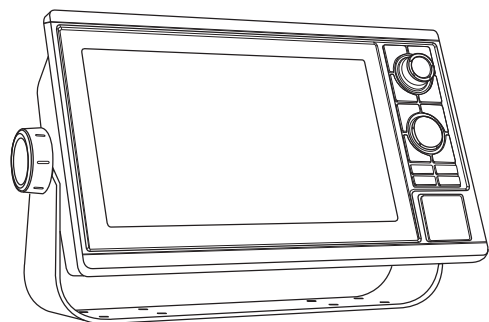


GARMIN®



## AQUAMAP™ 10x2/12x2 SERIES

### Installation Instructions

#### Important Safety Information

##### WARNING

See the Important Safety and Product Information guide in the product box for product warnings and other important information.

When connecting the power cable, do not remove the in-line fuse holder. To prevent the possibility of injury or product damage caused by fire or overheating, the appropriate fuse must be in place as indicated in the product specifications. In addition, connecting the power cable without the appropriate fuse in place voids the product warranty.

##### CAUTION

Always wear safety goggles, ear protection, and a dust mask when drilling, cutting, or sanding.

##### NOTICE

When drilling or cutting, always check what is on the opposite side of the surface.

To obtain the best performance and to avoid damage to your boat, install the device according to these instructions.

Read all installation instructions before proceeding with the installation. If you experience difficulty during the installation, contact Garmin® Product Support.

#### Garmin Support Center

Go to [support.garmin.com](http://support.garmin.com) for help and information, such as product manuals, frequently asked questions, videos, software updates, and customer support.

#### Registering Your Device

Help us better support you by completing our online registration today. Keep the original sales receipt, or a photocopy, in a safe place.

- 1 Insert a memory card into the card slot on the chartplotter.
- 2 Wait a few moments.  
The chartplotter creates a file named `GarminDevice.xml` in the Garmin folder on the memory card.
- 3 Remove the memory card.
- 4 Insert the memory card into your computer.
- 5 On your computer, go to [my.garmin.com](http://my.garmin.com).
- 6 Follow the on-screen instructions to download, install, and open the Garmin Express™ application.
- 7 Select **+ Add a Device**.
- 8 While the application searches, select **Sign In** next to **Have marine charts or devices?** near the bottom of the screen.
- 9 Create or sign in to your Garmin account.
- 10 Follow the on-screen instructions to set up your vessel.

#### 11 Select **+ Add**.

The Garmin Express application searches the memory card for the device information.

#### 12 Select **Add Device** to register the device.

When registration is complete, the Garmin Express application searches for additional charts and chart updates for your device.

When you add devices to the chartplotter network, repeat these steps to register the new devices.

#### Software Update

You may need to update the device software when you install the device or add an accessory to the device.

This device supports up to a 32 GB memory card, formatted to FAT32.

#### Loading the New Software on a Memory Card

The device may contain a software-update memory card. If so, you do not need to copy the software update onto a memory card. If a software update memory card is not included, you must copy the software update to a blank memory card.

- 1 Insert a memory card into the card slot on the computer.
- 2 Go to [www.garmin.com.cn/products/onthewater](http://www.garmin.com.cn/products/onthewater).
- 3 Select AQUAMAP 1000/1200 Series.
- 4 Select **Download**.
- 5 Read and agree to the terms.
- 6 Select **Download**.
- 7 Select **Run**.
- 8 Select the drive associated with the memory card, and select **Next > Finish**.

#### Updating the Device Software

Before you can update the software, you must obtain a software-update memory card or load the latest software onto a memory card.

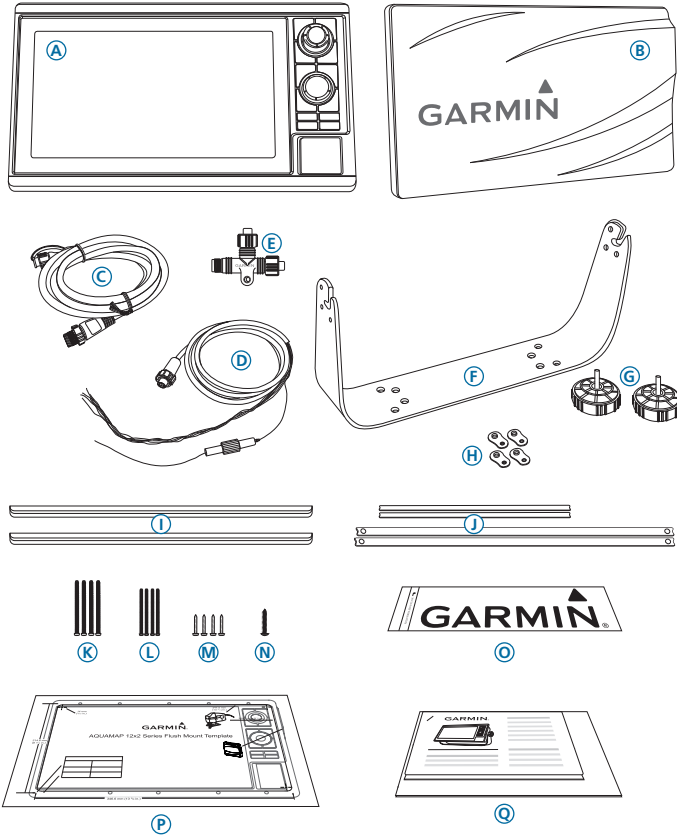
- 1 Turn on the chartplotter.
- 2 After the home screen appears, insert the memory card into the card slot.  
**NOTE:** In order for the software update instructions to appear, the device must be fully booted before the card is inserted.
- 3 Follow the on-screen instructions.
- 4 Wait several minutes while the software update process completes.
- 5 When prompted, leave the memory card in place and restart the chartplotter manually.
- 6 Remove the memory card.

