A65 and RS12

Chartplotter & GPS

Installation Manual

Contents

Important Information

Intended Use

The A65 is a GPS Chartplotter display unit that can be upgraded to include optional Fishfinder functionality.

This handbook contains important information on the installation of your A65 display and RS12 GPS Antenna. To get the best results in operation and performance, please take the time to thoroughly read the accompanying Owner's Handbook.

Safety Notices

WARNING: Navigation Aid

This product is intended to be used as an aid to navigation. Its accuracy can be affected by many factors, including equipment failure or defect, environmental conditions and incorrect handling or use. It is the Users responsibility to exercise common prudence and navigational judgement. This device should not be relied upon as a substitute for such prudence and judgement.

WARNING: Product Installation

This equipment must be installed in accordance with the instructions in this manual. Failure to do so could result in poor product performance, personal injury and/or damage to the vessel.

WARNING: Electrical Safety

Make sure the power supply is switched off before making any electrical connections.

CAUTION: Global Positioning System Antenna
Do not connect or disconnect the GPS antenna from the display unit while power is switched on as this may result in irreparable damage.

CAUTION: Water Ingress
To prevent the ingress of water and consequent damage to the display, ensure that the chart card door is firmly closed. This can be confirmed by an audible click.

CAUTION: CompactFlash Card Installation
When installing CompactFlash cards ensure that the card is
inserted in the correct orientation. DO NOT try to force the card
into position as this may result in irreparable damage to the card.

CAUTION: CompactFlash Card Damage
DO NOT use a metallic instrument such as a screwdriver or pliers to
help you remove a card, as this can cause irreparable damage.

EMC Conformance

All Raymarine equipment and accessories are designed to the best industry standards for use in the recreational marine environment.

Their design and manufacture conforms to the appropriate Electromagnetic Compatibility (EMC) standards, but correct installation is required to ensure that performance is not compromised. Although every effort has been taken to ensure that they will perform under all conditions, it is important to understand what factors could affect the operation of the product.

The guidelines given here describe the conditions for optimum EMC performance, but it is recognized that it may not be possible to meet all of these conditions in all situations. To ensure the best possible conditions for EMC performance within the constraints imposed by any location, always ensure the maximum separation possible between different items of electrical equipment.

For optimum EMC performance, it is recommended that wherever possible Raymarine equipment and cables connected to it are:

> At least 3 ft. (1 m) from any equipment transmitting or cables carrying radio signals e.g. VHF radios, cables and antennas. In the case of SSB radios, the distance should be increased to 7 ft. (2 m).

> More than 7 ft. (2 m) from the path of a radar beam. A radar beam can normally be assumed to spread 20 degrees above and below the radiating element.

Ensure that the equipment is supplied from a separate battery from that used for engine start. Voltage drops below 10 V, and starter motor transients, can cause the equipment to reset. This will not damage the equipment, but may cause the loss of some information and may change the operating mode.

Ensure that Raymarine specified cables are used. Cutting and rejoining these cables can compromise EMC performance and must be avoided unless doing so is detailed in the installation manual.

Suppression Ferrites

If a suppression ferrite is attached to a cable, this ferrite should not be removed. If the ferrite needs to be removed during installation it must be reassembled in the same position. If a ferrite is packed separately in the carton, it must be installed as soon as the cables are run.

The following illustration shows typical cable suppression ferrites sometimes used with Raymarine equipment. To ensure EMC compliance, always use these ferrites, if supplied by Raymarine for use with this equipment. If not supplied by Raymarine, a ferrite is not required for use with this equipment.
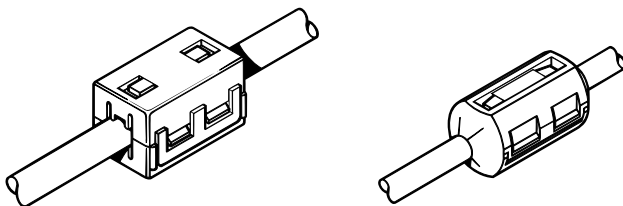
D3548-3

Connections to Other Equipment

If your Raymarine equipment is to be connected to other equipment using a cable not supplied by Raymarine, the suppression ferrite (if supplied) MUST always be attached to the cable nearest the Raymarine unit.

TFT LCD Displays

The colors of the display may seem to vary when viewed against a colored background or in colored light. This is a perfectly normal effect that will be seen with all color LCD displays.

In common with all Thin Film Transistor (TFT) LCD displays, the screen may exhibit a few (less than 5) wrongly illuminated pixels. These may appear as black pixels in a light portion of the screen or as colored pixels in black areas.

CAUTION: To provide protection against the damaging effects of UV light, Raymarine advises that you replace the sun cover provided when the color LCD display is not in use.

Product Disposal

When you want to dispose of this product at the end of its working life, please do so in accordance with local regulations.

Protective Dust Covers

Protective covers have been attached at the factory on the SONAR, AUX and NMEA connectors on the rear of the A65. If you are not using one or more of these ports, please keep the cover attached to the connector to protect it from the elements.

Dust Cover
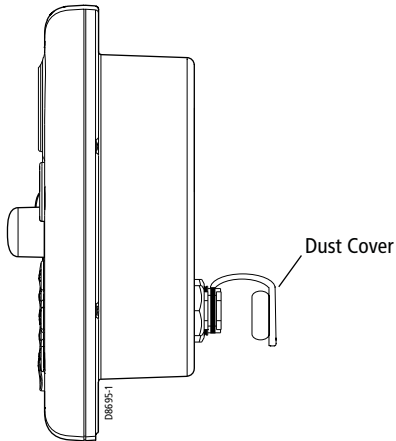
Chapter 1: Introduction

This manual provides information and instructions for installing your A65 display and RS12 GPS sensor.

