Raymarine®

SEATALK^NG ALARM BUZZER

Installation instructions

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Software updates

Check the Raymarine website for the latest software releases for your product.
www.raymarine.com/software

Product documentation

The latest versions of all English and translated documents are available to download in PDF format from the website: www.raymarine.com/manuals.
Please check the website to ensure you have the latest documentation.

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Chapter 1: Important information

Warning: Sound pressure levels

This device outputs sound at a high audible level of up to 110dB(A) at a distance of 1m (3.3ft).

It is recommended that the device is installed in a location that is more than 1m (3.3ft) away from personnel at all times. Avoid installing the buzzer at head height.

Warning: Product installation and operation

- This product must be installed and operated in accordance with the instructions provided. Failure to do so could result in personal injury, damage to your vessel and/or poor product performance.
- Raymarine recommends certified installation by a Raymarine approved installer. A certified installation qualifies for enhanced product warranty benefits. Contact your Raymarine dealer for further details, and refer to the separate warranty document packed with your product.

Warning: Switch off power supply

Ensure the vessel's power supply is switched OFF before starting to install this product. Do NOT connect or disconnect equipment with the power switched on, unless instructed in this document.

Warning: Power supply voltage

Connecting this product to a voltage supply greater than the specified maximum rating may cause permanent damage to the unit. Refer to the *Technical specification* section for voltage rating.

Caution: Power supply protection

When installing this product ensure the power source is adequately protected by means of a suitably-rated fuse or automatic circuit breaker.

Water ingress

Water ingress disclaimer

Although the waterproof rating capacity of this product meets the IPX6 standard, water intrusion and subsequent equipment failure may occur if the product is subjected to commercial high-pressure washing. Raymarine will not warrant products subjected to high-pressure washing.

Disclaimer

Raymarine does not warrant that this product is error-free or that it is compatible with products manufactured by any person or entity other than Raymarine.

Raymarine is not responsible for damages or injuries caused by your use or inability to use the product, by the interaction of the product with products manufactured by others, or by errors in information utilized by the product supplied by third parties.

Declaration of Conformity

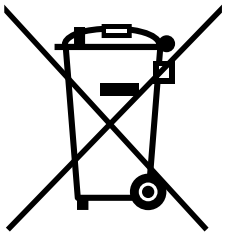
FLIR Belgium BVBA declares that the SeaTalkng ® Alarm buzzer, part number A80614, is in compliance with the EMC Directive 2014/30/EU.

The original Declaration of Conformity certificate may be viewed on the relevant product page at www.raymarine.com/manuals.

Product disposal

Dispose of this product in accordance with the WEEE Directive.

The Waste Electrical and Electronic Equipment (WEEE) Directive requires the recycling of waste electrical and electronic equipment which contains materials, components and substances that may be hazardous and present a risk to human health and the environment when WEEE is not handled correctly.



Equipment marked with the crossed-out wheeled bin symbol indicates that the equipment should not be disposed of in unsorted household waste.
Local authorities in many regions have established collection schemes under which residents can dispose of waste electrical and electronic equipment at a recycling center or other collection point.
For more information about suitable collection points for waste electrical and electronic equipment in your region, refer to the Raymarine website: www.raymarine.eu/recycling.

Warranty registration

To register your Raymarine product ownership, please visit www.raymarine.com and register online.

It is important that you register your product to receive full warranty benefits. Your unit package includes a bar code label indicating the serial number of the unit. You will need this serial number when registering your product online. You should retain the label for future reference.

IMO and SOLAS

The equipment described within this document is intended for use on leisure marine boats and workboats NOT covered by International Maritime Organization (IMO) and Safety of Life at Sea (SOLAS) Carriage Regulations.

Technical accuracy

To the best of our knowledge, the information in this document was correct at the time it was produced. However, Raymarine cannot accept liability for any inaccuracies or omissions it may contain. In addition, our policy of continuous product improvement may change specifications without notice. As a result, Raymarine cannot accept liability for any differences between the product and this document. Please check the Raymarine website (www.raymarine.com) to ensure you have the most up-to-date version(s) of the documentation for your product.

Chapter 2: Document and product information

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- 2.1 Document information on page 12
- 2.2 Product overview on page 14

2.1 Document information

This document contains important information related to the installation of your Raymarine product.

The document includes information to help you:

- plan your installation and ensure you have all the necessary equipment;
- install and connect your product as part of a wider system of connected marine electronics;
- troubleshoot problems and obtain technical support if required.

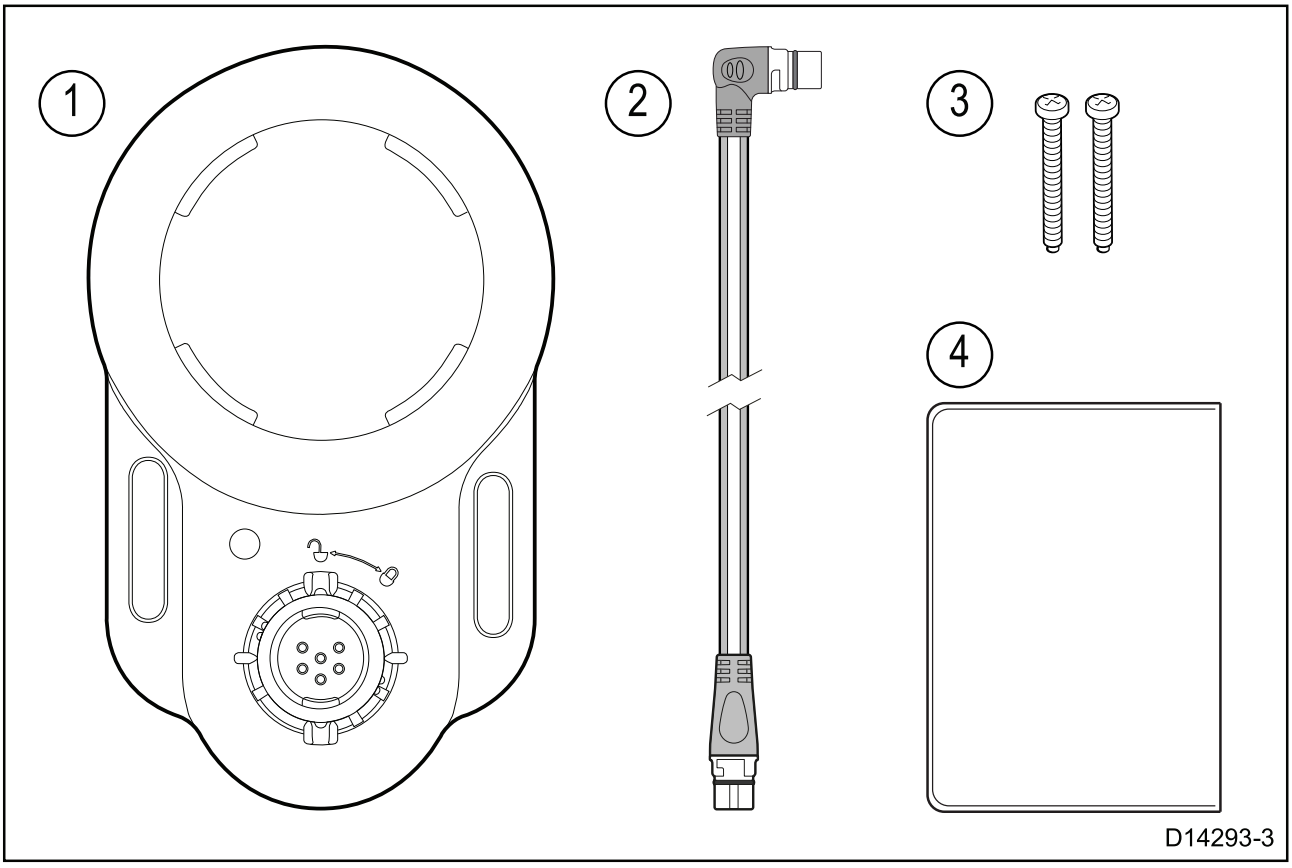
This and other Raymarine product documents are available to download in PDF format from www.raymarine.com/manuals.

Applicable products

Part number	Description
A80614	SeaTalkng ® Alarm buzzer

Parts supplied

The parts supplied with the buzzer are shown below.



1. SeaTalkng ® Alarm buzzer
2. SeaTalkng ® Elbow spur cable 0.4 m (1.3 ft)
3. Mounting screws
4. Installation instructions

Software updates

The software running on the product can be updated.

- Raymarine periodically releases software updates to improve product performance and add new features.
- The software on many products can be updated using a connected and compatible multifunction display (MFD).

- Refer to www.raymarine.com/software/ for the latest software updates and the software update procedure for your specific product.

Important:

- To prevent potential software-related issues with your product, always follow the relevant update instructions carefully and in the sequence provided.
- If in doubt as to the correct procedure for updating your product software, refer to your dealer or Raymarine technical support.

Caution: Installing software updates

The software update process is carried out at your own risk. Before initiating the update process ensure you have backed up any important files.

Ensure that the unit has a reliable power supply and that the update process is not interrupted.

Damage caused by an incomplete update is not covered by Raymarine warranty.

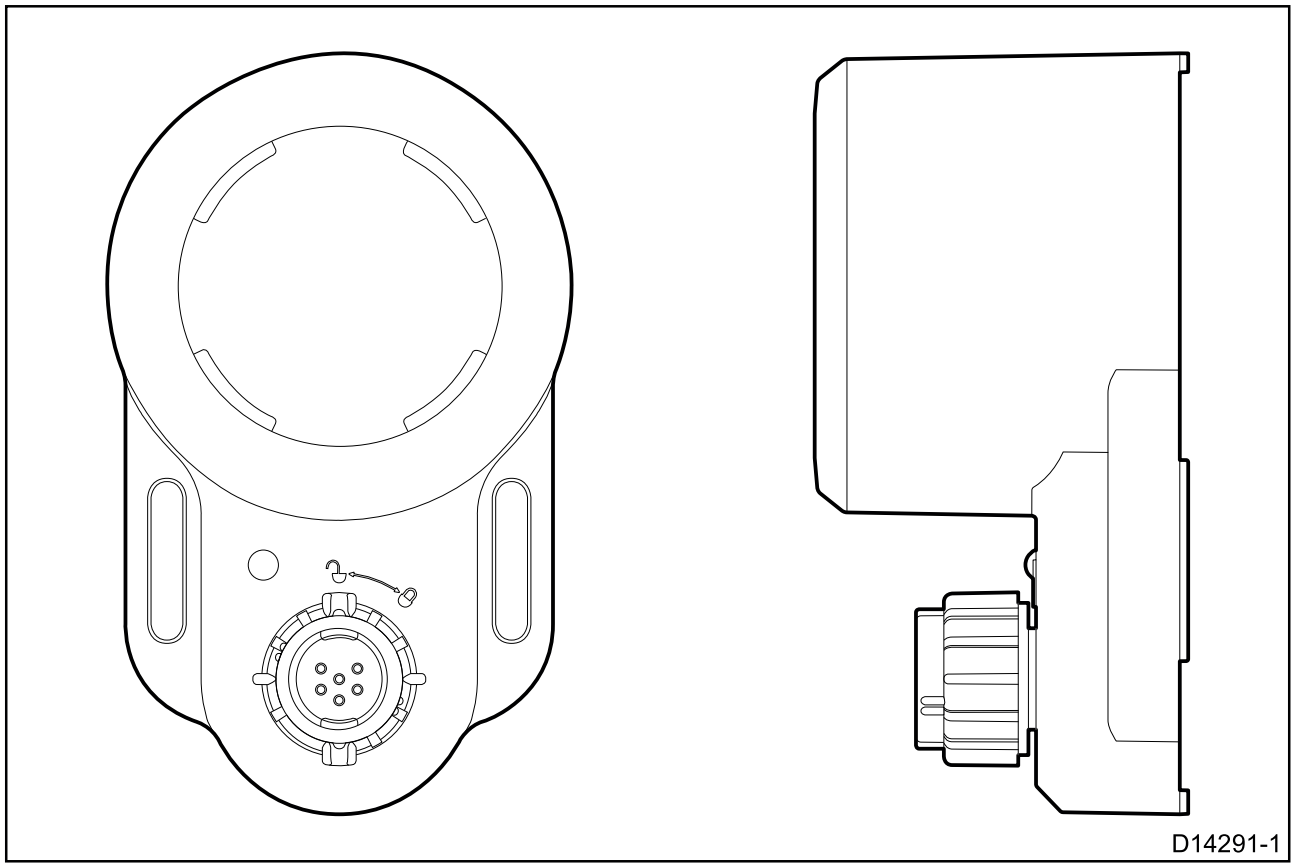
By downloading the software update package, you agree to these terms.

2.2 Product overview

The SeaTalkng ® Alarm buzzer accessory is a remote SeaTalkng ® alarm repeater, designed to complement existing and new systems.

The buzzer uses an audible alarm (> 85dB(A)) to repeat SeaTalkng ® and NMEA 2000 alarms generated by devices on the SeaTalkng ® network. The buzzer connects to a spur connection on your SeaTalkng ® bus (backbone or 5-way connector), which also supplies the power for the buzzer.

Note: A compatible MFD or i70 / i70s instrument is required to relay NMEA 2000 alarms to the buzzer.



Compatibility

The SeaTalkng ® Alarm buzzer is compatible with the following LightHouse™ powered MFDs.

- eS Series
- gS Series
- Axiom
- Axiom Pro
- Axiom XL

MFDs require LightHouse™ 3 software release 3.7 or later for full buzzer compatibility. Lighthouse™ 2 and Lighthouse™ 3 software release 3.6 or before will not be fully supported by the buzzer.

Chapter 3: Installation

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- 3.1 Warnings and cautions on page 16
- 3.2 Installation checklist on page 17
- 3.3 Location requirements on page 18
- 3.4 Product dimensions on page 19
- 3.5 Tools required on page 20

3.1 Warnings and cautions

Important: Before proceeding, ensure that you have read and understood the warnings and cautions provided in the Chapter 1 **Important information** section of this document.

