [MD97TMC](#) - Transmitting Magnetic Compass System - Simplified

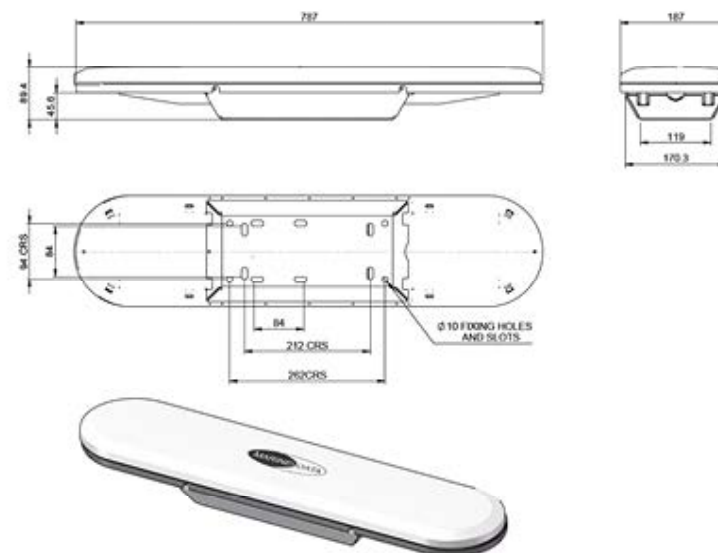
PHYSICAL	
Weight:	3 kg (excluding bracket)
Dimensions:	W 780mm; H 180mm; D 100mm;
Mounting:	Horizontal Surface
Connections:	1 RS-232, 1 RS-422, 1 Ethernet, 1 USB, 1 PPS out
Construction:	Enclosure: Polyethylene Bracket: Anodised aluminium

ELECTRICAL	
Power Supply:	12 to 24 V DC
Data Inputs:	RTCM 104 v. 2.3
Data Sentences:	DTM, GBS, GGA, GLL, GRS, GNS, GSA, GST, HDT, RMC, ROT, VTG, ZDA, PSXN 20
Cable:	8 Pair, Shielded Twisted pair (Not Supplied)

APPROVALS	
Complies with:	IEC 60945/EN 60945
Type Approval:	Pending

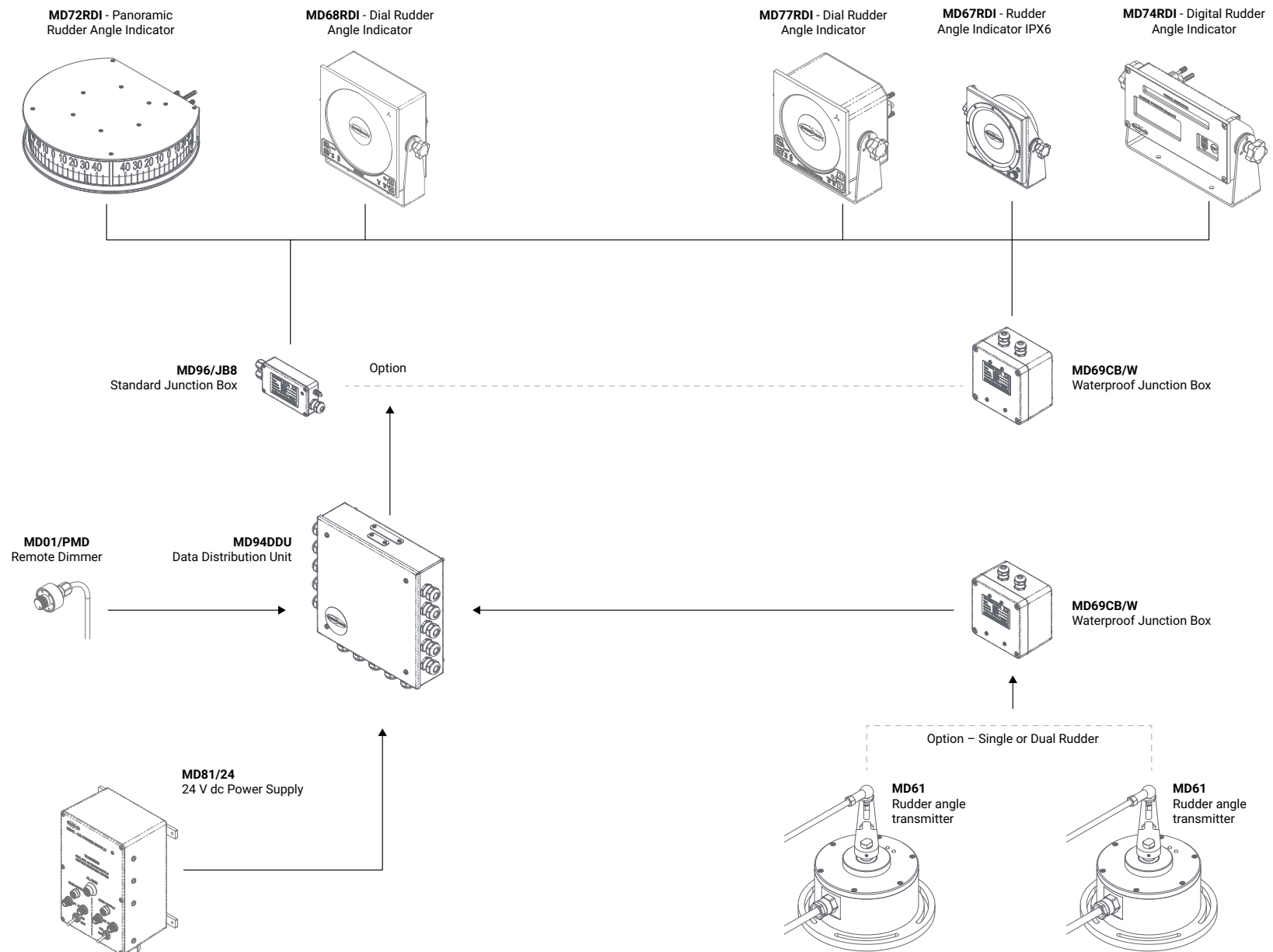
OPERATIONAL	
Heading acc., dynamic:	0.5° RMS
Heading resolution:	0.01° RMS
Rate of turn accuracy:	0.5°/s +5%
Position accuracy, DGNS/SBAS:	1.2 m RMS
Velocity accuracy:	0.07 m/s 95 % CEP
Max turn rate:	80°/s

ENVIRONMENTAL	
IP rating:	IP66
Operating temp:	-25°C to +55°C
Operating Humidity:	100 % max.
Storage temp:	-30°C to +70°C
Storage Humidity:	100 % max.
Compass:	Safe Distance: 30 cm



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RUDDER ANGLE INDICATION SYSTEM





FEATURES

- Large Format 3-Face Analogue Display
- Supplied with Deckhead Mounting
- Illuminated Moving Pointers
- Automatic Baud Rate Detection
- Local and Remote Dimming Control
- Accepts Digital NMEA 0183 Data from a Rudder Angle Sensor
- Automatic warning of lost valid rudder sensor angle data
- Automatic detection of previously lost heading data without requiring a reset

RUDDER INSTRUMENTATION / RUDDER ANGLE INDICATORS

MD72RDI PANORAMIC RUDDER ANGLE INDICATOR

SKU: F072001

OVERVIEW

The MD72RDI is a NMEA-based 3-face 250 mm diameter Panoramic Rudder Angle Indicator which provides a clear display of rudder angle that is easy to read from any position on a bridge. Each window has an analogue display graduated in 5° increments from 45° Port to 45° Starboard. Housed in a robust aluminium alloy enclosure and fitted with a dimmer control for background and pointer illumination.

Compact and rugged, the MD72RDI offers a panoramic rudder angle indication solution for locations where the available space is limited and is deckhead mounted with the included bracket. Finished in jet black to complement other marine navigation equipment.

The MD72RDI from Marine Data: Flexible in application, easy to install and simple to maintain.

APPLICATIONS

- External use on a seagoing vessel
- Used to display RSA Rudder Sensor Angle Data transmitted from marine equipment compatible with the NMEA 0183 data protocol
- Two units may be used to display dual rudder positions

ACCESSORIES

- Supplied MD72VB VESA 100 Deckhead Mounting Kit
- Optional VESA 100 Bulkhead Mounting Kit

RELATED PRODUCTS

- [MD61](#) - Rudder Angle Transmitter
- [MD94DDU](#) - Data Distribution Unit
- The complete range of [Rudder Angle Indicators](#) from Marine Data

PHYSICAL	
Weight:	2.0 kg
Dimensions:	H 64 mm (excluding VESA mounting bracket); W 270 mm; D 333 mm (including cable)
Mounting:	VESA 100 Deckhead Mounting, Optional VESA 100 bulkhead mounting available
Connections:	1x data cable to 15-pin D-sub plug; M4 earth stud
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

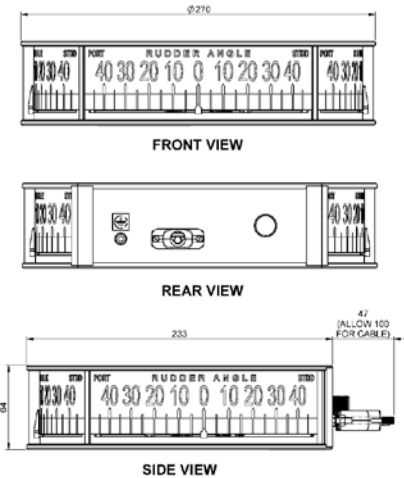
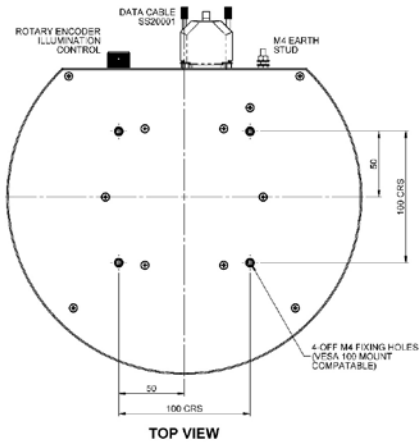
ELECTRICAL	
Power Supply:	24 V dc (18-32 V) 6 W nominal
Data input:	Digital RS422; NMEA 0183; 4800, 9600, 19200, 38000 Baud (auto-selecting)
Data sentence:	RSA (\$-RSA,x,x,A,x,x,A*hh<CR><LF>)
Cable:	Supplied with 2.5 m multi-core data cable

OPERATIONAL	
Performance:	±0.5° accuracy; 40°sec-1 follow-up rate
Illumination:	White backlighting; Orange pointers
Display:	3-quadrant 250 mm diameter scales marked in 5° increments to 45° Port and 45° Starboard
Error Indication:	Loss of valid data: Pointers park at the far left or right; background illumination flashes
MTBF:	30,000 hours

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
Storage temp:	-25°C to +70°C
RoHS:	Compliant
Magnetic:	Magnetic Permeability: Category 'A'
Compass:	Safe Distance 100 cm

APPROVALS	
Conforms with:	IEC 61162-1; IEC 60945; IEC 62288; ISO 20673 IMO Res. A694 (17); IMO Res. A1021 (26) IMO Res. MSC191 (79)
Type Approval:	Pending

All dimensions in mm



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FEATURES

- IPX6 Weatherproof Marineised Rudder Angle Indicator
- Clear and Easily Readable Dial Display
- Displays Rudder Angle up to 40° Port and Starboard
- Accepts Digital RS422 NMEA 0183 (RSA) data from a Rudder Angle Transmitter
- Bulkhead or Panel Mount Options
- Rotary Dimmer with Push Control

RUDDER INSTRUMENTATION / RUDDER ANGLE INDICATORS

MD67RDI
WEATHERPROOF
DIAL RUDDER ANGLE
INDICATOR

SKU: F067202

OVERVIEW

The MD67RDI is a weatherproof, IPX6-rated, NMEA-based Rudder Angle Indicator. Housed in a robust, compact aluminium enclosure for external or internal use, and is ideal for any vessel.

The MD67RDI provides a clear and easy to read 118 mm diameter analogue display graduated in 1 degree increments. Rudder deflection range: Up to 40 degrees to Port and Starboard. It features a tough polycarbonate faceplate which is user-replaceable and a rotary encoder control for varying the background and pointer illumination.

This unit may be either bulkhead or panel mounted. Finished in jet black to complement other marine navigation equipment.

The MD67RDI from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- External use on a seagoing vessel
- Used to display RSA Rudder Sensor Angle Data transmitted from marine equipment compatible with the NMEA 0183 data protocol
- Two units may be used to display dual rudder positions

ACCESSORIES

- Panel Mounting Kit (Supplied)
- Remote Dimmer Control (0-24 V dc)
- Bulkhead Bracket Mounting Kit
- Sun Shield MD67

RELATED PRODUCTS

- [MD61](#) - Rudder Angle Transmitter
- [MD94DDU](#) - Data Distribution Unit
- The complete range of [Rudder Angle Indicators](#) from Marine Data

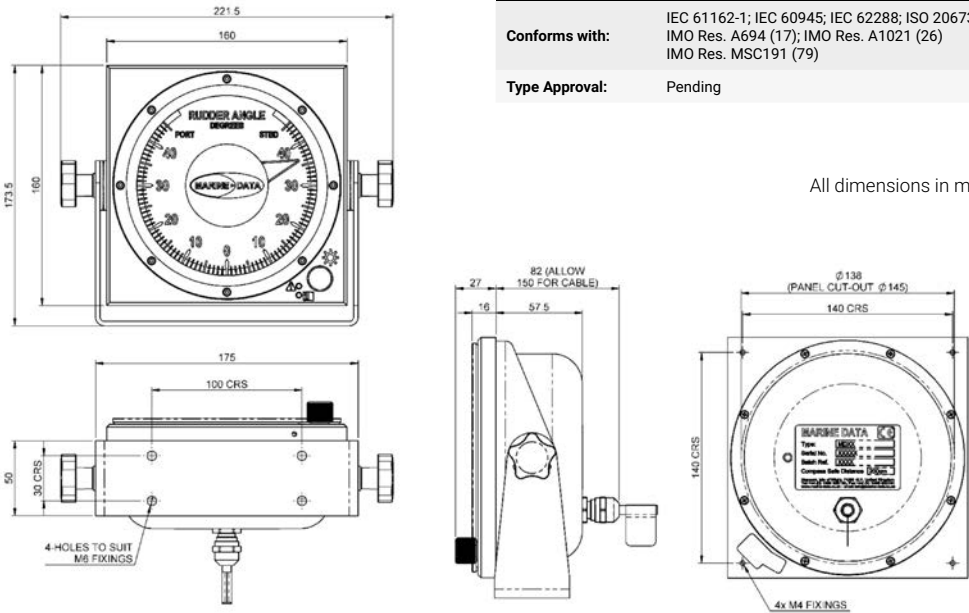
PHYSICAL	
Weight:	1.5 kg (with bulkhead mounting bracket)
Dimensions:	H 174 mm; W 221 mm; D 100 mm (on bracket) Fascia 160 mm x 160 mm; Dial Ø 118 mm
Mounting:	Panel or optional Bulkhead mounted
Connections:	Multicore cable through watertight gland
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V dc (18-32 V) 4 W nominal
Data input:	Digital RS422 NMEA 0183; 4800 / 9600 / 19200 / 38000 Baud; auto-selecting
Data sentence:	RSA (\$-RSA,x,x,A,x,x,A*hh<CR><LF>)
Cable:	2.5 m captive data cable to bare tails