**NOTE:** If the memory card is removed before the device restarts fully, the software update is not complete.



## In The Box (AQUAMAP 10x2 Series)

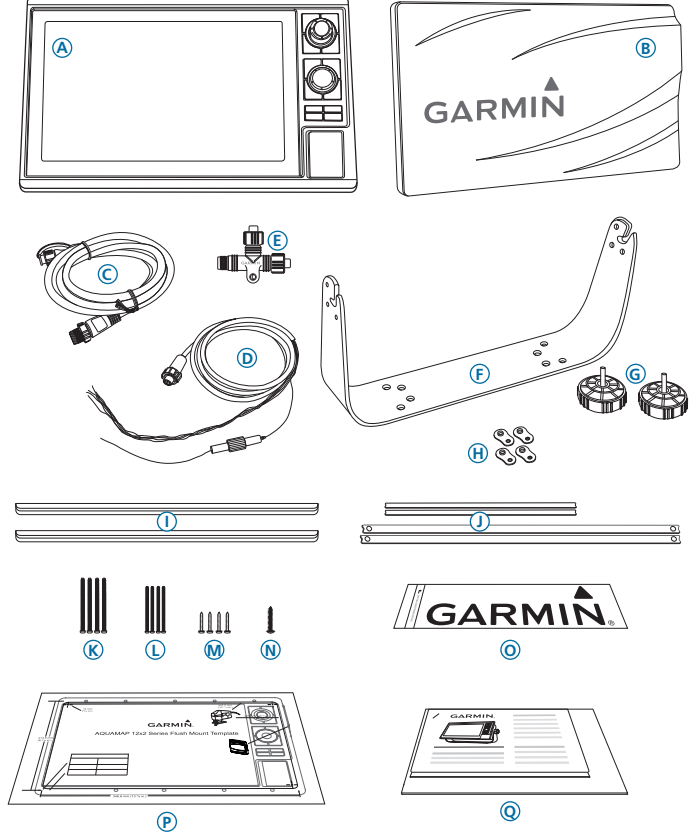
These are the parts you'll find inside the package.



Item	Description
A	AQUAMAP 10x2 series
B	Protective cover
C	NMEA 2000® drop cable (2 m)
D	Power cable (2 m)
E	NMEA 2000 T-connector
F	Bail mount
G	Bail mount knob x 2
H	Nut plate x 4
I	Trim piece snap cover x 2
J	Flush mount foam gasket x 4
K	Flush mount screw x 4, M4 x 0.7 x 70
L	Flush mount screw x 4, M3 x 0.5 x 60
M	Flush mount screw x 4, TFWM, 4.0 x 25
N	NMEA 2000 screw, self-tapping, 4 x 32
O	Garmin sticker
P	Flush mount template
Q	Documentation

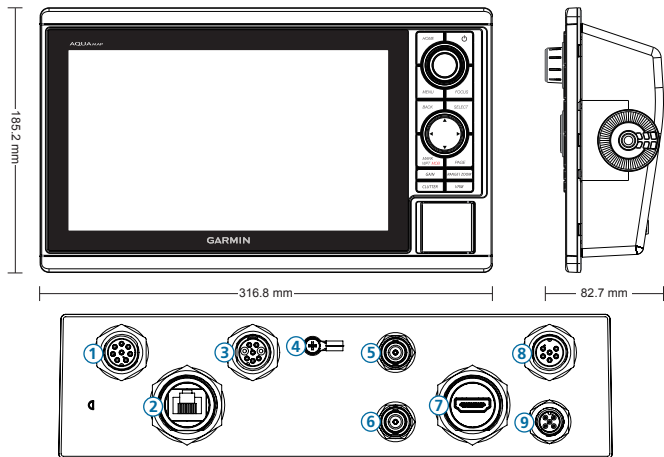
## In The Box (AQUAMAP 12x2 Series)

These are the parts you'll find inside the package.



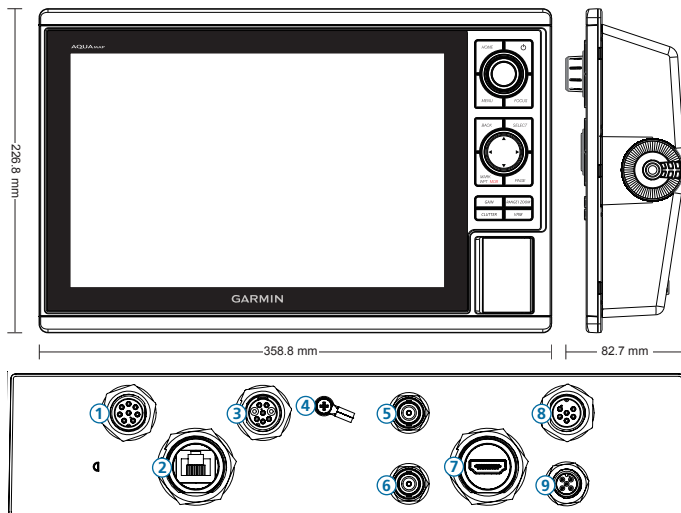
Item	Description
A	AQUAMAP 12x2 series
B	Protective cover
C	NMEA 2000® drop cable (2 m)
D	Power cable (2 m)
E	NMEA 2000 T-connector
F	Bail mount
G	Bail mount knob x 2
H	Nut plate x 4
I	Trim piece snap cover x 2
J	Flush mount foam gasket x 4
K	Flush mount screw x 4, M4 x 0.7 x 70
L	Flush mount screw x 4, M3 x 0.5 x 60
M	Flush mount screw x 4, TFWM, 4.0 x 25
N	NMEA 2000 screw, self-tapping, 4 x 32
O	Garmin sticker
P	Flush mount template
Q	Documentation