3.2 Installation checklist

Installation includes the following activities:

	Installation Task
1.	Plan your system.
2.	Obtain all required equipment and tools.
3.	Site all equipment.
4.	Route all cables.
5.	Drill cable and mounting holes.
6.	Make all connections into equipment.
7.	Secure all equipment in place.
8.	Power on and test the system.

Schematic diagram

A schematic diagram is an essential part of planning any installation. It is also useful for any future additions or maintenance of the system. The diagram should include:

- Location of all components.
- Connectors, cable types, routes and lengths.

3.3 Location requirements

Location considerations.

When choosing a location for the product, consider the following points to ensure reliable and trouble-free operation:

- **Access** — there must be sufficient space to enable cable connections to the product, avoiding tight bends in the cable.
- **Audible** — Mount the unit in a location where it will be heard easily when activated. However, be aware that the buzzer is loud, avoid installing in a location that is at head height.
- **Breather holes** — Mount the unit in a location that allows space between the product and its mounting surface for the breather hole on the rear of the unit. For more information, refer to: **Mounting pre-requisite: "breather" hole**
- **Electrical interference** — the product should be mounted far enough away from any equipment that may cause interference such as motors, generators and radio transmitters / receivers.
- **Magnetic compass** — refer to the *Compass safe distance* section in this document for advice on maintaining a suitable distance between this product and any compasses on your vessel.
- **Power** — to keep cable runs to a minimum, the product must be located as close as possible to the vessel's dc power supply.
- **Mounting surface** — ensure the product is adequately supported on a secure surface. Refer to the weight information provided in the *Technical specification* for this product and ensure that the intended mounting surface is suitable for bearing the product weight. Do NOT mount units or cut holes in places which may damage the structure of the vessel. To maximise the performance of the audible buzzer it is recommended that the unit is mounted in a vertical orientation.

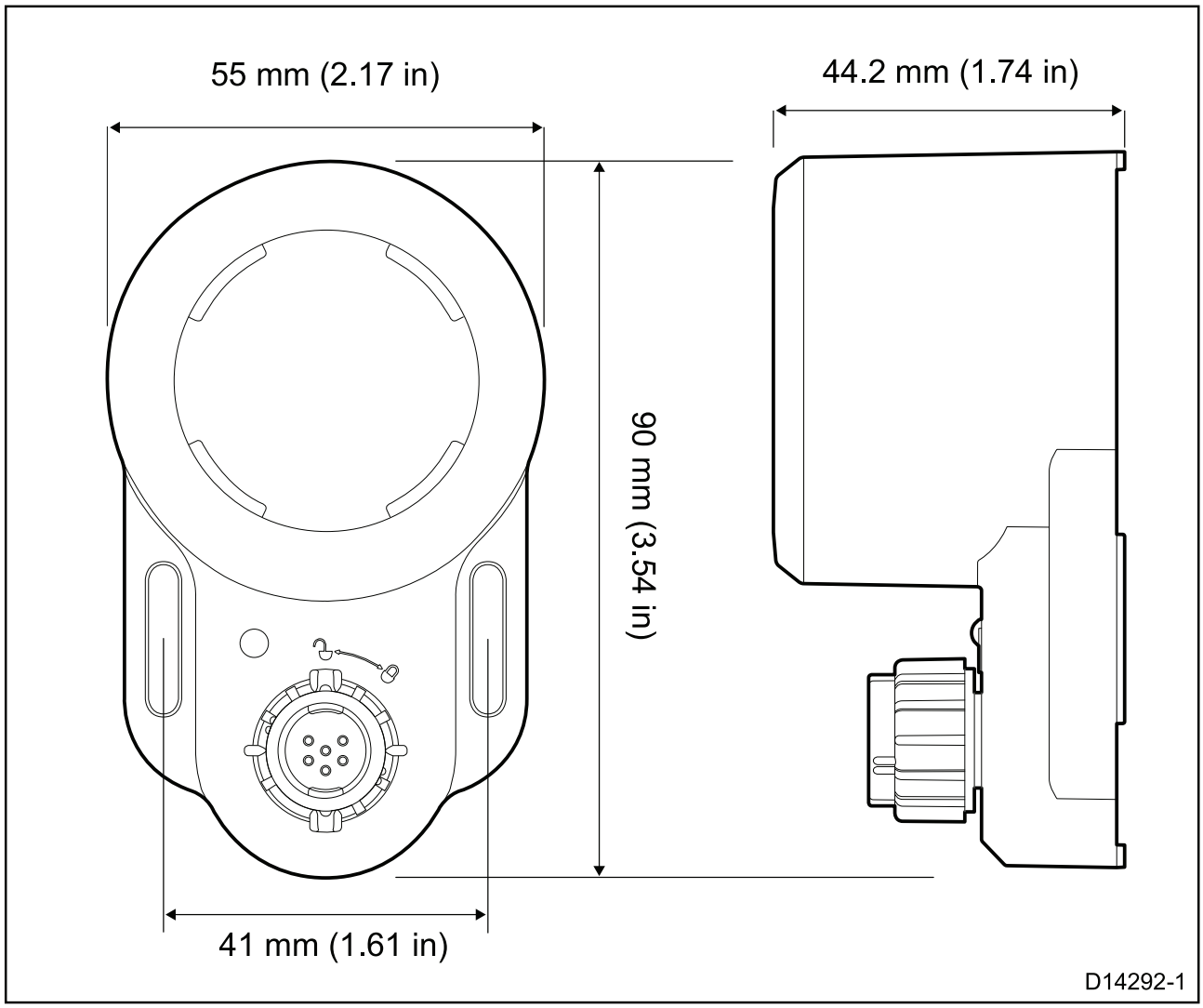
Mounting pre-requisite: "breather" hole

The rear of the unit incorporates a "breather" hole by the label, which allows air to circulate between the rear of the unit and the mounting surface.

Ensure that the breather is not blocked in any way. Examples of obstacles to airflow include sealant and paint.

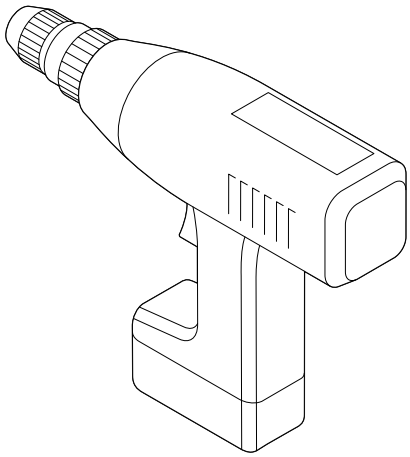
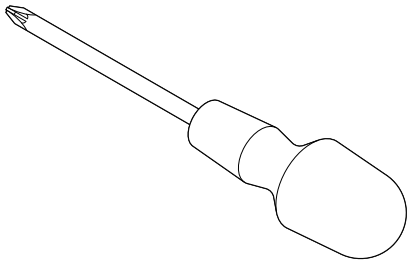
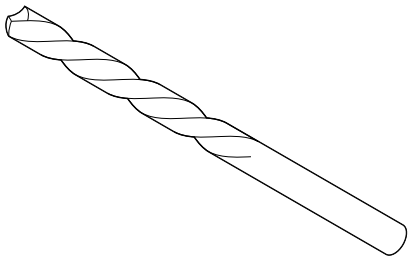
If necessary, use additional washers to allow a small gap between the underside of the unit and the mounting surface, for airflow.

3.4 Product dimensions



3.5 Tools required

Product installation requires the following tools:

Item	Description	Quantity
	Power drill	1
	Pozidrive screwdriver	1
	Drill bit of appropriate size*	1

Note: * The appropriate drill bit size is dependent on the thickness and material of the mounting surface.

Chapter 4: Cables and connections

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- 4.1 General cabling guidance on page 22
- 4.2 Connections overview on page 24
- 4.3 SeaTalkng ® power supply on page 25
- 4.4 Buzzer connection overview on page 31
- 4.5 Buzzer connections on page 32

4.1 General cabling guidance

Cable types and length

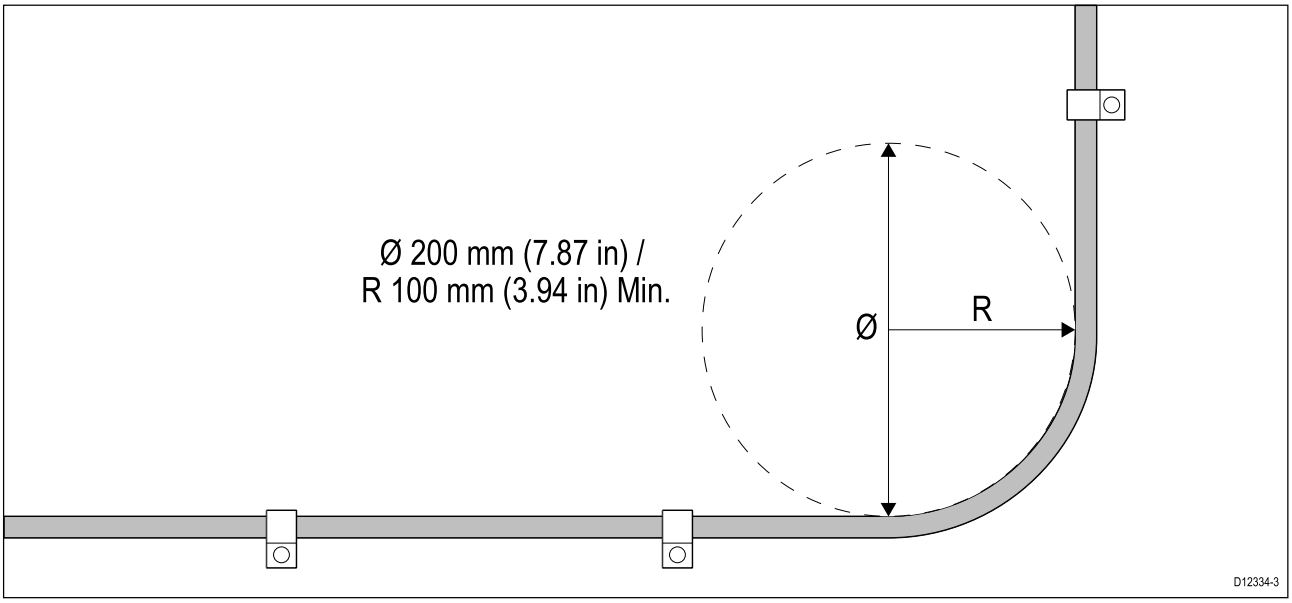
It is important to use cables of the appropriate type and length

- Unless otherwise stated use only standard cables of the correct type, supplied by Raymarine.
- Ensure that any non-Raymarine cables are of the correct quality and gauge. For example, longer power cable runs may require larger wire gauges to minimize voltage drop along the run.

Routing cables

Cables must be routed correctly, to maximize performance and prolong cable life.

- Do NOT bend cables excessively. Wherever possible, ensure a minimum bend diameter (Ø) of 200 mm (7.87 in) / minimum bend radius (R) of 100 mm (3.94 in).



- Protect all cables from physical damage and exposure to heat. Use trunking or conduit where possible. Do NOT run cables through bilges or doorways, or close to moving or hot objects.
- Secure cables in place using cable clips or cable ties. Coil any extra cable and tie it out of the way.
- Where a cable passes through an exposed bulkhead or deckhead, use a suitable watertight feed-through.
- Do NOT run cables near to engines or fluorescent lights.

Always route data cables as far away as possible from:

- other equipment and cables,
- high current carrying AC and DC power lines,
- antennas.

Strain relief

Ensure adequate strain relief is provided. Protect connectors from strain and ensure they will not pull out under extreme sea conditions.

Cable shielding

Ensure that all cables are properly shielded and that the cable shielding is undamaged.

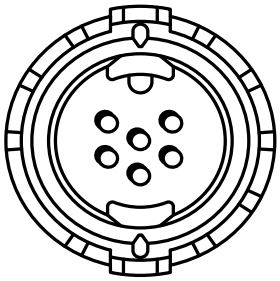
Suppression ferrites

- Raymarine cables may be pre-fitted or supplied with suppression ferrites. These are important for correct EMC performance. If ferrites are supplied separately to the cables (i.e. not pre-fitted), you must fit the supplied ferrites, using the supplied instructions.
- If a ferrite has to be removed for any purpose (e.g. installation or maintenance), it must be replaced in the original position before the product is used.

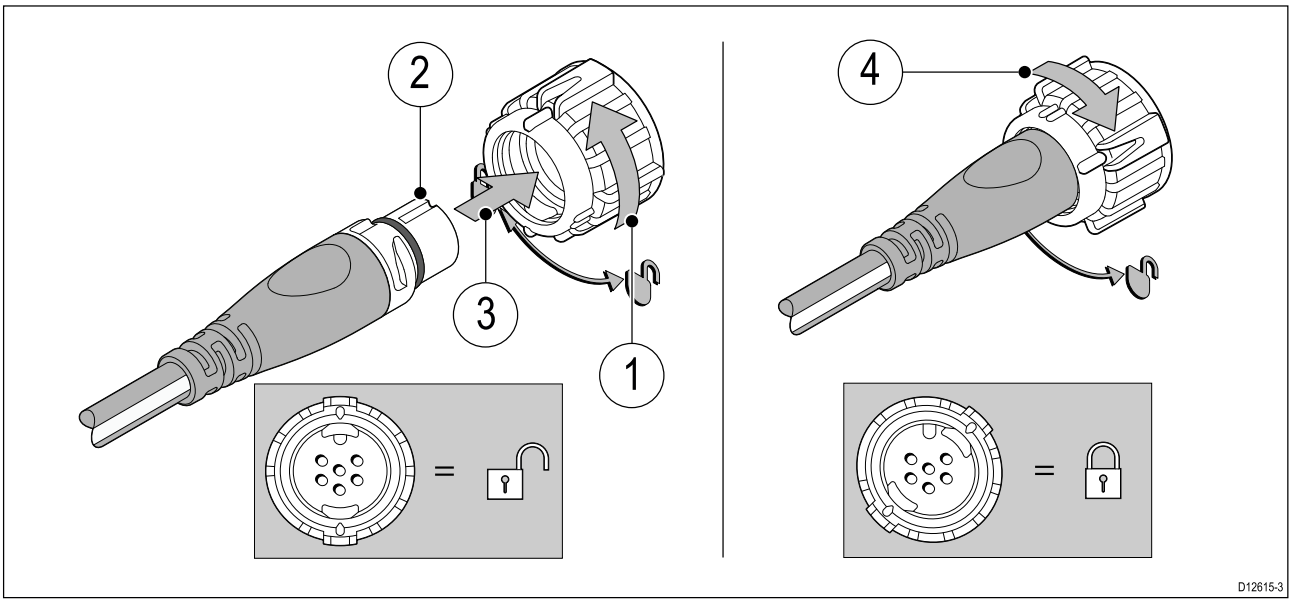
- Use only ferrites of the correct type, supplied by Raymarine or its authorized dealers.
- Where an installation requires multiple ferrites to be added to a cable, additional cable clips should be used to prevent stress on the connectors due to the extra weight of the cable.

