Raymarine

GA200 Installation instructions

> ⚡ **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: Potential ignition source**
>
> This product is NOT approved for use in hazardous/flammable atmospheres. Do NOT install in a hazardous/flammable atmosphere (such as in an engine room or near fuel tanks).

Declaration of Conformity

FLIR Belgium BVBA declares that the GA200 Antenna, part number A80589 , is in compliance with the Radio Equipment Directive 2014/53/EU.

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

EMC installation guidelines

Raymarine equipment and accessories conform to the appropriate Electromagnetic Compatibility (EMC) regulations, to minimize electromagnetic interference between equipment and minimize the effect such interference could have on the performance of your system

Correct installation is required to ensure that EMC performance is not compromised.

> **Note:** In areas of extreme EMC interference, some slight interference may be noticed on the product. Where this occurs the product and the source of the interference should be separated by a greater distance.

For **optimum** EMC performance we recommend that wherever possible:

- Raymarine equipment and cables connected to it are:

  – At least 1 m (3.3 ft) 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 2 m (6.6 ft).

  – More than 2 m (6.6 ft) from the path of a radar beam. A radar beam can normally be assumed to spread 20 degrees above and below the radiating element.

- The product is supplied from a separate battery from that used for engine start. This is important to prevent erratic behavior and data loss which can occur if the engine start does not have a separate battery.

- Raymarine specified cables are used.

- Cables are not cut or extended, unless doing so is detailed in the installation manual.

> **Note:**
>
> **Where constraints on the installation prevent any of the above recommendations**, always ensure the maximum possible separation between different items of electrical equipment, to provide the best conditions for EMC performance throughout the installation.

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.

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.

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.

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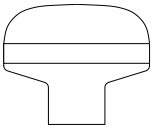
Raymarine is not responsible for damages or injuries caused by your use or inability to use the product, by the interaction of the product with products manufactured by others, or by errors in information utilized by the product supplied by third parties.

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.

Applicable products

This document is applicable to the following products:

	Part number	Name	Description
	A80589	GA200	GNSS (GPS / GLONASS) Antenna

Product overview

The GA200 is an external antenna, suitable for improving the reception of the internal GNSS (GPS / GLONASS) receivers of compatible MFDs, AIS devices, and VHF radios.

Note: The GA200 is not a receiver. It is an antenna only, and requires a connected compatible MFD, AIS device, or VHF radio that features an internal GNSS (GPS / GLONASS) receiver.
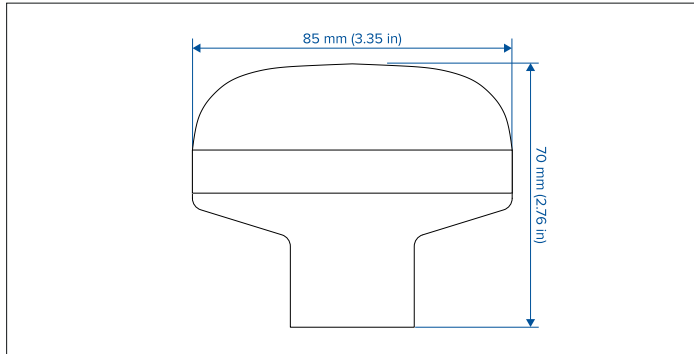

85 mm (3.35 in)

70 mm (2.76 in)

Important: If you are replacing a GPS antenna supplied with an older AIS receiver or an AIS700 with an early (low) serial number, please be aware that the mounting diameter (cutout) of the GPS receiver has changed, from Ø44 mm to Ø60 mm.

The GA200 has the following features:

- 10 m (33 ft.) fitted cable.
- Low power consumption.
- Surface or pole mountable.
- Compatibility with GPS, GLONASS, Beidou, and Galileo satellite systems.

Note: When the Beidou GNSS system becomes available, a GA200 MUST be used in order to obtain reception. Your MFD, AIS device, or VHF radio may also require a software update to enable support of the Beidou system.

Parts supplied
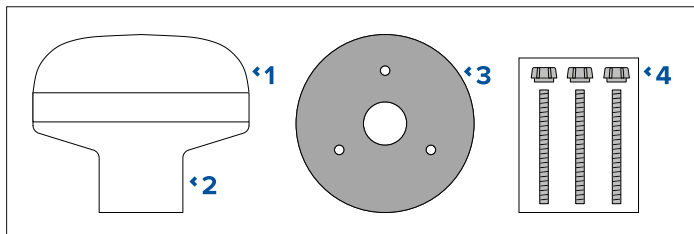
	Description
1	GNSS antenna, with captive cable 10m (33 ft).
2	Antenna pole mount adaptor
3	Antenna gasket
4	Antenna fixings (3 x M3x40 stud and thumb nut)

Connections overview

Antenna compatibility

The antenna is compatible with the following Raymarine products:

Multifunction displays (MFDs)	AIS receivers	VHF radios
a Series a95 / a97 / a98 / a125 / a127 / a128	AIS350 / AIS650	Ray53, Ray63, Ray73
eS Series eS97 / eS98 / eS127 / eS128	AIS700	Ray90, Ray91
Axiom Pro / Axiom XL	AIS4000 / AIS5000	

GNSS antenna location requirements

Important: If you are replacing a GPS antenna supplied with an older AIS receiver or an AIS700 with an early (low) serial number, please be aware that the mounting diameter (cutout) of the GPS receiver has changed, from Ø44 mm to Ø60 mm.