## Dimensions and Ports (AQUAMAP 10x2 Series)



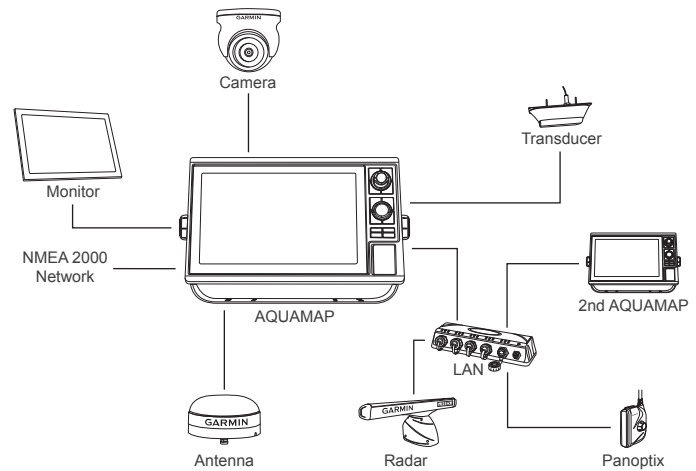
Item	Usage
①	8-pin XDCR
②	LAN
③	Power
④	Ground
⑤	Video CVBS input - BNC
⑥	GPS antenna - BNC
⑦	HDMI video output
⑧	NMEA 0183
⑨	NMEA 2000

## Dimensions and Ports (AQUAMAP 12x2 Series)



Item	Description
①	8-pin XDCR
②	LAN
③	Power
④	Ground
⑤	Video CVBS input - BNC
⑥	GPS antenna - BNC
⑦	HDMI video output
⑧	NMEA 0183
⑨	NMEA 2000

## Typical System Integration



## Tools Needed

- Drill
  - Bail mount: drill bits appropriate for the surface and hardware
  - Flush mount: 14 mm (9/16 in.), 6 mm (1/4 in.) and 3.6 mm (9/64 in.) (with nut plate), or 3.2 mm (1/8 in.) drill bit (with no nut plate)
- #2 Phillips screwdriver
- Jigsaw or rotary tool
- File and sandpaper
- Marine sealant (recommended)

## Mounting Considerations

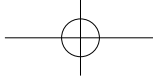
### NOTICE

This device should be mounted in a location that is not exposed to extreme temperatures or conditions. The temperature range for this device is listed in the product specifications. Extended exposure to temperatures exceeding the specified temperature range, in storage or operating conditions, may cause device failure. Extreme-temperature-induced damage and related consequences are not covered by the warranty.

When selecting a mounting location, you should observe these considerations.

- The location should provide optimal viewing as you operate your boat.
- The location should allow for easy access to all device interfaces, such as the keypad, touchscreen, and card reader, if applicable.
- The location must be strong enough to support the weight of the device and protect it from excessive vibration or shock.
- To avoid interference with a magnetic compass, the device should not be installed closer to a compass than the compass-safe distance value listed in the product specifications.
- The location must allow room for the routing and connection of all cables.
- The location must not be a flat, horizontal surface. The location should be in a vertical angle.

The location and viewing angle should be tested before you install the device. High viewing angles from above and below the display may result in a poor image.



## Bail Mounting the Device

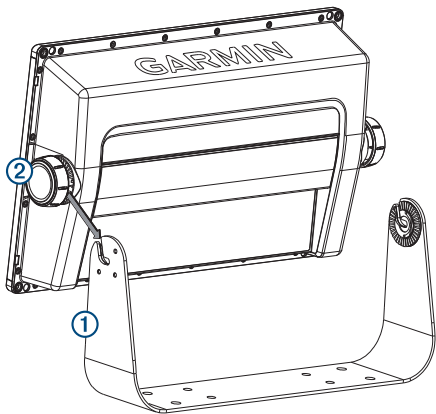
### NOTICE

If you are mounting the bracket on fiberglass with screws, it is recommended to use a countersink bit to drill a clearance counterbore through only the top gel-coat layer. This will help to avoid cracking in the gel-coat layer when the screws are tightened.

Stainless-steel screws may bind when screwed into fiberglass and overtightened. It is recommended to apply an anti-seize lubricant on the screws before installing them.

You can use a bail mount bracket (not included) to bail mount the device on a flat surface.

- 1 Using the bail-mount bracket ① as a template, mark the pilot holes.



- 2 Drill the pilot holes.
- 3 Using appropriate mounting screws (not included), secure the bail-mount bracket to the mounting surface.
- 4 Install the bail-mount knobs ② on the sides of the device.
- 5 Place the device in the bail-mount bracket and tighten the bail-mount knobs.

