



GPSMAP® 800 and 1000 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 will void 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.

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.

Tools Needed

- Drill and drill bits
- #2 Phillips screwdriver
- Jigsaw or rotary tool
- File and sandpaper
- Marine sealant (optional)

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.

Using the included hardware and template, you can mount the device using one of two methods. You can use the included bracket and hardware to bail mount the device, or you can use the included template and hardware to flush mount the device in the dashboard.

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.

Bail Mounting the Device

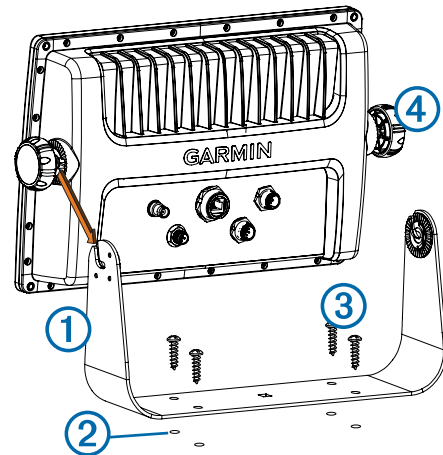
NOTICE

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 any cracking in the gel-coat layer when the screws are tightened.

Stainless-steel screws may bind when screwed into fiberglass and overtightened. Garmin® recommends applying an anti-seize lubricant to the screws before installing them.

You can use the included bracket to bail mount the device on a flat surface.

- 1 Using the bail-mount bracket ① as a template, mark the pilot holes ②.



- 2 Using a 3 mm (1/8 in.) drill bit, drill the pilot holes.
- 3 Using the included screws ③, secure the bail-mount bracket to the mounting surface.
- 4 Install the bail-mount knobs ④ 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

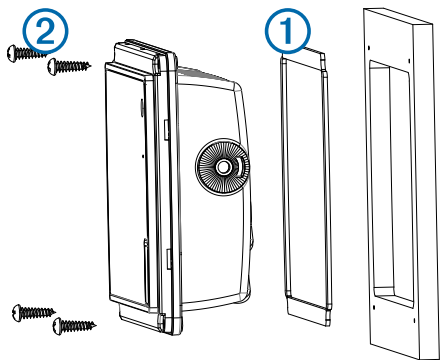
Be careful when cutting the hole to flush mount the device. There is only a small amount of clearance between the case and the mounting holes, and cutting the hole too large could compromise the stability of the device after it is mounted.

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 any cracking in the gel-coat layer when the screws are tightened.

Stainless-steel screws may bind when screwed into fiberglass and overtightened. Garmin recommends applying an anti-seize lubricant to the screws before installing them.

The included template and hardware can be used to 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 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 9.5 mm ($\frac{3}{8}$ 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 rotary tool, 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 fits correctly in the cutout, ensure the mounting holes on the device line up with the pilot holes on the template.
- 8 If the mounting holes on the device do not line up, mark the new pilot-hole locations.
- 9 Using a 3.2 mm ($\frac{1}{8}$ in.) drill bit, drill the pilot holes.
- 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 If necessary, cover unused connectors with the attached weather caps to prevent corrosion of the metal contacts.
- 13 Install the foam gasket ① on the back of the device.
The pieces of the rubber gasket have adhesive on the back. Make sure you remove the protective liner before installing them on the device.



- 14 Place the device in the cutout.
- 15 Secure the device to the mounting surface using the included screws ②.
- 16 Install the decorative bezel by snapping it in place around the edges of the device.

Connection Considerations

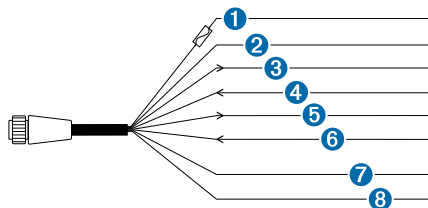
When connecting this device to power and to other Garmin devices, you should observe these considerations.

