GARMIN

GPSMAP® 8500 Installation Instructions

The GPSMAP 8500 is a highly customizable marine navigation and information system. These instructions will explain the connections between the various components of the system so you can plan and install the best system for your boat.

In addition, these instructions will cover the mounting and wiring of the primary GPSMAP 8500 device.

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 will void the product warranty.

Understanding the Components

The GPSMAP 8500 system can be set up in different ways, depending on your needs and the layout of your boat.

The GPSMAP 8500 is the brain of a GPSMAP 8500 system and it connects to other devices and GPSMAP 8500 systems on your boat. The GPSMAP 8500 can be controlled by a connected GMM™ monitor, a connected GRID™ input device, or combination of the two.

⚠ CAUTION

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

NOTICE

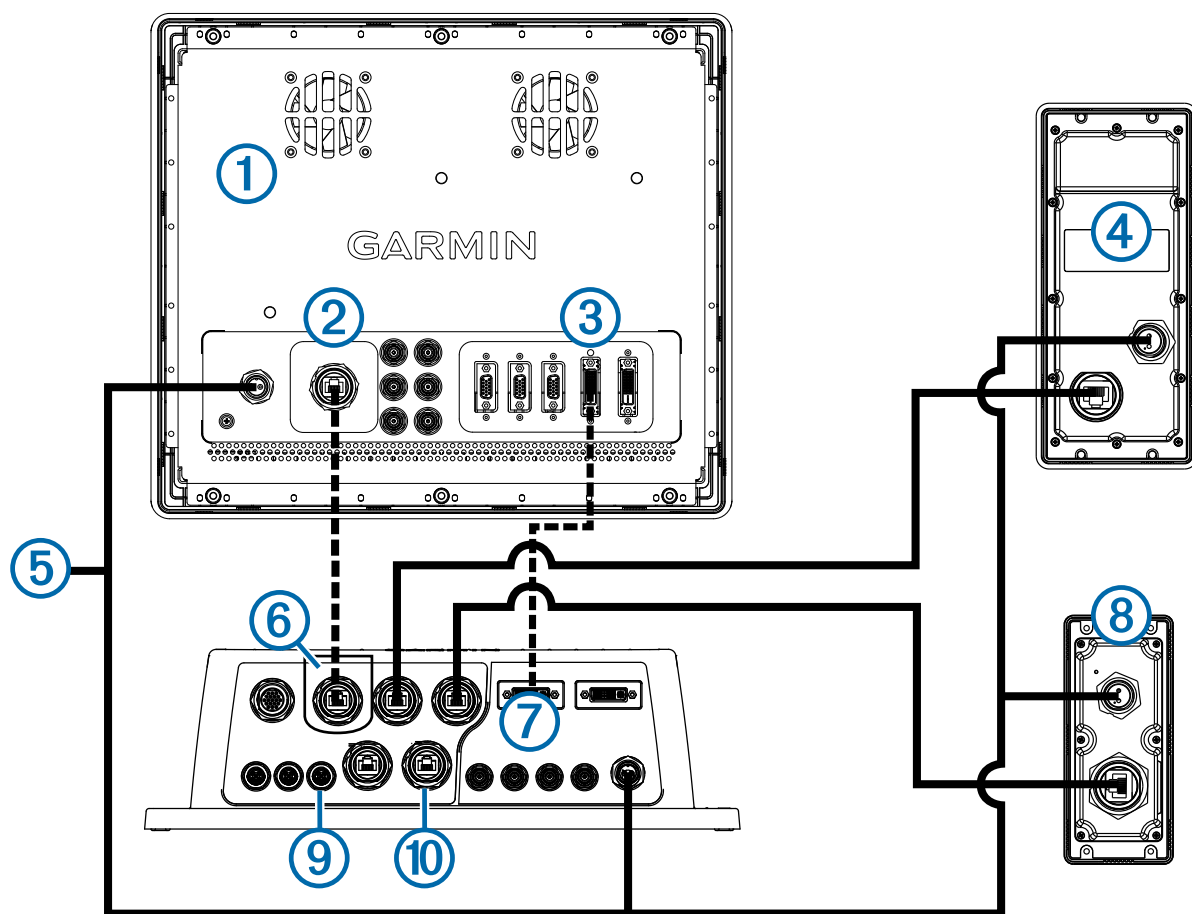When drilling or cutting, always check what is on the opposite side of the surface.

Registering Your Device

Help us better support you by completing our online registration today.

- Go to http://my.garmin.com.
- Keep the original sales receipt, or a photocopy, in a safe place.

Contacting Garmin Product Support

- Go to www.garmin.com/support and click **Contact Support** for in-country support information.
- In the USA, call (913) 397.8200 or (800) 800.1020.
- In the UK, call 0808 2380000.
- In Europe, call +44 (0) 870.8501241.