1.1   Selecting the Display Unit Location

Your A65 can be mounted using the mounting bracket supplied, or console mounted using the optional flush mount kit.

Before you install the display, plan its installation, considering:

- **Convenience**. The mounting location should be easily accessible to allow operation of the front panel controls.
- **Access**. There must be sufficient space behind the display to allow cable connections to the rear panel connectors, avoiding tight bends in the cable.
- **Interference**. The selected location should be far enough away from devices that may cause interference, such as motors, generators and radio transmitters/receivers (see EMC Guidelines).
- **Magnetic compass.** Mount the display at least 3ft (1m) away from a magnetic compass.
- **Cable runs**. The display should be mounted as close as possible to the DC power source.
- **Environmental**. The display should be protected from physical damage and excessive vibration. Although the display unit is waterproof, it is good practice to mount it in a protected area away from prolonged and direct exposure to rain and salt spray.

1.2   What Comes in the Box

Unpack the display carefully, to prevent damage. Save the carton and packing, in case the unit has to be returned for service.

A65 GPS Chartplotter,
E33020 (US), E33022 (CE)

Frame Screws,
M3 (x4)
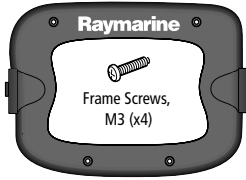
A65 Mount Frame,
part no. R38109

Power/Data Cable, 3 pin, 1.5m
part no. R08003

NMEA Cable, 5 pin, 1.5m
part no. R08004

A65 Sun Cover,
part no. R38108

Bracket Screws,
No.10 x 3/4 (x3)

Mounting Bracket,
part no. R38110

Bracket Knobs,
part no. R38107

RS12 GPS, part no. E33021

GPS Antenna

Thumb nuts (x2)

GPS Gasket

Studs (x2)

Pole Mount Bracket

Mount Screws, M4 (x2)
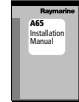
Installation Manual,
part no. 87055

Owner's Handbook,
part no. 81248

1.3   Optional Equipment

The following optional items are also available to complete your system:

Part No.	Description
E63070	DSM25, Digital Sounder Module, 200/50KHz, 500W
E36017	Flush Mount Kit, A65
R69086	Network Cable, A65, 3.5m
E36015	Network Cable, A65, 8.5m
E36016	Network Cable, A65, 15m
E66066	Transducer Adapter, Pathfinder (DSM250) to A Series
E66070	Transducer Adapter, Legacy Transducer (L365/L470) to A Series

1.4   Unit Size

The dimensions for your A65 display are as follows:

9.61in (244mm)

6.81in (173mm)

7.83in (199mm)

9.88in (251mm)

11.02in (280mm)

2.56in (65mm)

2.40in (61mm)

.866in (22mm)

3.11in (79mm)

3.43in (87mm)
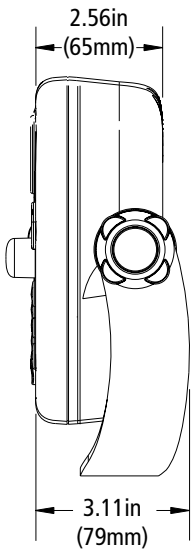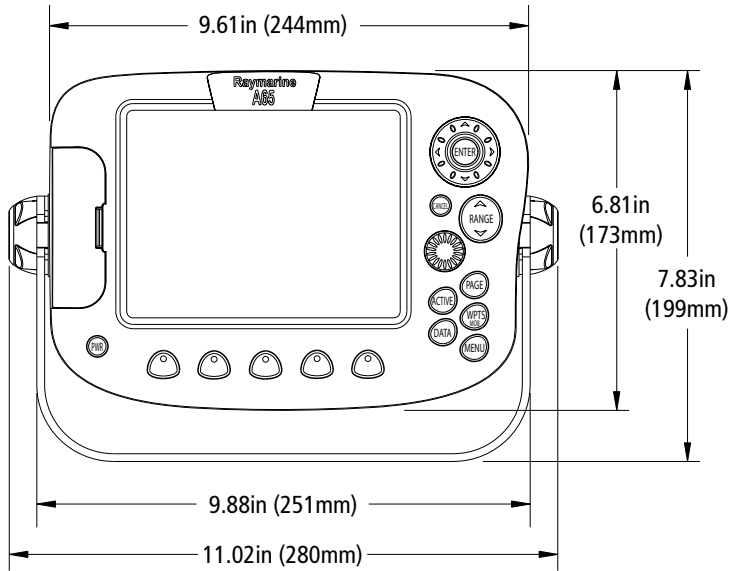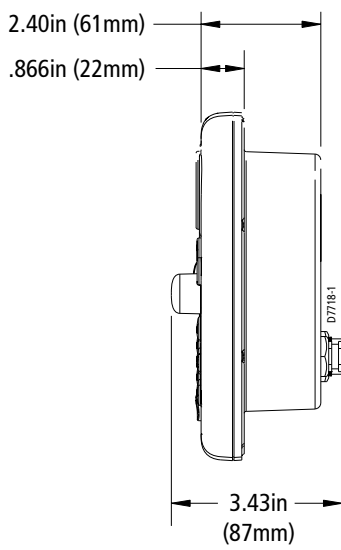
Bracket Mount

Flush Mount

Chapter 2: Installing the Display Unit

The A65 display unit is waterproof to IPX-7 and can be installed either above or below deck using either the mounting bracket or by flush mounting into the console.