- The power and ground connections to the battery must be checked to make sure they are secured and cannot become loose.
- For easier routing, the cables are packaged without the locking rings installed. The cables should be routed before the locking rings are installed.

- After installing a locking ring on a cable, you should make sure the ring is securely connected and the o-ring is in place so the power or data connection remains secure.

About the Wiring Harness

- The wiring harness connects the device to power, NMEA® 0183 devices, and a lamp or a horn for visible or audible alerts.
- The wiring harness is packaged without the locking ring installed. You should route the cable before you install the locking ring.
- After connecting a locking ring to the wiring harness, you should make sure the ring is securely connected and the o-ring is in place so the connection remains secure.
- The device has two internal NMEA 0183 ports that are used to connect to NMEA 0183 compliant devices. When connecting to a device for both transmitting and receiving, you must make sure to use wires from the same internal NMEA 0183 port.
- If it is necessary to extend the power and ground wires, you must use 16 AWG (1.31 mm²) wire.
- If it is necessary to extend the NMEA 0183 or alarm wires, you must use 22 AWG (.33 mm²) wire.



Item	Wire Color	Wire Function
①	Red	Power
②	Black	Ground (power and NMEA 0183)
③	Blue	NMEA 0183 internal port 1 Tx (out)
④	Brown	NMEA 0183 internal port 1 Rx (in)
⑤	Gray	NMEA 0183 internal port 2 Tx (out)
⑥	Violet	NMEA 0183 internal port 2 Rx (in)
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 will void the product warranty.

If it is necessary to extend the power and ground wires, you must use 18 AWG (0.82 mm²) wire.

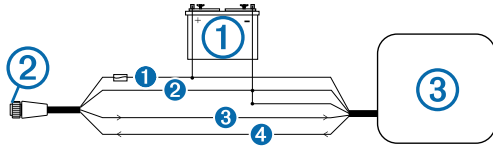
- 1 Route the wiring harness to the power source and to the device.
- 2 Connect the red wire to the positive (+) battery terminal, and connect the black wire to the negative (-) battery terminal.
- 3 Install the locking ring and o-ring on the end of the wiring harness.
- 4 Connect the wiring harness to the device by turning the locking ring clockwise.

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.

NMEA 0183 Connection Diagram



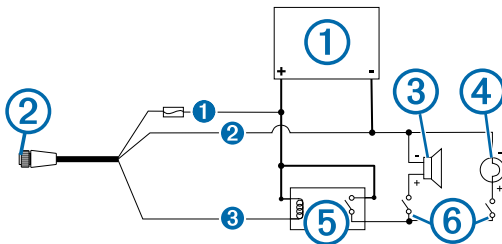
Item	Description
①	12 Vdc power source
②	Wiring harness
③	NMEA 0183-compliant device

Item	Garmin Wire Function	Garmin Wire Color	NMEA 0183 Device Wire Function
①	Power	Red	Power
②	Ground	Black	Data ground
③	Tx	Blue	Rx/A (+)
④	Rx	Brown	Tx/A (+)

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 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 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	Power source
②	Power cable
③	Horn
④	Lamp
⑤	Relay (100 mA coil current)
⑥	Toggle switches to enable and disable lamp or horn alerts

Item	Wire Color	Wire Function
①	Red	Power
②	Black	Ground
③	Yellow	Alarm

Connecting the Device to a Transducer

Devices that can receive depth information from a Garmin transducer have a port labeled SONAR. Go to 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 SONAR port on your device.

Connecting the Device to an External Garmin Sounder Module

Devices that can receive information from an external Garmin sounder module have a port labeled ETHERNET. Go to www.garmin.com or contact your local Garmin dealer to determine the appropriate type of sonar device for your needs.