Item	Name	Description
①	GMM	The GMM is touch-screen monitor that connects to the GPSMAP 8500 to act as a display and interface, or as display without interface capabilities. You can connect two GMM devices to one GPSMAP 8500, although only one will allow touchscreen control of the GPSMAP 8500.
②	GARMIN PROCESSOR BOX port	This Garmin® Marine Network port allows the touchscreen features of a GMM to be used by the GPSMAP 8500. To function correctly, the GMM that connects to this port must also connect to the MAIN DVI VIDEO IN port with a DVI-D cable.
③	MAIN DVI VIDEO IN port	This DVI video port is used only for connecting the GMM that controls the functions of the GPSMAP 8500. To function correctly, the GMM that connects to this port must also connect to the GPSMAP 8500 through the GARMIN PROCESSOR BOX port with a Garmin Marine Network cable. A third-party monitor can be connected to this port, but touchscreen input will not be supported.
④	GRID	The GRID is a remote input device that controls the functions of the GPSMAP 8500. The GRID connects to the GPSMAP 8500 with a standard Garmin Marine Network cable. If more than one system is present on the boat, the GRID is assigned to a specific GPSMAP 8500 in the software configuration.
⑤	Power cable	It is recommended that you connect all of the GPSMAP 8500 system components to the same 10–35 Vdc power source.
⑥	GARMIN MONITOR port	This Garmin Marine Network port allows a GMM to control the functions of the GPSMAP 8500. To function correctly, the GMM connected to this port must also connect to the MAIN DVI-I VIDEO OUT port with a DVI-D cable.
⑦	MAIN DVI-I VIDEO OUT port	This DVI video port connects to the GMM that controls the functions of the GPSMAP 8500. To function correctly, the GMM connected to this port must also connect to the GARMIN MONITOR port with a Garmin Marine Network cable.
⑧	Card Reader	The card reader allows you to use memory-card features across all devices on the Garmin Marine Network. You can use premium maps, update device software, and transfer data.
⑨	NMEA 2000® port	The GPSMAP 8500 connects to a standard NMEA 2000 network to communicate with NMEA 2000 devices such as a GPS antenna or a VHF radio. The ports labeled ENGINE and HOUSE are reserved for future use and should not be connected to a standard NMEA 2000 network.
⑩	NETWORK port (×4)	The Garmin Marine Network connects the GPSMAP 8500 to other Garmin devices, such as a radar or a sounder, and to other GPSMAP devices, if more than one GPSMAP device is present on the boat.

Mounting Considerations

- The device must be mounted in a location where it will not be submerged.
- The device must be mounted in a location with adequate ventilation where it will not be exposed to extreme temperatures.
- It is best to mount the device horizontally, with the heat sink facing upward.
- If the device must be mounted vertically, it must be installed with the connectors pointing downward.

Mounting the Device

1 After you select a mounting location, determine the mounting hardware needed for the surface.

   Mounting hardware is included with the device, but it may not be suitable for the mounting surface.

2 Place the device in the mounting location and mark the location of the pilot holes.

3 Drill the appropriate pilot hole for one corner of the device.

4 Loosely fasten the device to the mounting surface with one corner and examine the other three pilot-hole marks.

5 Mark new pilot-hole locations if necessary, and remove the device from the mounting surface.

6 Drill the appropriate pilot holes for the other three marks.

7 Secure the device to the mounting location.

Card Reader Mounting Considerations

The card reader can be flush mounted in the dashboard using the included hardware. When selecting a mounting location, observe these considerations.

- The card reader should be mounted in an accessible location. You must be able to access the card reader when necessary to insert and remove memory cards containing additional mapping and device updates, and to transfer user data.
- 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 the cables.

Mounting the Card Reader

The included template and hardware can be used to flush mount the device at the selected location.

1 Trim the flush-mount template and make sure it fits in the location where you want to mount the device.

2 Remove the protective liner from the back of the template and adhere it to the location where you want to mount the device.

3 Using a ¼ in. (6 mm) 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, cut the mounting surface along the inside of the solid line indicated 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 After the device ① fits correctly in the cutout, make sure that the mounting holes on the device line up with the pilot holes ② on the template.
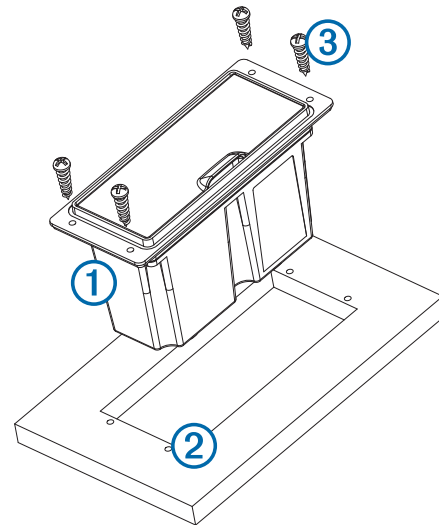
8 If the mounting holes on the device do not line up, mark the new pilot-hole locations.