4.2 Connections overview

Your product includes the following connectors.

Connector	Qty	Connects to:	Suitable cables
	1	1. **SeaTalk ng** backbone 2. **NMEA 2000** backbone	1. **SeaTalk ng** spur cables 2. **SeaTalk ng** to **DeviceNet** adaptor cable (A06045)

Connecting SeaTalkng ® cables



1. Rotate the locking collar so it is in the unlocked position.
2. Ensure the cable's connector is correctly oriented.
3. Fully insert the cable connector.
4. Rotate locking collar clockwise (2 clicks) until it is in the locked position.

SeaTalkng ® product loading

The number of products that can be connected to a SeaTalkng ® backbone depends on the power consumption of each product and the physical overall length of the backbone.

SeaTalkng ® products have a Load Equivalency Number (LEN), which indicates the product's power consumption. The LEN for each product can be found in the product's Technical Specification.

4.3 SeaTalkng ® power supply

Power is supplied to the product over the SeaTalkng ® backbone.

A SeaTalkng ® backbone requires only one 12 V dc power supply, connected to the SeaTalkng ® backbone. This can be provided by one of the following:

- a battery (1), via the distribution panel;
- an Autopilot Control Unit (ACU)(2);
- an SPX course computer (2);
- for 24 V vessels a 5 amp, regulated, continuous 24 V dc to 12 V dc converter is required.

Note:

- (1) The battery used for starting the vessel's engine(s) should NOT be used to power the SeaTalkng ® backbone, as this can cause sudden voltage drops when the engines are started.
- (2) The ACU-100, ACU-150 or SPX-5 products cannot be used to power the SeaTalkng ® backbone.

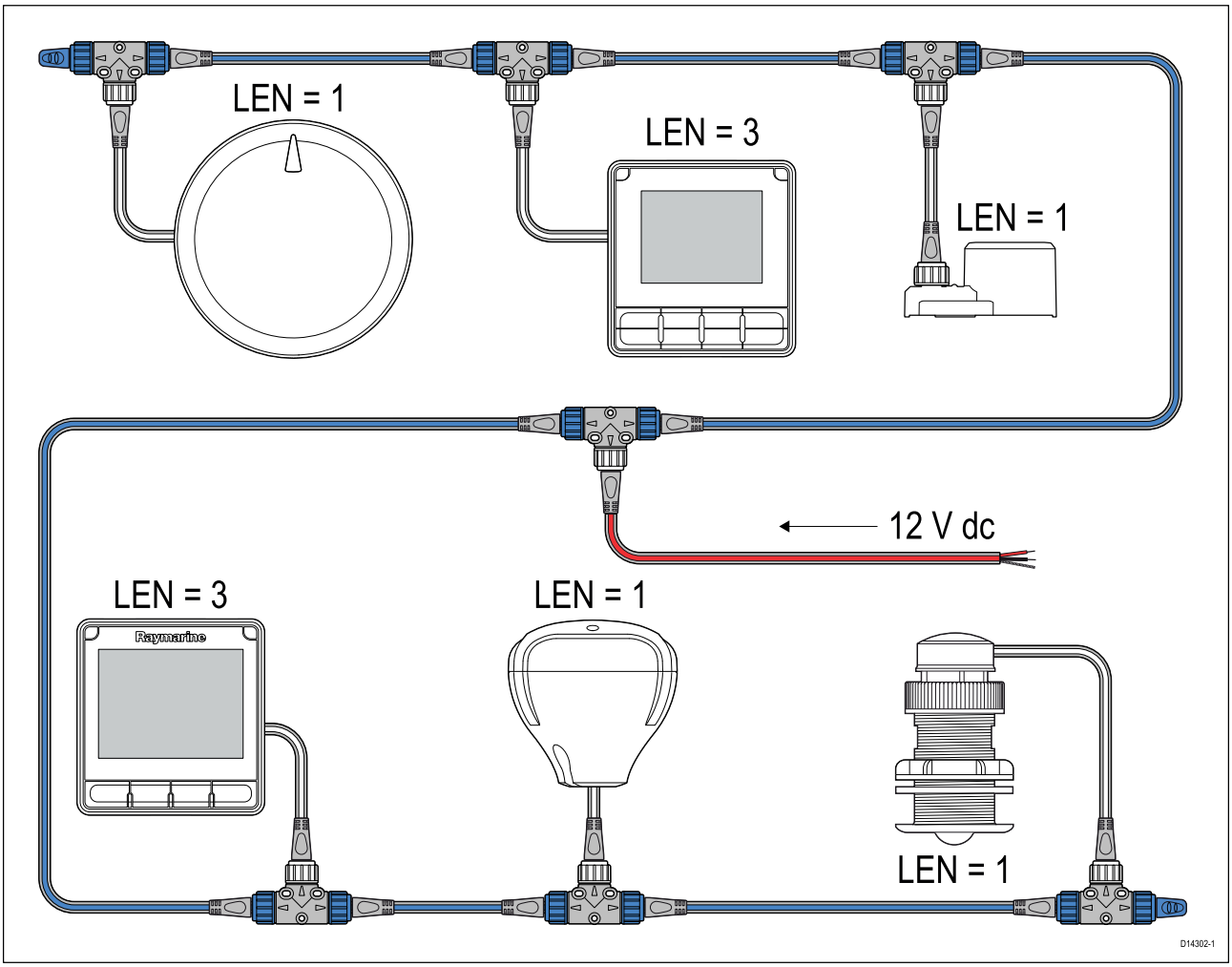
SeaTalkng ® power connection point

Small systems

If the backbone length is 60 m (197 ft) or less, the power connection point may be connected at any point in the backbone.

Large systems

If the backbone length is greater than 60 m (197 ft), the power connection point should be connected at a point that creates a balanced current draw from each side of the backbone. The Load Equivalency Number (LEN) is used to determine the power connection point for the system.



In the example above the system has an overall LEN of 10, so the optimum connection point would be to have 5 LEN either side of the connection point.

In-line fuse and thermal breaker ratings

The SeaTalkng ® network's power supply requires an in-line fuse or thermal breaker to be fitted.

In-line fuse rating	Thermal breaker rating
5 A	3 A (refer to note below)

Note:

The suitable fuse rating for the thermal breaker is dependent on: 1) How many devices you have connected to your SeaTalkng ® network; and 2) How many devices are sharing the same thermal breaker that your SeaTalkng ® network is connected to.

SeaTalkng ® system loading

The maximum loading / LEN for a SeaTalkng ® system depends on the length of the backbone.

Loading type	Backbone length	Total LEN
Unbalanced	20 m (66 ft)	40
Unbalanced	40 m (131 ft)	20
Unbalanced	60 m (197 ft)	14
Balanced	60 m (197 ft) or less	100
Balanced	80 m (262 ft)	84
Balanced	100 m (328 ft)	60
Balanced	120 m (394 ft)	50
Balanced	140 m to 160 m (459 ft to 525 ft)	40
Balanced	180 m to 200 m (591 ft to 656 ft)	32

Power distribution — SeaTalkng ®

Recommendations and best practice.

- Only use approved SeaTalkng ® power cables. Do NOT use a power cable designed for, or supplied with, a different product.
- See below for more information on implementation for some common power distribution scenarios.

Important:

When planning and wiring, take into consideration other products in your system, some of which (e.g. sonar modules) may place large power demand peaks on the vessel's electrical system.

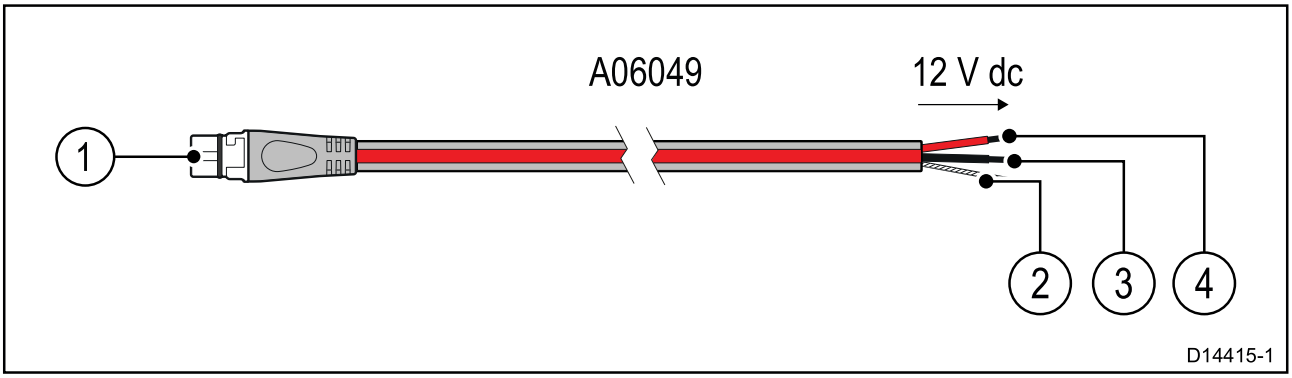
Note:

The information provided below is for guidance only, to help protect your product. It covers common vessel power arrangements, but does NOT cover every scenario. If you are unsure how to provide the correct level of protection, please consult an authorized Raymarine dealer or a suitably qualified professional marine electrician.

SeaTalkng ® power cable (A06049)

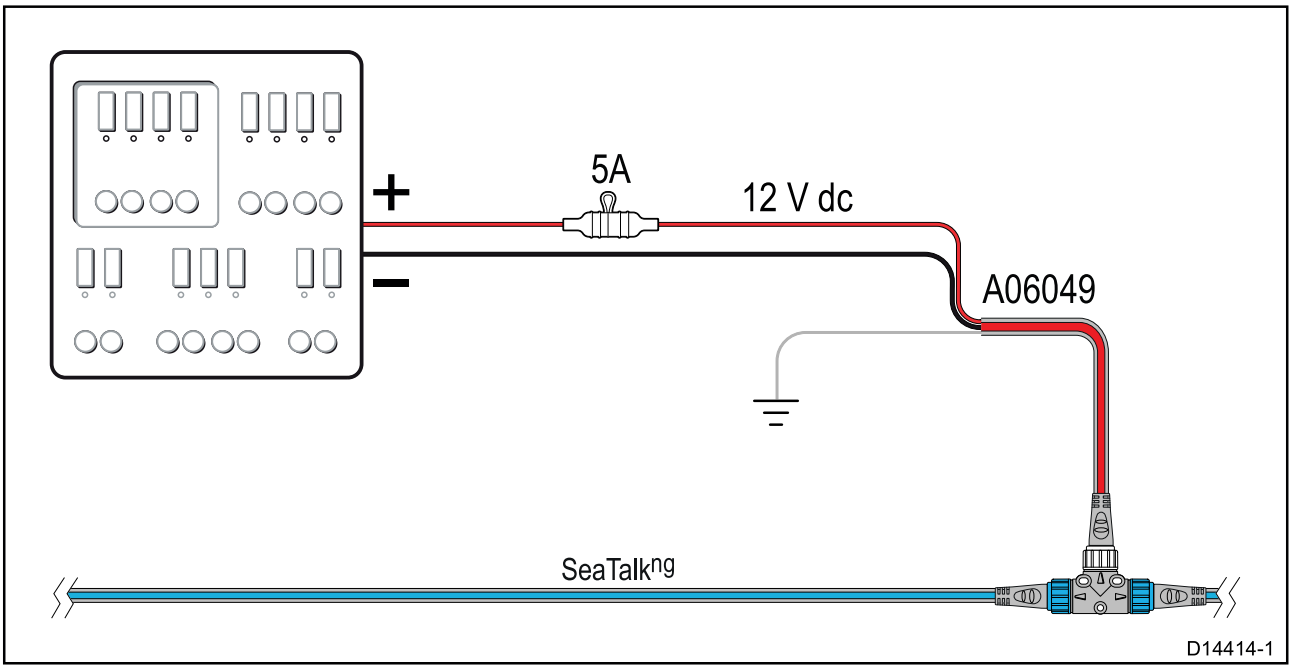
When powering the SeaTalkng ® bus (backbone or 5–way connector) from a battery or distribution panel, the A06049 power cable must be used.