2.1 Mounting

Note: *The mounting bracket and the mount frame to which the bracket attaches must be removed prior to flush mounting.*

Mounting Bracket Method

The mounting bracket can be used to secure the display unit to a dash, chart table, bulkhead or deckhead.

Mount Frame

Display Unit

Frame Screws (x4)

Mounting Bracket

Bracket Knobs (x2)

D7898-1
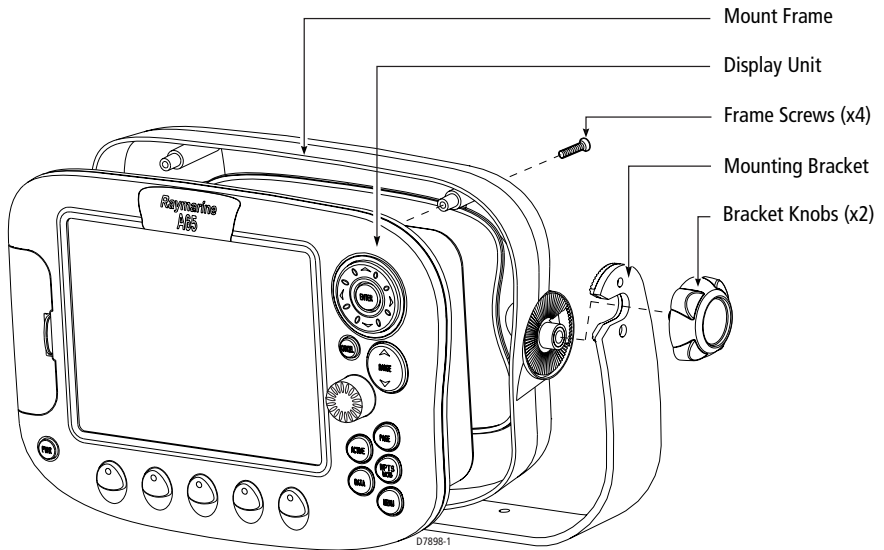
You should install the mount bracket as follows:

1. Loosen the knobs and remove the bracket from the unit.
2. Mark the locations of the bracket screw holes on the mounting surface.
3. Drill 9/64" (3mm) pilot holes at the marked locations, taking care that there are no cables or anything that may be damaged behind the surface.
4. Align the bracket holes with the holes on the mounting surface.

5. Use the screws and nuts supplied to securely attach the bracket to the mounting surface.
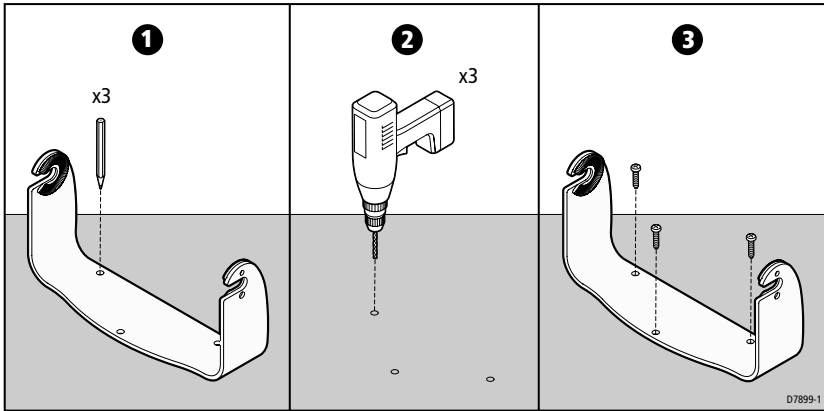
6. Attach the display unit to the bracket.
7. Adjust the unit angle for clear vision and tighten the knobs.

Flush Mounting

Flush mounting your display on the console requires the optional E36017 Flush Mount Kit.
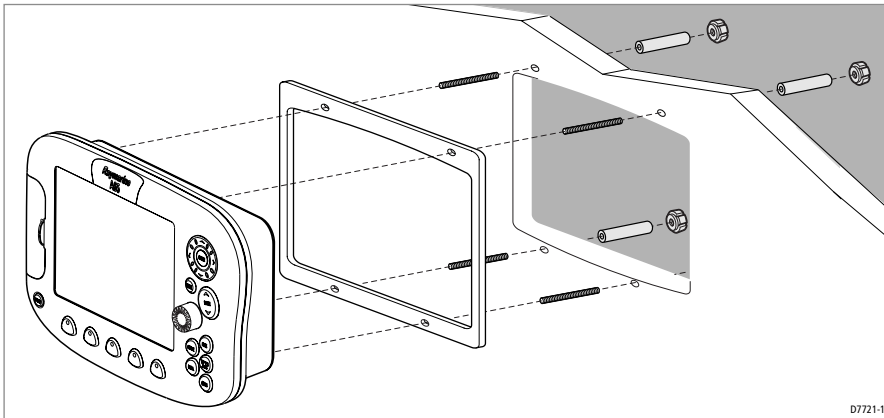
CAUTION: Installation

Make sure there are no hidden electrical wires or other items behind the selected location before proceeding.

Make sure there is sufficient rear access for mounting AND CABLING.

1. Check the selected location for the unit. A clear, flat area with suitable clearance behind the panel, is required.

2. Attach the template included with the flush mount kit to the selected location, using masking or self-adhesive tape, taking care that it is level.