9 Using a center punch, indent the pilot holes and drill the clearance counterbore through the gell-coat layer as advised in the notice.

10 Remove the template from the mounting surface.

11 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.

12 Place the device into the cutout.

13 Secure the device to the mounting surface using the included screws ③.

14 Install the decorative bezel by snapping it in place around the edges of the device.

Connection Considerations

A blue rubber seal is included for each DVI port on the device. This seal must be installed between each DVI port and DVI-cable connector to avoid damage to the connectors.

When connecting the GPSMAP 8500 to power, to a GMM, and to other Garmin devices, observe the following considerations.

- Although it is recommended to use the Garmin provided DVI-D cables, high-quality third-party DVI-D cables may be used. You should test the DVI-D cable by connecting the devices before routing the cable.
- The GPSMAP 8500 should be connected to the same power source as a connected GMM and GRID. If this is not possible, the devices must be connected to the same ground.
- You should make sure that the power and ground connections to the battery are secured and will not become loose.
- The GPSMAP 8500 can be controlled by touchscreen using one of the possible two connected GMM devices.
  - The GMM used to control the GPSMAP 8500 must be connected to both the GARMIN MONITOR and MAIN DVI-I VIDEO ports on the GPSMAP 8500 using a Garmin Marine Network cable and a DVI-D cable.
  - A GMM or other display connected to the MIRROR DVI-I VIDEO OUT port will show the same image displayed on the main GMM, but will not allow touchscreen control.
- Garmin Marine Network devices can be connected to any of the NETWORK ports, except for the GARMIN MONITOR port, which is reserved for use with the primary GMM.
- For easer cable routing, the power, NMEA® 0183, and Garmin Marine Network cables are packaged without the locking rings installed. 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 power or data connection remains secure.

Station Connection Considerations

This device can be set up in conjunction with other compatible Garmin devices to work together as a station. When planning stations on your boat, observe these considerations.
- Devices prior to the GPSMAP 8000 series and GPSMAP 8500 cannot be used in a station.
- Although it is not necessary, it is recommended that you install all of the devices you plan to use in one station near each other.
- No special connections are necessary to create a station, as long as all of the devices are connected to the Garmin Marine Network ().
- Stations are created and modified using the device software. See the owner's manual provided with the device for more information.
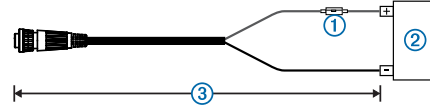
Connecting to Power

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 will void the product warranty.

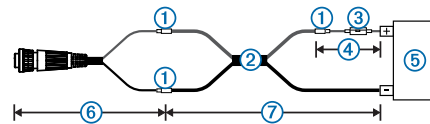1 Route the power cable to the power source and to the device.

2 Connect the red wire to the positive (+) battery terminal, and connect the black wire to the negative (-) battery terminal.

3 Install the locking ring and o-ring on the end of the power cable.

4 Connect the power cable to the device by turning the locking ring clockwise.

Power Cable Extensions

If necessary, the power cable can be extended using the appropriate wire gauge for the length of the extension.


Item	Description
①	Fuse
②	Battery
③	6 ft. (1.8 m) no extension

Item	Description
①	Splice
②	• 12 AWG (3.31 mm²) extension wire, up to 15 ft. (4.6 m) • 10 AWG (5.26 mm²) extension wire, up to 23 ft. (11 m) • 8 AWG (8.36 mm²) extension wire, up to 36 ft. (11 m)
③	Fuse
④	8 in. (20.3 cm)
⑤	Battery
⑥	8 in. (20.3 cm)
⑦	36 ft. (11 m) maximum extension

Additional Grounding Considerations

This device should not need any additional chassis grounding in most installation situations. If interference is experienced, the included grounding screw ① can be used to connect the device to the water ground of the boat to help avoid the interference.
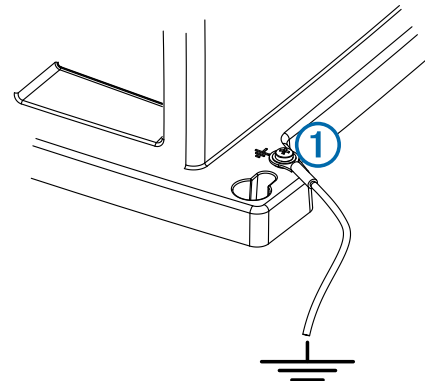
Connecting a GMM to the GPSMAP 8500

One GMM can connect to the GPSMAP 8500 with touchscreen control, and an additional GMM or third-party display can be connected to the GPSMAP 8500 to mirror the primary display.