OPERATIONAL	
Performance:	±0.5°/min accuracy; Alignment rate in excess of 40° per second
Dial Illumination:	Backlit white
Display:	Rudder Angle; range 0-40°; scale graduated in 1° increments; full scale deflection 45o
LED Indicators:	Alarm Fault Indication = Red (RD); Set-up Mode = Blue (BU)
Error Indication:	Loss of valid data: Pointer assumes a vertical upward position; flashing red LED

ENVIRONMENTAL	
IP rating:	IPX6
Operating temp:	-15°C to +55°C
Storage temp:	-25°C to +70°C
RoHS:	Compliant
Compass:	Safe Distance 100 cm

APPROVALS	
Conforms with:	IEC 61162-1; IEC 60945; IEC 62288; ISO 20673 IMO Res. A694 (17); IMO Res. A1021 (26) IMO Res. MSC191 (79)
Type Approval:	Pending



All dimensions in mm



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RUDDER INSTRUMENTATION / RUDDER ANGLE INDICATORS

MD77RDI DIAL RUDDER ANGLE INDICATOR

SKU: F077202

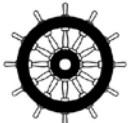
FEATURES

- Clear and Easily Read Dial Display
- Rudder Angle up to 40°
- Automatic warning of lost valid rudder sensor angle data
- Automatic detection of previously lost heading data without a reset being required
- Panel or Bulkhead Mounted
- Accepts NMEA data from a Rudder Angle Transmitter
- Local and Remote Dimming Control
- Supports digital RS422 NMEA 0183

CERTIFICATIONS



GL Type Approved



Wheel Mark 0098-14

OVERVIEW

The MD77RDI is a NMEA-based Rudder Angle Indicator, housed in a robust, compact aluminium enclosure. Fitted with touch panel dimmer control for background and pointer illumination.

The MD77RDI provides a clear and easy to read 118 mm diameter analogue display graduated in 1 degree increments from 45 degrees PORT to 45 degrees STARBOARD.

Compact and rugged, the MD77RDI offers a solution for locations where the available space is limited and may be either bulkhead or panel mounted. Finished in jet black to complement other marine navigation equipment.

The MD77RDI from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- External use on a seagoing vessel
- Used to display RSA Rudder Sensor Angle Data transmitted from marine equipment compatible with the NMEA 0183 data protocol
- Two units may be used to display dual rudder positions

ACCESSORIES

- Panel Mounting Kit (Supplied)
- Bulkhead Bracket Mounting Kit
- Remote Dimmer Control (0-24 V dc)

RELATED PRODUCTS

- [MD61](#) - Rudder Angle Transmitter
- [MD94DDU](#) - Data Distribution Unit
- The complete range of [Rudder Angle Indicators](#) from Marine Data

PHYSICAL	
Weight:	1.25 kg (on bracket)
Dimensions:	H 166 mm; W 200 mm; D 87 mm (on bracket) Fascia 144 x 144 x 6 mm deep; dial Ø 118 mm 140 mm square panel cut out required
Mounting:	Panel or optional Bulkhead mounted
Connections:	1 x data cable to 15-pin D-sub plug
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

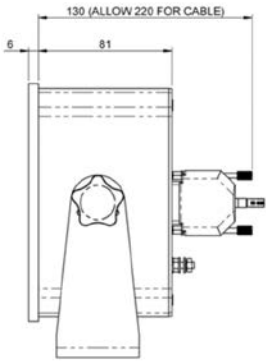
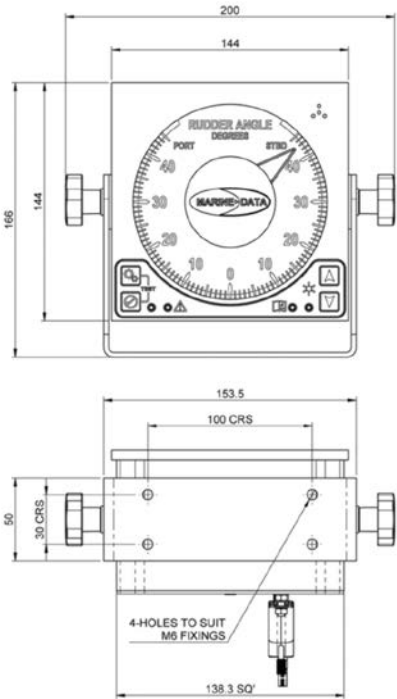
ELECTRICAL	
Power Supply:	24 V to 28 V dc; 10 W
Data input:	Digital NMEA 0183 (IEC61162-1); 4800 baud
Data sentence:	RSA (\$-RSA,x,x,A,x,x,A*hh<CR><LF>)
Cable:	Supplied with 2.5 m multi-core data cable

OPERATIONAL	
Performance:	±0.5° accuracy; 40°sec-1 follow-up rate
Dial Illumination:	Backlit white illumination; Remote Dimmer Control
Display:	Rudder Angle; range 0-40°; scale graduated in 1° increments; full scale deflection 45°
Error Indication:	Loss of Valid Data: Pointer assumes a vertical upward position; flashing red LED (alert condition)

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
Storage temp:	-25°C to +70°C
RoHS:	Compliant
Magnetic:	Magnetic Permeability: Category 'A'
Compass:	Safe Distance 100 cm

APPROVALS	
Conforms with:	IEC 61162-1; IEC 60945; IEC 62288; ISO 20673 IMO Res. A694 (17); IMO Res. A1021 (26) IMO Res. MSC191 (79)
Type Approval:	Germanischer Lloyd (GL) Wheelmark Approved for use as part of the Marine Data RDI System

All dimensions in mm



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RUDDER INSTRUMENTATION / RUDDER ANGLE INDICATORS

MD74RDI/W
WEATHERPROOF
DIGITAL RUDDER
ANGLE INDICATOR

SKU: F074019

FEATURES

- Large Format LCD Digital Display to 0.1°
- Visual LED Bar indicator which shows rudder angle
- Ingress Protected to IPX6
- NMEA 0183 Digital Input
- Local and Remote Dimming Control Compatible
- Panel Mounted or optional Bulkhead Mount

OVERVIEW

The MD74RDI/W is a weatherproof four digit digital Rudder Angle Indicator which accepts NMEA 0183 input, and is accurate to a resolution 0.1°. It also features a visual bar LED indicator to show rudder angle, along with 3 touch membrane buttons for setup.

The Rudder Angle Indicator can be panel mounted (kit included) or bulkhead mounted with an optional adjustable Trunnion Bracket. Internal components are housed within a robust weatherproof aluminium enclosure, rated to IPX6. An IP54 version is also available.

The MD74RDI/W offers a weatherproof Rudder Angle Indicator solution for interior or exterior applications and is finished in RAL7040 Window Grey or RAL9005 Jet Black powder coat paint.

APPLICATIONS

- Displays Rudder Sensor Angle Data transmitted from NMEA 0183 (IEC 61162-1) compatible equipment

ACCESSORIES

- MD74TB - Bulkhead Mounting Kit
- MD74DIM - Remote Dimming Control

RELATED PRODUCTS

- [MD74RDI](#) - Rudder Angle Indicator (IP54)
- The complete range of Marine Data [Rudder Angle Indicators](#)
- [MD61](#) - Rudder Angle Sensor Transmitter

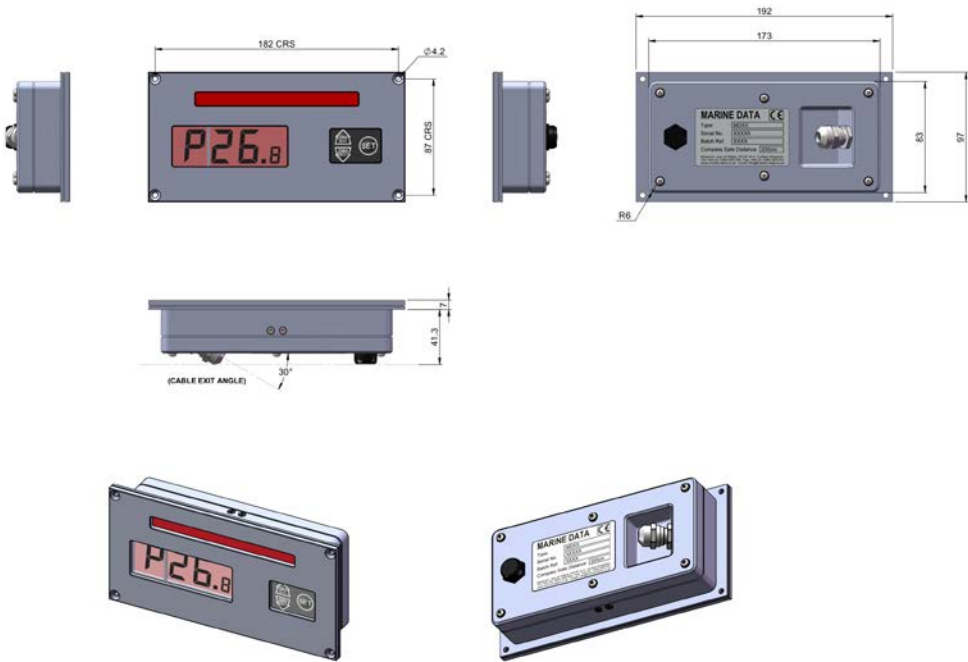
PHYSICAL	
Weight:	1.0 kg
Dimensions:	H 137 mm; W 250 mm; D 57 mm Fascia: 192 x 97 x 6 mm
Mounting:	Panel mount or Bulkhead mount (accessory)
Connections:	2.5 m D-type data cable; M4 earth stud
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	24 V dc (18-32 V) 10 W max
Data input:	Digital RS422 / RS485 NMEA 0183; 4800 Baud
Data sentences:	RSA (\$-RSA,x,x,A,x,x,A*hh<CR><LF>)
Dimming:	0-24 V dc (with respect to supply negative)

OPERATIONAL	
Performance:	± 0.1° accuracy
Display:	Digital Display to 0.1°, Port and Starboard indication
Error Indication:	Loss of valid data: Display flashes

ENVIRONMENTAL	
IP rating:	IPX6 (IP54 option available)
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 60945; IEC 61162-1; ISO 20673
Type Approval:	Pending



All dimensions in mm



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RUDDER INSTRUMENTATION / RUDDER ANGLE SENSORS

MD61 RUDDER ANGLE SENSOR TRANSMITTER

SKU: F061001

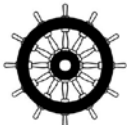
FEATURES

- Ship's Rudder Angle Sensor and Transmitter
- Digital NMEA 0183 Output (IEC 61162-1)
- Analogue Variable Voltage Output - 5 KΩ Potentiometer
- Built-in Rudder Indication LEDs for easy set-up
- Fully Adjustable Rudder Linkage Rod
- Proven Rugged Design

CERTIFICATIONS



GL Type Approved



Wheel Mark 0098-14

OVERVIEW

The MD61 Rudder Angle Transmitter is a Rudder Angle Transducer for providing steering indication. Mounted in the steering compartment, it transmits the vessel's Rudder Angle to a Marine Data Rudder Angle Indicator. The input shaft is mechanically linked to the vessel's rudder stock by a fully adjustable linkage rod (supplied).

The MD61 has dual outputs:

1. Digital NMEA 0183 and
2. Analogue Variable Voltage (via 5 KΩ geared potentiometer)

The Rudder Angle Transmitter is fully sealed and housed in a robust aluminium alloy enclosure. Finished in Window Grey semi-gloss paint to complement other marine navigation equipment.

The MD61 from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Transmits Rudder Angle data to a Marine Data Rudder Angle Indicator, VDR or Auto-Pilot at any convenient location

RELATED PRODUCTS

- [MD94DDU](#) - Data Distribution Unit with Dual NMEA Inputs for Dual Rudder Installations
- The complete range of [Rudder Angle Indicators](#) from Marine Data
- MD/RDI [Rudder Indication System](#) – Wheelmark Approved

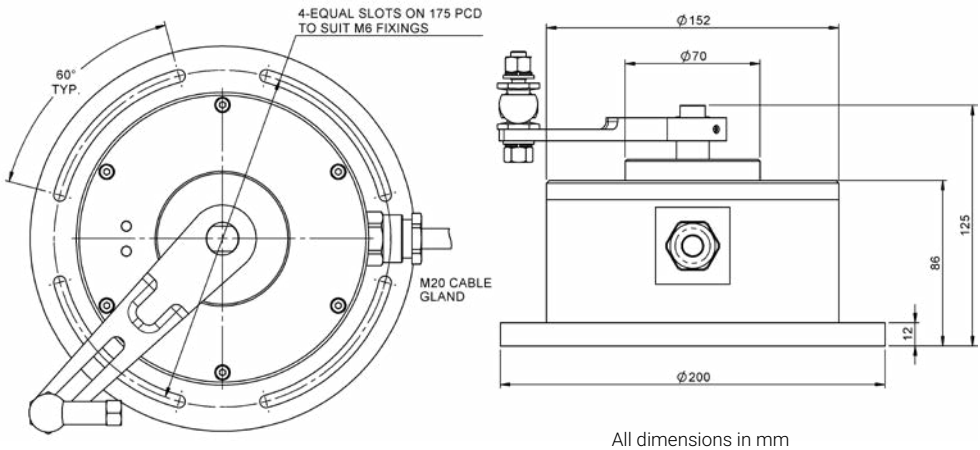
PHYSICAL	
Weight:	4.0 kg (including rudder linkage rod)
Dimensions:	H 125 mm; Ø 200 mm
Linkage Rod:	Adjustment range 270 - 580 mm
Mounting:	4x M6 screws on 175 mm Ø (PCD)
Connections:	12-core captive cable, 2.5 m long
Construction:	Aluminium alloy enclosure
Finish:	RAL7040 Window Grey, semi-gloss

ELECTRICAL	
Power Supply:	24 V dc nominal
Data Input:	Mechanical Linkage to Rudder
Data Sentence:	RSA: (\$-RSA, x.x, a, x.x*hh<CR><LF>)
Data Output:	1x NMEA 0183 (IEC 61162-1) 4800 Baud
1 x 5 KΩ potentiometer (volt free)	
Red & Green LED Rudder Position Indicators	

OPERATIONAL	
Static Accuracy:	± 0.25° accuracy of rudder movement
Working Angular Range:	± 45°
Follow-Up Rate:	>20° per second
Pot. Output:	Midships Position = 2.5 KΩ ± 45° of rotation = 2.38 KΩ (approx.)
Indications:	Red LED = Steering to Port Green LED = Steering to Starboard Both LEDs = Midships Position (000°)

ENVIRONMENTAL	
IP rating:	IP65
Operating temp:	-15°C to +55°C
Humidity:	0% to 100%
RoHS:	Compliant
Compass:	Safe Distance 50 cm

APPROVALS	
Compliance:	IEC 60945; IEC 61162-1; ISO 20673
Type Approval:	Wheel Mark (0098-14) when installed as part of the Marine Data Rudder Angle Indicator System



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FEATURES

- Displays a wide range of ship-related data including Heading, Roll and Pitch - and many others
- Factory configured to your exact requirements
- Firmware customisable and upgradeable
- Rugged and compact design
- Bright, sharp OLED display - easy to observe
- Accepts NMEA 0183 data sentences and others

NAVIGATION DISPLAYS / MULTIFUNCTION DISPLAYS

MD71MFD DIGITAL MULTI-FUNCTION DISPLAY

SKU: F071001

OVERVIEW

The MD71MFD is a compact multi-function Digital Display with a 2.7" OLED Graphic Display and NMEA 0183 (IEC61162-1) input. It is designed to accept data from a variety of sources and display navigational and related ship information in numeric and graphical format. Firmware variants are available to cater for specific information groups, with each variant capable of displaying information from many related sources. Each firmware variant is configurable to customise the display options available to the user.