All 3 cores of the cable must be connected correctly:

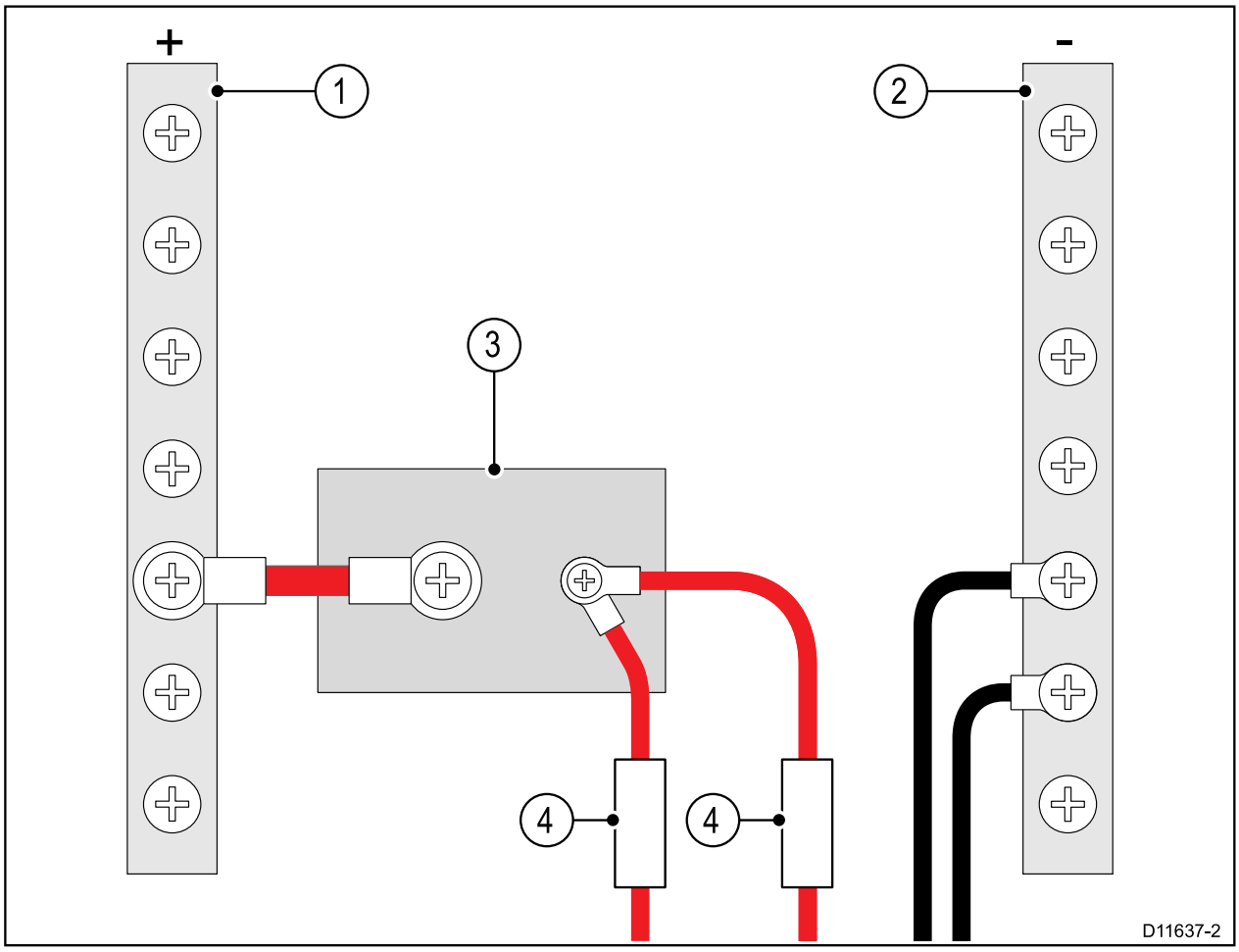


	Description	Connects to:
1	SeaTalkng ® spur connector	SeaTalkng ® bus
2	Drain wire	Vessel's common RF ground point. For vessels without a common ground point, connect the drain wire directly to the battery's negative terminal.
3	Black (negative) wire	Battery or distribution panel's negative terminal.
4	Red (positive) wire	Battery or distribution panel's positive terminal.

Implementation — connection to distribution panel



- Ideally, the SeaTalkng ® power cable should be connected to a suitable breaker or switch on the vessel's distribution panel or factory-fitted power distribution point. It is recommended that a 5A inline fuse is fitted to the red (positive) wire of the SeaTalkng ® power cable.
- The distribution point should be fed from the vessel's primary power source by 8 AWG (8.36 mm^2) cable.
- Ideally, all equipment should be wired to individual suitably-rated thermal breakers or fuses, with appropriate circuit protection. Where this is not possible and more than 1 item of equipment shares a breaker, use individual in-line fuses for each power circuit to provide the necessary protection.



1	Positive (+) bar
2	Negative (-) bar
3	Circuit breaker
4	Fuse

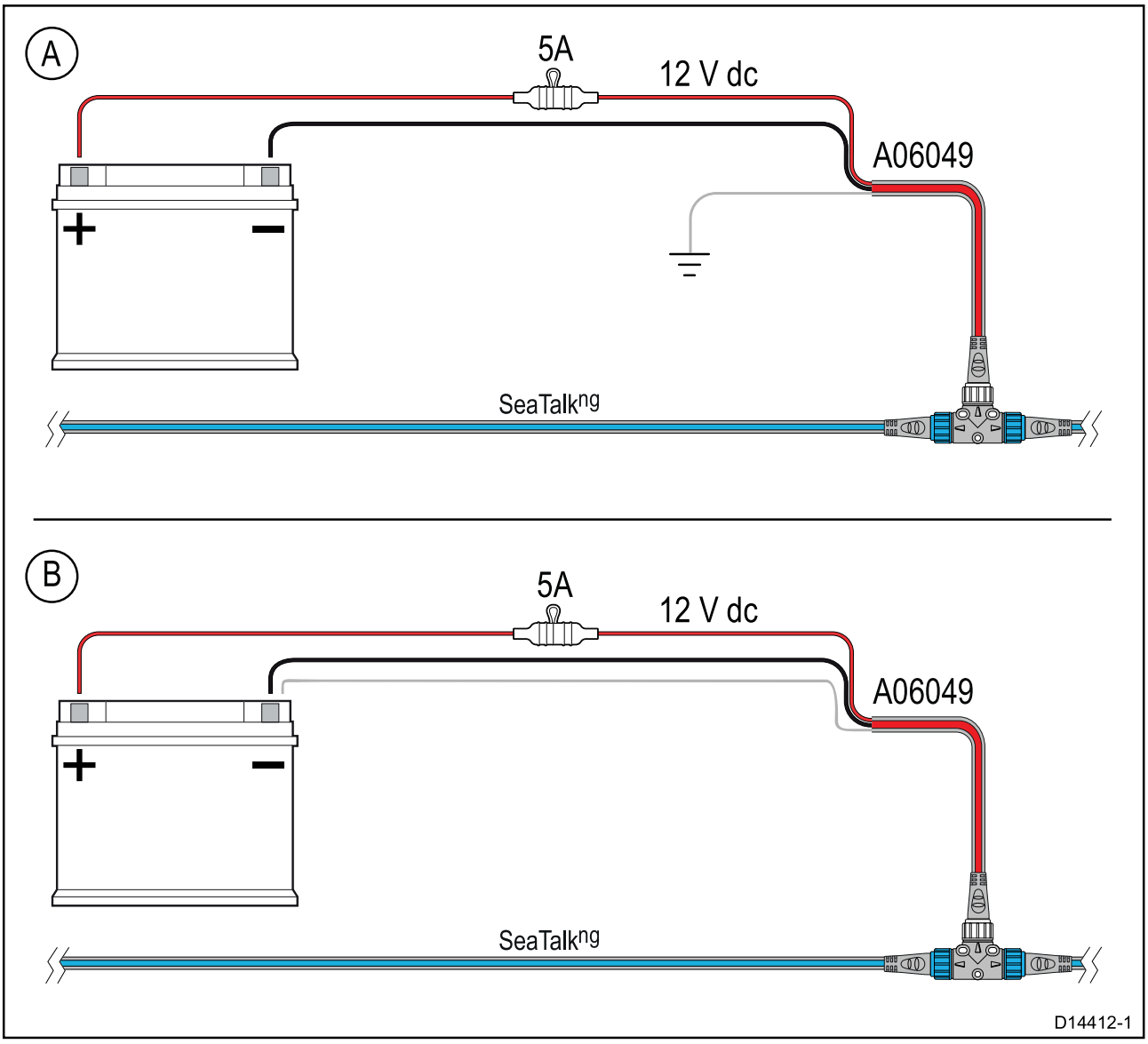
- In all cases, observe the recommended breaker / fuse ratings provided in the product's documentation.

Important:

Be aware that the suitable fuse rating for the thermal breaker or fuse is dependent on the number of devices you are connecting.

Implementation — direct connection to battery

- SeaTalkng ® power cables may be connected to the vessel's battery via a suitably rated fuse or breaker.
- You MUST fit a suitably rated fuse or breaker between the red wire and the battery's positive terminal.
- Refer to the inline fuse ratings provided in the product's documentation.
- If you need to extend the length of the power cable, ensure you use suitably rated cable and that sufficient power (12 V dc) is available at the SeaTalkng ® backbone's power connection.



A	Battery connection scenario A: suitable for a vessel with a common RF ground point. In this scenario, if your product's power cable is supplied with a separate drain wire then it should be connected to the vessel's common ground point.
B	Battery connection scenario B: suitable for a vessel without a common grounding point. In this case, if your product's power cable is supplied with a separate drain wire then it should be connected directly to the battery's negative terminal.

SeaTalkng ® Power cable extension

If you need to extend the length of the SeaTalkng ® power cable, ensure you use suitably rated cable and that sufficient power is available at the SeaTalkng ® backbone's power connection:

- For power cable extensions, a **minimum** wire gauge of 16 AWG (1.31 mm²) is recommended. For cable runs longer than 15 meters, you may need to consider a thicker wire gauge (e.g. 14 AWG (2.08 mm²), or 12 AWG (3.31 mm²)).
- An important requirement for all lengths of power cable (including any extension) is to ensure that there is a continuous **minimum** voltage at the product's power connector of 10.8 V dc, with a fully flat battery at 11 V dc.

Important: Be aware that some products in your system (such as sonar modules) can create voltage peaks at certain times, which may impact the voltage available to other products during the peaks.

More information

It is recommended that best practice is observed in all vessel electrical installations, as detailed in the following standards:

- BMEA Code of Practice for Electrical and Electronic Installations in Boats

- NMEA 0400 Installation Standard
- ABYC E-11 AC & DC Electrical Systems on Boats
- ABYC A-31 Battery chargers and Inverters
- ABYC TE-4 Lightning Protection

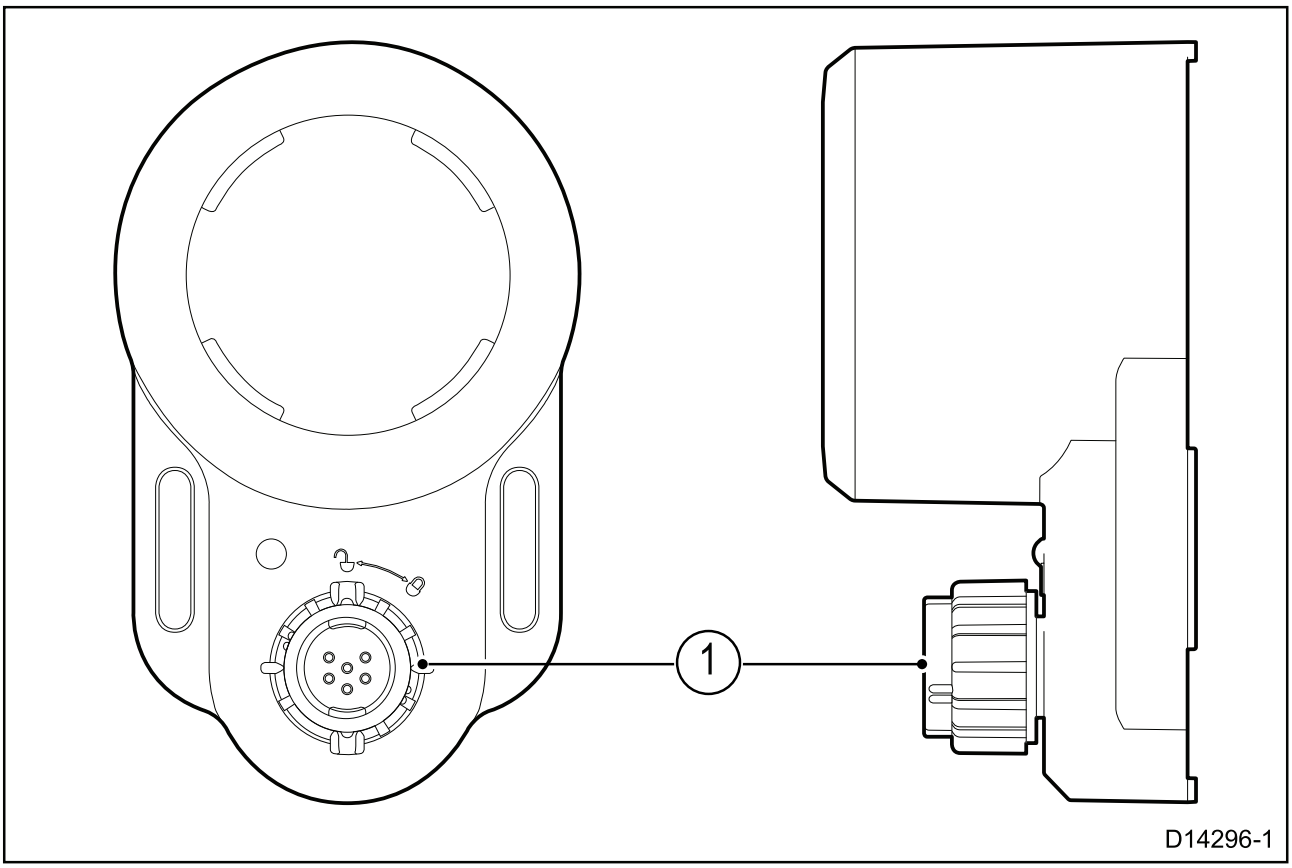
Warning: Product grounding

Before applying power to this product, ensure it has been correctly grounded, in accordance with the instructions provided.