3. Use a hole saw to make a pilot hole in each corner of the cut-out area.

4. Using a suitable saw, cut along the inside edge of the cut-out line.

5. Detach the mount frame from the unit by removing the four mounting screws. Make sure that the unit fits in the area that has been cut out.

6. Drill four 3/16 in (4.5 mm) holes as indicated on the template to accept the retaining bolts.

7. Place the gasket onto the display unit.

8. Connect the cables to the display, avoiding tight bends.

9. Slide the unit into the console and secure using the included hardware.

2.2   Cable Runs

When installing system cables consider the following:

- All cables should be adequately secured, protected from physical damage and exposure to heat. Avoid running cables through bilges or doorways, or close to moving or hot objects.

- Avoid acute bends.

- Where a cable passes through an exposed bulkhead or deckhead, a watertight feed-through should be used.

- Secure cables in place using tie-wraps or lacing twine. Coil any extra cable and tie it out of the way.

- Do not pull cables through a bulkhead or deckhead using a cord attached to the connector. This could damage the connections.

RS12

12V Power Supply

A65 Display

DSM25 Sounder

Fluxgate Compass

GPS

Power   Power

Fishfinder   NMEA

Transducer
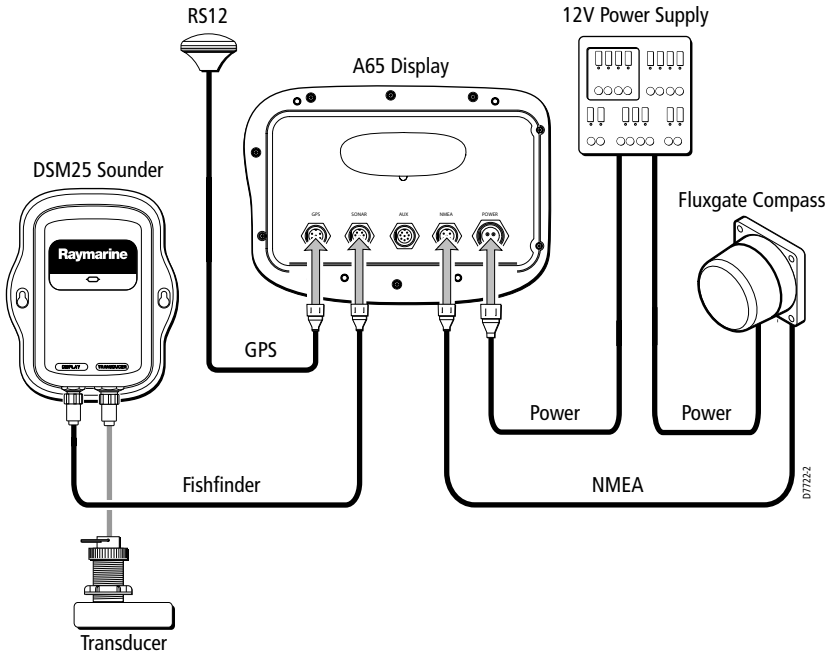
Making the Cable Connections

The cable connections are located on the back of the display unit as shown below:

GPS   SONAR   AUX   NMEA   POWER

D7719-1
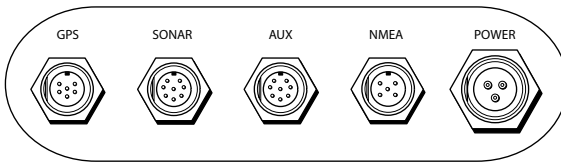
Power Input Cable (R08003)

This 1.5m (5 ft) cable is supplied for connecting to your boat's DC power supply.

DC power is connected at the 3-pin POWER connector on the unit's connector panel. The connector (viewed from the outside) and pin functions are shown in the following diagram and table.
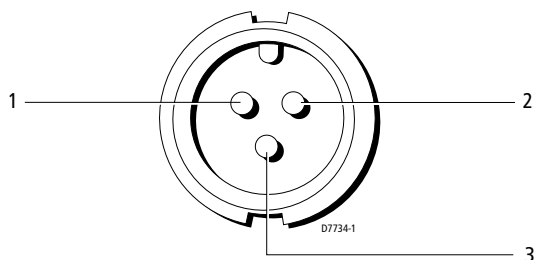
Power Connector

Pin No.	Function	Color
1	Battery positive (12 VDC systems)	Red
2	Battery negative	Black
3	Shield (drain wire)	No insulation

Power Supply

The A65 is intended for use on boat's DC power systems rated from 10.7 to 18 VDC. The power connection to the unit should be made at either the output of the battery isolator switch or at a DC power distribution panel. Power should be fed directly to the A65 via its own dedicated cable system and protected by a thermal circuit breaker or fuse on the red (positive) wire that is installed close to the power connection.

CAUTION: Dedicated Power Connection
The A65 also supplies power for the GPS and sounder units (if so equipped). To minimize succeptibility to display flickering due to power fluctuations, provide the display unit with its own dedicated connection to boat's power.

The RED wire must be connected to the feed from the positive (+) battery terminal and the BLACK wire to the feed from the negative (–) battery terminal. The shield wire (drain) should be connected to the boat's RF ground.

CAUTION: Fuse Protection
Install a fast blow 4 amp fuse on the red (positive) wire.

If a longer power cable run is required, use the supplied power cable to connect to the display unit. Then use a suitable connector block to connect the free end to the extension cable, taking particular care to ensure the correct polarity.

Use commonly practiced methods to determine proper wire gauge based on wire length, current, and wire tables. You may also trim the power cable supplied with the A65 to reduce overall wire length. Only use enough wire to connect the unit to the power source, including a service loop.