The MD71MFD has a 2.7" yellow OLED screen which can display alpha-numeric data in 6 font sizes with digits from 3.5 to 20 mm high and display graphic detail.

The MD71MFD from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Displays a wide variety of ship related information, can include: Heading (True or Magnetic), Rate of Turn, Pitch, Roll, Rudder Angle, Propeller rpm, Water Speed, Water Depth, Speed over Ground (SOG), Course over Ground (COG), Position (Lat / Long), Wind Speed, Wind Direction, Air Temperature, Water Temperature, Barometric Pressure – and others. Contact us for details.

ACCESSORIES

- MD71TB - Trunnion Mounting Bracket
- MD01PMD - Remote Rotary Dimmer

RELATED PRODUCTS

- [MD75MFD](#) - Large Format Multi-Function Display
- Transmitting Heading Device (THD) System ([TMC](#) and [EMC](#))

PHYSICAL	
Weight:	0.4 kg
Dimensions:	H 96 mm; W 96 mm; D 35 mm; Allow 80 mm at rear for cable; Fascia 96 x 96 x 6 mm deep
Mounting:	Panel mount (standard); Surface mount (option)
Connections:	1x 15-way D-type connector; M4 Earth stud
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black; fine texture

ELECTRICAL	
Power Supply:	12-24 V dc; 2.5 W max (0.1 A; 24 V dc) Low Power alarm trigger: 9.0 V Low Power alarm cancel: 11.5 V
Data input:	Digital RS422; NMEA 0183 (IEC 61162-1) compliant; 4800 / 9600 / 19200 / 38000 Baud; Auto selecting
Data sentences:	THS, HDT, HDG and HDM; detected on start-up in descending order of priority
Data Output:	Visual OLED Display and Status Indicator Data: RS422 (IEC 61162-1) NMEA 0183 Audible Alarm
Remote Dim:	Optional; 0-24 V dc (with respect to supply negative)
Cable:	Supplied with 2.5 m multicore data cable

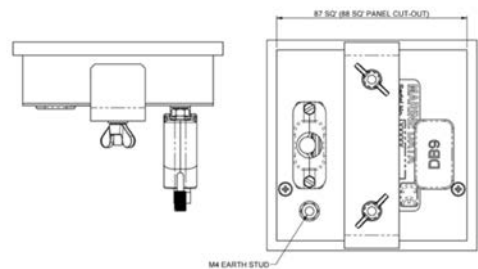
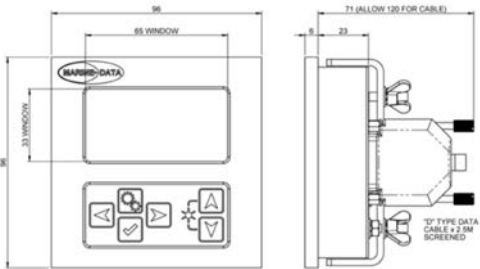
OPERATIONAL	
Performance:	Dependant on received data
Display:	2.7" 128 x 64 Pixel OLED – Yellow
Error Indication:	Flashing Warning Message + Audible Alarm Fixed Warning Message (acknowledged alarm)
MTBF:	30,000 hours

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
Magnetic	Magnetic Permeability: Category 'A'
RoHS:	Compliant
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 60945

ADDITIONAL	
Option:	Custom Functionality; contact us for your exact requirements
Option:	Front panel sealed to IP67 rating
Option:	Alarm solid state relay: 1 A / 60 V rated

All dimensions in mm



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FEATURES

- Displays a wide range of NMEA Ship and Navigational
- Information on one convenient screen
- Large Format, High Contrast TFT Digital Display
- Sunlight Readable with Night / Day Modes
- Factory configurable according to requirements
- Four NMEA 0183 Input Channels
- Easy to use menu-driven displays
- Robust, marinised aluminium housing
- Push / rotary control for easy menu navigation and intuitive setup

NAVIGATION DISPLAYS / MULTIFUNCTION DISPLAYS

MD75MFD DIGITAL MULTI-FUNCTION DISPLAY

SKU: F075003

OVERVIEW

The MD75MFD is a multi-function sunlight readable display capable of accepting a wide range of digital NMEA inputs from a variety of sensor types. In this way, a range of navigation and ship-related parameters may be clearly displayed on one display panel at any location a vessel. The unit is capable of the simultaneous display of different parameters on the same screen.

The MD75MFD offers a multi-function solution for most locations and may be panel mounted or bulkhead mounted with an accessory bracket. Finished in RAL9005 jet black to complement other marine navigation equipment.

The MD75MFD Multi-Function Display from Marine Data: Flexible in application, easy to install and simple to maintain.

A wide range of parameters may be accepted for display:

- | | | |
|--------------------------|--------------------------|---------------------------------------|
| • Heading (True / Mag) | • Course over Ground | • Position LAT / LON |
| • Heading, True | • Shaft Revolutions | • Time (if valid GPS position) |
| • Heading, Magnetic | • Propeller Pitch | • Bearing to Destination (True / Mag) |
| • Rate of Turn | • Rudder Angle | • Range to Destination |
| • Speed through Water | • Depth under keel | • Cross Track Error |
| • Speed over Ground | • Depth below Transducer | |
| • Distance through Water | • Roll | |
| • Distance over Ground | • Pitch | |

APPLICATIONS

- Providing a display of a variety of one or more vessel parameters using a single screen which may be located at any convenient position on a ship

RELATED PRODUCTS

- [MD71MFD](#) - Compact Multifunction Display

PHYSICAL	
Weight:	1.25 kg
Dimensions:	H 183 mm; W 296 mm; D 27 mm Fascia 170 x 235 x 6 mm Panel cut-out required: 204 x 160 mm; 120 mm clearance required behind unit
Display:	7" (178 mm) TFT display, 800 x 480 pixels; Viewing window: 154 x 92 mm; Sunlight readable with night/day colour modes; Status LED indicator
Mounting:	Panel Mount or Bulkhead mount (Accessory)
Connections:	1 x data cable to 25-pin D-sub plug
Construction:	Aluminium alloy enclosure
User Control:	Push / Rotary encoder
Finish:	RAL9005 Jet Black, fine texture

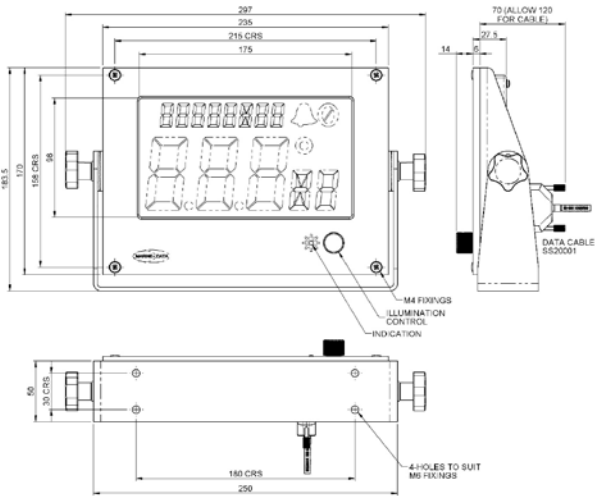
OPERATIONAL	
Performance:	Dependant on sensor or connected data source
Error Indication:	Loss of valid data or power

APPROVALS	
Complies with:	IEC 60945; IEC 61162-1 (IEC 61162-2 compatible) BS EN 62288 (shipboard navigation displays) ISO 20672 (rate of turn indicator mode) ISO 20673 (rudder angle indicator mode)

ELECTRICAL	
Power Supply:	12 - 24 V dc 5 W nominal; main & backup (failover) supply
Data Inputs:	Up to 4 NMEA 0183 data inputs
Data Option:	CAN Bus (see Additional Information)
Data Sentences:	Factory provisioned according to customer requirements. \$xxHDG, \$xxHDT, \$xxHDM, \$xxROT, \$xxVHW, \$xxVTG, \$xxVBW, \$xxVLW, \$xxRPM, \$xxRSA, \$xxDPT, \$xxDBT, \$xxGGA, \$xxGLL, \$xxRMC, \$xxBWR, \$xxBWC, \$xxRMB, \$xxXTE, \$xxXTR, and others – including proprietary sentences. Heading sentences: HDT, HDG and HDM are selected in descending order of priority
Cable:	8 Pair, Shielded Twisted pair (Not Supplied)

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance: 50 cm

ADDITIONAL	
Option:	CAN Bus Connection
Option:	Watertight version MD75MFD/W



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POWER & DATA DISTRIBUTION / DATA DISTRIBUTION

MD94DDU DATA DISTRIBUTION UNIT

SKU: F094053

FEATURES

- Designed for NMEA Data Distribution
- 2x NMEA 0183 Inputs; 9x NMEA 0183 Outputs
- Inputs mappable to Outputs
- Outputs provide Power and Remote Dimmer Connections
- Single / Dual 24 V dc Supply (Main and Backup)
- Rugged Marinised Aluminium Enclosure

CERTIFICATIONS



GL Type Approved

OVERVIEW

The MD94DDU is a NMEA 0183 Data Distribution Unit able to take two independent NMEA 0183 inputs and transmit a buffered NMEA 0183 output to up to nine devices.

The MD94DDU can be daisy chained with another MD94DDU to increase the number of available outputs if required. In this way, digital heading data (ship's heading) or any other NMEA 0183 data may be conveniently relayed to any location on a vessel.

The MD94DDU offers a NMEA 0183 Distribution solution for most locations. Finished in jet black fine texture powder coat paint to complement other bridge marine navigation equipment.

The MD94DDU NMEA Data Distribution Unit from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Allows the Distribution of individually buffered NMEA 0183 signals to multiple devices
- Allows Common Dimming of all connected instruments

ACCESSORIES

- [MD01/PMD](#) - Rotary Remote Dimming Control

RELATED PRODUCTS

- Any NMEA 0183 (IEC61162-1) compliant device
- Transmitting Heading Device (THD) Systems ([TMC](#) and [EMC](#))
- The complete range of Marine Data [Repeaters](#)

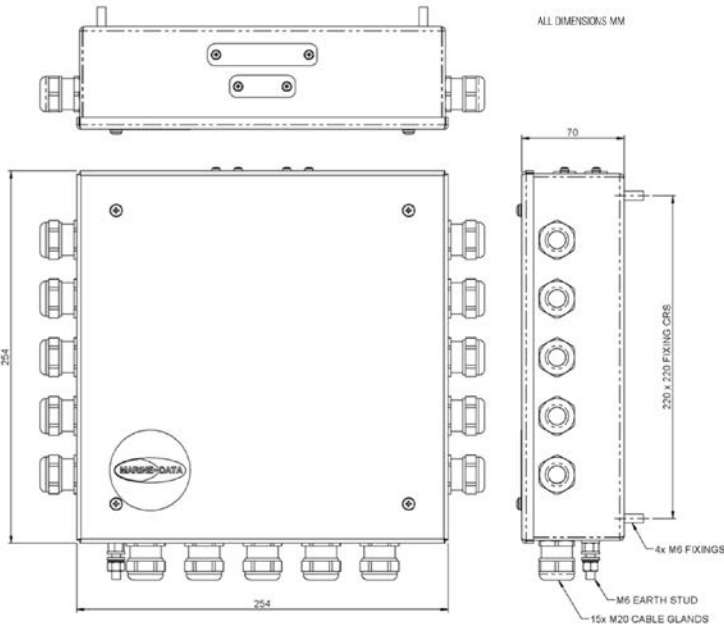
PHYSICAL	
Weight:	1.5 kg
Dimensions:	H 254 mm; W 254 mm; D 70 mm
Mounting:	M6 Fixings on 220 mm sq' centres
Connections:	Multicore cable through M20 watertight gland to internal screw terminals
Construction:	Aluminium alloy enclosure
Finish:	RAL9005 Jet Black, fine texture

ELECTRICAL	
Power Supply:	Single / Dual (Main / Backup) Supplies 24 V dc, 2.5 W nominal (21-31 V dc)
Data Inputs:	2x NMEA 0183 (IEC 61162-1)*
Data Outputs:	9x NMEA 0183 (IEC 61162-1; IEC 61162-2)**
Power Outputs:	24 V dc; 500 mA (max)
Data Sentences:	Re-transmitted as received (Buffered)

OPERATIONAL	
Performance:	NMEA 0183 Distribution with Buffer Function 4800 - 38400 Baud

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
Compass:	Safe Distance: 50 cm

APPROVALS	
Complies with:	IEC 60945; IEC 61162-1; IEC 61162-2
Type Approval:	Germanischer Lloyd (GL)



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POWER & DATA DISTRIBUTION / POWER SUPPLIES

MD04UPS UNINTERRUPTIBLE POWER SUPPLY

SKU: F004013

FEATURES

- Maintains a 24 V dc Power Supply for Vital Ship's Equipment
- Output Current up to 6 A
- Switches from Main 24 V dc Supply to Integral Battery Backup Supply
- Automatic, Uninterrupted Changeover when Main Supply Fails
- Automatic Charge Maintenance of Integral Battery
- UPS Hold-Up Time: 45 minutes* (minimum) at 1 A
- Indicator / Alarm Outputs for Operational Status

OVERVIEW

The MD04UPS is a 24 V dc Uninterruptible Power Supply (UPS) designed to provide a backup supply for vital ship's equipment such as Heading Repeaters, in the event of a main power supply failure.

Housed in a rugged steel enclosure and designed for low maintenance operation, the MD04UPS will supply electrical power to a Marine Data installation for a period of at least 45 minutes* following the loss of the main power supply.

Suitable installations for safeguarding include: Heading Repeaters, Heading Monitors, Compass Comparators, Transmitting Magnetic Compass Systems (TMC) and Rudder Angle Indicator Systems.

The integral battery is automatically recharged once the main power supply is restored.