NOTE: These instructions only cover the video and data connections of the GMM and third-party display. Consult the instructions provided with your GMM and third-party display for information regarding power connections.

1 Route a Garmin Marine Network cable and a DVI-D cable to the primary GMM and the GPSMAP 8500.

2 Route a DVI-D cable to an additional GMM or an appropriate cable to a third-party display (optional).

3 Install the locking ring and o-ring on the ends of the Garmin Marine Network cable.

4 Connect the Garmin Marine Network cable to the GARMIN MONITOR port on the GPSMAP 8500 and to the GARMIN PROCESSOR BOX port on the GMM.

5 Connect the DVI-D cable to the MAIN DVI-I VIDEO OUT port on the GPSMAP 8500 and to the MAIN DVI VIDEO IN port on the GMM.

6 Connect the appropriate cable to the MIRROR DVI-I VIDEO OUT port on the GPSMAP 8500 to another GMM, or to a third-party display (optional).

Garmin Marine Network Considerations

The GPSMAP 8500 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 the GPSMAP 8500, observe these considerations.

- A Garmin Marine Network cable must be used for all Garmin Marine Network connections.
  - 3rd 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.
- There are four NETWORK ports on the GPSMAP 8500 that each act as a network switch. Any compatible device can be connected to any NETWORK port to share data.
  - Any compatible sensor, such as a radar or sonar device, connected to one of the NETWORK ports on the GPSMAP 8500 will share sensor data with other Garmin chartplotters or GPSMAP 8500 stations connected to the GPSMAP 8500 through a NETWORK port.
  - The fifth connector, labeled GARMIN MONITOR, is reserved for use with the primary GMM, and cannot be used to connect to Garmin Marine Network devices.

NMEA 2000 Connection Considerations

NOTICE

If you have an existing NMEA 2000 network on your boat, it should already be connected to power. Do not connect the included 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 installing the included 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.

The GPSMAP 8500 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 either connect the GPSMAP 8500 to your existing NMEA 2000 network or create a basic NMEA 2000 network if needed.

If you are unfamiliar with NMEA 2000, be sure to read the "NMEA 2000 Network Fundamentals" chapter of the *Technical Reference for NMEA 2000 Products* on the included CD-ROM or click on the "Manuals" link on the product page for your device at www.garmin.com.

The port labeled NMEA 2000 is used to connect the GPSMAP 8500 to a standard NMEA 2000 network. The ports labeled ENGINE and HOUSE are reserved for future use and should not be connected to a standard NMEA 2000 network.
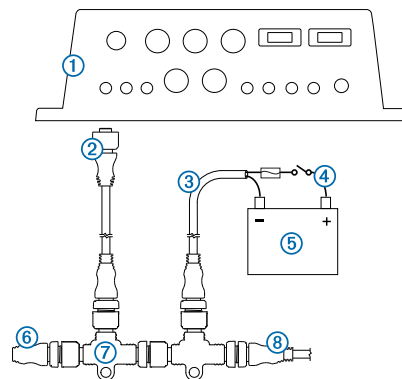
Item	Description
①	GPSMAP 8500
②	NMEA 2000 drop cable
③	NMEA 2000 power cable
④	Ignition or in-line switch
⑤	12 Vdc power source
⑥	NMEA 2000 terminator
⑦	NMEA 2000 T-connector
⑧	NMEA 2000 backbone cable

NMEA 0183 Connection Considerations

- The installation instructions provided with your NMEA 0183-compatible device should contain the information you need to identify the transmitting (Tx) and receiving (Rx) A (+) and B (-) wires.
- When connecting NMEA 0183 devices with two transmitting and two receiving wires, it is not necessary for the NMEA 2000 bus and the NMEA 0183 device to connect to a common ground.
- When connecting a NMEA 0183 device with only one transmitting (Tx) wire or with only one receiving (Rx) wire, the NMEA 2000 bus and the NMEA 0183 device must be connected to a common ground.

Basic NMEA 0183 Connections

These diagrams illustrate basic NMEA 0183 wiring used to connect your device to NMEA 0183-compliant devices. For more information on the NMEA 0183 capabilities of the device, see .