## Flush Mounting the Device

### NOTICE

Be careful when cutting the hole to flush mount the device. There is only a small amount of clearance between the case and the mounting holes, and cutting the hole too large could compromise the stability of the device after it is mounted.

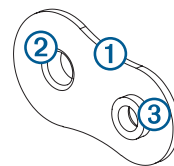
The included template and hardware can be used to flush mount the device in your dashboard.

- 1 Trim the template, and make sure it fits in the location where you want to mount the device.
- 2 Secure the template to the mounting location.
- 3 Using a 14 mm (9/16 in.) drill bit, drill one or more of the holes inside the corners of the solid line on the template to prepare the mounting surface for cutting.
- 4 Using a jigsaw or a rotary tool, cut the mounting surface along the inside line on the template.
- 5 Place the device in the cutout to test the fit.
- 6 If necessary, use a file and sandpaper to refine the size of the cutout.
- 7 Use a pry tool, such as a flat piece of plastic or a screwdriver, to carefully pry up the corners of the trim caps, slide the pry tool to the center, and remove the trim caps.

### NOTICE

Use a plastic pry tool when possible. Using a metal pry tool such as a screwdriver can damage the trim caps and the device.

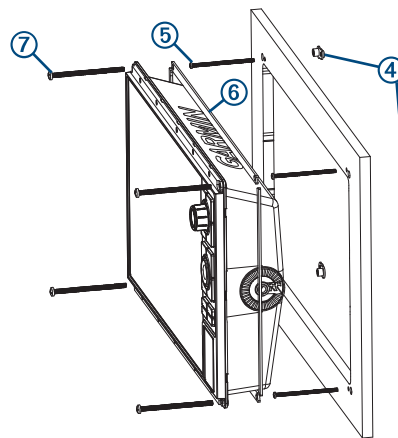
- 8 After the device fits correctly in the cutout, ensure the mounting holes on the device line up with the larger 6 mm (1/4 in.) holes on the template.
- 9 If the mounting holes on the device do not line up, mark the new hole locations.
- 10 Select an option:
  - If you are using a nut plate, drill a 6 mm (1/4 in.) hole in the larger hole location.
  - If you are not using a nut plate, drill 3.2 mm (1/8 in.) holes in the larger hole locations.
- 11 Starting in one corner of the template, place a nut plate ① over the larger hole ② drilled in the previous step.



If you are using a nut plate, the smaller hole ③ on the nut plate should line up with the smaller hole on the template.

- 12 If the smaller hole on the nut plate does not line up with the smaller hole on the template, mark the new hole location.
- 13 If you are using a nut plate, drill a 3.6 mm (9/64 in.) hole in the smaller hole location.
- 14 Repeat to verify placement of the remaining nut plates and holes on the template.
- 15 Remove the template from the mounting surface.
- 16 Starting in one corner of the mounting location, place a nut plate ④ on the back of the mounting surface, lining up the large and small holes.

The raised portion of the nut plate should fit into the larger hole.



- 17 Secure the nut plates to the mounting surface by fastening the included M3 screws ⑤ through the smaller 3.6 mm (9/64 in.) holes.
- 18 Install the foam gasket ⑥ on the back of the device.

The pieces of the foam gasket have adhesive on the back. Make sure you remove the protective liner before installing them on the device.
- 19 If you will not have access to the back of the device after you mount it, connect all necessary cables to the device before placing it into the cutout.

### NOTICE

To prevent corrosion of the metal contacts, cover unused connectors with the attached weather caps.

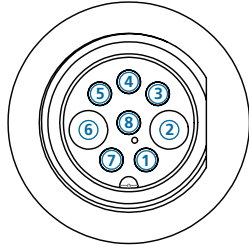
- 20 Apply marine sealant between the mounting surface and the device to properly seal and prevent leakage behind the dashboard.
- 21 If you will have access to the back of the device, apply marine sealant around the cutout.

- 22 Place the device into the cutout.
- 23 Secure the device to the mounting surface using the included M4 screws ⑦.
- 24 Wipe away all excess marine sealant.
- 25 Install the trim caps by snapping them in place around the edges of the device.

## Port Pin Definitions

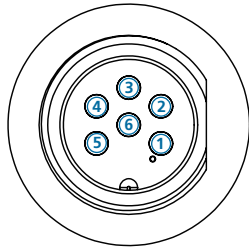
### Power Port

Pin	Description
①	NMEA TXB
②	Power supply - / Ground
③	NMEA TXA
④	NMEA RXA
⑤	Alarm
⑥	Power supply +
⑦	NMEA RXB
⑧	Accessory on



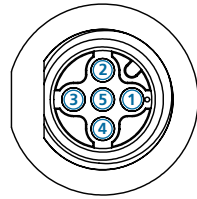
### NMEA 0183 Port

Pin	Description
①	TXA
②	Ground
③	TXB
④	RXA
⑤	NC
⑥	RXB



### NMEA 2000 Port

Pin	Description
①	NC
②	Power supply +
③	Power supply - / Ground
④	CAN_H
⑤	CAN_L



## Cable and Connection Considerations

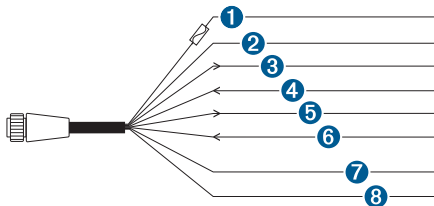
### NOTICE

If your model has a DVI port, a blue rubber seal is included. This seal must be installed between the DVI port and DVI cable connector to avoid damage to the connectors.