Indicators show Main Supply Present, Backup Supply in Use and Backup Supply Charge State OK. Indication is visual with provision for an external alarm via a loop circuit (voltage-free switch contacts).

The MD04UPS from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Safeguards the electrical supply of vital ship's equipment

RELATED PRODUCTS

[MD81](#) – 115 V / 230 V ac to 24 V dc Marine power supply

[MD86HCU](#) - Heading Comparator Unit

Transmitting Heading Device (THD) Systems ([TMC](#) and [EMC](#))

The complete range of Marine Data [Heading Repeaters](#) & [Monitors](#)

*Exact backup time may vary, depending on load – The 45 minutes quoted is based on a quantity of 5 Marine Data Repeaters running in highest current consumption mode.

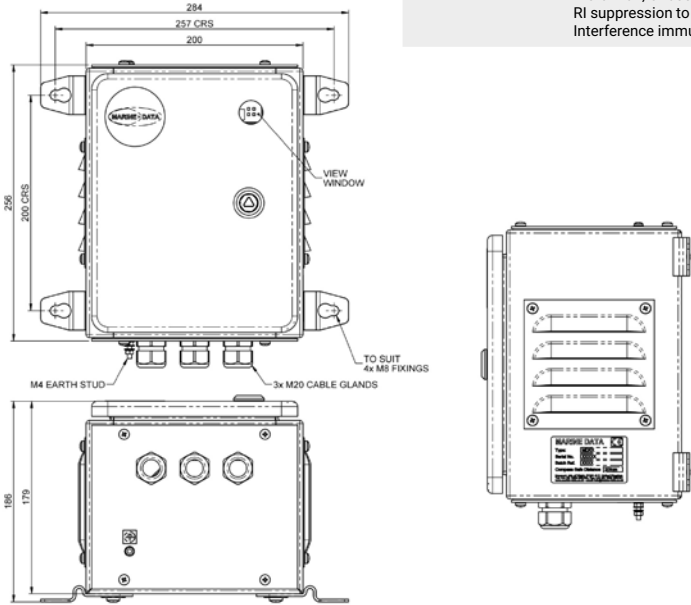
PHYSICAL	
Weight:	8.25 kg
Dimensions:	H 256 mm (excl. cables & glands); W 284 mm (incl. fixings); D 186 mm
Mounting:	Bulkhead mounted
Connections:	1 x Power input cable; 1 x Power output cable; 1 x Status monitoring cable; Internal screw terminals via cable glands
Construction:	Steel enclosure
Finish:	RAL9005 Jet Black, fine texture

ELECTRICAL	
Power Input:	22 V to 29 V dc 6 W (+ output load)
Power Output:	Nominal 24 V dc @ up to 6 A
Status Output:	LED Indication / Volt Free Contacts

OPERATIONAL	
Summary:	Automatic changeover to battery backup supply; Automatic recharging of integral battery; Status and Alarm indications
Performance:	At least 45 minutes backup @1 A load
Display:	LED Indicators; internal via front view window
Indications:	Normal Operation (main supply in use); >85% Charge (battery charged); Floating operation (battery in use); Alarm Signal (battery not ready)

ENVIRONMENTAL	
IP rating:	IP32
Operating temp:	-10°C to +50°C (Ventilation required)
Compass:	Safe Distance: 200 cm

APPROVALS	
Complies with:	Protection Class III to EN60950 IEC 364-4-41 (VDE 0100 Part 410) IEC 536 (VDE 0106 Part 1) EN 60204-1 (VDE 0113 Part 1) IEC 61131; UL508, CSA C22.2 RI suppression to EN55022, limit-value curve B Interference immunity to EN 61000-6-2



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POWER & DATA DISTRIBUTION / POWER SUPPLIES

MD81/24 POWER SUPPLY UNIT

SKU: F081001

FEATURES

- 24 V DC Power from Vessel's Main AC Supply
- 110 V / 220 V ac 50 / 60 Hz Supply
- Automatically Switches to 24 V dc Backup Supply if Main AC Supply Fails
- Alarm Indication if Main AC Supply Fails
- Remote Trigger for an External Alarm
- Rugged, Marineised Aluminium Enclosure
- High surge current capability
- All inputs and outputs are fuse protected
- The main and backup (standby) power supply inputs can be isolated

OVERVIEW

The MD81/24 is a power supply unit which operates from a ship's 110 V / 220 V ac 50 / 60 Hz single phase supply and provides a 24 V dc output. The MD81/24 can also be factory configured to provide 'S' Type 35 V, 50 V or 70 V dc outputs for legacy equipment (option).

The MD81/24 has an automatic changeover facility to switch to the ship's backup (standby) 24 V dc supply in the event of a main power supply failure. The MD81/24 also incorporates a power failure alarm circuit which meets IMO recommendations. Power failure is indicated visually on the front of the enclosure and a relay contact is provided to activate an external alarm system if required.

Constructed in a robust die-cast aluminium enclosure and finished in RAL9005 Jet Black fine texture paint, the MD81/24 is designed to complement existing marine navigation equipment. The MD81/24 is supplied with fixing centres for bulkhead mounting.

The MD81/24 Power Supply from Marine Data: flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Suitable for supplying 24 V dc to ships navigation equipment where security of supply requires the automatic changeover to a backup dc supply in the event of a main ac power failure

RELATED PRODUCTS

- [MD04UPS](#) - Uninterruptible Power Supply
- [MD94DDU](#) - Data Distribution Unit

All Marine Data Navigation Equipment requiring a safeguarded 24 V dc supply

PHYSICAL	
Weight:	2.8 kg
Dimensions:	H 222 mm; W 180 mm; D 133 mm
Mounting:	Bulkhead mounted
Connections:	4x M20 cable glands; M4 earth stud; 2x internal barrier strips
Construction:	Die cast aluminium enclosure
Finish:	RAL9005 Jet Black, fine texture

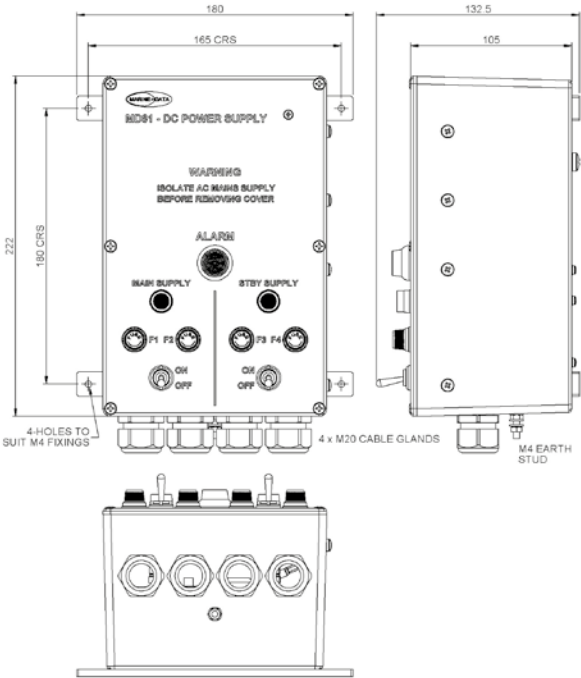
ELECTRICAL	
Type:	Toroidal transformer
Power Input:	24 V dc Backup (Standby) supply; 220 V or 110 V ac; 50 / 60 Hz main power
Power Output:	24 V dc; 4 A Factory options: 35 V, 50 V, 70 V dc
External Alarm:	Volt Free Contacts

OPERATIONAL	
MTBF:	>30,000 hours

ENVIRONMENTAL	
IP rating:	IP42
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance: 200 cm

APPROVALS	
Complies with:	IMO Recommendations

ADDITIONAL	
The trigger circuit for the external alarm sounder is closed loop (volt free) rated at 3 A; 24 V dc	
Normally open (NO) and normally closed (NC) configurations are supported	



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POWER & DATA DISTRIBUTION / INTERFACES

MD34/8/115-90V-400

NMEA TO SYNCHRO

INTERFACE

SKU: F034010

OVERVIEW

The MD34/8/15-90V-400 is a solid-state interface designed to convert ships heading information from NMEA 0183 protocol to 400 Hz Synchro format with a reference voltage of 115 V ac and a single voltage of 90 V line to line (L-L).

The interface accepts a NMEA 0183 (IEC61162-1) \$xxHDT Heading sentence and provides a 16 VA (nominal) output of 115 V ref, 90 V phase 400 Hz Synchro signal.

The MD34/8/15-90V-400 has a fan-less design; the outside of the case is air-cooled by convection. In this way the unit is maintenance free and able to provide environmental sealing to IP65. The unit is flexible in application, easy to install and simple to maintain.

APPLICATIONS

- Convert ships heading information from digital NMEA 0183 protocol to analogue 400 Hz synchro format

RELATED PRODUCTS

- Transmitting Heading Device (THD) Systems ([TMC](#) and [EMC](#))

FEATURES

- Produces a Wide Range of Synchro Ratios from 1:1 to 360:1
- NMEA Digital Input; Selectable Baud Rate
- 115 V ac 400 Hz Supply Input
- 3 Line Synchro Output
- 115 V ac Synchro Reference Output
- Fanless IP65 Marinised Housing
- Variable Input Baud Rate
- Built-in Status Display

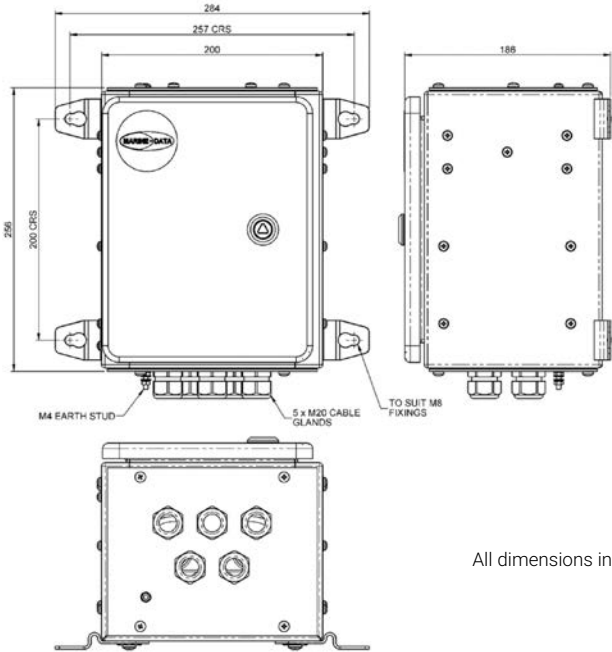
PHYSICAL	
Weight:	5.0 kg
Dimensions:	H 256 mm; W 284 mm; D 186 mm
Mounting:	Bulkhead mounted
Connections:	3 x M20 Cable glands to internal screw terminals; M4 Earth stud
Construction:	Steel enclosure
Finish:	Jet Black RAL9005 fine texture powder coat paint

ELECTRICAL	
Power Supply:	115 V ac 400 Hz (from ship's supply); Nominal power requirement = Output load + 10 watts
Data input:	RS422 NMEA 0183 (IEC61162-1) HDT Sentence; 4800, 9600 or 38400 Baud
Data Output:	Synchro Data Output 115 V ref 90 V phase, 400 Hz, 16 VA nominal total load, 35 VA over-load rating, continuous
Data sentence:	\$xxHDT Heading sentence

OPERATIONAL	
Performance:	±0.25° (at 25°C); ±0.5° (full load and full operating temperature range)
MTBF:	30,000 hours

ENVIRONMENTAL	
IP rating:	IP65
Operating temp:	-10°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 200 cm

APPROVALS	
Conforms with:	IEC 61162-1



All dimensions in mm



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POWER & DATA DISTRIBUTION / INTERFACES

MD36/5/W
WEATHERPROOF
SYNCHRO TO NMEA
INTERFACE

SKU: F036025

OVERVIEW

The MD36/5/W is a Weatherproof, solid-state Synchro to Digital Interface. It converts an AC Synchro-transformer based transmission of ships heading from legacy equipment to a modern IEC61162-1 (NMEA 0183) compliant Digital Transmission format.

Constructed in a robust die cast aluminium enclosure and finished in RAL7040 Window grey semi-gloss powder coat paint, the MD36/5/W is designed to complement other marine navigation equipment. Supplied for bulkhead mounting.

The MD36/5/W Weatherproof Synchro to NMEA Converter from Marine Data, easy to install and simple to maintain.

APPLICATIONS

- The MD36/5/W is suitable for converting from a three-phase synchro transmission format to a digital NMEA 0183 (IEC61162 1) transmission format. This is especially useful for retro-fitting legacy systems with modern equipment requiring a digital transmission of ships heading.
- Suitable for installing in a damp environment

RELATED PRODUCTS

- [MD36/5](#) - Single Channel Synchro to NMEA Interface
- The complete range of Marine Data [Heading Repeaters](#)

FEATURES

- IPX6 Weatherproof Marinised enclosure
- Converts Analogue 3-Phase Synchro to Digital NMEA 0183
- Allows legacy equipment to connect to NMEA systems
- 115 V – 400 Hz Reference Voltage
- 90 V per phase Synchro
- Low Power Consumption
- Compact and Robust

PHYSICAL	
Weight:	1.0 kg
Dimensions:	H 120.4 mm; W 122 mm; D 83 mm
Mounting:	Bulkhead mounted
Connections:	Cable glands: 1x M20, 1x M16; Earth Stud M6
Construction:	Die Cast Aluminium enclosure
Finish:	RAL7040 Window Grey, semi-gloss

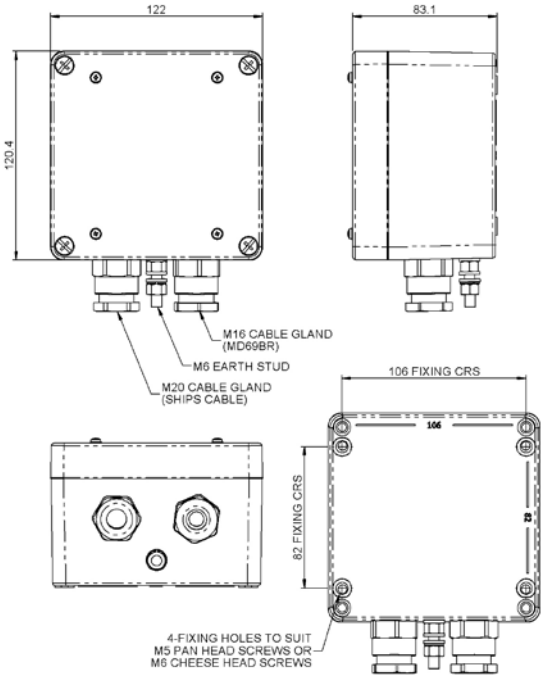
ELECTRICAL	
Power Supply:	24 V dc nominal; 4 W max; (0.12 amps @ 24 V); 18-32 V dc
Data input:	Synchro; 115 V Ref @ 400 Hz 90 V H signal, 3 phases Ratio 1:1 (1 rev = 360 deg)
Data Output:	NMEA 0183 (IEC 61162-1 \$HEHDT,xxx.xx,T*CS<CR><LF> 4800 Baud; 10 messages per second

OPERATIONAL	
Performance:	±0.1° accuracy
MTBF:	>30,000 hours
Error Indication:	Status LEDs on internal PCB Status in NMEA sentence set to 'invalid'

ENVIRONMENTAL	
IP rating:	IPX6
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 60945; IEC 61162-1

ADDITIONAL	
Option:	Custom paint colour and stainless steel cable glands - Subject to MOQ



All dimensions in mm



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POWER & DATA DISTRIBUTION / INTERFACES

MD36/5D DUAL CHANNEL SYNCHRO TO NMEA INTERFACE

SKU: F036028

OVERVIEW

The MD36/5D is a solid-state Dual Channel Synchro to Digital Interface. It simultaneously converts two channels of ac synchro transformer based transmissions of ships heading from legacy equipment into two channels of modern IEC61162-1 (NMEA 0183) compliant digital transmissions.