Standard NMEA 0183-Compliant Device

Item	Description
①	12 Vdc power source
②	Power cable
③	NMEA 0183-compliant device
④	NMEA 0183 cable

Item	Garmin Wire Function	Garmin Wire Color	NMEA 0183 Device Wire Function
❶	Power	Red	Power
❷	Power ground	Black	Power ground
❸	Data ground	Black	Data ground
❹	Receive A (+)	White	Transmit A (+)
❺	Receive B (-)	Orange/white	Transmit B (-)
❻	Transmit A (+)	Gray	Receive A (+)
❼	Transmit B (-)	Pink	Receive B (-)
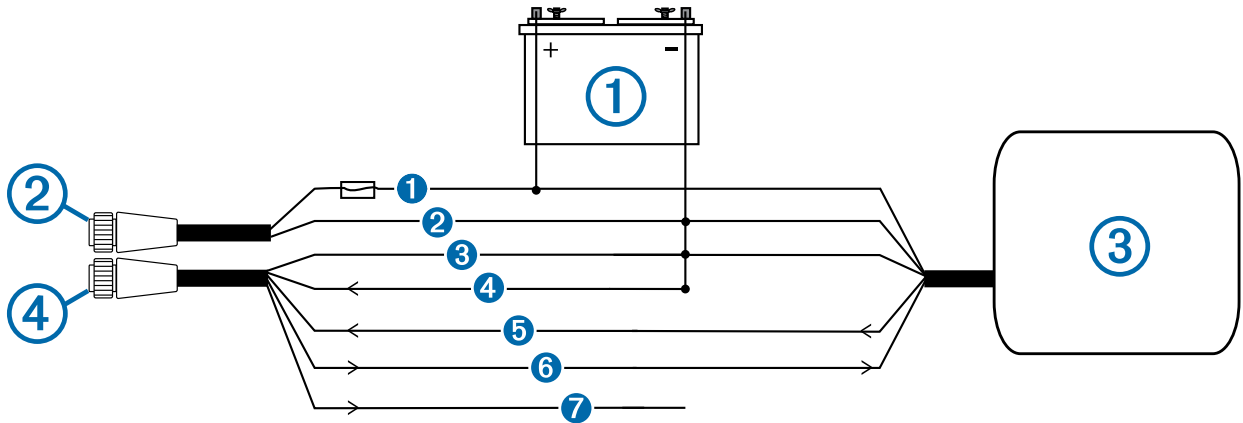
Single-Ended NMEA 0183-Compliant Device

Item	Description
①	12 Vdc power source
②	Power cable
③	NMEA 0183-compliant device
④	NMEA 0183 cable

Item	Garmin Wire Function	Garmin Wire Color	NMEA 0183 Device Wire Function
❶	Power	Red	Power
❷	Power ground	Black	Power ground
❸	Data ground	Black	Data ground
❹	Receive B (-)	Orange/white	N/A
❺	Receive A (+)	White	Transmit

| Item	Garmin Wire Function	Garmin Wire Color	NMEA 0183 Device Wire Function
❻	Transmit A (+)	Gray	Receive
❼	Transmit B (-)	Pink	N/A

- If the NMEA 0183-compliant device has only one input (RX) wire (no A, B, +, or -), leave the pink wire unconnected.
- If the NMEA 0183-compliant device has only one output (TX) wire (no A, B, +, or -), connect the orange/white wire to ground.
- Consult the installation instructions of your NMEA 0183-compliant device to identify the output A(+) and B(-) wires and input A(+) and B(-) wires.
- Use 28 AWG, shielded, twisted-pair wiring for extended runs of wire.
- Solder all connections and seal them with heat-shrink tubing.

Advanced NMEA 0183 Connections

There are four internal NMEA 0183 input ports (RX ports), and two internal NMEA 0183 output (TX ports) on the included NMEA 0183 data cable. You can connect one NMEA 0183 device per internal RX port to input data to your Garmin device, and you can connect up to three NMEA 0183 devices in parallel to each internal TX port to receive data output by your Garmin device. Each internal RX and TX 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 your NMEA 0183-compliant device. Refer to the table and wiring diagrams when connecting the data cable to NMEA 0183 devices.

Consult the installation instructions for your NMEA 0183-compliant device to identify the output (TX) A (+) and B (-) wires and input (RX) A (+) and B (-) wires. Use 28 AWG, shielded, twisted-pair wiring for extended runs of wire. Solder all connections and seal them with heat-shrink tubing.