- The cables may have been packaged without the locking rings installed. If so, you should route the cables before you install the locking rings.
- After connecting a locking ring to a cable, make sure the ring is securely connected and the O-ring is in place so the connection remains secure.

### Power/NMEA® 0183 Cable

- The wiring harness connects the device to power, NMEA 0183 devices, and a lamp or a horn for visible or audible alerts.
- If it is necessary to extend the NMEA 0183 or alarm wires, you must use 22 AWG (.33 mm<sup>2</sup>) wire.



Item	Wire Color	Wire Function
①	Red	Power supply +
②	Black	Power supply - / Ground (power supply and NMEA 0183)
③	Blue	NMEA 0183 TXA
④	Brown	NMEA 0183 RXA
⑤	Gray	NMEA 0183 TXB
⑥	Violet	NMEA 0183 RXB
⑦	Orange	Accessory on
⑧	Yellow	Alarm low

## Connecting the Wiring Harness to Power

### WARNING

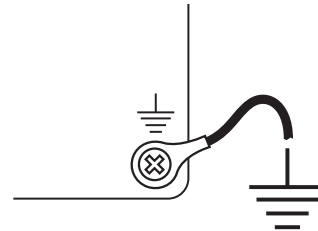
When connecting the power cable, do not remove the in-line fuse holder. To prevent the possibility of injury or product damage caused by fire or overheating, the appropriate fuse must be in place as indicated in the product specifications. In addition, connecting the power cable without the appropriate fuse in place voids the product warranty.

- 1 Route the wiring harness to the power source and to the device.
- 2 Connect the red wire to the positive (+) battery terminal, and connect the black wire to the negative (-) battery terminal.
- 3 If necessary, install the locking ring and O-ring on the end of the wiring harness.
- 4 Insert the cable into the POWER connector on the back of the device, pushing firmly.
- 5 Turn the locking ring clockwise to attach the cable to the device.

### Additional Grounding Consideration

This consideration is applicable only to devices that have a grounding screw. Not all models have a grounding screw.

This device should not need additional chassis grounding in most installation situations. If you experience interference, the grounding screw on the housing can be used to connect the device to the water ground of the boat to help avoid the interference.



## GPS Antenna Considerations

Before you can receive GPS information, you must install a compatible external GPS antenna and connect it to the device. When connecting the GPS antenna, you should observe these considerations.

- For a list of compatible antenna, see [support.garmin.com](http://support.garmin.com).
- Follow the instructions provided with the GPS antenna to install it on your boat.
- Connect the antenna to the GPS ANT port.

## Connecting the Device to a Transducer

Devices that can receive depth information from a Garmin transducer have a port labeled 8-PIN XDCR. Go to [www.garmin.com](http://www.garmin.com) or contact your local Garmin dealer to determine the appropriate type of transducer for your needs.

- 1 Follow the instructions provided with your transducer to install it on your boat correctly.
- 2 Route the transducer cable to the back of your device, away from sources of electrical interference.
- 3 Connect the transducer cable to the 8-PIN XDCR port on your device.

## Garmin Marine Network Considerations

### NOTICE

A Garmin Power over Ethernet (PoE) Isolation Coupler (P/N 010-10580-10) must be used when connecting any third-party device, such as a FLIR® camera, to a Garmin Marine Network. Connecting a PoE device directly to a Garmin Marine Network chartplotter damages the Garmin chartplotter and may damage the PoE device. Connecting any third-party device directly to a Garmin Marine Network chartplotter will cause abnormal behavior on the Garmin devices, including the devices not properly turning off or the software becoming inoperable.

This device can connect to additional Garmin Marine Network devices to share data such as radar, sonar, and detailed mapping. When connecting Garmin Marine Network devices to this device, observe these considerations.

- All devices connected to the Garmin Marine Network must be connected to the same ground.
- A Garmin Marine Network cable must be used for all Garmin Marine Network connections.
  - Third-party CAT5 cable and RJ45 connectors must not be used for Garmin Marine Network connections.
  - Additional Garmin Marine Network cables and connectors are available from your Garmin dealer.
- The ETHERNET ports on the device each act as a network switch. Any compatible device can be connected to any ETHERNET port to share data with all devices on the boat connected by a Garmin Marine Network cable.

## NMEA 2000® Considerations

### NOTICE

If you are connecting this device to an existing NMEA 2000 network, the NMEA 2000 network should already be connected to power. Do not connect the NMEA 2000 power cable to an existing NMEA 2000 network, because only one power source should be connected to a NMEA 2000 network.

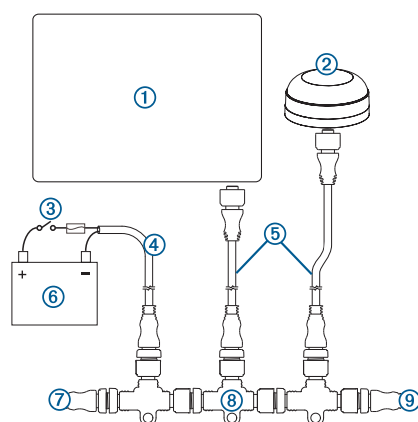
If you are connecting this device to an existing NMEA 2000 network or engine network by another manufacturer, you should install a NMEA 2000 Power Isolator (010-11580-00) between the existing network and the Garmin devices.