- 1 Follow the instructions provided with your sounder module to install it on your boat correctly.
- 2 Route the Garmin Marine Network cable from the sounder module to the back of your device, away from sources of electrical interference.
- 3 Connect the Garmin Marine Network cable to the ETHERNET port on your device.

Connecting the Device to a Garmin Marine Radar

Devices that can receive information from a Garmin radar have a port labeled ETHERNET. Go to www.garmin.com or contact your local Garmin dealer to determine the appropriate type of radar for your needs.

- 1 Follow the instructions provided with your Garmin radar to install it on your boat correctly.
- 2 Route the Garmin Marine Network cable from the radar to the back of your device, away from sources of electrical interference.
- 3 Connect the Garmin Marine Network cable to the ETHERNET port on your device.

Radar, Sonar, and Map Sharing Considerations

Devices that can share supplemental map information and view data from a single radar or sonar module at the same time have a port labeled ETHERNET. Go to www.garmin.com or contact your local Garmin dealer to determine the appropriate type of devices for your needs.

When connecting this device to compatible ETHERNET devices, you should observe these considerations.

- This device is compatible only with other Garmin ETHERNET devices, and does not share data with Garmin Marine Network devices such as a GPSMAP 8000 series device.
- This device is not compatible with legacy Garmin sounder modules such as the GSD™ 26.
- If your device receives sonar data from a transducer connected to the SONAR port, it does not share the sonar data with other ETHERNET devices.
- A Garmin Marine Network cable must be used for all ETHERNET connections.
 - Third-party CAT5 cable and RJ45 connectors must not be used for ETHERNET connections.
 - Additional Garmin Marine Network cables and connectors are available from your Garmin dealer.
- If this device has a single ETHERNET port, so you may need to use a Garmin network switch, such as a GMS™ 10 to connect a radar or sounder module to more than one ETHERNET device.
- If this device has both a RADAR port and an ETHERNET, you can connect either one to an ETHERNET device.
- Some sounder modules, such as the GCV™ 10 have more than one ETHERNET port, and can connect to multiple ETHERNET devices without the need for an additional network switch.

Connecting the Device to a Remote GPS Antenna

This device has an internal GPS receiver, but some installations, such as a flush-mount installation, may not allow a view of the sky needed to calculate your GPS position. In this situation, you can install a Garmin external GPS antenna and connect it to the device to provide GPS information.

Devices that can receive information from a Garmin external GPS antenna have a port labeled EXT GPS.

- 1 Follow the instruction provided with your Garmin external GPS antenna to install it on your boat correctly.
- 2 Route the antenna cable to the back of your device, away from sources of electrical interference.
- 3 Connect the antenna cable to the EXT GPS port on your device.

NMEA 2000 Considerations

NOTICE

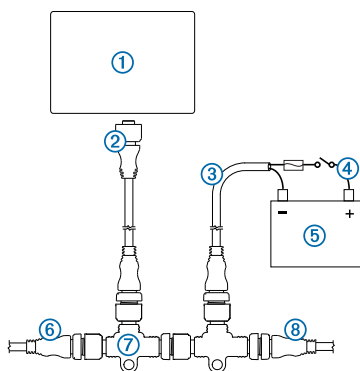
If you have an existing NMEA 2000 network on your boat, it should already be connected to power. Do not connect the NMEA 2000 power cable to an existing NMEA 2000 network, because only one power source should be connected to a NMEA 2000 network.

If you are 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.

NMEA 2000 compatible models can connect to a NMEA 2000 network on your boat to share data from NMEA 2000 compatible devices such as a VHF radio. The necessary NMEA 2000 cables and connectors are sold separately.

If you are unfamiliar with NMEA 2000, you should read the “NMEA 2000 Network Fundamentals” chapter of the *Technical Reference for NMEA 2000 Products*. To download this document, select **Manuals** on the product page for your device at www.garmin.com.

The port labeled NMEA 2000 on the back of the device is used to connect it to a standard NMEA 2000 network.