Warning: Positive ground systems

Do not connect this unit to a system which has positive grounding.

4.4 Buzzer connection overview



1. SeaTalkng ® connector

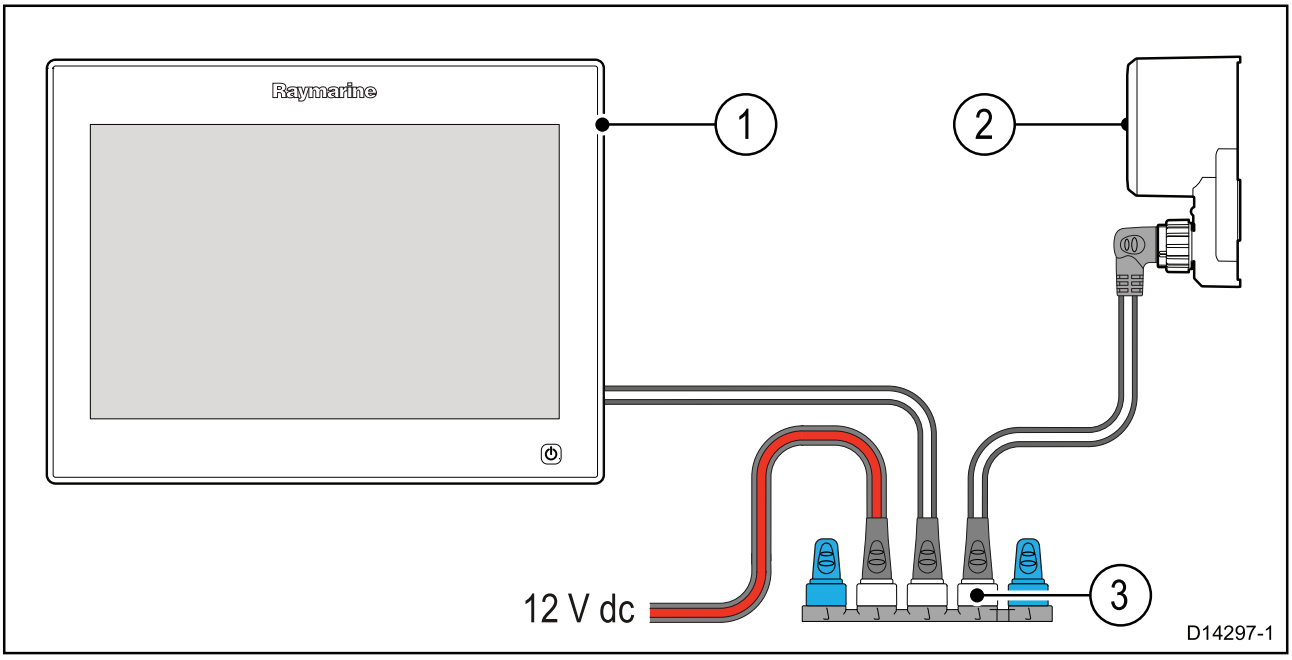
Note: This product is also powered through the SeaTalkng ® connector.

4.5 Buzzer connections

Your buzzer can be connected to a compatible product via a SeaTalkng ® bus (backbone or 5-way connector block). The SeaTalkng ® bus also supplies power to the buzzer. Multiple buzzers can be connected to a system at once.

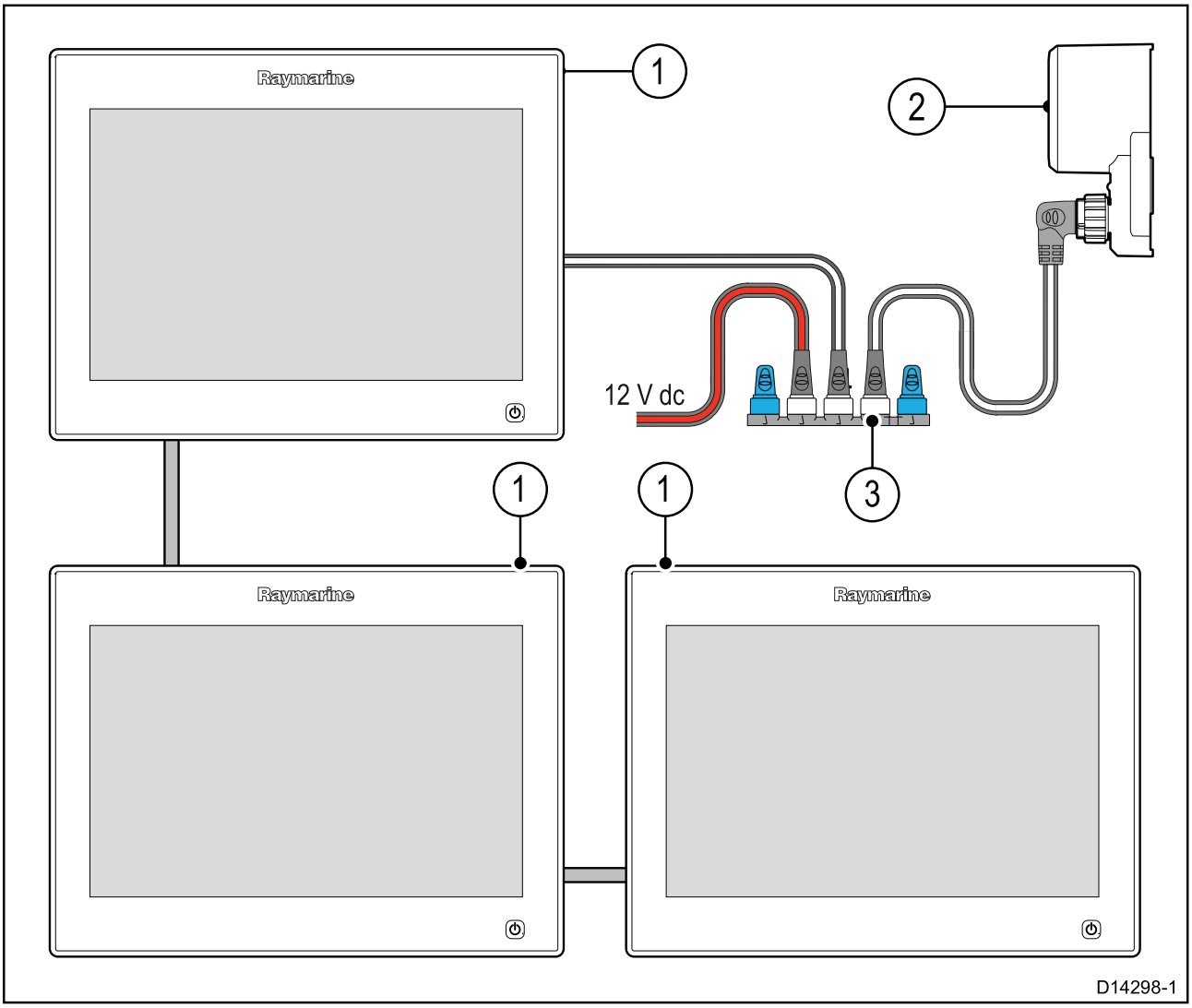
Important: Your MFD requires a separate power supply, do not attempt to power your MFD using the SeaTalkng ® bus. For more information, refer to your MFD installation and operation instructions.

Single MFD connection



1. MFD
2. SeaTalkng ® Alarm buzzer
3. SeaTalkng ® bus (5–way connector block in this example)

Multiple MFD network



Important: Your MFD requires a separate power supply, do not attempt to power your MFD using the SeaTalkng ® bus. For more information, refer to your MFD installation and operation instructions.

1. Networked MFDs
2. SeaTalkng ® Alarm buzzer
3. SeaTalkng ® bus (5–way connector block in this example)

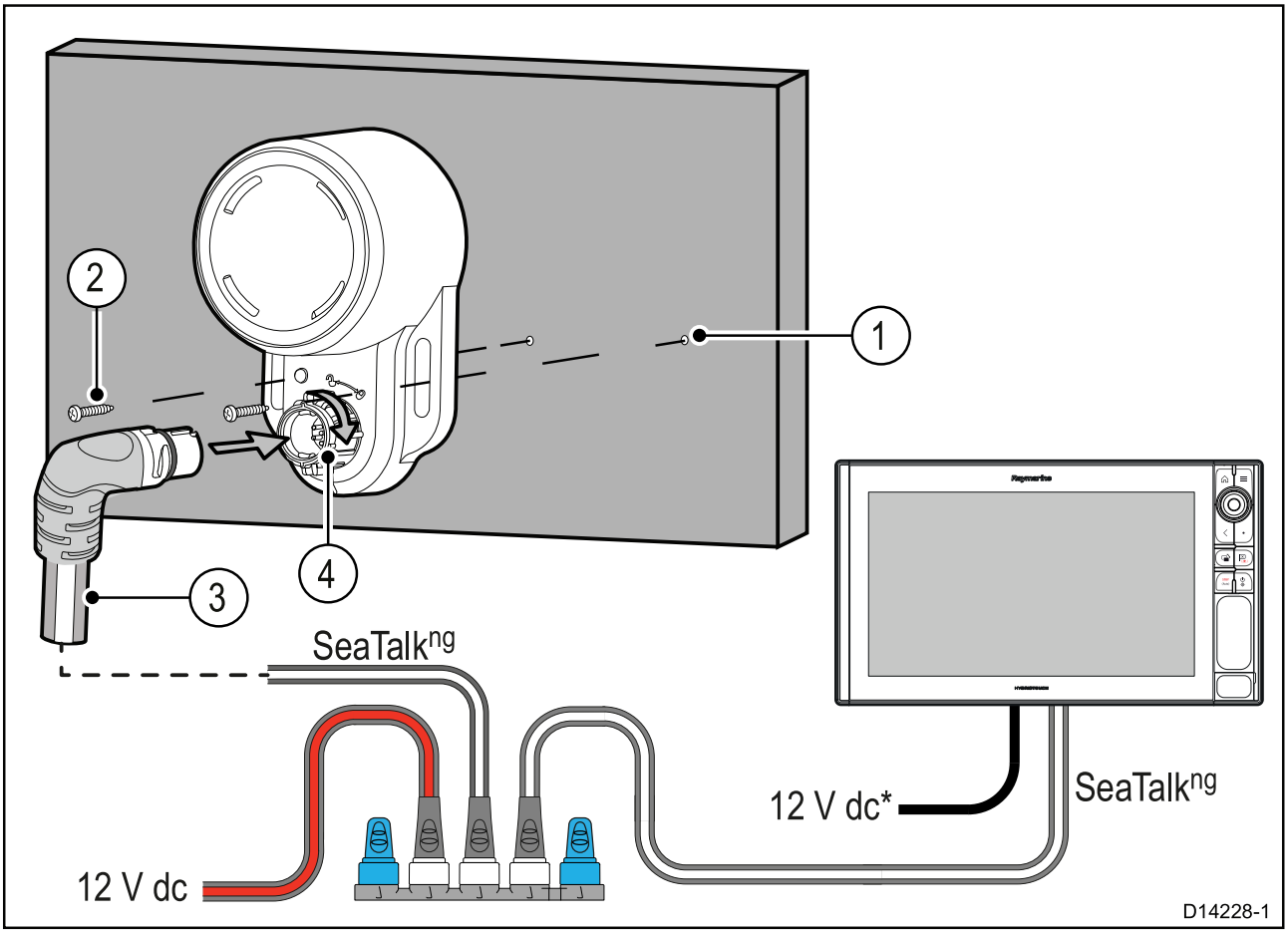
Chapter 5: Mounting

Chapter contents

- 5.1 Installing the buzzer on page 36

5.1 Installing the buzzer

The buzzer must be mounted to a suitable surface and connected to a 12 V dc SeaTalkng ® bus (backbone or 5-way connector block). The SeaTalkng ® bus also supplies power to the buzzer.



Note: * The MFD is shown in the drawing above with a 12 V dc power connection. However, some MFD variants are also compatible with 24 V dc systems. Refer to your MFD Installation instructions for the correct voltage required for your MFD. In all cases, the SeaTalkng ® bus must be connected to a 12 V dc power source only, and the MFD must have its own power source; it cannot be powered from the SeaTalkng ® bus.

1. Drill 2 x holes in the mounting surface. Use a drill bit size appropriate for the screw size and the mounting surface material.
2. Secure the unit to the mounting surface in a vertical orientation with the connector at the lowest point, using the fixings provided.
3. Connect the straight end of the supplied SeaTalkng ® spur cable to your SeaTalkng ® backbone and the right-angled end to the buzzer's connector.
4. Secure the cable by rotating the locking collar clockwise for 2 clicks, until in the locked position.