- 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-compliant device is connected to the internal output port 1 on the data cable, you can connect the output port of your NMEA 0183-compliant device to any of the internal input ports (port 1, port 2, port 3, or port 4) on the wiring harness.
- The ground wires on the NMEA 0183 data cable and your NMEA 0183-compliant device must both be connected to ground.
-
- The internal NMEA 0183 ports and communication protocols are configured on the connected Garmin device. See the NMEA 0183 section or communication configuration section of the owner's manual provided with your Garmin device for more information.
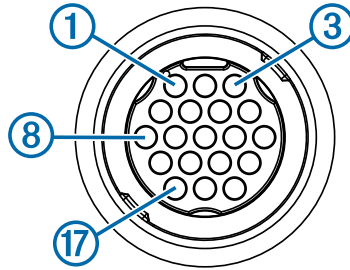
Port	Wire Function	Wire Color	Pin Number
Input port 1	RX/A (+)	White	①
	RX/B (-)	Orange/white	②
Input port 2	RX/A (+)	Brown	③
	RX/B (-)	Brown/white	④
Input port 3	RX/A (+)	Violet	⑤
	RX/B (-)	Violet/white	⑥
Input port 4	RX/A (+)	Black/white	⑦
	RX/B (-)	Red/white	⑧
Output port 1	TX/A (+)	Gray	⑨
	TX/B (-)	Pink	⑩
Output port 2	TX/A (+)	Blue	⑪
	TX/B (-)	Blue/white	⑫
N/A	Spare	N/A	⑬
N/A	Spare	N/A	⑭
N/A	Spare	N/A	⑮

Port	Wire Function	Wire Color	Pin Number
N/A	Alarm	Yellow	⑯
N/A	Accessory on	Orange	⑰
N/A	Ground	Black	⑱
N/A	Spare	N/A	⑲
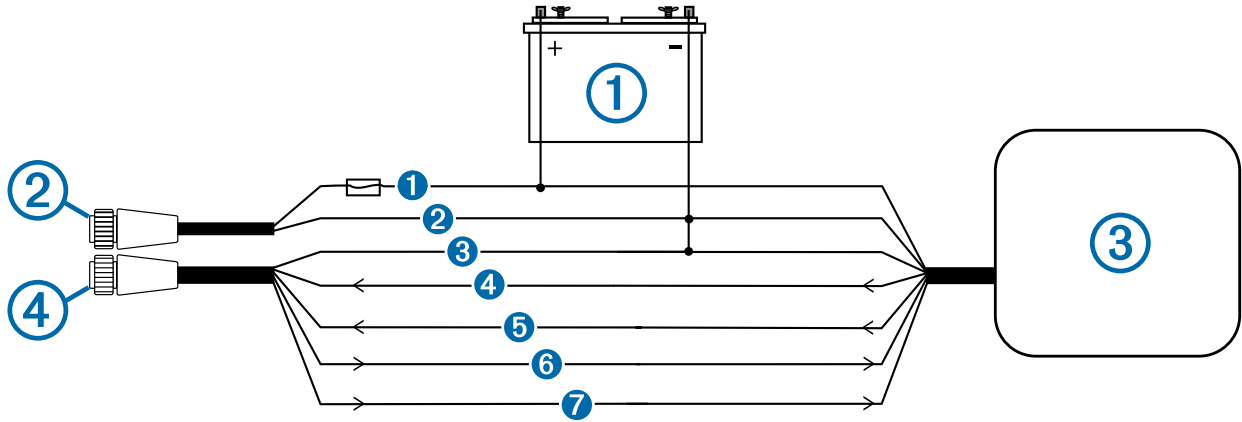
Standard NMEA 0183-Compliant Device Connected for Two-Way Communication

Item	Description
①	12 Vdc power source
②	Power cable
③	NMEA 0183-compliant device
④	NMEA 0183 cable

Item	Garmin Wire Function	Garmin Wire Color	NMEA 0183 Device Wire Function
❶	Power	Red	Power
❷	Power ground	Black	Power ground
❸	Data ground	Black	Data ground
❹	RxA (+)	White	TxA (+)
❺	RxB (-)	Orange/white	TxB (-)
❻	TxA (+)	Gray	RxA (+)
❼	TxB (-)	Pink	RxB (-)

Standard NMEA 0183-Compliant Device Connected for One-Way Communication

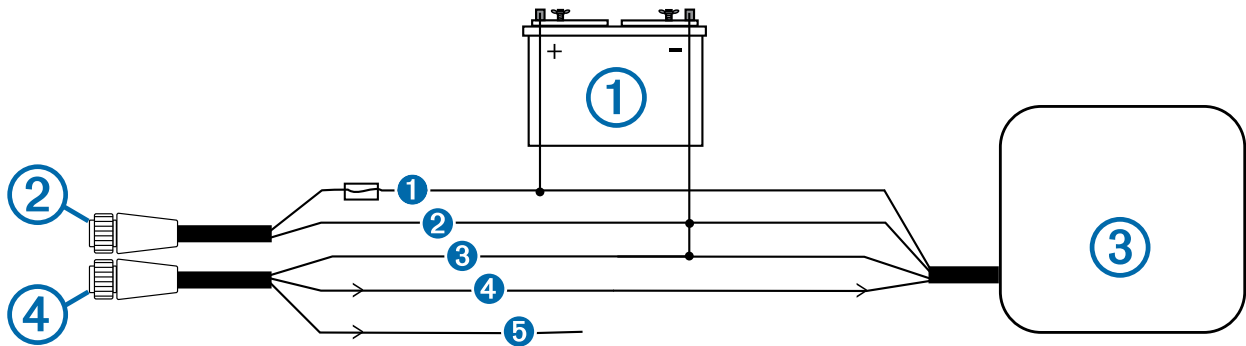**NOTE:** This diagram illustrates both sending and receiving connections. Refer to items ❶, ❷, ❸, ❹, and ❺ when connecting the Garmin device to receive information from a NMEA 0183-compatible device, and refer to items ❶, ❷, ❸, ❻, and ❼ when connecting the Garmin device to transmit information to a NMEA 0183-compatible device.