Constructed in a robust die cast aluminium enclosure and finished in RAL9005 Jet Black fine texture powder coat paint, the MD36/5D is designed to complement existing marine navigation equipment. Bulkhead mounted as standard. Compact and rugged, the MD36/5D offers a compact Synchro to NMEA interface solution for locations where available space is limited.

The MD36/5D Synchro to NMEA Interface from Marine Data, easy to install and simple to maintain.

APPLICATIONS

- Suitable for converting from a three-phase synchro transmission format to a digital NMEA 0183 (IEC61162-1) transmission format. This is especially useful for retro-fitting legacy systems with modern equipment requiring a digital transmission of ships heading

RELATED PRODUCTS

- [MD36/5](#) - Single Channel Synchro to NMEA Interface
- [MD36/5W](#) - Single Channel Weatherproof IPX6 version
- The complete range of Marine Data [Heading Repeaters](#)

FEATURES

- IP Converts 2x Analogue 3-Phase Synchro to 2x Digital NMEA 0183
- Multiplexer to combine 2 channels of NMEA into 1 combined channel NMEA output
- Allows legacy equipment to connect to NMEA systems
- 115 V, 400 Hz Reference Voltage
- 90 V per phase Synchro
- Low Power Consumption
- Compact and Robust

PHYSICAL	
Weight:	1.0 kg
Dimensions:	H 222 mm; W 146 mm; D 55 mm
Mounting:	Bulkhead mounted
Connections:	3x M20 Cable Glands; M4 Earth Stud
Construction:	Aluminium alloy enclosure
Finish:	Jet Black RAL9005 fine texture powder coat paint

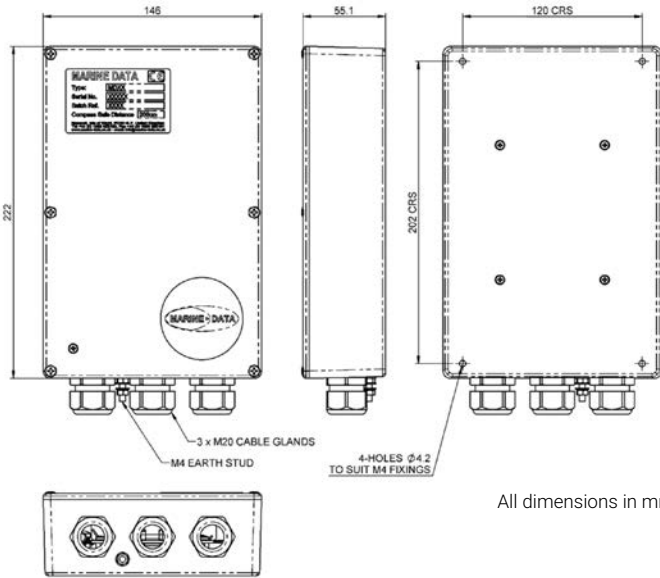
ELECTRICAL	
Power Supply:	24 V dc nominal; 4 W max; (0.12 amps @ 24 V); 18-32 V dc
Data input:	2 Channels of Synchro; 115 V Ref @ 400 Hz 90 V H signal, 3 phases Ratio 1:1 (1 rev = 360 deg)
Data Output:	2 Channels of NMEA 0183 (IEC 61162-1) \$HEHDT,xxx.xx,T*CS<CR><LF> 4800 Baud; 10 messages per second

OPERATIONAL	
Performance:	±0.1° accuracy
MTBF:	30,000 hours
Error Indication:	Status LEDs on internal PCB Status in NMEA sentence set to 'invalid'

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 60945; IEC 61162-1

ADDITIONAL	
Option:	Custom paint colour and stainless steel cable glands
Option:	Enclosure to Customers Application
Option:	Alternative Synchro Attitudes and NMEA sentences
Option:	Other NMEA sentences available on request (Above options subject to MOQ)



All dimensions in mm



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POWER & DATA DISTRIBUTION / INTERFACES

MD36/5 SYNCHRO TO NMEA INTERFACE

SKU: F036027

OVERVIEW

The MD36/5 is a solid-state Synchro to Digital Interface. It converts an AC Synchro-transformer based transmission of ships heading from legacy equipment to a modern IEC61162-1 (NMEA 0183) compliant Digital Transmission format.

Constructed in a robust die cast aluminium enclosure and finished in RAL9005 Jet Black fine texture powder coat paint, the MD36/5 is designed to complement existing marine navigation equipment. Bulkhead mounted as standard. Compact and rugged, the MD36/5 offers a compact Synchro to NMEA interface solution for locations where available space is limited.

The MD36/5 Synchro to NMEA Interface from Marine Data, easy to install and simple to maintain.

APPLICATIONS

- Suitable for converting from a three-phase synchro transmission format to a digital NMEA 0183 (IEC61162-1) transmission format. This is especially useful for retro-fitting legacy systems with modern equipment requiring a digital transmission of ships heading

RELATED PRODUCTS

- [MD36/5W](#) - Waterproof IP65 version
- The complete range of Marine Data [Heading Repeaters](#)

FEATURES

- Converts Analogue 3-Phase Synchro to Digital NMEA 0183
- Allows legacy equipment to connect to NMEA systems
- 115 V, 400 Hz Reference Voltage
- 90 V per phase Synchro
- Low Power Consumption
- Compact and Robust

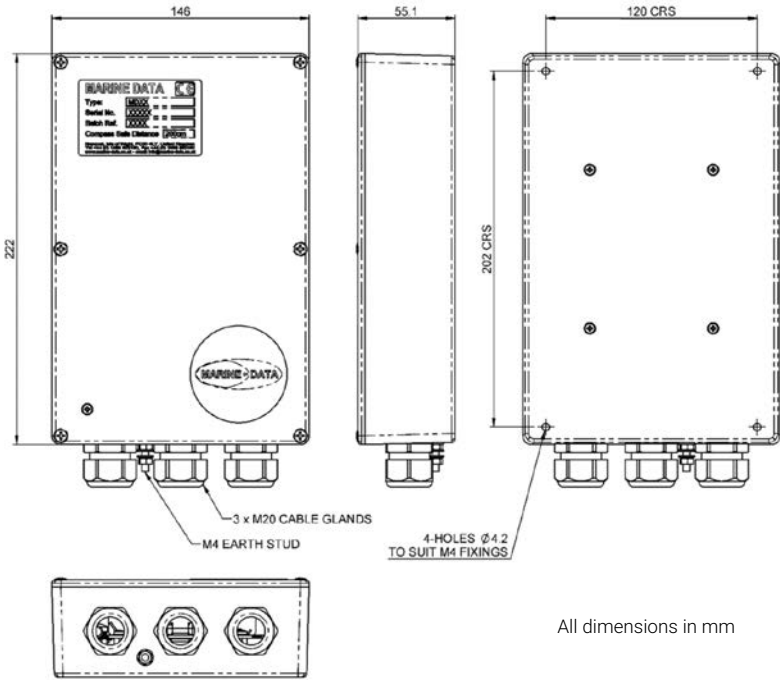
PHYSICAL	
Weight:	1.0 kg
Dimensions:	H 222 mm; W 146 mm; D 55 mm
Mounting:	Bulkhead mounted
Connections:	3x M20 Cable Glands; M4 Earth Stud
Construction:	Aluminium alloy enclosure
Finish:	Jet Black RAL9005 fine texture powder coat paint

ELECTRICAL	
Power Supply:	24 V dc nominal; 4 W max; (0.12 amps @ 24 V); 18-32 V dc
Data input:	Synchro; 115 V Ref @ 400 Hz 90 V H signal, 3 phases Ratio 1:1 (1 rev = 360 deg)
Data Output:	NMEA 0183 (IEC 61162-1) \$HEHDT,xxx.xx,T*CS<CR><LF> 4800 Baud; 10 messages per second

OPERATIONAL	
Performance:	±0.1° accuracy
MTBF:	30,000 hours
Error Indication:	Status LEDs on internal PCB Status in NMEA sentence set to 'invalid'

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 60945; IEC 61162-1



All dimensions in mm



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POWER & DATA DISTRIBUTION / INTERFACES

MD36/6 STEP (S-TYPE) TO NMEA INTERFACE

SKU: F036026

FEATURES

- Converts Legacy STEP to Digital NMEA 0183
- Allows Legacy Equipment to connect to NMEA Systems
- 3 Line STEP Input
- 24-70 V dc STEP Supply, Smoothed or Unsmoothed
- Low Power Consumption
- Compact and Robust

OVERVIEW

The MD36/6 is a solid-state Step (S-Type) to Digital Interface. It converts a DC Step (S Type) transmission of a ship's heading from legacy equipment to a modern NMEA 0183 compliant Digital Transmission format. There is an alignment facility on the unit to align the digital output of the MD36/6 to the incoming heading signal. When suitably adjusted the MD36/6 reads the step input heading to within 1/6° and re-transmits an RS422 output following the NMEA (0183) protocol with no errors.

Constructed in a robust die-cast aluminium enclosure and finished in RAL9005 Jet Black fine texture powder coat paint, the MD36/6 is designed to complement existing marine navigation equipment. Supplied for bulkhead mounting as standard, compact and rugged, the MD36/6 offers a compact Step (S-Type) to NMEA Interface solution for locations where available space is limited.

The MD36/6 Step (S-Type) to NMEA Interface from Marine Data, easy to install and simple to maintain.

APPLICATIONS

- Suitable for converting from any STEP (S-Type) transmission format to a digital NMEA 0183 (IEC61162-1) transmission format
- Especially useful for retro-fitting legacy systems with modern equipment requiring a digital transmission of ships heading

RELATED PRODUCTS

- The complete range of Marine Data [Heading Repeaters](#)

PHYSICAL	
Weight:	1.0 kg
Dimensions:	H 222 mm; W 146 mm; D 55 mm
Mounting:	Bulkhead mounted
Connections:	3x M20 Cable Glands; M4 Earth Stud
Construction:	Aluminium alloy enclosure
Finish:	Jet Black RAL9005, fine texture

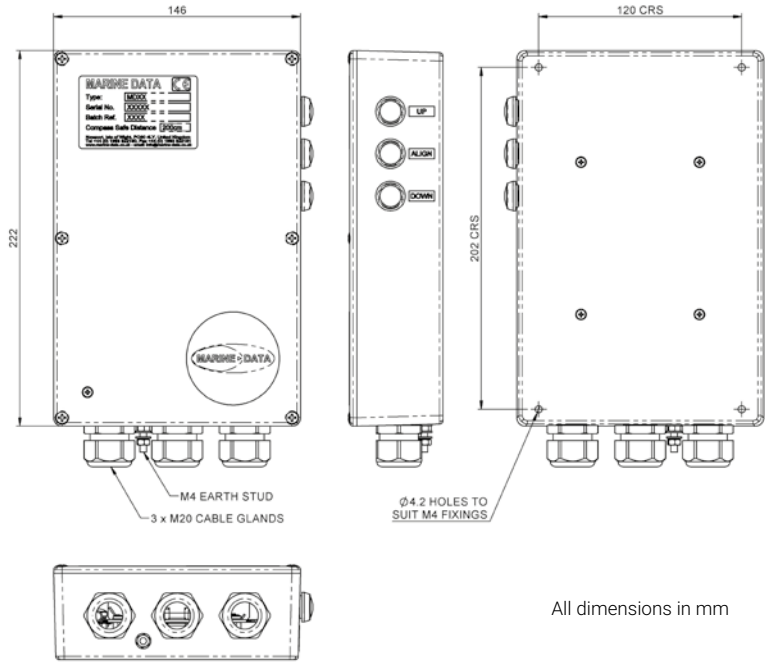
ELECTRICAL	
Power Supply:	24 V dc nominal; 4 W max; (0.12 amps @ 24 V); 18-32 V dc
Data input:	STEP (S-Type) 3 line, common positive or negative 24-70 V dc STEP Supply, smoothed or unsmoothed
Data Output:	NMEA 0183 (IEC 61162-1) \$HEHDT,xxx.xx,T*CS<CR><LF> 4800 Baud; 10 messages per second

OPERATIONAL	
Performance:	1/6° accuracy (limit of STEP signal)
MTBF:	>30,000 hours
Error Indication:	Status LEDs on internal PCB Status in NMEA sentence set to 'invalid'

ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 60945; IEC 61162-1

ADDITIONAL	
Option:	Custom paint colour and stainless steel cable glands - Subject to MOQ



All dimensions in mm



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POWER & DATA DISTRIBUTION / INTERFACES

MD36/8 NMEA TO STEP (S-TYPE) INTERFACE

SKU: F036021

OVERVIEW

The MD36/8 is a solid-state digital NMEA to analogue STEP (S-Type) Interface for applications where there is a need for low power retransmission of digital NMEA heading data to legacy STEP equipment.

It converts a NMEA 0183 (IEC61162-1) compliant digital transmission to a DC STEP (S Type) transmission at 24 V, 35 V or 50 V dc to within 1/6° with no errors.

Supplied for bulkhead mounting as standard, the MD36/8 offers a compact NMEA to STEP (S-Type) Interface solution for locations where available space is limited.

Constructed in a robust die-cast aluminium enclosure and finished in RAL9005 Jet Black fine texture powder coat paint, the MD36/8 is designed to complement existing marine navigation equipment.

The MD36/8 STEP (S-Type) to NMEA Interface from Marine Data, easy to install and simple to maintain.