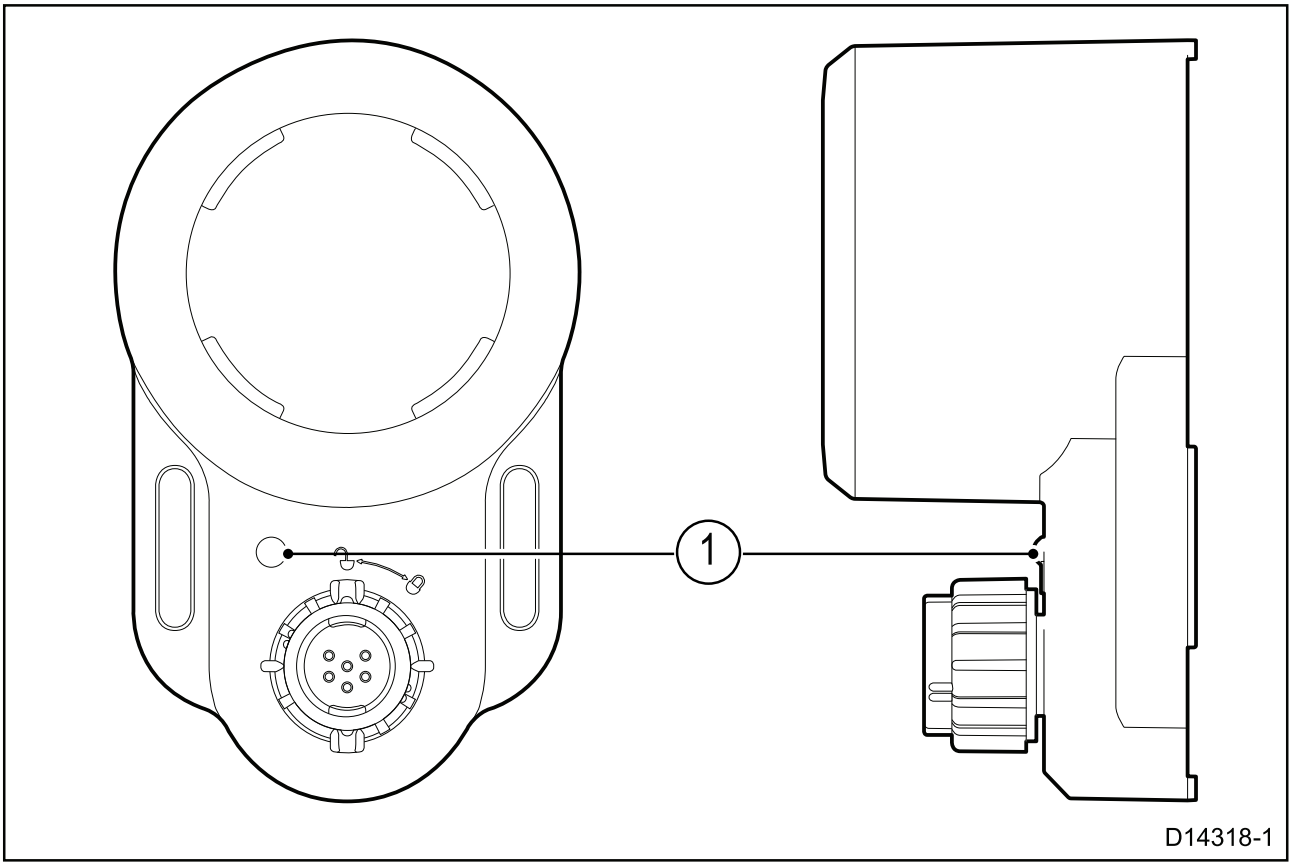
Chapter 6: System checks and troubleshooting

Chapter contents

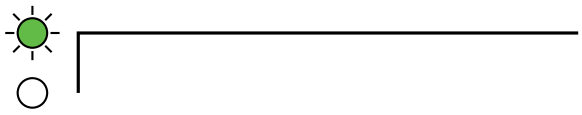
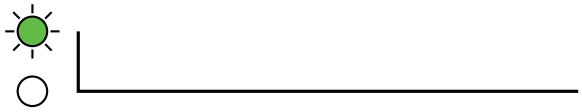
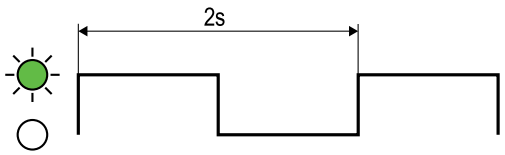
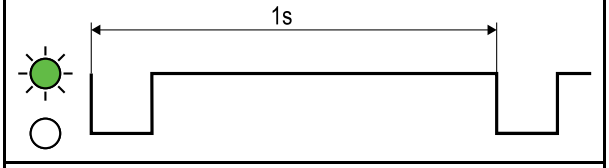
- 6.1 LED diagnostics on page 38
- 6.2 Power up troubleshooting on page 40
- 6.3 on page 41

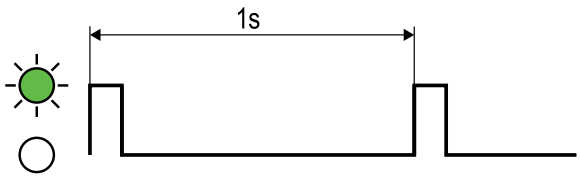
6.1 LED diagnostics

Your unit has a diagnostic LED on the front. The LED is used to identify the status of the unit.



1. LED diagnostics light

LED Sequence	Status
 Green LED on.	Normal operation
 LED off.	No power
 Green LED flashes on and off every 2 seconds.	No data on SeaTalkng ® bus
 Green LED flashes off every 1 second.	Power supply outside nominal range (9.0 to 16.0V per NMEA 2000)

LED Sequence	Status
 Green LED flashes on every 1 second.	Hardware failure detected

6.2 Power up troubleshooting

Product does not turn on or keeps turning off

Possible causes	Possible solutions
Blown fuse / tripped breaker	1. Check condition of relevant fuses and breakers and connections, replace if necessary. (Refer to the *Technical Specification* section of your product's installation instructions for fuse ratings.) 2. If fuse keeps blowing check for cable damage, broken connector pins or incorrect wiring.
Poor / damaged / insecure power supply cable / connections	1. Check that the power cable connector is fully inserted into the unit and locked in position. 2. Check the power supply cable and connectors for signs of damage or corrosion, and replace if necessary. 3. With the unit turned on, try flexing the power cable near to the display connector to see if this causes the unit to restart or lose power; replace if necessary. 4. Check the vessel's battery voltage and the condition of the battery terminals and power supply cables, ensuring connections are secure, clean and free from corrosion. Replace if necessary. 5. With the product under load, using a multi-meter, check for high voltage drop across all connectors / fuses etc, and replace if necessary.
Incorrect power connection	The power supply may be wired incorrectly, ensure the installation instructions have been followed.
Power source insufficient	With the product under load, using a multi-meter, check the power supply voltage as close to the unit as possible to establish actual voltage when the current is flowing. (Refer to the *Technical Specification* section of your product's installation instructions for power supply requirements.)

Product will not start up (restart loop)

Possible causes	Possible solutions
Power supply and connection	See possible solutions from the table above, entitled 'Product does not turn on or keeps turning off'.
Software corruption	1. In the unlikely event that the product's software has become corrupted, try downloading and installing the latest software from the Raymarine website. 2. On display products, as a last resort, attempt to perform a 'Power on Reset'. Be aware that this will delete all settings / presets and user data (such as waypoints and tracks), and revert the unit back to factory defaults.

6.3

Alarm cannot be silenced

Possible causes	Possible solutions
In an autopilot system the "CU DISCONNECTED" alarm is generated when a pilot controller display is disconnected. This triggers a repeating audible alarm on the SeaTalkng ® buzzer.	1. Re-connect the display. 2. Check another display on the network (if available) for the alarm message. Dismiss alarm. 3. Temporarily remove the SeaTalkng ® spur cable from the SeaTalkng ® buzzer.

Chapter 7: Maintenance

Chapter contents

- 7.1 Service and maintenance on page 44
- 7.2 Routine equipment checks on page 45
- 7.3 Product cleaning on page 46

7.1 Service and maintenance

This product contains no user serviceable components. Please refer all maintenance and repair to authorized Raymarine dealers. Unauthorized repair may affect your warranty.

7.2 Routine equipment checks

It is recommended that you perform the following routine checks, on a regular basis, to ensure the correct and reliable operation of your equipment:

- Examine all cables for signs of damage or wear and tear.
- Check that all cables are securely connected.

7.3 Product cleaning

Best cleaning practices.

When cleaning products:

- Lightly rinse or flush with clean, cool fresh water.
- If your product has a display screen, do NOT wipe the screen with a dry cloth, as this could scratch the screen coating.
- Do NOT use: abrasive, acidic, ammonia, solvent of chemical based cleaning products.
- Do NOT use a jet wash.

Chapter 8: Technical specification

Chapter contents

- 8.1 Technical specification on page 48

8.1 Technical specification

Nominal supply voltage	12 V dc (Supplied by SeaTalkng ®)
Operating voltage range	9 V dc to 16 V dc (protected up to 32 V dc)
Power consumption	25 mA at nominal supply voltage
Sound pressure level (SPL) of audible alarm	>85 dB(A) at a distance of 1 meter
Environmental	**Installation environment** • Operating temperature: -20 ºC to +55 ºC (-4 ºF to 131 ºF) • Storage temperature: -30 ºC to +70 ºC (-22 ºF to 158 ºF) • Relative humidity: max 93% • Waterproof to IPx6 and IPx7
Supported connection protocols	• SeaTalkng ® / NMEA 2000 (via DeviceNet adaptor)
LEN (refer to SeaTalkng ® Reference manual for more information)	1

Chapter 9: Technical support

Chapter contents

- 9.1 Raymarine product support and servicing on page 50
- 9.2 Learning resources on page 53

9.1 Raymarine product support and servicing

Raymarine provides a comprehensive product support service, as well as warranty, service, and repairs. You can access these services through the Raymarine website, telephone, and e-mail.

Product information

If you need to request service or support, please have the following information to hand:

- Product name.
- Product identity.
- Serial number.
- Software application version.
- System diagrams.

You can obtain this product information using diagnostic pages of the connected MFD.

Servicing and warranty

Raymarine offers dedicated service departments for warranty, service, and repairs.

Don't forget to visit the Raymarine website to register your product for extended warranty benefits: http://www.raymarine.co.uk/display/?id=788.

Region	Contact
United Kingdom (UK), EMEA, and Asia Pacific	• E-Mail: emea.service@raymarine.com • Tel: +44 (0)1329 246 932
United States (US)	• E-Mail: rm-usrepair@flir.com • Tel: +1 (603) 324 7900

Web support

Please visit the "Support" area of the Raymarine website for:

- **Manuals and Documents** — http://www.raymarine.com/manuals
- **FAQ / Knowledgebase** — http://www.raymarine.com/knowledgebase
- **Technical support forum** — http://forum.raymarine.com
- **Software updates** — http://www.raymarine.com/software

Worldwide support

Region	Contact
United Kingdom (UK), EMEA, and Asia Pacific	• E-Mail: support.uk@raymarine.com • Tel: +44 (0)1329 246 777
United States (US)	• E-Mail: support@raymarine.com • Tel: +1 (603) 324 7900 (Toll-free: +800 539 5539)
Australia and New Zealand (Raymarine subsidiary)	• E-Mail: aus.support@raymarine.com • Tel: +61 2 8977 0300
France (Raymarine subsidiary)	• E-Mail: support.fr@raymarine.com • Tel: +33 (0)1 46 49 72 30
Germany (Raymarine subsidiary)	• E-Mail: support.de@raymarine.com • Tel: +49 (0)40 237 808 0
Italy (Raymarine subsidiary)	• E-Mail: support.it@raymarine.com • Tel: +39 02 9945 1001
Spain (Authorized Raymarine distributor)	• E-Mail: sat@azimut.es • Tel: +34 96 2965 102
Netherlands (Raymarine subsidiary)	• E-Mail: support.nl@raymarine.com • Tel: +31 (0)26 3614 905

Region	Contact
Sweden (Raymarine subsidiary)	• E-Mail: support.se@raymarine.com • Tel: +46 (0)317 633 670
Finland (Raymarine subsidiary)	• E-Mail: support.fi@raymarine.com • Tel: +358 (0)207 619 937
Norway (Raymarine subsidiary)	• E-Mail: support.no@raymarine.com • Tel: +47 692 64 600
Denmark (Raymarine subsidiary)	• E-Mail: support.dk@raymarine.com • Tel: +45 437 164 64
Russia (Authorized Raymarine distributor)	• E-Mail: info@mikstmarine.ru • Tel: +7 495 788 0508

Viewing product information (LightHouse™ 2)

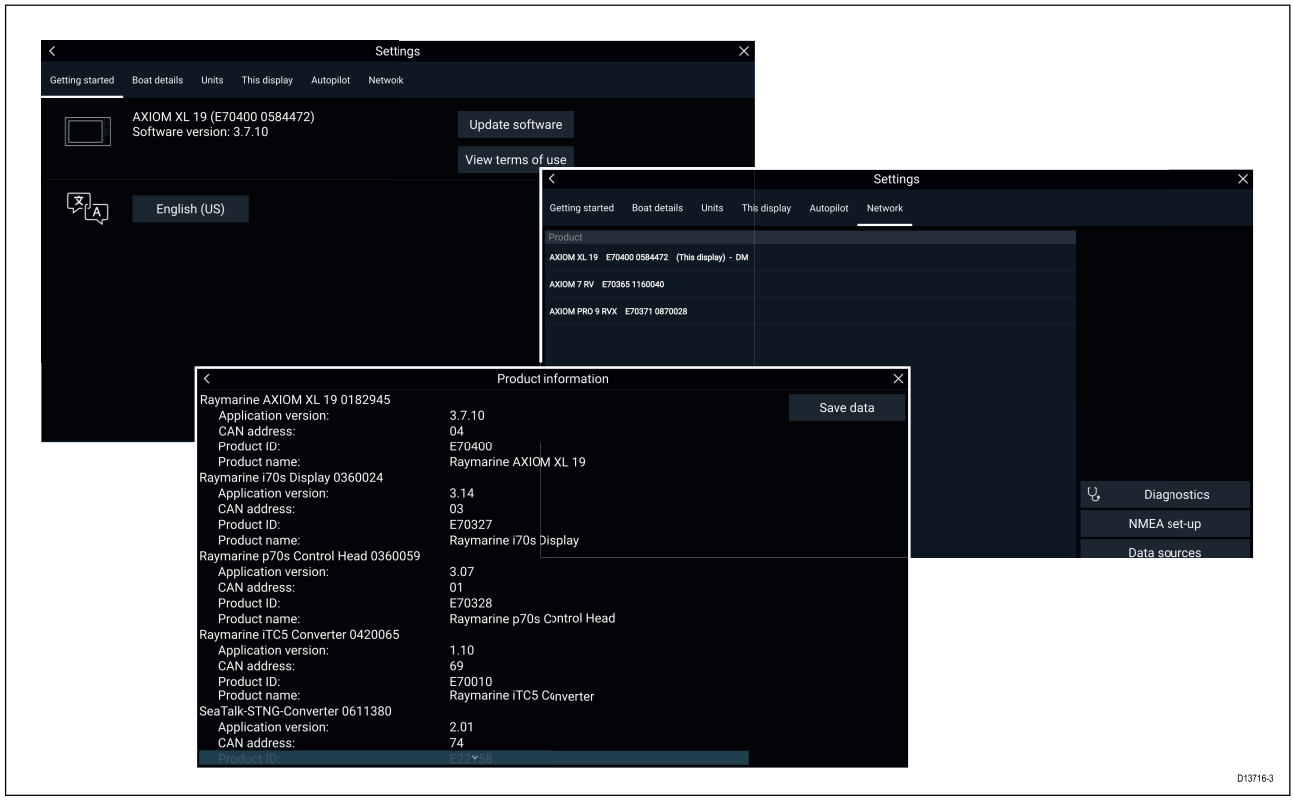
You can view information about your unit from the **Diagnostics** menu on a compatible multifunction display. This option displays information such as product serial number and software version.