If you are installing a NMEA 2000 power cable, you must connect it to the boat ignition switch or through another in-line switch. NMEA 2000 devices will drain your battery if the NMEA 2000 power cable is connected to the battery directly.

This device can connect to a NMEA 2000 network on your boat to share data from NMEA 2000 compatible devices such as a GPS antenna or a VHF radio. The included NMEA 2000 cables and connectors allow you to connect the device to your existing NMEA 2000 network. If you do not have an existing NMEA 2000 network you can create a basic one using cables from Garmin.

If you are unfamiliar with NMEA 2000, you should read the “NMEA 2000 Network Fundamentals” chapter of the Technical Reference for NMEA 2000 Products. You can find this document using the “Manuals” link on the product page for your device at [www.garmin.com](http://www.garmin.com).

The port labeled NMEA 2000 is used to connect the device to a standard NMEA 2000 network.



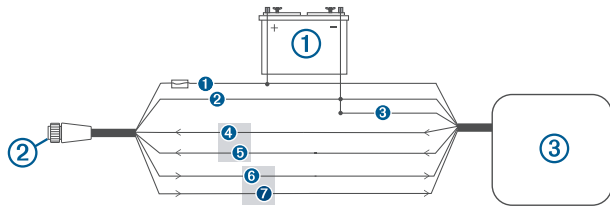
Item	Description
①	NMEA 2000 compatible Garmin device
②	GPS antenna
③	Ignition or in-line switch
④	NMEA 2000 power cable
⑤	NMEA 2000 drop cable
⑥	12 Vdc power source
⑦	NMEA 2000 terminator or backbone cable
⑧	NMEA 2000 T-connector
⑨	NMEA 2000 terminator or backbone cable

## NMEA 0183 Connection Considerations

- There is one internal NMEA 0183 input port (RX port) and one internal NMEA 0183 output port (TX port) on the included NMEA 0183 data cable. You can connect one NMEA 0183 device to the internal RX port to input data to this Garmin device, and you can connect up to three NMEA 0183 devices in parallel to the internal TX port to receive data output by this Garmin device.
- See the installation instructions for the NMEA 0183 device to identify the transmit (TX) and receive (RX) wires.
- The device provides one TX port and one RX port. Each internal port has 2 wires, labeled A and B according to the NMEA 0183 convention. The corresponding A and B wires of each internal port should be connected to the A (+) and B (-) wires of the NMEA 0183 device.
- You must use 28 AWG, shielded, twisted-pair wiring for extended runs of wire. Solder all connections and seal them with heat-shrink tubing.
- Do not connect the NMEA 0183 data wires from this device to power ground.
- The power cable from this device and the NMEA 0183 devices must be connected to a common power ground.
- For two-way communication with a NMEA 0183 device, the internal ports on the NMEA 0183 data cable are not linked. For example, if the input of the NMEA 0183 device is connected to TXA on the data cable, you can connect the output port of your NMEA 0183 device to the input port on the wiring harness.
- See NMEA 0183 Information, page 6 for a list of the approved NMEA 0183 sentences that are output by and input to this device.
- The internal NMEA 0183 ports and communication protocols are configured on the connected Garmin device. See the NMEA 0183 section of the chartplotter owner’s manual for more information.

### NMEA 0183 Device Connections

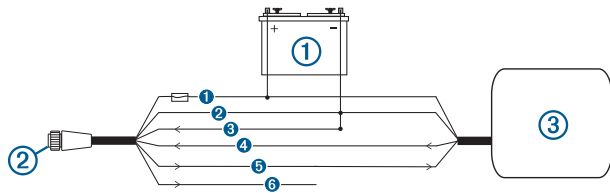
This diagram illustrates two-way connections for both sending and receiving data. You can also use this diagram for one-way communication. To receive information from a NMEA 0183 device, refer to items ①, ②, ③, ④, and ⑤ when connecting the Garmin device. To transmit information to a NMEA 0183 device, refer to items ①, ②, ③, ⑥, and ⑦ when connecting the Garmin device.



Item	Description
①	DC Power supply / battery
②	Power/NMEA 0183 cable
③	NMEA 0183 device

Item	Garmin Wire Color	Garmin Wire Function	NMEA 0183 Device Wire Function
①	Red	Power supply +	Power supply +
②	Black	Power supply - / ground	Power supply - / ground
③	Black	Data ground	Data ground
④	Brown	RXA (+)	TXA (+)
⑤	Violet	RXB (-)	TXB (-)
⑥	Blue	TXA (+)	RXA (+)
⑦	Gray	TXB (-)	RXB (-)

### Single-Ended NMEA 0183 Device Connections



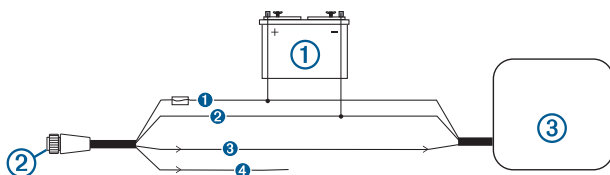
Item	Description
①	Power source
②	Power/NMEA 0183 cable
③	NMEA 0183 device

Item	Garmin Wire Color	Garmin Wire Function	NMEA 0183 Device Wire Function
①	Red	Power	Power
②	Black	Power ground	Power ground
③	Violet	RXB	Not applicable
④	Brown	RXA	TX
⑤	Blue	TXA	RX
⑥	Gray	TXB	N/A

- If the NMEA 0183 device has only one input (receive, RX) wire (no A, B, +, or -), you must leave the TXB wire unconnected.
- If the NMEA 0183 device has only one output (transmit, TX) wire (no A, B, +, or -), you must connect the RXB wire to ground.