APPLICATIONS

- The MD36/8 is suitable for converting from digital NMEA 0183 (IEC61162-1) transmission format to any STEP (S-Type) transmission format. This is especially useful for retro-fitting legacy systems with modern equipment requiring a digital transmission of ships heading
- The MD36/8 forms an integral part of Marine Data Heading Repeaters supplied for use with STEP (S-Type) transmission systems

RELATED PRODUCTS

- The complete range of Marine Data [Heading Repeaters](#)

PHYSICAL	
Weight:	1.0 kg
Dimensions:	H 222 mm; W 146 mm; D 55 mm
Mounting:	Bulkhead mounted
Connections:	3x M20 Cable Glands; M4 Earth Stud
Construction:	Aluminium alloy enclosure
Finish:	Jet Black RAL9005 fine texture powder coat paint

ELECTRICAL	
Power Supply:	24 V dc nominal; 5 W nominal; 18-32 V dc
Data input:	Baud Rates: 4800, 9600, 38400 (Auto Select-ing)
Data Output:	24-70 V, Common Negative or Common Positive (Switch Select inside unit) Up to 3A / Line
Step Power:	STEP Power to be provided by installer

OPERATIONAL	
Performance:	1/6° accuracy (limit of STEP signal)
MTBF:	>30,000 hours

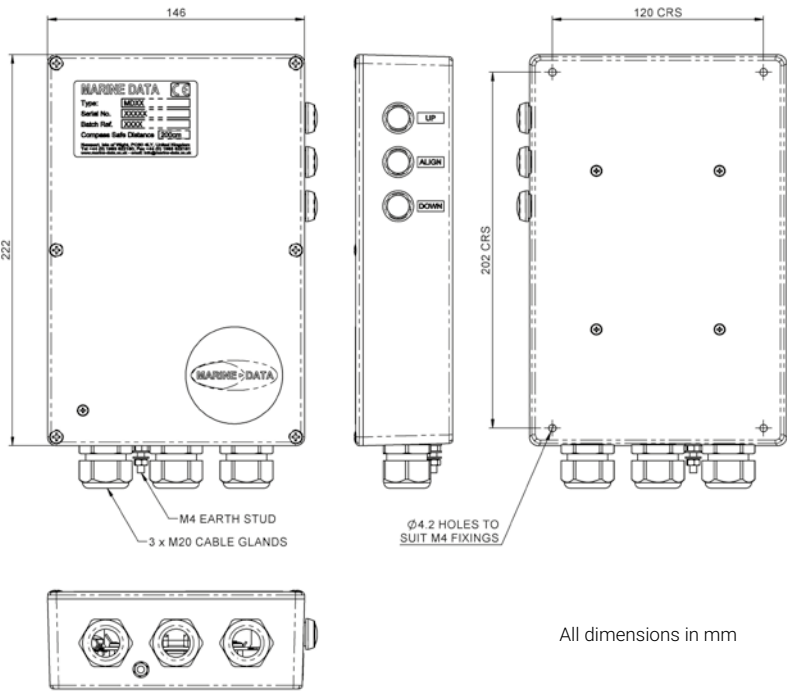
ENVIRONMENTAL	
IP rating:	IP54
Operating temp:	-15°C to +55°C
RoHS:	Compliant
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 60945; IEC 61162-1

ADDITIONAL	
Option:	Custom paint colour and stainless steel cable glands - Subject to MOQ

FEATURES

- Converts Digital NMEA 0183 to Legacy Step (S-Type)
- Allows a NMEA system to connect to Legacy Equipment
- 3 Line Step Output
- High Accuracy
- Low Power Consumption
- Compact and Robust



All dimensions in mm



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FEATURES

- NMEA 0183 and NMEA 2000 compatible
- Redesigned Compact Housing
- Ideal for Small Commercial and Leisure Craft
- Automatic transmission of vessels own position, speed and heading to other vessels within VHF range
- Transmitter off facility to conserve power, or for covert use
- The ability to plot the progress, changes in heading and speed of other AIS vessels on a PC or Chart Plotter
- A method of monitoring the position, speed and heading of other AIS vessels within VHF range

TRANSPONDERS

T200B CLASS B AIS
TRANSPONDER

SKU: 001-1017

OVERVIEW

The T200B is a compact and rugged AIS Transponder, designed for the demands of the small commercial boat, fishing boat and leisure markets. It meets the Class 'B' standard that allows vessels that are not required to fit Class 'A' units to voluntarily fit an AIS Transponder. When connected to an external VHF antenna and a GPS antenna (not supplied), the T200B will transmit its own vessel position and data and receive information from other AIS vessels, shore stations and navigational aids within VHF range.

The unit is initially programmed by the user with the supplied software over a USB interface. The T200B is compatible with a range of computer based navigation programs and chart plotters that can accept AIS data sentences over a NMEA 0183 or NMEA 2000 connection.

APPLICATIONS

- Small commercial boat, fishing boat and leisure markets.
- Meets the Class 'B' international standard that allows vessels that are not required to fit Class 'A' transponders to voluntarily (or otherwise) fit an AIS transponder

RELATED PRODUCTS

- [T200B-S](#) - Class B AIS Transponder with Integral splitter
- [AV100](#) - Stainless Steel Whip Antenna
- [AV300](#) - Fibreglass VHF Antenna
- [AV400](#) - Commercial Antenna for AIS
- [AG100](#) - GPS Antenna

PREVIOUSLY KNOWN AS THE CSB200

PHYSICAL	
Weight:	600 g
Dimensions:	L 135 x W 128 x H 50 mm (excl. connectors & bracket)
Mounting:	To flat surface with supplied trunnion mount
Connections:	Power: 2-core captive cable, 1 m Antenna: SO239 UHF Connector GPS Antenna: TNC Connector Data In/Out: 9-pin D-sub Connector NMEA 2000: 5-pin; 2x Data; 2x 12 V dc Power; 1x Shield USB: USB 2.0 Type B Connector
Construction:	Extruded aluminium alloy
Finish:	Black paint

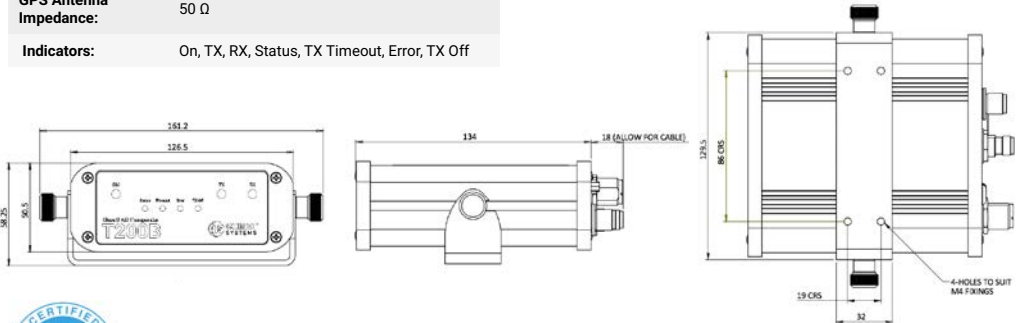
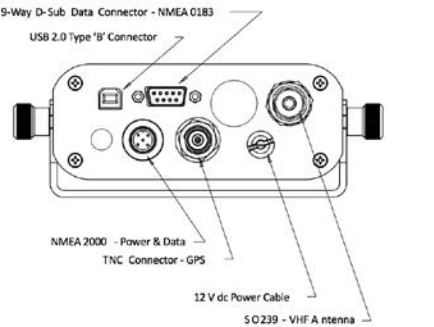
ELECTRICAL	
Power Supply:	12 V dc (9.6 - 15.6 V dc); 500 mA; 4 W nominal
Peak Power:	2 A
Data Output:	NMEA 0183: 38,400 and 4,800 Baud

OPERATIONAL	
VHF Receiver:	Transmitter x1; Receiver x2
VHF Antenna Impedance:	50 Ω
Frequency Range:	156.025 – 162.025 MHz in 25 kHz steps
Channel Bandwidth:	25 kHz
Channel Steps:	25 kHz
Display:	Discrete Indicator LEDs
Data Received:	• Class 'A' and Class 'B' AIS Transmissions • Safety messages • Aids to Navigation
Data Transmitted:	Name of Vessel • MMSI Number • Position • Speed (SOG) • Course (COG) • Type of Vessel • Call Sign • Heading • Vessel Dimensions
GPS Antenna Impedance:	50 Ω
Indicators:	On, TX, RX, Status, TX Timeout, Error, TX Off

ENVIRONMENTAL	
IP Rating:	IP40
Operating temp:	-15°C to +55°C
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 62287-1 Class B; EN-60945; IEC 61162-1; IEC 61108-1; EN 301 843-1 v2.1; EN 50383; EN 60950-1; ITU-RM.1371-1; CE European; BSH Germany

ADDITIONAL	
Supplied:	CSB200 Transponder; trunnion bracket; power, data and programming cables; installation software
Required:	GPS Receive Antenna AG100 for AIS re-transmission of Vessel Position
Required:	AIS Antenna



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FEATURES

- With built-in Antenna Splitter to simplify installation
- NMEA 0183 and NMEA 2000 compatible
- Redesigned Compact Housing
- Ideal for Small Commercial and Leisure Craft
- Automatic Transmission of Vessel's own position, speed and heading to other vessels within VHF range
- A method of monitoring the position, speed and heading of other AIS vessels within VHF range
- Ability to plot the progress, changes in heading and speed of other AIS vessels on a PC or Chart Plotter
- Transmitter OFF facility to conserve power, or for covert use

TRANSPONDERS

T200B-S CLASS B AIS TRANSPONDER WITH INTERNAL SPLITTER

SKU: 001-1019

OVERVIEW

The T200B-S is a compact and rugged AIS Transponder with built-in Antenna Splitter, designed for the demands of the small commercial boat, fishing boat and leisure markets. It meets the Class 'B' standard that allows vessels that are not required to fit Class 'A' units to voluntarily fit an AIS Transponder. When connected to an external VHF antenna and a GPS antenna (not supplied), the T200B-S will transmit its own vessel position and data and receive information from other AIS vessels, shore stations and navigational aids within VHF range.

The built-in Antenna Splitter allows the unit to share a single VHF antenna with a VHF radiotelephone, eliminating the need for a second VHF antenna on the vessel and reducing installation time and cost. Additionally, the unit has an FM radio output for monitoring public service FM radio broadcasts.

The unit is initially programmed by the user with the supplied software over a USB interface. The T200B-S is compatible with a range of computer based navigation programs and chart plotters that accept AIS data sentences over a NMEA 0183 or NMEA 2000 connection.

APPLICATIONS

- Small commercial boat, fishing boat and leisure markets.
- Meets the Class 'B' international standard that allows vessels that are not required to fit Class 'A' transponders to voluntarily (or otherwise) fit an AIS transponder

RELATED PRODUCTS

- [T200B](#) - Class B AIS Transponder (Standard Non-Splitter Version)
- [AV100](#) - Stainless Steel Whip Antenna
- [AV300](#) - Fibreglass VHF Antenna
- [AV400](#) - Commercial Antenna for AIS
- [AG100](#) - GPS Antenna

PREVIOUSLY KNOWN AS THE CSB200-S

PHYSICAL	
Weight:	600 g
Dimensions:	L 135 x W 128 x H 50 mm (excl. connectors & bracket)
Mounting:	To flat surface with supplied trunnion mount
Connections:	Power: 2-core captive cable, 1 m Antenna: SO239 UHF Connector VHF R/T: SO239 UHF Connector GPS Antenna: TNC Connector FM Radio Out: RCA Phono Connector Data In/Out: 9-pin D-sub Connector NMEA 2000: 5-pin; 2x Data; 2x 12 V dc Power; 1x Shield USB: USB 2.0 Type B Connector
Construction:	Extruded aluminium alloy
Finish:	Black paint

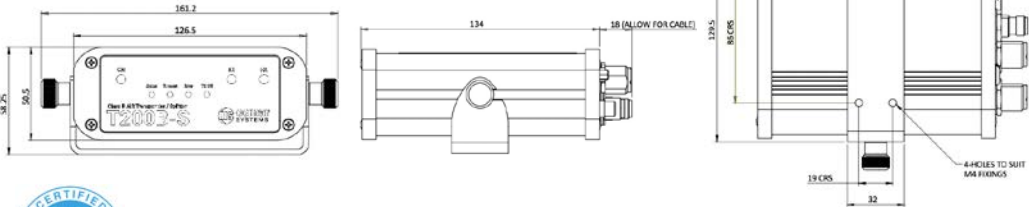
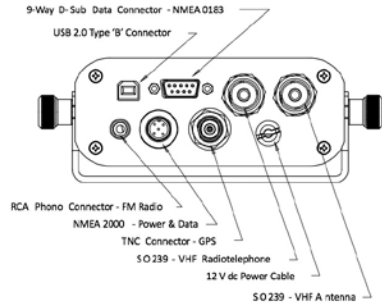
ELECTRICAL	
Power Supply:	12 V dc (9.6 - 15.6 V dc); 500 mA; 4 W nominal
Peak Power:	2 A
Data Output:	NMEA 0183: 38,400 and 4,800 Baud

OPERATIONAL	
VHF Receiver:	Transmitter x1; Receiver x2; one receiver time shared between AIS & DSC
VHF / GPS Antenna Impedance:	50 Ω
Frequency Range:	156.025 – 162.025 MHz in 25 kHz steps
Channel Bandwidth:	25 kHz
Channel Steps:	25 kHz
Display:	Discrete Indicator LEDs
Data Received:	• Class 'A' and Class 'B' AIS Transmissions • Safety messages • Aids to Navigation
Data Transmitted:	• Name of Vessel • MMSI Number • Position • Speed (SOG) • Course (COG) • Type of Vessel • Call Sign • Heading • Vessel Dimensions
Indicators:	On, TX, RX, Status, TX Timeout, Error, TX Off

ENVIRONMENTAL	
IP Rating:	IP40
Operating temp:	-25°C to +55°C
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 62287-1 Class B; EN-60945; IEC 61162-1; IEC 61108-1; EN 301 843-1 v2.1; EN 50383; EN 60950-1; ITU-RM.1371-1; CE European; BSH Germany

ADDITIONAL	
Supplied:	T200B-S Transponder; trunnion bracket; power, data and programming cables; installation software
Required:	GPS Receive Antenna AG100 for AIS re-transmission of Vessel Position
Required:	AIS Antenna



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SPLITTERS

AS300 AIS / VHF
ANTENNA SPLITTER

SKU: 001-1016

OVERVIEW

The AS300 Antenna Splitter from Comar Systems is designed to allow an AIS Class 'B' Transponder or an AIS Receiver to share the main VHF Antenna used by the VHF Radiotelephone, which removes the need and expense of installing an additional VHF antenna. Comar Antenna Splitters are built to the highest standards to ensure that the performance of the connected AIS and VHF Radio equipment is not compromised.