Item	Description
①	NMEA 2000 compatible Garmin device
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 or backbone cable
⑦	NMEA 2000 T-connector
⑧	NMEA 2000 terminator or backbone cable

Loading the New Software on a Memory Card

The device may contain a software-update memory card. If so, follow the instructions provided with the card. If a software update memory card is not included, you must copy the software update to a memory card.

- 1 Insert a memory card into the card slot on the computer.
- 2 Go to www.garmin.com/support/software/marine.html.
- 3 Select **Download** next to “Garmin Marine Network with SD card.”
- 4 Read and agree to the terms.
- 5 Select **Download**.
- 6 Select **Run**.
- 7 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 Insert the memory card into the card slot.
- 3 Follow the on-screen instructions.
- 4 Wait several minutes while the software update process completes.

The device returns to normal operation after the software update process is complete.

- 5 Remove the memory card.

Specifications

Physical Specifications

Device	Specification	Measurement
Eight-inch models	Dimensions (W×H×D)	294 mm (11.58 in.) × 188 mm (7.4 in.) × 74 mm (2.91 in.)
	Display size (W×H)	162 mm (6.38 in.) × 121.5 mm (4.78 in.)
	Weight	1.6 kg (3.53 lb.)
Ten-inch models	Dimensions (W×H×D)	360 mm (14.17 in.) × 236 mm (9.29 in.) × 75 mm (2.95 in.)
	Display size (W×H)	211.2 mm (8.31 in.) × 158.4 mm (6.24 in.)
	Weight	2.2 kg (4.85 lb.)
All models	Temperature range	From 5° to 131°F (from -15° to 55°C)
	Material	Polycarbonate plastic

Electrical Specifications

Device	Specification	Measurement
All models	Input power	10–32 Vdc
	Fuse	6.5 A, fast-acting
	NMEA 2000 LEN	2
	NMEA 2000 draw	100 mA max.
	Compass-safe distance	30 cm (11.8 in.)
Eight-inch models	Max. power usage at 10 Vdc	35 W
	Typical current draw at 12 Vdc	1.5 A
	Max. current draw at 12 Vdc	3.5 A
Ten-inch models	Max. power usage at 10 Vdc	40 W
	Typical current draw at 12 Vdc	2.0 A
	Max. current draw at 12 Vdc	4.0 A

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	
	130306	Wind data	
	130312	Temperature	
	Transmit	127258	Magnetic Variance
		129025	Position: Rapid update
129026		COG and SOG: Rapid update	
129029		GNSS position data	
129283		Cross track error	
129284		Navigation data	
129285		Navigation route and waypoint info	
129539		GNSS DOPs	
129540		GNSS satellites in view	
Receive	127245	Rudder	
	127250	Vessel heading	
	127488	Engine parameters: Rapid update	
	127489	Engine parameters: Dynamic	
	127493	Transmission parameters: Dynamic	
	127498	Engine parameters: Static	
	127505	Fluid level	
	129038	AIS class A position report	
	129039	AIS class B position report	
	129040	AIS class B extended position report	
	129794	AIS class A static and voyage related data	
	129798	AIS SAR aircraft position report	
	129799	Radio frequency, mode, and power	
	129802	AIS safety-related broadcast message	
	129808	DSC call information	
	130310	Environmental parameters	
	130311	Environmental parameters (obsolete)	
	130313	Humidity	
	130314	Actual pressure	
	130576	Small craft status	

This data applies only to NMEA 2000-compatible products.

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

Type	Sentence	Description	
	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	
	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	
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)

Garmin International, Inc.
1200 East 151st Street
Olathe, Kansas 66062, USA

Garmin (Europe) Ltd.
Liberty House, Hounslow Business Park
Southampton, Hampshire, SO40 9LR UK

Garmin Corporation
No. 68, Zhangshu 2nd Road, Xizhi Dist.
New Taipei City, 221, Taiwan (R.O.C.)

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