Note: *When the A65 has been powered off using the PWR key but is still electrically connected to the power supply, the GPS continues to draw current.*

The supplied power cable has a cross section of 10 mm.

CAUTION: Correct Polarity
If the power connections are accidentally reversed the system will not work. Use a multimeter to ensure that the input power leads are connected for correct polarity.

NMEA Cable (R08004)

The 5-pin, 1.5m (5 ft) NMEA input cable is supplied with exposed wire connecting tails. These should be connected to your existing NMEA instruments using suitable connector blocks as follows:

Function	Color	Pin no.
NMEA Input (-ve) common	Green	1
NMEA Input (+ve)	White	2
NMEA Output (+ve)	Yellow	3
NMEA Output (-ve) common	Brown	4
Not connected	Screen	5
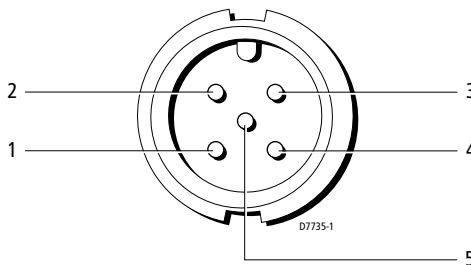
GPS Cable

Connect the 6-pin RS12 cable to the left-most connector, labeled GPS.

Chapter 3: Installing the GPS Antenna

The RS 12 package contains the following items:

1. Low profile GPS Receiver, with 10 m (33 ft) cable
2. Flush mount gasket
3. Mounting studs (x2) and thumb nuts (x2)
4. Pole mount kit *

Note: ** If you intend to mount the receiver on a pole, you will need to obtain a suitable pole with 1 inch 14 TPI thread.*

3.1 Selecting the Mounting Location

The RS12 can be mounted on a pole or flush mounted on a suitable horizontal surface.

Receiver Location

The RS12 receiver is designed to receive the signals emitted from satellites in a direct path. It should be mounted:

- On a horizontal surface.
- In a location that is open and clear of any obstructions (such as masts, search lights, or other structures) that could block line-of-sight reception of signals.
- As low as possible: the height of the receiver is not as important as it having a clear view horizon to horizon for optimum signal reception. In fact, the lower the unit can be mounted and have a clear view to satellites, the better. The more stable the unit, the more effectively it will track satellites low to the horizon.

Note: *Do NOT mount the receiver up a mast, as the receiver will swing with the boat, leading to significant COG/SOG errors.*

- As far as possible from any sources of interference: the receiver should be separated by at least 1 m (3 ft) from other antennas and electronic equipment. It should not be mounted in the direct path of a radar's beam.

When mounting the receiver flush to a surface:

- select an area that allows access to the underside of the mounting surface
- avoid areas where the receiver might be stepped on or tripped over

Cabling Route

When planning the location for the unit, consider the best route for running the cable between the receiver and GPS display unit or to the rest of an integrated system. Ideally, you should try to route the cable so it is:

- hidden from view
- separated as far as possible from other cables (to prevent interference)

When running cable, always observe the following guidelines:

- if a cable has to be fed through the deck, use a good quality deck grommet
- where cables are fed through holes, use grommets to prevent chafing
- secure long cable runs so they do not present a hazard
- wherever possible, route cables away from fluorescent lights, engines and radio transmitting equipment, as these may cause interference

3.2   Mounting the Receiver

When you have selected a suitable location, follow the installation instructions for *Pole Mounting* or *Surface Mounting*.

Pole Mounting

Note: *You will need to obtain a suitable pole with 1 inch 14 TPI thread.*

1. Securely attach the pole mount base to a suitable pole or rail mount bracket.
2. Pass the cable through either:

    A: the center hole of the pole mount base, or

    B: the side exit channel

Note: *If you intend to use the side exit channel, remove the two plastic tabs obstructing the channel. If you do not remove these tabs before using the cable channel, you could damage the cable.*

3. Check the cable is positioned correctly, then secure the receiver to the pole mount base using the two M4 screws provided.

D8689-1
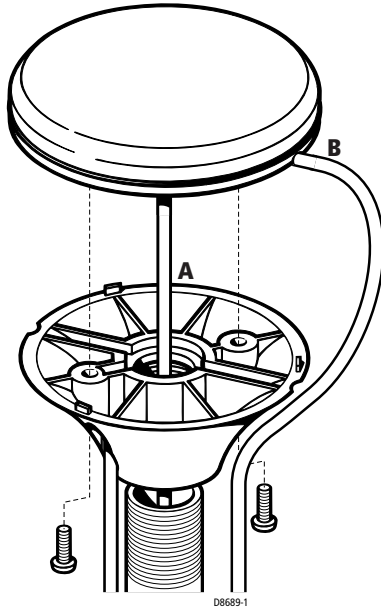
Surface Mounting

1. Use the template supplied in this handbook to mark the two 6 mm (0.25 in) mounting holes.

2. **OPTION A:**
   If the cable is going to pass through the mounting surface drill a 19 mm (0.75 in) center hole.

   OPTION B:
   If the cable is to exit from the side of the receiver above the mounting sur-face, remove the two plastic tabs (1) obstructing the cable channel. If you do not remove these tabs before using the cable channel, you could damage the cable.

3. Screw the two mounting studs (2) into the underside of the receiver.

4. Stick the supplied gasket (3) to the mounting surface, ensuring that the holes on the gasket correspond with the drilled holes.