APPLICATIONS

- Enables AIS to be used with an existing installed antenna
- Removes the need and expense of installing a second antenna

ACCESSORIES

- AV100 - Stainless Steel Whip Antenna
- AV400 - Heavy Duty Commercial GRP Antenna

RELATED PRODUCTS

- [T200B](#) - Class B AIS Transponder
- [T200B-S](#) - Class B AIS Transponder with internal splitter

FEATURES

- Allows use of a single VHF Antenna installation shared between AIS and VHF Radiotelephone
- Automatic Routing of AIS or VHF Transmissions
- VHF transmissions have priority over AIS
- Works with an AIS Transponder (Class 'B') or AIS Receiver
- FM Antenna Connection for receiving Public Radio Broadcasts
- Rugged, Marinated Housing
- 12 V dc

PHYSICAL	
Weight:	600g
Dimensions:	L 140 x W 120 x H 50 mm
Mounting:	To flat surface with case brackets
Connections:	Power: 1 m 2-core captive cable Antenna: SO239 UHF Connector VHF Radiotelephone: SO239 UHF Connector AIS Transponder / Receiver: BNC Connector FM Radio: RCA Phono Socket
Construction:	Grey aluminium housing; black end plates

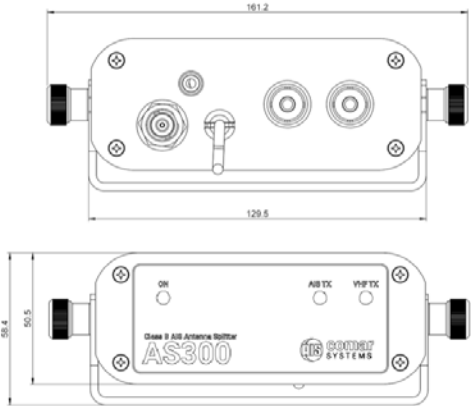
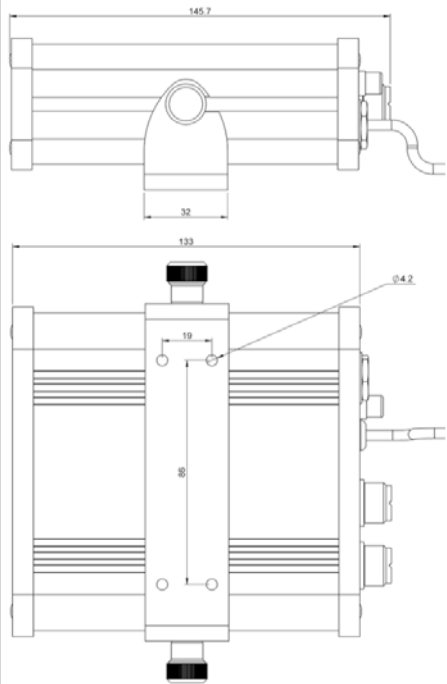
ELECTRICAL	
Power Supply:	12 / 24 V dc
Operating Current:	AIS / VHF Transmit: 135 mA (typical) AIS / VHF Receive: 65 mA (typical)
Antenna Impedance:	AIS / VHF / Antenna: 50 Ω; FM Radio: 75 Ω

OPERATIONAL	
Frequency Range:	156.025 MHz to 162.025 MHz
Sensitivity:	< -112 dBm
Display:	3 Indicator LEDs (ON; AIS TX; VHF TX)
Switching Time:	From Receive to AIS TX or VHF TX: 20 micro-seconds

ENVIRONMENTAL	
IP rating:	IP40
Operating temp:	-15°C to +55°C
Storage temp:	-20°C to +70°C
Operating Humidity:	Up to 93%
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 60945

ADDITIONAL	
Supplied:	AS300 Splitter with Bracket Mount VHF Patch lead; 1 m; with 2x PL259 male connectors AIS Patch lead; 1 m; with 2x BNC male connectors FM Radio: RCA Phono Plug (no cable)
Required:	4x M4 mounting screws



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 PREVIOUSLY KNOWN AS THE AIS-3R



FEATURES

- Dual parallel receivers
- Power & channel LEDs
- USB 2.0 compliant
- Low power consumption
- Compact design
- USB powered
- 12/24 volts dc powered
- NMEA 0183 VDM output
- Built in NMEA multiplexer

RECEIVERS

R200U DUAL CHANNEL
AIS RECEIVER WITH
NMEA & USB OUTPUT

SKU: 001-1034

OVERVIEW

The R200U is a high performance, dual channel AIS receiver, with outputs for both NMEA 0183 and USB. The R200U reads and decodes all AIS messages that are specified and transmitted by AIS Class A and Class B transponders, AIS SARTs and Aids to Navigation. The AIS targets together with all the static and dynamic information received can be displayed on any AIS compatible Chart Plotter or PC navigation program.

The unit can be operated in various modes to suit your application. If connected solely by a USB cable to a PC, the unit is powered by the PC and data is transmitted via the USB cable providing a compact solution. Whilst powered by the USB, NMEA 0183 output is also available from the Power/Data port. NMEA 0183 Input from a GPS can also be connected via the Power / Data port which is multiplexed with the AIS data to provide position information to the PC.

Connecting the unit to external 12/24VDC will automatically power the device from the boat's batteries and provide both USB and NMEA 0183 data.

APPLICATIONS

- A low cost method of monitoring the position, speed and heading of other vessels within VHF range
- Reception from both Class A and Class B vessels, AIS SARTS plus Aids to Navigation (AtoN)
- Compact design and simple installation

RELATED PRODUCTS

[R400N](#) - Network AIS Receiver with Ethernet capability

[R400NG](#) - Network AIS receiver with Ethernet & GPS capability

PHYSICAL	
Weight:	400g
Dimensions:	L 120 mm W 86 mm D 37 mm
Mounting:	To flat surface
Connections:	Power/Data: 6-way Plug and Socket Antenna: PL259 Socket
Construction:	Plastic housing

ELECTRICAL	
Power Supply:	9-30 V dc or USB
Current:	100mA @ 12 V dc
Input:	NMEA 0183 at 4800
Output:	NMEA 0183 at 38,400 or USB

ADDITIONAL
Cable core Colours: RED: Positive (+) Power 12/24V DC BLACK: Negative (-) Power 12/24V DC YELLOW: +NMEA Output GREEN: -NMEA Output BLUE: -NMEA Input WHITE: +NMEA Input R400N receiver

RECEIVED INFORMATION
<ul style="list-style-type: none">• Name of Vessel• MMSI Number• Position• Speed (SOG)• Course (COG)• Type of vessel• Call sign• Heading• Rate of Turn• Navigational Status• Vessel Dimensions• Destination



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PREVIOUSLY KNOWN AS THE SLR350N



RECEIVERS

R400N NETWORK AIS RECEIVER WITH ETHERNET OUTPUT

SKU: 001-1042

OVERVIEW

The R400N provides a method of monitoring the position, speed and heading of AIS vessels within VHF range. It can decode of Class A, Class B, Aids to Navigation, SARTS and all other AIS message types. When connected to a PC using the industry standard RJ45 Ethernet connector, the R400N enables AIS data to be viewed directly, or shared on a local network. The unit can also be mounted at a remote location and AIS data sent via the Internet to a fixed IP address for use on a dedicated server.

The R400N has been specifically designed for use by the professional market and uses Comar's well proven and internationally specified high sensitivity dual channel parallel receiver.

APPLICATIONS

- For shoreside monitoring of shipping by Government bodies
- Managing traffic at local port approaches
- Assisting in Search and Rescue operations
- Locating ships for local tug/supply operators
- Analysing shipping in specific areas
- Monitoring fishing zones
- Feeding data to AIS vessel tracking websites

RELATED PRODUCTS

- [R400NG](#) - Network AIS receiver with Ethernet & GPS
- [R500Ni](#) - Intelligent Network AIS receiver with WIFI
- [R500NGi](#) - Intelligent Network AIS receiver with WIFI & GPS
- [AV200](#) - Base Station Antenna with Ground Plane
- [AV300](#) - Fibreglass VHF Antenna
- [AV400](#) - Commercial Antenna for AIS

FEATURES

- **Industry Grade Dual Channel AIS Receiver**
- **Ideal for land-based monitoring of sea traffic**
- **Comprehensive network capability with Ethernet connectivity**
- **Built-in USB port for local monitoring**
- **Ideal for feeding vessel tracking data to a website or a vessel monitoring server**
- **Rugged plastic housing**
- **Supplied complete with software**

PHYSICAL	
Weight:	350g
Dimensions:	L 132 mm W 106 mm D 46 mm
Mounting:	To flat surface with case brackets
Connections:	RJ45 Ethernet 10 / 100 Base-T; USB 2.0 type B socket; BNC Coaxial to antenna
Construction:	Plastic housing
Finish:	Black plastic, textured

ELECTRICAL	
Power Supply:	12 V dc 3 W nominal (9-30 V dc)
Antenna Impedance:	50 Ω
Network protocols:	TCP/IP, UDP/IP, ARP, ICMP, TFTP, TELNET, DHCP, BOOTP, HTTP and AUTOIP
Data Output:	NMEA 0183; 38,400 Baud; VDM output message

OPERATIONAL	
Frequency	Channel A 161.975 MHz Channel B 162.025 MHz
Sensitivity:	< -112 dBm
Display:	3 Indicator LEDs (Ch A; Ch B; ON)
Data Types Received:	Name of Vessel; MMSI Number; Position; Speed (SOG); Course (COG); Type of Vessel; Call Sign; Heading; Rate of Turn; Navigational Status; Vessel Dimensions; Destination

ENVIRONMENTAL	
IP Rating:	IP40
Operating temp:	-15°C to +55°C
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 61993-2; IEC 60945; EN 61000-6-1 & 2; FCC part 15

ADDITIONAL	
Supplied:	R400N receiver
Supplied:	Universal 100-250 V ac to 12 V dc Power Supply
Supplied:	Installation manual
Supplied:	Network configuration program
Supplied:	Ethernet to com port utility
Supplied:	AIS viewing program
Supplied:	USB to virtual com port utility
Supplied:	PL259 to BNC antenna adaptor
Supplied:	2 m Ethernet cable



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PREVIOUSLY KNOWN AS THE SLR400NG



RECEIVERS

R400NG NETWORK
AIS RECEIVER WITH
ETHERNET & GPS

SKU: 001-1044

OVERVIEW

The R400NG is an AIS receiver unit with built in GPS Receiver and Ethernet interface, designed specifically for coastal monitoring of AIS equipped vessels.

Connected to an Ethernet Network and directly or via a Router to a PC running compatible software, AIS data transmitted from ships within range can be displayed on the screen giving a visual interpretation of the traffic within VHF range. The unit can also be mounted at a remote location and AIS data sent over the Internet to a fixed IP address for use on a dedicated server.

The R400NG has been specifically designed for use by the professional market and uses Comar's well proven and internationally specified high sensitivity dual channel parallel receiver.

APPLICATIONS

- For shoreside monitoring of shipping by Government bodies
- Managing traffic at local port approaches
- Assisting in Search and Rescue operations
- Locating ships for local tug/supply operators
- Analysing shipping in specific areas
- Monitoring fishing zones
- Feeding data to AIS vessel tracking websites

RELATED PRODUCTS

- [R400N](#) - Network AIS receiver with Ethernet Output
- [R500Ni](#) - Intelligent Network AIS receiver with WIFI
- [G500Ni](#) - Intelligent GPS receiver with WIFI
- [AV200](#) - Base Station Antenna with Ground Plane
- [AV300](#) - Fibreglass VHF Antenna
- [AV400](#) - Commercial Antenna for AIS
- [AG100](#) - GPS Antenna

PHYSICAL	
Weight:	600g
Dimensions:	L 130 mm W 105 mm D 46 mm
Mounting:	To flat surface with case brackets
Connections:	RJ45 Ethernet 10 / 100 Base-T; BNC Coaxial to AIS VHF antenna TNC Coaxial to GPS antenna
Construction:	Plastic housing
Finish:	Black plastic, textured

ELECTRICAL	
Power Supply:	12 V dc 3 W nominal (9-30 V dc)
Antenna Impedance:	50 Ω
Network protocols:	TCP/IP, UDP/IP, ARP, ICMP, TFTP, TELNET, DHCP, BOOTP, HTTP and AUTOIP
Data Output:	NMEA 0183; 38,400 Baud; VDM output mes- sage

OPERATIONAL	
Frequency	Channel A 161.975 MHz Channel B 162.025 MHz
Sensitivity:	< -112 dBm
Display:	3 Indicator LEDs (Ch A; Ch B; ON)
Data Types Received:	Name of Vessel; MMSI Number; Position; Speed (SOG); Course (COG); Type of Vessel; Call Sign; Heading; Rate of Turn; Navigational Status; Vessel Dimensions; Destination

ENVIRONMENTAL	
IP Rating:	IP40
Operating temp:	-15°C to +55°C
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 61993-2; IEC 60945; EN 61000-6-1 & 2; FCC part 15

ADDITIONAL	
Supplied:	R400NG receiver
Supplied:	Universal 100-250 V ac to 12 V dc Power Supply
Supplied:	Installation manual
Supplied:	Network configuration program
Supplied:	Ethernet to com port utility
Supplied:	AIS viewing program
Supplied:	USB to virtual com port utility
Supplied:	PL259 to BNC antenna adaptor
Supplied:	2 m Ethernet cable



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FEATURES

- **Designed for commercial land-based monitoring of sea traffic**
- **WiFi and Ethernet network connectivity**
- **Built-in Microcomputer for on-board data processing**
- **Industry Grade Dual Channel AIS Receiver**
- **Built-in HDMI port for a Display Monitor**
- **4 Built-in USB ports for local monitoring**
- **Ideal for feeding vessel tracking data to a website or a vessel monitoring server**
- **Built-in micro-SD card slot for storing the OS and supporting software**

RECEIVERS

R500Ni INTELLIGENT AIS RECEIVER WITH WIFI

SKU: 001-1048

OVERVIEW

The Comar R500Ni with WiFi is an AIS receiver interfaced to an ARMv8 microcomputer. The R500Ni is designed for coastal monitoring applications and is capable of filtering and processing AIS data and forwarding it across a network. In this way, several R500Ni units can be used to form a complete networked monitoring solution for monitoring a port and its approaches.

The unit has both WiFi and Ethernet connectivity, as well as 4 USB ports and an HDMI connector for a monitor display. What makes the R500Ni different from other receivers is that it can be deployed in any AIS network using proprietary software specific to that network and is shipped 'bare bones'.

The R500Ni is designed for use by the commercial market and uses Comar's well proven and internationally specified high sensitivity dual channel parallel receiver.

The R500Ni from Comar Systems: Quite possibly the most flexible and powerful AIS receiver available today.