### NMEA 0183 Device Connected with a Single Receive Wire

In this example, the NMEA 0183 device is receiving data from the chartplotter.



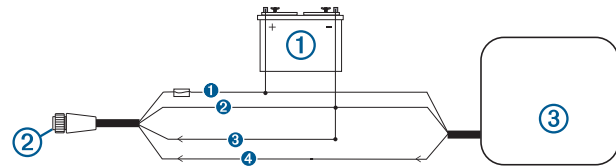
Item	Description
①	DC Power supply / battery
②	Power/NMEA 0183 cable

③	NMEA 0183 device
---	------------------

Item	Garmin Wire Color	Garmin Wire Function	NMEA 0183 Device Wire Function
①	Red	Power supply +	Power supply +
②	Black	Power supply - / ground	Power supply - / ground
③	Blue	TXA	RXA
④	Gray	TXB	Not applicable

### NMEA 0183 Device Connected with a Single Transmit Wire

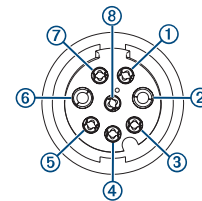
In this example, the NMEA 0183 device is sending data to the chartplotter.



Item	Description
①	DC Power supply / battery
②	Power/NMEA 0183 cable
③	NMEA 0183 device

Item	Garmin Wire Color	Garmin Wire Function	NMEA 0183 Device Wire Function
①	Red	Power	Power
②	Black	Power ground	Power ground
③	Violet	RXB	Not applicable
④	Brown	RXA	TXA

### NMEA 0183 and Power Cable Pinout

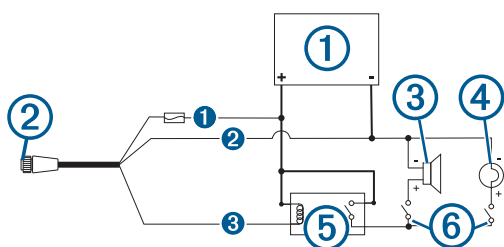
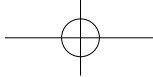


Pin	Wire Color	Wire Function
①	Gray	NMEA TXB
②	Black	Ground / Power supply -
③	Blue	NMEA TXA
④	Brown	NMEA RXA
⑤	Yellow	Alarm
⑥	Red	Power supply +
⑦	Violet	NMEA RXB
⑧	Orange	Accessory on

### Lamp and Horn Connections

The device can be used with a lamp, a horn, or both, to sound or flash an alert when the chartplotter displays a message. This is optional, and the alarm wire is not necessary for the device to function normally. When connecting the device to a lamp or horn, observe these considerations.

- The alarm circuit switches to a low-voltage state when the alarm sounds.
- The maximum current is 1 A, and a relay is needed to limit the current from the chartplotter to 1 A.
- To manually toggle visual and audible alerts, you can install single-pole, single-throw switches.



Item	Description
①	DC Power supply / battery
②	Power cable
③	Horn
④	Lamp
⑤	Relay (1 A coil current)
⑥	Toggle switches to enable and disable lamp or horn alerts

Item	Wire Color	Wire Function
①	Red	Power supply +
②	Black	Power supply - / Ground
③	Yellow	Alarm

### HDMI® Out Video Considerations

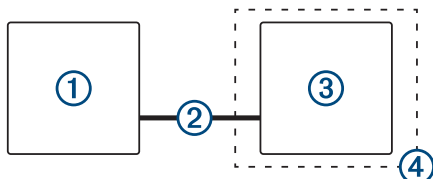
#### NOTICE

To prevent corrosion due to moisture, you must use Garmin GPSMAP® accessory cables when connecting the chartplotter to the video display. Using different cables voids your warranty.

Through the HDMI OUT port, you can duplicate the chartplotter screen on another device, such as a television or monitor.

The Garmin GPSMAP HDMI accessory cable is 4.5 m (15 ft) long. If you need a longer cable, you should use an active HDMI cable only. You need an HDMI coupler to connect the two HDMI cables.

You must make all cable connections in a dry environment.



Item	Description
①	AQUAMAP 10x2/12x2 series MFD
②	GPSMAP HDMI cable (HDMI OUT)
③	Third party display with an HDMI port, such as a monitor or television
④	Dry environment, protected from moisture

### Composite Video Considerations

This chartplotter allows video input from composite video sources using the port labeled CVBS IN. When connecting composite video, you should observe these considerations.

- The CVBS IN port uses a BNC connector. You can use a BNC to RCA adapter to connect a composite-video source with RCA connectors to the CVBS IN port.
- Video is shared across the Garmin Marine Network, but it is not shared across the NMEA 2000 network.