5. Pass the cable down through the center hole (Option A) or route it through the cable exit channel (Option B).

6. Carefully position the receiver so the mounting studs pass through the holes in the mounting surface.

7. Secure the receiver to the surface using the two thumb nuts (4).
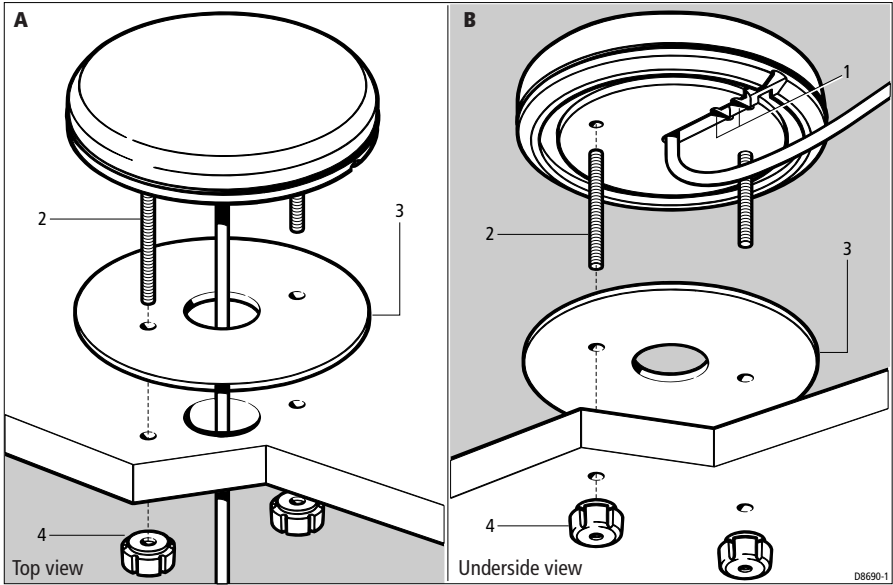
Making the Cable Connections

Connect the cable to the connector Labeled GPS on the back of the display unit as shown below:
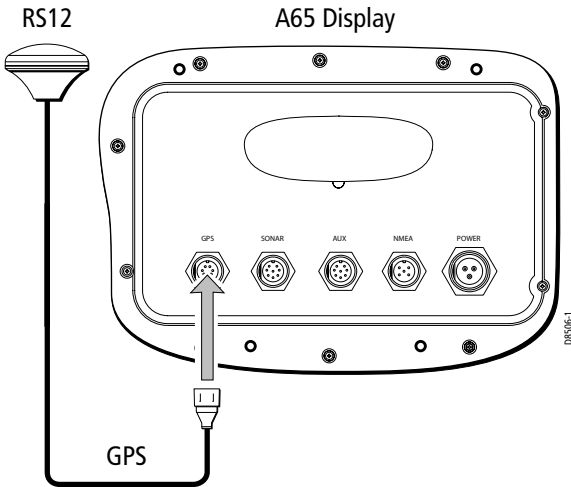
Chapter 4: Maintenance

4.1 Introduction

This chapter provides information on maintaining and troubleshooting your A65 GPS Chartplotter and on how to get assistance from Raymarine.

At regular intervals, carry out the following servicing procedures:
- Routine checks.
- Cleaning the Display.

Do not attempt any other servicing procedures.

Servicing and Safety

- Raymarine equipment should be serviced only by authorized Raymarine service technicians. They will ensure that service procedures and any replacement parts used will not affect performance. There are no user serviceable parts in any Raymarine product.
- Some products generate high voltages, so never handle the cables or connectors when power is being supplied to the equipment.
- When powered on, all electrical equipment produces electromagnetic fields. These can cause adjacent pieces of electrical equipment to interact with one another, with a consequent adverse effect on operation. In order to minimize these effects and enable you to get the best possible performance from your Raymarine equipment, guidelines are given in the installations manual, to enable you to ensure minimum interaction between different items of equipment, i.e. ensure optimum Electromagnetic Compatibility (EMC).
- Always report any EMC-related problem to your nearest Raymarine dealer. We use such information to improve our quality standards.
- In some installations, it may not be possible to prevent the equipment from being affected by external influences. In general this will not damage the equipment, but it can lead to spurious re-setting action, or momentarily may result in faulty operation.

Routine Checks

Carry out the following tasks on a regular basis:
- Examine all cables for signs of damage, such as chafing, cuts or nicks.
- Check that all cables are securely connected.

Cleaning the Display

Regularly clean your Display as follows:

1. Switch off the power to the Display.
2. Wipe the Display with a clean soft cloth. To remove oily finger marks use a spray cleaning agent of the type used for cleaning eyeglasses.

Note: *Do not use acid, ammonia based or abrasive products.*

4.2   Resetting the System

You can reset the A65 display in one of three ways:

*   Power-on Reset
*   Settings Reset
*   Settings and Data Reset

Power-on Reset

When you reset the system, at power-on the last used values are retained for all the options, except for those listed in the following table which are reset to the factory default each time:

Item	Power-on setting
Relative Motion mode	Relative
Brightness	ON at 100%

Settings Reset

The factory reset will set all values back to their original factory settings. The Waypoint and Route List databases are not reset. There are two ways to carry out a Settings Reset: using hardware keys or via the System Setup Menu.

To carry out a Settings Reset using the hardware keys:

1. With the A65 powered OFF, press and hold the left hand soft key.
2. Press and release the **POWER** key to power ON the display, but continue to hold in the soft key. A countdown message appears. Continue to depress the soft key until the RESETTING DATABASE message appears.