Item	Description
①	12 Vdc power source
②	Power cable

Item	Description
③	NMEA 0183-compliant device
④	NMEA 0183 cable

Item	Garmin Wire Function	Garmin Wire Color	NMEA 0183 Device Wire Function
❶	Power	Red	Power
❷	Power ground	Black	Power ground
❸	Data ground	Black	Data ground
❹	RxA (+)	White	TxA (+)
❺	RxB (-)	Orange/white	TxB (-)
❻	TxA (+)	Gray	RxA (+)
❼	TxB (-)	Pink	RxB (-)

NMEA 0183-Compliant Device With a Single Receiving Wire Connected to Receive Data

Item	Description
①	12 Vdc power source
②	Power cable
③	NMEA 0183-compliant device
④	NMEA 0183 cable

Item	Garmin Wire Function	Garmin Wire Color	NMEA 0183 Device Wire Function
❶	Power	Red	Power
❷	Power ground	Black	Power ground
❸	Data ground	Black	Data ground
❹	TxA (+)	Gray	RxA
❺	TxB (-)	Pink	N/A

NMEA 0183-Compliant Device With a Single Transmitting Wire Connected to Send Data

Item	Description
①	12 Vdc power source
②	Power cable

Item	Description
③	NMEA 0183-compliant device
④	NMEA 0183 cable

Item	Garmin Wire Function	Garmin Wire Color	NMEA 0183 Device Wire Function
❶	Power	Red	Power
❷	Power ground	Black	Power ground
❸	Data ground	Black	Data ground
❹	RxB (-)	Orange/white	N/A
❺	RxA (+)	White	TxA (+)

Lamp or 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 does not need to be used in order 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 100 mA, and a relay is needed to limit the current from the chartplotter to 100 mA.

• To manually toggle visual and audible alerts, you can install single-pole, single-throw switches.
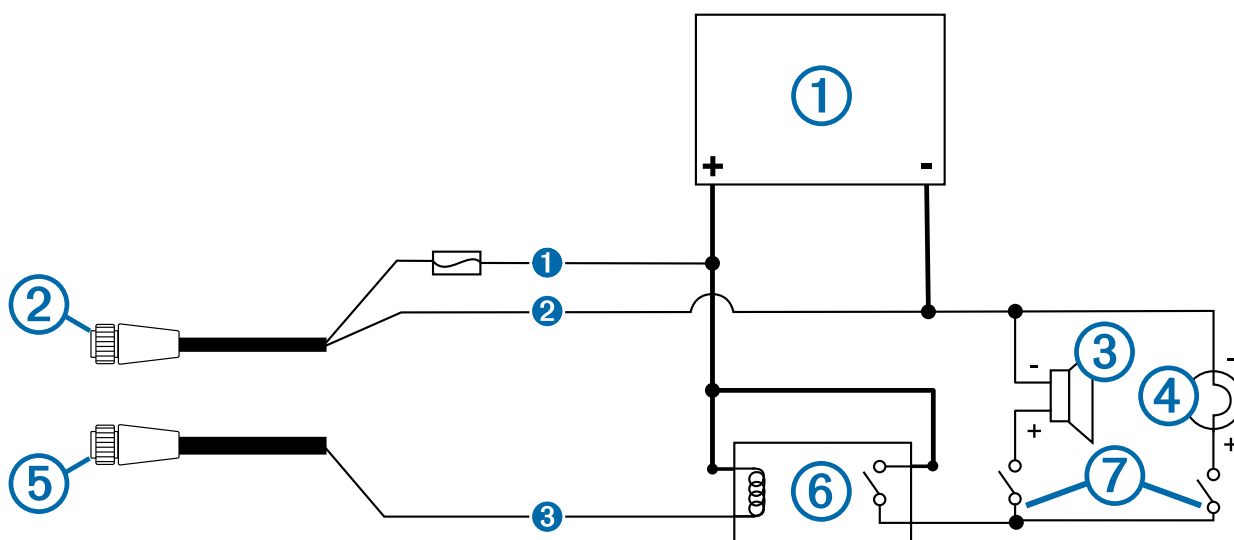
Item	Description
①	10–35 Vdc power source
②	Power cable
③	Horn
④	Lamp
⑤	NMEA 0183 cable
⑥	Relay (100 mA coil current)
⑦	Toggle switches to enable and disable lamp or horn alerts

Item	Wire Color	Wire Function
❶	Red	Power
❷	Black	Ground
❸	Yellow	Alarm

Video Input and Output Considerations

The GPSMAP 8500 allows video input from four composite sources, and video output to two digital or analog displays. When connecting video input and output sources, observe these considerations.