The GNSS antenna can be mounted either on a flat horizontal surface or on a suitable pole.

- If you intend to surface mount the antenna, ensure you have access to the underside of the mounting surface.
- If you intend to pole-mount the antenna, the pole needs to have a 1 inch 14 TPI thread.

Important:

The GNSS antenna must be mounted in a location that provides a good direct line-of-sight to the entire sky, around the horizon.

Ensure that the selected mounting location is:

- Open and clear of any obstructions (such as masts, search lights, or other structures) that could block line-of-sight to the sky.
- As low as possible, to keep the antenna as stable as possible. The more stable the antenna, the more effectively it will track satellites and provide stable data.
- As far as possible (at least 1 m (3 ft)) from other antennae and electronic equipment.

Do NOT mount the antenna:

- In any area where it could be stepped on or tripped over.
- Up a mast. This will cause the antenna to swing and give significant errors in position data.
- In the direct path of a Radar beam.
- In an engine room.

Antenna cable extension

The GNSS antenna is supplied with a fitted 10 m (33 ft.) cable. The length of the antenna cable can be extended if required.

The antenna cable length can be extended by up to 10 m (33 ft.), giving a total maximum cable length of 20 m (66 ft.)

RG58-Type 50 ohm coaxial cable and reliable connectors (offering protection against water ingress) must be used when extending the antenna cable.
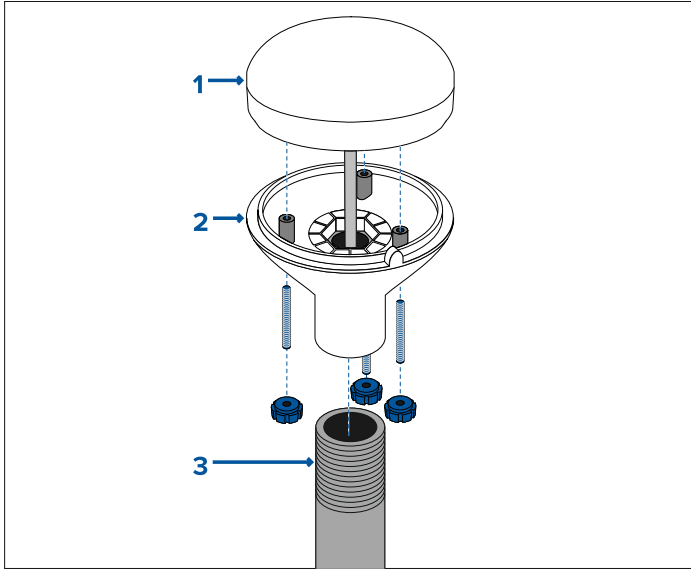
Note: Extending the cable length by more than the recommended maximum length will result in signal degradation.

Cable bend radius

Throughout the cable run, maintain a maximum cable bend radius of 50 mm (2 in.).

Pole mounting

If you want to pole-mount the antenna, obtain a pole of suitable length with a 1 inch 14 TPI thread.

| 1	GNSS antenna
2	Pole mount adaptor
3	Mounting pole (not supplied)

1. Ensuring that the *GNSS antenna location requirements* are met, securely attach the pole to a suitable, secure point.
2. Remove and retain the screws securing the antenna to the pole mount adaptor, then separate these two items.
3. Screw the pole mount adaptor fully onto the pole and ensure it is secure.
4. Feed the antenna cable through the center of the pole mount adaptor and then down through the center of the mounting pole.
5. Ensuring you do not trap the cable, place the antenna on the pole mount adaptor so the screw holes are aligned, then secure the antenna with the 3 screws removed during step 2.

Surface mounting

When surface mounting the antenna, you can route the cable either centrally (Option A) or from the side of the antenna (Option B).

Important: If you are replacing a GPS antenna supplied with an older AIS receiver or an AIS700 with an early (low) serial number, please be aware that the mounting diameter (cutout) of the GPS receiver has changed, from Ø44 mm to Ø60 mm.

1. Remove the 3 screws securing the antenna to its pole mount adaptor, then remove the adaptor from the antenna.
2. Using the supplied mounting template, mark and drill the mounting holes.