The reset will take place during this operation.

To carry out a Settings Reset using the System Setup Menu:

1. With the A65 powered ON, press the **MENU** key.
2. Use the trackpad to navigate to the System Setup menu.
3. Select Settings Reset. A confirmation message appears.
4. Press **ENTER** to accept the reset or **CANCEL** to quit without resetting.

Settings and Data Reset

This option returns all settings to their original factory values and deletes all waypoints and route lists.

To carry out a Settings and Data Reset:

1. With the A65 powered ON, press the **MENU** key.
2. Use the trackpad to navigate to the System Setup menu.
3. Select Settings and Data Reset. A confirmation message appears.
4. Press **ENTER** to accept the reset or **CANCEL** to quit without resetting.

4.3 Troubleshooting

All Raymarine products are, prior to packing and shipping, subjected to comprehensive test and quality assurance programs. However, if your A65 should develop a fault, this section will help you to identify the most likely cause and show the corrective action required to restore normal operation.

If, after referring to this section, you are still having problems with your Display, contact your local dealer, national distributor or Raymarine Technical Services Department for further advice.

Always quote the product serial numbers which are printed on the back of the unit.

Common Problems and How to Solve Them

Problem	Solution
Display is blank	1. Make sure that the power supply cable is sound and that all connections are tight and free from corrosion. 2. Check relevant fuses. 3. Make sure that Brightness level i s not set too low.
"NO DATA SOURCE" message	Make sure the boat's power system is capable of delivering at least 10.8 VDC at 4 amps. Check for: • Inadequate wire gauge or excessive wire length • Too many other electronics devices connected on the same circuit • Loose connections • Corroded fuse blocks and fuses • Low battery charge
"Invalid software: Version xx.x, Version xx.x required"	Incorrect software version installed. Contact your local Raymarine dealer.

4.4 Upgrading the Display

Raymarine occasionally issues software updates for improving product performance. The A65 includes a Software Upgrade Utility for installing these updates when they become available.

Product updates are generally available on the Raymarine website, under Customer Service/Software and Firmware upgrades. The update process requires:

- A CompactFlash memory card. Any card of 8 MB capacity or larger will usually work. Do not use the Navionics chart card for this procedure.
- A CompactFlash reader/writer. this device allows you to move files between your CF card and personal computer.
- A personal computer, Windows or Mac compatible is fine.

To upgrade your A65:

1. Download the update file from the Raymarine website to your CompactFlash card, according to the instructions on the website.
2. With the A65 powered OFF, insert the CF card into the A65 chart card reader.
3. Power the A65 on. The following screen appears.
   The Upgrade Package Available field displays the contents of the card. Local Unit Details displays the file version installed in your A65.

Contents of the CompactFlash card

Details of the highlighted file

Version number of files in your A65

4. Compare the upgrades that are available in the Upgrade Packages Available field with the version displayed in Local Unit Details. If a newer version is available under Upgrade Packages Available, use the trackpad to highlight that file.

Note: *If installing multiple files, upgrade one at a time and reboot only after all upgrades have been installed.*

5. Press the UPGRADE soft key. An upgrade progress bar replaces the two soft keys. You are prompted to confirm the upgrade.

6. Press Continue to confirm. When complete, the following message appears: "Upgrade Completed. Press ANY KEY to Continue".

7. Press a key on the A65. The UPGRADE and REBOOT soft keys now replace the text.

8. Install any other upgrades as needed, using procedures listed above.

9. When finished, remove the Compact Flash card from the A65 card reader and press REBOOT.

10. The following message appears: "Press ENTER to Continue or ANY KEY to Abort".

11. Press ENTER. The unit restarts. The upgrade is complete.

4.5   Technical Support

Raymarine provides a comprehensive customer support service, on the world wide web, through our worldwide dealer network and by telephone help line. If you are unable to resolve a problem, please use any of these facilities to obtain additional help.

Worldwide Web

Please visit the Customer Support area of our website at: www.raymarine.com

As well as providing a comprehensive Frequently Asked Questions section and servicing information, the website also gives e-mail access to the Raymarine Technical Support Department and a details of the locations of Raymarine agents, worldwide.

Navigate to the Customer Support page for links to:

*   Finding Factory Service locations and Authorized Dealers near you
*   Registering your Raymarine products
*   Accessing handbooks in Adobe Acrobat format
*   Downloading RayTech software updates
*   Accessing the Raymarine solution database

Clicking the Find Answers link routes you to our solution database. Search questions and answers by product, category, keywords, or phrases. If the answer you are seeking is not available, click the Ask Raymarine tab to submit your own question to our technical support staff, who will reply to you by e-mail.

If you don't have access to the world wide web, contact Technical Support where specialists are available to answer questions about installing, operating and trouble-shooting all Raymarine products.

Help us to help you

When requesting service, please quote the following product information:
*   Equipment type
*   Model number
*   Serial number
*   Software issue number

Contacting Raymarine in the US

You can contact Raymarine in the US either using the Raymarine world wide web as detailed above or by calling one of the telephone numbers below.

Accessories and Parts

You can obtain many Raymarine accessories and parts directly from your authorized Raymarine dealer. However, if your dealer does not have the item you want, contact Raymarine Technical Services at:

> 1-800-539-5539 extension 2333, or
> 1-603-881-5200 extension 2333.

You can use these numbers Monday to Friday 4:00 AM to 6:00 PM Eastern Standard Time or Eastern Daylight Savings Time.