With the Homescreen displayed:

1. Select **Set-up.**
2. Select **Maintenance**.
3. Select **Diagnostics**.
4. Select the **Select Device** option.
   A list of connected devices is displayed.
5. Select the product for which you want to view information. Alternatively, select **Show All Data** to display information for all connected products.

Viewing product information (LightHouse™ 3)

Use the **Settings** menu to view hardware and software information about your MFD, and connected products.



1. Select **Settings**, from the Homescreen.
   The **Getting started** tab contains hardware and software information for your MFD.

2. You can view further information about your MFD, or view information about products networked using SeaTalkhs ® and SeaTalkng ® / NMEA 2000, by selecting the **Network** tab, then:
   i. to display detailed software information and your MFD's network IP address, select your MFD from the list.
   ii. to display detailed diagnostics information for all products, select **Product info** from the **Diagnostics** pop over menu.

9.2 Learning resources

Raymarine has produced a range of learning resources to help you get the most out of your products.

Video tutorials

YouTube	Raymarine official channel on YouTube: • http://www.youtube.com/user/RaymarineInc LightHouse™ 3 tips and tricks: • http://www.raymarine.com/multifunction-displays/light-house3/tips-and-tricks
	Video Gallery: • http://www.raymarine.co.uk/view/?id=2679

Note:

- Viewing the videos requires a device with an Internet connection.
- Some videos are only available in English.

Training courses

Raymarine regularly runs a range of in-depth training courses to help you make the most of your products. Visit the Training section of the Raymarine website for more information:

- http://www.raymarine.co.uk/view/?id=2372

FAQs and Knowledge Base

Raymarine has produced an extensive set of FAQs and a Knowledge Base to help you find more information and troubleshoot any issues.

- http://www.raymarine.co.uk/knowledgebase/

Technical support forum

You can use the Technical support forum to ask a technical question about a Raymarine product or to find out how other customers are using their Raymarine equipment. The resource is regularly updated with contributions from Raymarine customers and staff:

- http://forum.raymarine.com

Chapter 10: Spares and accessories

Chapter contents

- 10.1 Accessories on page 56
- 10.2 SeaTalk ng® cabling components on page 57
- 10.3 SeaTalkng ® cables and accessories on page 58

10.1 Accessories

The following accessories are available:

Accessories

Item	Part number
SeaTalkng ® Elbow spur cable 0.4 m (1.3 ft)	A06042

10.2 SeaTalk ng® cabling components

SeaTalk ng cabling components and their purposes.

Connection / Cable	Notes
Backbone cable (various lengths)	The main cable carrying data. Spurs from the backbone are used to connect SeaTalk ng devices.
T-piece connector	Used to make junctions in the backbone to which devices can then be connected.
Terminator	Required at either end of the backbone.
Inline terminator	Used to connect a spur cable directly to the end of a backbone; useful for longer cable runs.
Spur cable	Used to connect devices to the backbone. Devices may be daisy chained or connected directly to the T-pieces.
SeaTalk ng 5–way connector	Used to branch, split, or make additional connections in SeaTalk or SeaTalk ng networks.
Blanking plug	Inserted into unused spur connector positions in a 5-way connector or T-piece.

10.3 SeaTalkng ® cables and accessories

SeaTalkng ® cables and accessories for use with compatible products.

Part No	Description	Notes
T70134	Starter kit	Includes: • 1 x 5 Way connector (A06064) • 2 x Backbone terminator (A06031) • 1 x 3 m (9.8 ft) spur cable (A06040) • 1 x Power cable (A06049)
A25062	Backbone Kit	Includes: • 2 x 5 m (16.4 ft) Backbone cable (A06036) • 1 x 20 m (65.6 ft) Backbone cable (A06037) • 4 x T-piece (A06028) • 2 x Backbone terminator (A06031) • 1 x Power cable (A06049)
A06038	Spur cable 0.4 m (1.3 ft)	
A06039	Spur cable 1 m (3.3 ft)	
A06040	Spur cable 3 m (9.8 ft)	
A06041	Spur cable 5 m (16.4 ft)	
A06042	Elbow spur cable 0.4 m (1.3 ft)	
A06033	Backbone cable 0.4 m (1.3 ft)	
A06034	Backbone cable 1 m (3.3 ft)	
A06035	Backbone cable 3 m (9.8 ft)	
A06036	Backbone cable 5 m (16.4 ft)	
A06068	Backbone cable 9 m (29.5 ft)	
A06037	Backbone cable 20 m (65.6 ft)	
A06043	SeaTalkng ® to bare wire spur cable 1 m (3.3 ft)	
A06044	SeaTalkng ® to bare wire spur cable 3 m (9.8 ft)	
A06049	Power cable 1 m (3.3 ft)	
A06077	Right angled connector	90° right angle spur connector.
A06031	Terminator	
A06028	T-piece	Provides 1 x spur connection
A06064	5–way connector block	Provides 3 x spur connections
A06030	Backbone extender	
E22158	SeaTalk to SeaTalkng ® converter kit	Allows the connection of SeaTalk devices to a SeaTalkng ® system.
A80001	Inline terminator	Provides direct connection of a spur cable to the end of a backbone cable. No T-piece required.
A06032	Spur blanking plug	
R12112	ACU / SPX SeaTalkng ® spur cable 0.3 m (1.0 ft)	Connects an SPX course computer or an ACU to a SeaTalkng ® backbone.
A06047	SeaTalk (3 pin) to SeaTalkng ® adaptor cable 0.4 m (1.3 ft)	

Part No	Description	Notes
A22164	SeaTalk to SeaTalkng ® spur cable 1 m (3.3 ft)	
A06048	SeaTalk2 (5 pin) to SeaTalkng ® adaptor cable 0.4 m (1.3 ft)	
A06045	SeaTalkng ® to DeviceNet (Female) adaptor cable 0.4 m (1.3 ft)	Allows the connection of NMEA 2000 devices to a SeaTalkng ® system.
A06075	SeaTalkng ® to DeviceNet (Female) adaptor cable 1 m (3.3 ft)	Allows the connection of NMEA 2000 devices to a SeaTalkng ® system.
A06046	SeaTalkng ® to DeviceNet (Male) adaptor cable 1.5 m (4.92 ft)	Allows the connection of NMEA 2000 devices to a SeaTalkng ® system.
A06076	SeaTalkng ® to DeviceNet (Male) adaptor cable 1 m (3.3 ft)	Allows the connection of NMEA 2000 devices to a SeaTalkng ® system.
A06078	SeaTalkng ® to DeviceNet (Male) adaptor cable 0.1 m (0.33 ft)	Allows the connection of NMEA 2000 devices to a SeaTalkng ® system.
E05026	DeviceNet (Female) to bare wires adaptor cable (0.4 m (1.3 ft)	Allows the connection of NMEA 2000 devices to a SeaTalkng ® system.
E05027	DeviceNet (Male) to bare wires adaptor cable (0.4 m (1.3 ft)	Allows the connection of NMEA 2000 devices to a SeaTalkng ® system.

Chapter 11: Supported alarms

Chapter contents

The SeaTalkng ® Alarm buzzer supports the alarms listed in the following sections of this document.

i70 / i70s, LightHouse 2 (LH2) or LightHouse 3 (LH3) columns marked with a ✓ symbol indicate that the corresponding alarm will sound on the buzzer.

i70 / i70s, LH2 or LH3 columns marked with a ✗ symbol indicate that the corresponding alarm will NOT sound on the buzzer (but may sound on a networked i70 / i70s or MFD).

Note: Alarms are prioritized by severity: **Emergency** > **Warning** > **Caution**, then by **Priority**, then by **Chronological** order.

Note: Different alarm types will produce different **cadences**.

Appendix A AIS alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
AIS Connection Lost	AIS	i70 / i70s, MFD	✓	✓	✓	Warning
AIS Dangerous Target	AIS	i70 / i70s, MFD	✓	✓	✓	Alarm
AIS External	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS TX malfunction	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS Antenna VSWR fault	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS Rx channel 1 malfunction	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS Rx channel 2 malfunction	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS no sensor position in use	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS no valid SOG information	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS no valid COG information	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS 12V alarm	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS 6V alarm	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS noise threshold exceeded channel A	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS noise threshold exceeded channel B	AIS	AIS receiver	✓	✓	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
AIS External - AIS transmitter PA fault	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS 3V3 alarm	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS Rx channel 70 malfunction	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS Heading lost/invalid	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS internal GPS lost	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS no sensor position	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS lock failure	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS internal GGA timeout	AIS	AIS receiver	✓	✓	✓	Warning
AIS External - AIS protocol stack restart	AIS	AIS receiver	✓	✓	✓	Warning
AIS Lost Target	AIS	i70 / i70s, MFD	✓	✓	✓	Alarm
AIS No MMSI	AIS		✓	✓	✓	Warning
AIS Safety Related Message	AIS	AIS receiver	✓	✓	✓	Alarm

Appendix B Autopilot alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Pilot Warning XTE	Autopilot	Pilot (NGCC)	✓	✓	✓	Alarm
Pilot No GPS Fix	Autopilot	Pilot (NGCC)	✓	✓	✓	Alarm
Pilot Off Course	Autopilot	Pilot (NGCC)	✓	✓	✓	Alarm
Pilot Warning Off Course	Autopilot	Pilot (NGCC)	✓	✓	✓	Alarm
Pilot Auto Release	Autopilot	Course Computer	✓	✓	✓	Alarm
Pilot Communications Bus Data Error (a.k.a Pilot NMEA Data Error)	Autopilot	Pilot	✓	✓	✓	Warning
Pilot Control Unit Disconnected	Autopilot	Course Computer	✓	✓	✓	Alarm
Pilot Drive Stopped	Autopilot	Course Computer	✓	✓	✓	Alarm
Pilot Low Ships Battery	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
Pilot No Navigation Data	Autopilot	Pilot (NGCC)	✓	✓	✓	Alarm
Pilot No Navigation Data (a.k.a Pilot No NMEA Data)	Autopilot	Course Computer	✓	✓	✓	Alarm
Pilot No Pilot	Autopilot	Navigation computer	✓	✓	✓	Alarm
Pilot Route Complete	Autopilot	Navigation computer	✓	✓	✓	Warning
Pilot Route Complete	Autopilot	Course Computer	✓	✓	✓	Warning
Pilot Type Unspecified	Autopilot	Pilot	✓	✓	✓	Warning
Pilot Watch	Autopilot	Pilot	✓	✓	✓	Warning
Watch Alarm	Autopilot	ST80	✓	✓	✓	Warning
Pilot Last Minute Of Watch	Autopilot	Pilot Control Head	✓	✓	✓	Warning
Pilot Waypoint Advance	Autopilot	Pilot	✓	✓	✓	Warning
Waypoint Advance	Autopilot	Course Computer	✓	✓	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Wind Change (a.k.a Pilot Wind Shift)	Autopilot	Pilot	✓	✓	✓	Alarm
Wind Change (a.k.a Pilot Warning Wind Shift)	Autopilot		✓	✓	✓	Warning
PILOT AUTO DOCKSIDE FAIL	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT AU-TOLEARN FAIL 1	Autopilot	Pilot (NGCC)	✓	✓	✓	Alarm
PILOT AU-TOLEARN FAIL 2	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT AU-TOLEARN FAIL 3	Autopilot	Pilot (NGCC)	✓	✓	✓	Alarm
PILOT AU-TOLEARN FAIL 4	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT AU-TOLEARN FAIL 5	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT AU-TOLEARN FAIL 6	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT CURRENT LIMIT	Autopilot	Pilot (NGCC)	✓	✓	✓	Alarm
PILOT EEP-ROM COR-RUPTION	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT INVALID COMMAND	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT JOYSTICK FAULT	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT LOST WAYPOINT DATA	Autopilot	Pilot (NGCC)	✓	✓	✓	Alarm
PILOT NO COMPASS	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT NO GPS COG	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT NO JOYSTICK DATA	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT NO SPEED DATA	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
PILOT NO WIND DATA	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT RATE GYRO FAULT	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT RUDDER FEEDBACK FAIL	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT SEATALK FAIL 1	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT SEATALK FAIL 2	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT STANDBY TOO FAST TO FISH	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT START UP	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT SWAPPED MOTOR POWER	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT TOO SLOW	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT TURN TOO FAST	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT VARIABLE TEXT	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT WARNING CLUTCH SHORT	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT WARNING DRIVE SHORT	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT WARNING SOLENOID SHORT	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT WARNING TOO FAST TO FISH	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT WP ADVANCE PORT	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
PILOT WP ADVANCE STBD	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Pilot Power-Off or Sleep-Switch Operated or Reset While Engaged	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
Pilot unexpected reset while engaged	Autopilot	Pilot (NGCC)	✓	✓	✓	Alarm
Pilot no drive detected (a.k.a Pilot No IPS Communication)	Autopilot	Pilot (NGCC)	✓	✓	✓	Warning
Pilot drive stopped	Autopilot	Course Computer	✓	✓	✓	Alarm
Pilot No IPS Communications	Autopilot		✓	✓	✓	Warning
Pilot Disengaged	Autopilot	MFD	✓	✓	✓	Alarm