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

   - OPTION B: If the cable is to be routed from the side of the antenna (i.e. above the mounting surface), remove the piece of plastic covering the end of the cable channel and route the cable through the channel (1). Incorrect cable routing can cause damage to the cable.
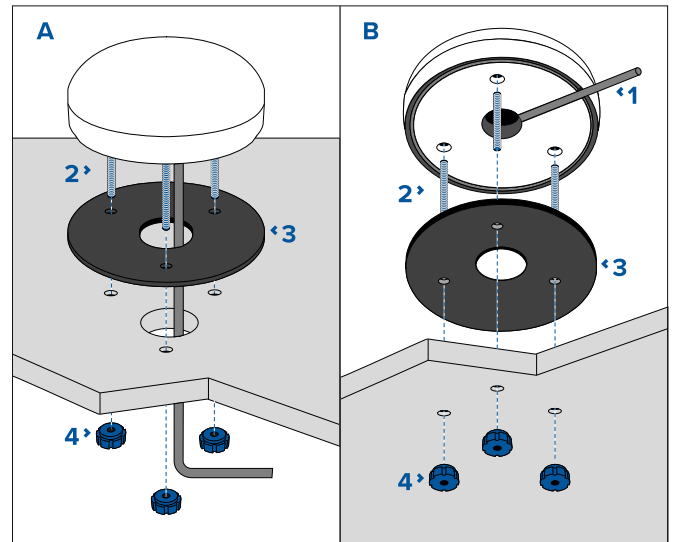

3. Screw the supplied mounting studs (2) into the underside of the antenna.
4. Stick the supplied gasket (3) to the mounting surface, ensuring that the holes on the gasket correspond with the drilled holes.
5. Route the cable as follows:

   - For Option A, feed the cable down through the center hole.

   - For Option B, route the cable along the cable channel.

6. Carefully place the antenna so the mounting studs pass through the holes in the mounting surface.
7. Secure the antenna to the surface using the supplied thumb nuts (4).

Note:

- The thumb nuts supplied with your product may differ slightly from those shown in the illustration.

- Only use the studs and thumb nuts supplied with the antenna.

Connecting the antenna

The antenna must be connected to a compatible multifunction display (MFD), AIS, or VHF unit.
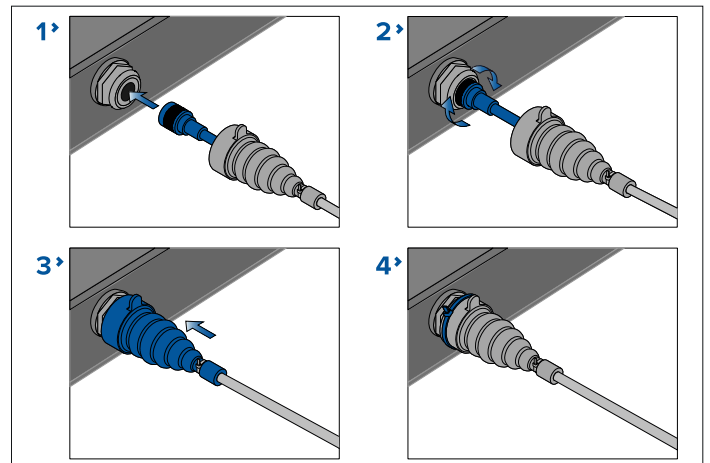
Note: For Ray53, Ray63, Ray73 radios, the GNSS antenna connection can be found at the end of a captive cable connected to the radio base unit.

1. Fully insert the antenna's cable connector into the antenna connector on the rear of your MFD, AIS, or VHF unit. Refer to the note above for Ray53, Ray63, Ray73 radios.
2. Turn the locking collar clockwise until **tight**.
3. Push the protective boot over the connection on the back of the MFD, AIS or VHF unit, and secure with a cable tie.

GNSS (GPS) troubleshooting

No fix displayed

Possible causes	Possible solutions
Geographic location or prevailing conditions preventing satellite fix.	Check to see if a fix is obtained in better conditions or another geographic location.
GNSS (GPS) connection fault.	Ensure that external GNSS (GPS) connections and cabling are correct and fault free.
External GNSS (GPS) receiver in poor location e.g.: • Below decks. • Close proximity to transmitting equipment, such as a VHF radio.	Ensure GNSS (GPS) receiver has a clear view of the sky.
GNSS (GPS) installation problem.	Refer to the installation instructions supplied with your product.

Note: A GNSS (GPS) Status screen is accessible from the display. This provides satellite signal strength and other relevant information.

Technical specification

Physical

Dimensions:	Diameter: 85 mm (3.35 in.) Height: 34 mm (1.34 in.) Height (including pole mount adaptor): 70 mm (2.76 in.)
Weight:	Unboxed weight (including cable): 0.5 Kg (1.1 lbs)

Environmental

Operating temperature range:	0°C to +55°C (+32°F to +131°F)
Storage temperature range:	-30°C to +70°C (-22°F to +158°F)
Relative Humidity:	95%
Water ingress protection:	IPx6 and IPx7

Conformance

Confor-mance:	• EN 60945:2002 • Radio Equipment Directive 2014/53/EU • Australia and New Zealand C-Tick compliance level 2