If you are not sure which item is appropriate for your unit, you should first contact the Technical Support Department at:

> 1-800-539-5539 extension 2444, or
> 1-603-881-5200 extension 2444.

to verify your requirements.

Product Repair and Service

In the unlikely event that your Raymarine unit should develop a problem, contact your authorized Raymarine dealer for assistance. The dealer is best equipped to handle your service requirements and can offer timesaving help in getting your equipment back into normal operation.

If repairs cannot be obtained conveniently, obtain product service by returning the unit to:

> Raymarine Product Repair Center
> 21 Manchester Street
> Merrimack, NH 03054

The Product Repair Center is open Monday to Friday 8:15 AM to 5:00 PM Eastern Standard Time or Eastern Daylight Savings Time.

All products returned to the Repair Center are registered upon receipt and a confirmation letter is sent to acknowledge the repair status and the reference number of the product.

We will make every effort to carry out the repair and return your unit as quickly as possible.

If you wish to enquire about the repair status of your unit, contact the Repair Center at:

> 1-800-539-5539 extension 2118, or
> 1-603-881-5200 extension 2118.

Contacting Raymarine in Europe

You can obtain Technical Support, service and accessories from your authorized Raymarine dealer, or by contacting:

Raymarine plc
Anchorage Park, Portsmouth
PO3 5TD, England
Tel +44 (0)23 9271 4713
Fax +44 (0)23 9269 4642

Appendix: Specifications

A65 LCD Color Display

General

Approvals CE - conforms to	EN60945:2002
Mounting	Bracket with dash (flush) mount option
Size (H x W x D)	7.8 x 11.0 x 3.1 in (199 x 280x 79 mm), bracket mounted 6.8 x 9.6 x 2.4 in (173 x 244 x 61 mm), dash mounted
Weight	3.09 lbs (1.40 kg), bracket mounted 1.02 kg (2.25 lbs), dash mounted
Power	External 10.7–18.0 VDC required, 13.8 VDC nominal Floating earth/ fully isolated Consumption with full brightness: 9 W
Environmental: Op/Storage Temp. Range Humidity limit	Waterproof to IPX7; suitable for external mounting 14° F to 122° F (–10° C to + 50° C) up to 95% at 35° C non-condensing
Controls	9 defined keys, 5 soft keys, trackpad and rotary control
Display type	Color TFT LCD
Resolution	640 x 480 pixels (VGA)
Display size	6.5 in
Display Windows	Chart, Fishfinder and Data
Brightness	Screen and keypad illumination: 0 to 100% in 20 steps
Languages	UK English, US English, Danish, Dutch, Finnish, French, German, Icelandic, Italian, Norwegian, Portuguese, Russian, Spanish, Swedish
Alarms	Anchor, Arrival, Battery, Deep Depth, MOB, Off Track, Fish, Shallow Depth, Temperature
Connectors	3 pin POWER 5 pin NMEA 8 pin AUX 8 pin SONAR 6 pin GPS

General

Interfaces	RS12 GPS Antenna DSM25 Sounder NMEA0183, receive and transmit CompactFlash card slot
Waypoints	1000 waypoints entered via cursor, lat/long or at boat's position. 16 character name can be assigned. 6 different waypoint symbols available Additional storage available on CompactFlash cards
Waypoint Transfer	Waypoints database via NMEA
Man Overboard (MOB Mode)	Mark placed with course line; readout shows range, bearing, and lat/long of MOB
Screen functions	Full and half screens available dependent on function.

Chartplotter Features

Cartography	Navionics Charts on CompactFlash cards Chart of the world built in
Chart scaling	1/64nm (if cartographic detail is available to 4000nm
Presentation Modes	Head up, Course up or North up (selectable True or Magnetic, Relative or True Motion)
Waypoint Transfer	Waypoints database via NMEA or CompactFlash card
Routes	A route plan may contain up to 50 waypoints. Up to100 routes can be stored in the units internal memory.
Navigation information	Status Bar at top of screen displays chart range, orientation, relative motion mode, and position data.

Interfacing

DSM connection	For communication with DSM25
NMEA Input - NMEA 0183	APB, BWC, BWR, DBT, DPT, GLL, GGA, HDG, HDM, HDT, RMA, RMB, RMC, RTE, VLW, VTG, WPL, XTE, and ZDA
NMEA Output - User selectable	APB, BWC, BWR, DBT, DPT, GGA, GLL, MTW, RMB, RMC, VLW, VHW, VTG, WPL and ZDA

RS12 GPS Sensor

Approvals CE - conforms to	1999/5/EC
Dimensions:	diameter: 3.7 in (95 mm) height: 1.2 in (30 mm); 2.4 in (62 mm) with pole mount kit
Weight:	15.3 oz (0.435 kg)
Cable length:	33 ft (10 m)
Receiver type:	SD-GPS, WAAS/EGNOS/MSAS ready, 12 parallel channels
Operating conditions:	temperature range: 14°F to 158°F (–10°C to 70°C) water protection: waterproof to CFR46
Storage conditions	temperature range: 14°F to 158°F (–10°C to 70°C)
Frequency	1575.42 MHz ±1 MHz (C/A code), L1
Sensitivity	Tracking: –152 dBm Acquisition: –139 dBm
Signal acquisition:	Automatic
Time to first fix (TTTF):	Hot start < 6 seconds (typical); Warm start < 40 seconds (typical); Cold start < 60 seconds (typical)
Position accuracy:	2 DRMS ~ 2 m 95%
Speed accuracy:	0.1 kts RMS
Geodetic datum:	WGS-84

Index