Appendix C Depth alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
SeaTalk1 Anchor	Depth	Depth Instrument	✓	✗	✓	Alarm
Deep Anchor - SeaTalkng	Depth	Depth instrument	✓	✗	✓	Alarm
Deep Depth	Depth	Depth instrument	✓	✗	✓	Warning
Shallow Anchor	Depth	Depth instrument	✓	✗	✓	Alarm
Shallow Depth	Depth		✓	✗	✓	Alarm
Shallow Depth	Depth	Depth instrument	✓	✗	✓	Alarm
Depth Measurement Lost	Depth		✓	✗	✓	Warning

Appendix D Digital switching alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Generic (Trigentic) Digital Switching NMEA2000 Alarm	Digital Switching	NXT Master (MCU)	✗	✗	✓	Alarm
Digital Switching Fuse Tripped Alert	Digital Switching		✗	✗	✓	Warning
Digital Switching Connection Lost	Digital Switching		✗	✗	✓	Warning
not used CZone Lost Connection Alarm	Digital Switching		✗	✗	✓	Warning
CZone Dipswitch conflict	Digital Switching		✗	✗	✓	Warning
CZone Device Conflict	Digital Switching		✗	✗	✓	Warning
CZone Device Missing	Digital Switching		✗	✗	✓	Warning
CZone Con-figuration Conflict	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - AC Voltage	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - AC Frequency	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - AC Overpower	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - DC Low Voltage	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - DC Very Low Voltage	Digital Switching		✗	✗	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Generic CZone External Alarm - DC High Voltage	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - DC Low Battery Capacity	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - SI High	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - SI Low	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - SI Error	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - OI Low Run Current	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - OI Overcurrent	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - OI Short Circuit	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - OI Missing Commander	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - OI Reverse Current	Digital Switching		✗	✗	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Generic CZone External Alarm - OI Current Calibration	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - SCI Missing Output	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - OI Systems ON	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - AC Very High Power	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - AC Low Power	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - DC Very Low Battery Capacity	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - DC High Battery Capacity	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - DC Load Shed Low	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - DC Load Shed Very Low	Digital Switching		✗	✗	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Generic CZone External Alarm - AC Load Shed Low	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - AC Load Shed Very Low	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - ACMI Reverse Polarity	Digital Switching		✗	✗	✓	Alarm
Generic CZone External Alarm - ACMI Manual Override	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - Masterbus	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - OI Hardware	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - ACMI Loss of Supply	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - SI Very High Alarm	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - SI Very Low Alarm	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - DI PGN Switching	Digital Switching		✗	✗	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Generic CZone External Alarm - Low CANbus Voltage	Digital Switching		✗	✗	✓	Warning
Generic CZone External Alarm - Blown Fuse	Digital Switching		✗	✗	✓	Warning

Appendix E Engine alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Engine Error	Engine		✓	✗	✓	Alarm
Engine Error - Check Engine	Engine		✓	✗	✓	Alarm
Engine Error - Over Temperature	Engine		✓	✗	✓	Alarm
Engine Error - Low Oil Pressure	Engine		✓	✗	✓	Alarm
Engine Error - Low Oil Level	Engine		✓	✗	✓	Warning
Engine Error - Low Fuel Pressure	Engine		✓	✗	✓	Warning
Engine Error - Low System Voltage	Engine		✓	✗	✓	Warning
Engine Error - Low Coolant Level	Engine		✓	✗	✓	Warning
Engine Error - Water Flow	Engine		✓	✗	✓	Alarm
Engine Error - Water in Fuel	Engine		✓	✗	✓	Warning
Engine Error - Charge Indicator	Engine		✓	✗	✓	Warning
Engine Error - Preheat Indicator	Engine		✓	✗	✓	Warning
Engine Error - High Boost Pressure	Engine		✓	✗	✓	Warning
Engine Error - Rev Limit Exceeded	Engine		✓	✗	✓	Warning
Engine Error - EGR System	Engine		✓	✗	✓	Warning
Engine Error - Throttle Position Sensor	Engine		✓	✗	✓	Warning
Engine Error - Engine Emergency Stop Mode	Engine		✓	✗	✓	Alarm
Engine Error - Warning Level 1	Engine		✓	✗	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Engine Error - Warning Level 2	Engine		✓	✗	✓	Warning
Engine Error - Power Reduction	Engine		✓	✗	✓	Warning
Engine Error - Engine Comm Error	Engine		✓	✗	✓	Warning
Engine Error - Sub or Secondary Throttle	Engine		✓	✗	✓	Warning
Engine Error - Neutral Start Protect	Engine		✓	✗	✓	Warning
Engine Error - Engine Shutting Down	Engine		✓	✗	✓	Alarm
Engine Error - unknown error	Engine		✓	✗	✓	Warning
Engine Error - unknown error	Engine		✓	✗	✓	Warning
Engine Error - unknown error	Engine		✓	✗	✓	Warning
Engine Error - unknown error	Engine		✓	✗	✓	Warning
Engine Error - unknown error	Engine		✓	✗	✓	Warning
Engine Error - unknown error	Engine		✓	✗	✓	Warning
Engine Error - unknown error	Engine		✓	✗	✓	Warning
Engine Error - unknown error	Engine		✓	✗	✓	Warning
Engine Alternator Charging warning	Engines	MFD	✓	✗	✓	Warning
Engine Check Engine	Engines	MFD	✓	✗	✓	Warning
Engine Check Transmission	Engines	MFD	✓	✗	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Engine CHECK SAIL DRIVE	Engines	MFD	✓	✗	✓	Warning
Engine EGR Error	Engines	MFD	✓	✗	✓	Warning
Engine EMER-GENCY STOP	Engines	MFD	✓	✗	✓	Warning
Engine EN-GINE COM-Munications ERROR	Engines	MFD	✓	✗	✓	Warning
Engine ENGINE Coolant OVER TEMP	Engines	MFD	✓	✗	✓	Warning
Engine ENGINE SHUT DOWN	Engines	MFD	✓	✗	✓	Warning
Engine FUEL FILTER BATTERY	Engines	MFD	✓	✗	✓	Warning
Engine FUEL RANGE ESTIMATE	Engines	MFD	✓	✗	✓	Warning
Engine GEAR HIGH OIL TEMP	Engines	MFD	✓	✗	✓	Warning
Engine GEAR LOW OIL LEVEL	Engines	MFD	✓	✗	✓	Warning
Engine GEAR LOW OIL PRESSURE	Engines	MFD	✓	✗	✓	Warning
Engine HIGH BOOST PRESSURE	Engines	MFD	✓	✗	✓	Warning
Engine JET DRIVE FAST IDLE	Engines	MFD	✓	✗	✓	Warning
Engine LOW COOLANT LEVEL	Engines	MFD	✓	✗	✓	Warning
Engine LOW FUEL PRESSURE	Engines	MFD	✓	✗	✓	Warning
Engine LOW OIL LEVEL	Engines	MFD	✓	✗	✓	Warning
Engine LOW OIL PRESSURE	Engines	MFD	✓	✗	✓	Warning
Engine LOW VOLTAGE	Engines	MFD	✓	✗	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Engine MAIN THROTTLE	Engines	MFD	✓	✗	✓	Warning
Engine MAINTE-NANCE NEEDED	Engines	MFD	✓	✗	✓	Warning
Engine MOVE THROTTLES TO IDLE	Engines	MFD	✓	✗	✓	Warning
Engine NETWORK COMM ERROR	Engines	MFD	✓	✗	✓	Warning
Engine NEUTRAL THROTTLE ONLY	Engines	MFD	✓	✗	✓	Warning
Engine NEUTRAL START PROTECT	Engines	MFD	✓	✗	✓	Warning
Engine POWER REDUCTION	Engines	MFD	✓	✗	✓	Warning
Engine PRE HEATER ON	Engines	MFD	✓	✗	✓	Warning
Engine REV LIMIT EXCEEDED	Engines	MFD	✓	✗	✓	Warning
Engine Coolant FLOW	Engines	MFD	✓	✗	✓	Warning
Engine SEC-ONDARY THROTTLE	Engines	MFD	✓	✗	✓	Warning
Engine SELECT CONTROL HEAD	Engines	MFD	✓	✗	✓	Warning
Engine SPLIT RANGE THROTTLE	Engines	MFD	✓	✗	✓	Warning
Engine WARNING LEVEL 1	Engines	MFD	✓	✗	✓	Warning
Engine WARNING LEVEL 2	Engines	MFD	✓	✗	✓	Warning
Engine WATER IN FUEL	Engines	MFD	✓	✗	✓	Warning

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Transmission error - check transmission	Engines		✓	✗	✓	Warning
Transmission error - over temperature	Engines		✓	✗	✓	Warning
Transmission error - low oil pressure	Engines		✓	✗	✓	Warning
Transmission error - low oil level	Engines		✓	✗	✓	Warning
Transmission Error - check sail drive	Engines		✓	✗	✓	Warning

Appendix F Environmental measurements alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Sea Temp High	Environmental Measurements	Speed instrument	✓	✗	✓	Warning
Sea Temp High	Environmental Measurements	DPU, MFD	✓	✗	✓	Warning
Sea Temp In Range	Environmental Measurements	Speed instrument	✓	✗	✓	Warning
Sea Temp Low	Environmental Measurements	Speed instrument	✓	✗	✓	Warning
Sea Temp Low	Environmental Measurements	DPU, MFD	✓	✗	✓	Warning

Appendix G Fishfinder alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Sounder Connection Lost	Fishfinder	DSM	✗	✗	✓	Warning
Fish Finder Deep Arrival (previously known as Fishfinder Deep alarm)	Fishfinder	DSM	✗	✗	✓	Warning
Fish Finder Shallow Arrival (previously known as Fishfinder Shallow alarm)	Fishfinder	DSM	✗	✗	✓	Warning
Fish Alarm	Fishfinder		✗	✗	✓	Warning
Fish finder transducer Lost	Fishfinder		✗	✗	✓	Warning
Low Sounder Voltage	Fishfinder		✗	✗	✓	Warning

Appendix H Fuel alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70, i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Low Fuel Remaining	Fuel		✗	✗	✓	Warning

Appendix I Heading alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
No Heading	Heading	MFD	✓	✓	✓	Warning
Large compass deviation	Heading	Compass: AHRS	✓	✓	✓	Warning
Very large compass deviation	Heading	Compass: AHRS	✓	✓	✓	Warning

Appendix J Instrument alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Low battery	Instrument	Instrument	✓	✗	✓	Warning

Appendix K MOB alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Man Over Board	MOB	LifeTag, Other MOB device	✗	✓	✓	Emergency

Appendix L Navigation alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Anchor	Navigation		✓	✗	✓	Alarm
Anti Collision	Navigation		✓	✗	✓	Warning
Large XTE	Navigation	MFD	✓	✗	✓	Alarm
Pilot Large XTE	Navigation	MFD	✓	✗	✓	Alarm
Waypoint Arrival Perpendicular Passed	Navigation	Navigation computer	✓	✗	✓	Alarm
Waypoint Arrival	Navigation	Navigation computer	✓	✗	✓	Alarm

Appendix M Position alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Anchor	Position	MFD	✓	✗	✓	Warning
GPS Failure	Position	MFD	✓	✗	✓	Warning
GPS No Fix	Position	Pilot, MFD, i70 / i70s	✓	✗	✓	Warning
Track Full	Position		✓	✗	✓	Warning

Appendix N Radar alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Dangerous Target	Radar	MFD	✗	✗	✓	Alarm
External Dangerous Target	Radar	Radar	✗	✗	✓	Warning
External Guard Zone	Radar	Radar	✗	✗	✓	Warning
External Lost Target	Radar	Radar	✗	✗	✓	Warning
External Off Screen Target Lost	Radar	Radar	✗	✗	✓	Warning
Guard Zone 1 (version 1)	Radar	Radar	✗	✗	✓	Alarm
Guard Zone 1 (version 2)	Radar	Radar	✗	✗	✓	Alarm
Guard Zone 2 (version 1)	Radar	Radar	✗	✗	✓	Warning
Guard Zone 2 (version 2)	Radar	Radar	✗	✗	✓	Warning
Lost Target	Radar	MFD	✗	✗	✓	Alarm
Off Screen Target Lost	Radar	Radar MARPA	✗	✗	✓	Warning
Max Radar Target Acquired	Radar		✗	✗	✓	Warning

Appendix O Speed alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Boat Speed High	Speed	Speed instrument	✓	✓	✓	Warning
Boat Speed Low	Speed	Speed instrument	✓	✓	✓	Warning

Appendix P Steering alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Manual Off Course (a.k.a Pilot Manual Off Course)	Steering	ST60 Compass	✓	✗	✓	Alarm
Off Course	Steering		✓	✗	✓	Alarm

Appendix Q VHF alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
DSC Distress	VHF	DSC radio	✓	✗	✓	Alarm

Appendix R Wind alarms

Alarm	Generated by (function)	Generated by (product)	Supported (i70 / i70s)	Supported (LH2)	Supported (LH3.7+)	Severity
Apparent Wind Angle High	Wind	Wind instrument	✓	✗	✓	Warning
Apparent Wind Angle Low	Wind	Wind instrument	✓	✗	✓	Warning
Apparent Wind Speed High	Wind	Wind instrument	✓	✗	✓	Alarm
Apparent Wind Speed Low	Wind	Wind instrument	✓	✗	✓	Warning
True Wind High Angle	Wind	Wind instrument	✓	✗	✓	Warning
True Wind High Speed	Wind	Wind instrument	✓	✗	✓	Alarm
True Wind Low Angle	Wind	Wind instrument	✓	✗	✓	Warning
True Wind Low Speed	Wind	Wind instrument	✓	✗	✓	Warning

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