## Specifications

Device	Specification	Measurement
AQUAMAP 10x2 series	Dimensions (W x H x D)	318 x 185 x 69 mm (12 1/2 x 7 5/16 x 2 11/16 in.)
	Weight	4.1 lbs (1.85 kg)
	Display size (W x H)	224 x 125 mm (8 3/4 x 4 15/16 in.)
	Display type	WSVGA
	Display resolution	1024 x 600 pixels
	Max. power consumption at 12 Vdc	32.4 W
	Typical current draw at 12 Vdc	1.9 A
AQUAMAP 12x2 series	Dimensions (W x H x D)	359 x 227 x 69 mm (14 1/8 x 8 5/16 x 2 11/16 in.)
	Weight	2.34 kg (5.2 lbs)
	Display size (W x H)	262 x 164 mm (10 5/16 x 6 7/16 in.)
	Display type	WXGA
	Display resolution	1280 x 800 pixels
	Max. power consumption at 12 Vdc	43.2 W
	Typical current draw at 12 Vdc	2.2 A
Sonar models	Frequencies*	Traditional: 50/200, 77/200 kHz Single Channel CHIRP: 40 to 240 kHz Garmin ClearVü CHIRP: 260/455/800 kHz
	Transmit power (RMS)**	Traditional 50/200 kHz: max 2 kW Traditional 77/200 kHz: max 500 W CHIRP high/mid/low bands: max 1 kW Garmin ClearVü CHIRP: max 500 W
	Depth***	5,000 ft at 2 kW
All models	Temperature range	-15° to 50°C (5° to 122°F)
	Material	Polycarbonate plastic and die-cast aluminum
	Water rating****	IEC 60529 IPX7
	Fuse	8 A, 125 V fast-acting
	Input power	10 to 32 Vdc
	Memory card	2 SD® card slots; 32 GB max. storage
	Max. waypoints	30,000
	Max. routes	200
	Max. active track points	50,000 points, 50 saved tracks
	Compass-safe distance	65 cm (25.5 in.)
	NMEA 2000 LEN	2
NMEA 2000 draw	75 mA max.	

\* Dependent upon transducer.

\*\* Dependent upon transducer rating and depth.

\*\*\* Dependent upon the transducer, water salinity, bottom type, and other water conditions.

\*\*\*\* The device withstands incidental exposure to water of up to 1 m for up to 30 min. For more information, go to [Garmin.com/waterrating](http://Garmin.com/waterrating).



## NMEA 2000 PGN Information

Type	PGN	Description
Transmit and receive	059392	ISO acknowledgment
	059904	ISO request
	060928	ISO address claim
	126208	NMEA: Command, request, and acknowledge group function
	126464	Transmit and receive PGN list group function
	126996	Product information
	127250	Vessel heading
	128259	Speed: Water referenced
	128267	Water depth
	129025	Position: Rapid update
	129026	COG and SOG: Rapid update
	129029	GNSS position data
	129540	GNSS satellites in view
	130306	Wind data
	130312	Temperature
Transmit	127258	Magnetic variance
	129283	Cross track error
	129284	Navigation data
	129285	Navigation route and waypoint info
Receive	065030	Generator average basic AC quantities (GAAC)
	126992	System time
	127488	Engine parameters: Rapid update
	127489	Engine parameters: Dynamic
	127493	Transmission parameters: Dynamic
	127504	AC output status
	127505	Fluid level
	127508	Battery status
	129038	AIS class A position report
	129039	AIS class B position report
	129040	AIS class B extended position report
	129539	GNSS DOPs
	129794	AIS class A static and voyage related data
	129809	AIS class B "CS" static data report, part A
	129810	AIS class B "CS" static data report, part B
	130310	Environmental parameters
	130311	Environmental parameters (obsolete)
	130313	Humidity
	130314	Actual pressure

## NMEA 0183 Information

Type	Sentence	Description
Transmit	GPAPB	APB: Heading or track controller (autopilot) sentence "B"
	GPBOD	BOD: Bearing (origin to destination)
	GPBWC	BWC: Bearing and distance to waypoint
	GPGGA	GGA: Global positioning system fix data
	GPGLL	GLL: Geographic position (latitude and longitude)
	GPGSA	GSA: GNSS DOP and active satellites
	GPGSV	GSV: GNSS satellites in view
	GPRMB	RMB: Recommended minimum navigation information
	GPRMC	RMC: Recommended minimum specific GNSS data
	GPRTE	RTE: Routes
GPVTG	VTG: Course over ground and ground speed	

Type	Sentence	Description
	GPWPL	WPL: Waypoint location
	GPXTE	XTE: Cross track error
	PGRME	E: Estimated error
	PGRMM	M: Map datum
	PGRMZ	Z: Altitude
	SDDBT	DBT: Depth below transducer
	SDDPT	DPT: Depth
	SDMTW	MTW: Water temperature
	SDVHW	VHW: Water speed and heading
	Receive	DPT
DBT		Depth below transducer
MTW		Water temperature
VHW		Water speed and heading
WPL		Waypoint location
DSC		Digital selective calling information
DSE		Expanded digital selective calling
HDG		Heading, deviation, and variation
HDM		Heading, magnetic
MWD		Wind direction and speed
MDA		Meteorological composite
MWV		Wind speed and angle
VDM		AIS VHF data-link message

You can purchase complete information about National Marine Electronics Association (NMEA) format and sentences from: NMEA, Seven Riggs Avenue, Severna Park, MD 21146 USA ([www.nmea.org](http://www.nmea.org)).

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