APPLICATIONS

- For shoreside monitoring of shipping by Government bodies
- Managing traffic at local port approaches
- Assisting in Search and Rescue operations
- Locating ships for local tug/supply operators or security operations
- Analysing shipping in specific areas
- Monitoring fishing zones
- Feeding data to AIS vessel tracking websites

RELATED PRODUCTS

[R500NGi](#) - Intelligent Network AIS & GPS receiver with WiFi

[AV300](#) - Fibreglass VHF Antenna

[AV400](#) - Commercial Antenna for AIS

PREVIOUSLY KNOWN AS THE SLR350Ni

PHYSICAL	
Weight:	400g
Dimensions:	L 135 mm W 80 mm D 39 mm
Mounting:	To flat surface; 2 holes in case bottom
Connections:	Micro USB (Power); RJ45 Ethernet 10 / 100 Base-T; 4x USB 2.0 type B socket; BNC Coaxial to antenna; Micro-SD card slot
Construction:	Plastic housing
Finish:	Black plastic, textured

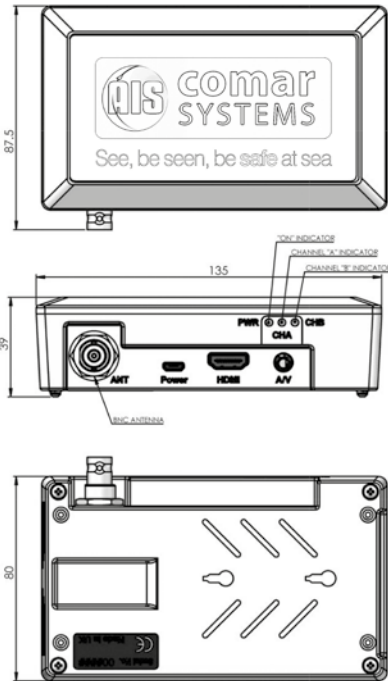
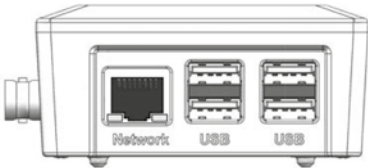
ELECTRICAL	
Power Supply:	5 V dc; 900 – 1200 mA typical
Antenna Impedance:	50 Ω
USB power:	100 mA each port (max)

OPERATIONAL	
Frequency	Channel A 161.975 MHz Channel B 162.025 MHz
Sensitivity:	< -112 dBm
Microcomputer:	Raspberry Pi™ 3 (1.2 GHz 64bit quad-core ARM v8 CPU)
WiFi:	802.11n
Display:	3 Indicator LEDs (Ch A; Ch B; Power ON)
Data Types Received:	Name of Vessel; MMSI Number; Position; Speed (SOG); Course (COG); Type of Vessel; Call Sign; Heading; Rate of Turn; Navigational Status; Vessel Dimensions; Destination and others

ENVIRONMENTAL	
IP Rating:	IP40
Operating temp:	-15°C to +55°C
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 61993-2; IEC 60945; EN 61000-6-1 & 2; FCC part 15

ADDITIONAL	
Supplied:	R500Ni receiver 'bare bones' without software
Option:	Internal GPS module installed via GPIO port



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RECEIVERS

R500NGi INTELLIGENT AIS & GPS RECEIVER WITH WIFI

SKU: 001-1049

FEATURES

- Designed for commercial land-based monitoring of sea traffic
- Multiple devices linked as a monitoring network and forward data for centralised processing
- WiFi and Ethernet network connectivity
- Built-in Microcomputer for on-board data processing
- Industry Grade Dual Channel AIS Receiver and GPS Receiver
- Built-in HDMI port for a Display Monitor
- 4 Built-in USB ports for local monitoring
- Ideal for feeding vessel tracking data to a website or a vessel monitoring server
- Built-in micro-SD card slot for storing the OS and supporting software
- Logging data on internal storage when no network connection is available

RELATED PRODUCTS

- R500Ni - Intelligent Network AIS receiver with WIFI
- G300Ni - Intelligent Network GPS receiver with WIFI
- AG100 - GPS Antenna
- AV300 - Fibreglass Antenna with Universal Base
- AV400 - Commercial Antenna for AIS

OVERVIEW

The R500NGi is a powerful and flexible AIS & GPS receiver with WIFI, interfaced to a ARMv8 microcomputer. Designed for coastal monitoring applications, the R500NGi is capable of filtering, processing and forwarding AIS and GPS data across a network, and be locally monitored by installing compatible chart plotting software on the device.

The unit has both WiFi and Ethernet connectivity, as well as 4 USB ports and an HDMI connector for a monitor display. What makes the R500NGi different from other receivers is that it can be deployed in any AIS network using proprietary software specific to that network and is shipped without software installed as a development platform. Comar also offers standard installation and bespoke data management solutions as optional extras.

The R500NGi is designed for use by the commercial market and uses Comar's well proven and internationally specified high sensitivity dual channel parallel AIS receiver and commercial grade GPS receiver.

The R500NGi from Comar Systems: Quite possibly the most versatile AIS & GPS receiver available today.

APPLICATIONS

- Local shoreside and remote networked monitoring
- Managing traffic at local port approaches
- Assisting in Search and Rescue operations
- Locating ships for local tug/supply operators or security operations
- Analysing shipping in specific areas
- Monitoring fishing zones
- Feeding data to AIS vessel tracking websites
- Remote monitoring of valuable mobile assets.

PHYSICAL	
Weight:	450g
Dimensions:	L 135 mm W 80 mm D 39 mm
Mounting:	To flat surface; 2 holes in case bottom
Connections:	Micro USB (Power); RJ45 Ethernet 10 / 100 Base-T; 4x USB 2.0 type B socket; BNC Coaxial to antenna; TNC Coaxial to GPS antenna; Micro-SD card slot
Construction:	Plastic housing
Finish:	Black plastic, textured

ELECTRICAL	
Power Supply:	5 V dc; 900 – 1200 mA typical
Antenna Impedance:	50 Ω
USB power:	100 mA each port (max)

OPERATIONAL	
Frequency	AIS : Channel A 161.975 MHz AIS : Channel B 162.025 MHz GPS: 1575.42MHz
Sensitivity:	< -112 dBm
Microcomputer:	Raspberry Pi™ 3 (1.2 GHz 64bit quad-core ARM v8 CPU)
WiFi:	802.11n
Display:	3 Indicator LEDs (Ch A; Ch B; Power ON)
Data Types Received:	AIS: Name of Vessel; MMSI Number; Position; Speed (SOG); Course (COG); Type of Vessel; Call Sign; Heading; Rate of Turn; Navigational Status; Vessel Dimensions; Destination and others GPS: Standard - GPRMC GPGGA GPGSA GPGSV Optional - PGRME GPGLL GPVTG PGRMV PGRMF PGRMB PGRMM PGRMT

ENVIRONMENTAL	
IP Rating:	IP40
Operating temp:	-15°C to +55°C
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 61993-2; IEC 60945; EN 61000-6-1 & 2; FCC part 15

ADDITIONAL	
Supplied:	R500NGi receiver (without software)
Option 1:	R500NGi receiver with standard configuration Software
Option 2:	R500NGi receiver with bespoke data management software



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RECEIVERS

G300Ni INTELLIGENT GPS RECEIVER WITH WIFI

SKU: 001-1070

FEATURES

- Industry Grade GPS Receiver
- WiFi and Ethernet connectivity
- Built-in ARMv8 Microcomputer for on-board data processing
- Highly configurable to suit any GPS network
- Ideal for feeding GPS location data to remote networks and databases
- Built-in USB ports for local monitoring
- Built-in HDMI port for connecting a display monitor
- Built-in micro-SD card slot for storing the OS and supporting software
- 4 USB ports

OVERVIEW

The G300Ni Intelligent GPS receiver with WiFi is a GPS receiver interfaced to a ARMv8 microcomputer. The G300Ni is designed as a powerful and flexible platform for remote GPS monitoring applications, able to forward GPS data across a network. Multiple units can be deployed to form a complete monitoring network to report back to your chosen location.

The unit has both WiFi and Ethernet connectivity, as well as 4 USB ports and an HDMI connector for a monitor display. The G300Ni can be supplied pre configured, ranging from simple network setting to bespoke management software solutions, or supplied as a development platform for you to implement your own solution.

The G300Ni with its robust design and commercial grade GPS receiver makes it the perfect choice for monitoring of high value mobile assets.

APPLICATIONS

- Remote monitoring of GPS data via network
- Tracking mobile assets from a central location
- Bespoke data management software for logging and distribution of data developed by Comar Systems
- Development platform for your own software solution
- Logging data on internal storage while no network connection is available

RELATED PRODUCTS

- [AG100](#) - GPS Antenna
- [R500Ni](#) - Intelligent Network AIS receiver with WiFi
- [R500NGi](#) - Intelligent Network AIS & GPS receiver with WiFi

PHYSICAL	
Weight:	400g
Dimensions:	L 135 mm W 80 mm D 39 mm
Mounting:	To flat surface; 2 holes in case bottom
Connections:	Micro USB (Power); RJ45 Ethernet 10 / 100 Base-T; 4x USB 2.0 type B socket; TNC Coaxial to antenna; Micro-SD card slot
Construction:	Plastic housing
Finish:	Black plastic, textured

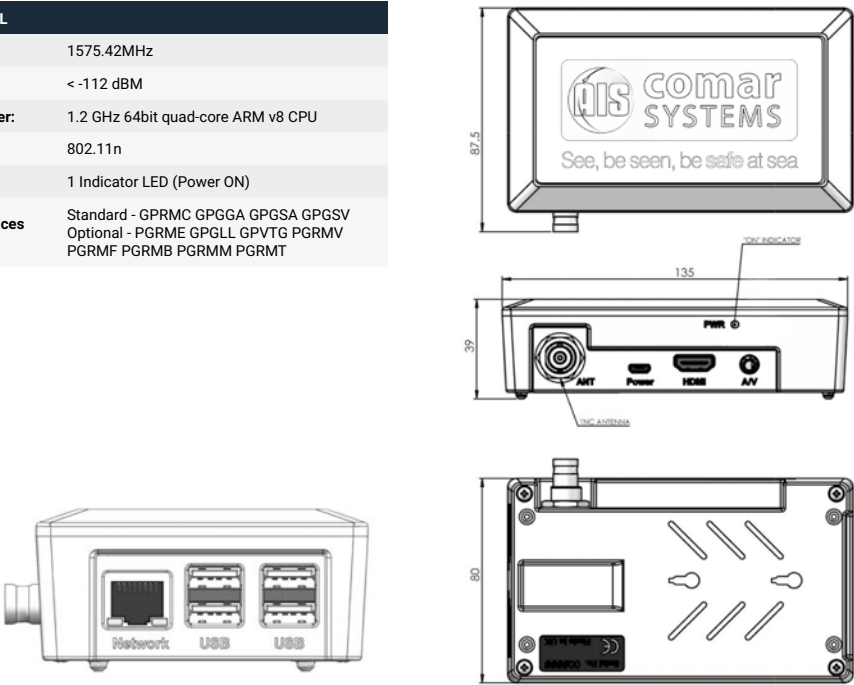
ELECTRICAL	
Power Supply:	5 V dc; 900 – 1200 mA typical
Antenna Impedance:	50 Ω
USB power:	100 mA each port (max)

OPERATIONAL	
Frequency	1575.42MHz
Sensitivity:	< -112 dBm
Microcomputer:	1.2 GHz 64bit quad-core ARM v8 CPU
WiFi:	802.11n
Display:	1 Indicator LED (Power ON)
NMEA Sentences available:	Standard - GPRMC GPGGA GPGSA GPGSV Optional - PGRME GPGLL GPVTG PGRMV PGRMF PGRMB PGRMM PGRMT

ENVIRONMENTAL	
IP Rating:	IP40
Operating temp:	-15°C to +55°C
Compass:	Safe Distance 50 cm

APPROVALS	
Conforms with:	IEC 61993-2; IEC 60945; EN 61000-6-1 & 2; FCC part 15

ADDITIONAL	
Supplied:	G300Ni receiver 'bare bones' without software
Option 1:	G300Ni receiver with standard configuration software
Option 2:	G300Ni receiver with bespoke data management software



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INDEX

COMPASS & HEADING	4
Compass Heading System	4
Bearing Repeaters	6
MD69/21 Pelorus Stand Bearing Compass Repeater	6
MD69/24 Pedestal Stand Bearing Compass Repeater	8
MD69BR Trunnion Mount Bearing Compass Repeater	10
MD69/22 Bulkhead Mount Bearing Compass Repeater	12
MD69BRX Compass Bearing Repeater Bowl for Retrofit	14
MD69BR/BO Bearing Compass Repeater Bowl Only	16
Bearing Repeater Sights	18
MD60A2K Telescopic Alidade for Bearing Compass Repeaters	18
MD69AZI Azimuth Sight for Bearing Compass Repeaters	20
MD69BC Bearing Circle for Bearing Compass Repeaters	22
Compass Dial Repeaters	24
MD67HR Weatherproof Dial Compass Repeater	24
MD77HR Dial Compass Heading Repeater Display	26
MD77HRB Dial Compass Heading Repeater Display	28
MD68HR Large Dual Scale Steering Repeater Display	30
Digital Repeaters	32
MD71HR Digital Compass Heading Repeater Display	32
MD75HR Digital Compass Repeater Display	34
MD74HR/W Weatherproof Digital Compass Repeater Display	36
Tape Repeaters	38
MD73HR/W Weatherproof Tape Compass Heading Repeater	38
MD73SR Submarine Tape Compass Heading Repeater	40
Rate of Turn Repeaters	42
MD67ROT Weatherproof Dial Rate of Turn Indicator	42
MD77ROT Dial Rate of Turn Indicator	44
MD77ROT120 Dial Rate of Turn Indicator	46
TRANSMITTING HEADING DEVICES	48
TMC System	48
MD71TMC Transmitting Magnetic Compass System	48
MD53A/B Magnetic Compass Sensor	50
EMC System	52
MD71EMC Electromagnetic Compass System	52
MD53A/B Electromagnetic Compass	54
GNSS Compass	56
MD203 GNSS Compass & Position Sensor	56

RUDDER INSTRUMENTATION	58
Rudder Angle Indication System	58
Rudder Angle Indicators	60
MD72RDI Panoramic Rudder Angle Indicator	60
MD67RDI Weatherproof Dial Rudder Angle Indicator	62
MD77RDI Dial Rudder Angle Indicator	64
MD74RDI/W Weatherproof Digital Rudder Angle Indicator	66
Rudder Angle Sensors	68
MD61 Rudder Angle Sensor Transmitter	68
MULTIFUNCTION DISPLAYS	70
MD71MFD Digital Multi-Function Display	70
MD75MFD Digital Multi-Function Display	72
POWER & DATA DISTRIBUTION	74
Data Distribution	74
MD94DDU Data Distribution Unit	74
Power Supplies	76
MD04UPS Uninterruptible Power Supply	76
MD81/24 Power Supply Unit	78
Interfaces	80
MD34/8/115-90V-400 NMEA to Synchro Interface	80
MD36/5/W Weatherproof Synchro to NMEA Interface	82
MD36/5D Dual Channel Synchro to NMEA Interface	84
MD36/5 Synchro to NMEA Interface	86
MD36/6 STEP (S-Type) to NMEA Interface	88
MD36/8 NMEA to STEP (S-Type) Interface	90
AUTOMATIC IDENTIFICATION SYSTEMS	92
Transponders	92
T200B Class B AIS Transponder	92
T200B-S Class B AIS Transponder with Internal Splitter	94
Splitters	96
AS300 AIS / VHF Antenna Splitter	96
Receivers	98
R200U Dual Channel AIS Receiver with NMEA & USB Output	98
R400N Network AIS Receiver with Ethernet Output	100
R400NG Network AIS Receiver with Ethernet & GPS Output	102
R500Ni Intelligent AIS Receiver with WiFi	104
R500NGi Intelligent AIS & GPS Receiver with WiFi	106
G300Ni Intelligent GPS Receiver with WiFi	108



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