• The four composite-video ports are labeled CVBS 1 IN, CVBS 2 IN, CVBS 3 IN, and CVBS 4 IN.

  ◦ These four ports use BNC connectors. You can use a BNC to RCA adapter to connect a composite-video source with RCA connectors to these ports.

  ◦ The video from sources connected to these ports is available only for display on the GMM or on an additional monitor connected to the same GPSMAP 8500. Composite video is not shared across the Garmin Marine Network or NMEA 2000 network.

• The two DVI-I output ports are labeled MAIN DVI-I VIDEO OUT and MIRROR DVI-I VIDEO OUT. These two ports use DVI-I connectors, and are compatible with a variety of digital and analog connectors and adapters.

  ◦ You can use a DVI-D cable to connect to a GMM or other DVI-compatible digital display. If needed, you can use a DVI-D to HDMI adapter to connect to an HD TV or other HDMI-compatible display.

  ◦ You can use a DVI-I cable to connect to a computer monitor or other DVI-I-compatible display. If needed, you can use a DVI-I to VGA adapter to connect to a VGA-compatible display.

• The MAIN DVI-I VIDEO OUT port is designed for use with the primary GMM. See for more information. A third-party monitor can be connected to this port, but will not allow for touchscreen interface with the device.

• The MIRROR DVI-I VIDEO OUT port allows you to view a mirror image of the MAIN DVI-I VIDEO OUT on a connected display.

Card Reader Connections

Connecting 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 will void the product warranty.

1 Route the power cable 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 Install the locking ring and o-ring on the end of the power cable.
4 Connect the power cable to the device by turning the locking ring clockwise.

Connecting the Card Reader to the Garmin Marine Network

The card reader is not compatible with Garmin chartplotters prior to the GPSMAP 8000 Series and GPSMAP 8500.

Connect the card reader to a Garmin device on the Garmin Marine Network using a Garmin Marine Network cable.

Data from cards inserted in the card reader is shared with all compatible devices on the Garmin Marine Network.

Appendix

Specifications

Physical Specifications

Specification	Measurement
Dimensions (H×W×D)	$15^{63}/_{64}$ × $4^{55}/_{64}$ × $9^{27}/_{64}$ in. (406 × 123.5 × 239.5 mm)
Weight	10.85 lbs (4.92 kg)
Temperature range	From 5° to 131°F (from -15° to 55°C)
Material	Aluminum

Power Specifications

Measurement	Specification
Input power	10–35 Vdc
Fuse	7.5 A, 42 V fast-acting
Max. power usage at 10 Vdc	17 W
Typical current draw at 12 Vdc	0.8 A
Max. current draw at 12 Vdc	1.7 A
NMEA 2000 LEN	2
NMEA 2000 Draw	75 mA max.
Compass-safe distance	5½ in. (140 mm)

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
	129026	COG and SOG: Rapid update
	129029	GNSS position data

Type	PGN	Description
	129540	GNSS satellites in view
	130306	Wind data
	130312	Temperature
Transmit	127250	Vessel heading
	127258	Magnetic variance
	128259	Speed: Water referenced
	128267	Water depth
	129025	Position: Rapid update
	129283	Cross track error
	129284	Navigation data
	129285	Navigation route and waypoint info
Receive	126992	System time
	127250	Vessel heading
	127489	Engine parameters: Dynamic
	127488	Engine parameters: Rapid update
	127493	Transmission parameters: Dynamic
	127505	Fluid level
	128259	Speed: Water referenced
	128267	Water depth
	129025	Position: Rapid update
	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
	GPWPL	WPL: Waypoint location
	GPXTE	XTE: Cross track error
	PGRME	E: Estimated error
	PGRMM	M: Map datum

Type	Sentence	Description
	PGRMZ	Z: Altitude
	SDDBT	DBT: Depth below transducer
	SDDPT	DPT: Depth
	SDMTW	MTW: Water temperature
	SDVHW	VHW: Water speed and heading
Receive	DPT	Depth
	DBT	Depth below transducer
	MTW	Water temperature
	VHW	Water speed and heading
	WPL	Waypoint location
	DSC	Digital selective calling information

Type	Sentence	Description
	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)