echoMAP™ CHIRP 40/50 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.

Software Update

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

Loading the New Software on a Memory Card

You must copy the software update to a memory card using a computer that is running Windows® software.

NOTE: You can contact Garmin customer support to order a preloaded software update card if you do not have a computer with Windows software.

1. Insert a memory card into the card slot on the computer.
2. Go to http://www.garmin.com/support/software/marine.
3. Select **Download** next to the software bundle that corresponds with your device.
4. Read and agree to the terms.
5. Select **Download**.
6. If necessary, select **Run**.
7. If necessary, 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.

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 http://www.garmin.com/support for in-country support information.
- In the USA, call 913-397-8200 or 1-800-800-1020.
- In the UK, call 0808 238 0000.
- In Europe, call +44 (0) 870 850 1241.

Tools Needed

- Drill and drill bits
- #2 Phillips screwdriver
- Marine sealant
- $^{3}/_{8}$ in. wrench or socket
- Masking tape
- Hardware for the swivel mount (not included)
  - Self-tapping, pan-head wood screws or pan-head bolts, either size #8 or a diameter of $^{5}/_{32}$ in. (4 mm)
  - Appropriate washers and nuts (if selecting bolts)
  - Appropriate drill bit for drilling the pilot hole

Mounting Considerations

The device can be mounted using the included bracket, or it can be mounted flush with the dashboard using a flush-mount kit (may be sold separately).

Before permanently installing any part of your device, you should plan the installation by determining the location of the various components.

- The mounting location must provide a clear view of the screen and access to the keys on the device.
- The mounting location must be sturdy enough to support the device and the mount.
- The cables must be long enough to connect the components to each other and to power.
- The cables can be routed under the bail mount or behind the device.
- 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.

Flush Mounting the Device

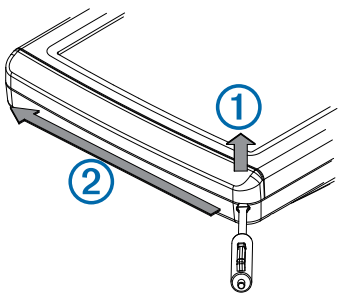
NOTICE

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.

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

You can mount the device in your dashboard using the flush-mount template and appropriate hardware.

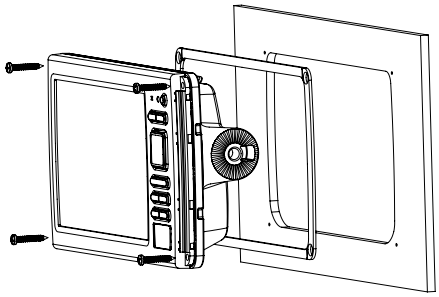
1. Trim the template and make sure it fits in the location where you want to mount the device.
2. Secure the template to the mounting location.
3. Using a 9.5 mm ($^3/_8$ in.) drill bit, drill one or more of the holes inside the corners of the solid line on the template to prepare the mounting surface for cutting.
4. Using a jigsaw or rotary cutting tool, cut the mounting surface along the inside of the solid line indicated on the template.
5. Place the device into the cutout to test the fit.
6. If necessary, use a file and sandpaper to refine the size of the hole.
7. If your device has trim caps, use a pry tool, such as a flat piece of plastic or a screwdriver, to carefully pry up the corners of the trim caps ①, slide the pry tool to the center ②, and remove the trim caps.



8. Ensure the mounting holes on the device line up with the pilot holes on the template.
9. If the mounting holes on the device do not line up with the pilot holes on the template, mark the new pilot-hole locations on your template.
10. Using a 3.2 mm ($^1/_8$ in.) drill bit, drill the pilot holes.
11. Remove the template from the mounting surface.
12. 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.

    NOTE: To prevent corrosion of the metal contacts, cover unused connectors with weather caps.
13. Install the rubber gasket pieces 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. Securely connect each cable to a port on the cradle.
15. Place the device into the cutout.
16. Secure the device to the mounting surface using the included screws.
17. Install the trim caps by snapping them in place around the edges of the device.

Installing the Swivel Base

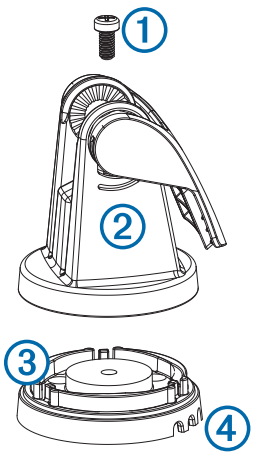
Preparing to Run Cables under the Mounting Surface

NOTICE

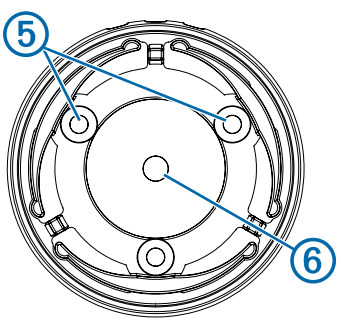
Use pan-head screws or bolts when securing the swivel-mount base. Screws or bolts with countersunk heads damage the base.

Before you can prepare the swivel-mount base, you must choose the location to install the mount and decide whether to attach the mount using screws or bolts.

1. Remove the 10 mm M6x1 Phillips screw ① and separate the swivel mount ② from the base ③.



2. Orient the swivel base so the pass-through holes ④ face the desired direction.
3. Using the swivel base as a template, mark the pilot hole locations ⑤.
4. Mark the cable routing hole ⑥.



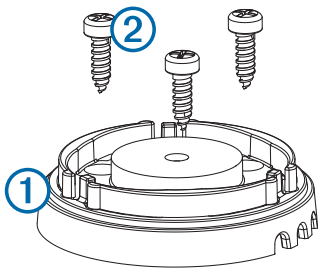
5 Using the appropriate drill bit for the hardware, drill the three pilot holes.

6 Using a $^5/_8$ in. (16 mm) drill, drill a cable routing hole through the mounting surface at the location you marked in step 4.

Fastening the Swivel Mount without the Cables Running through the Mount

You should complete this procedure only if you are not running the power and transducer cables under the mounting surface and through the swivel-mount base.

1 Place the base ① on the mounting surface, and fasten it using the appropriate screws or bolts ②.



2 Place the swivel mount on the base, and replace the 10 mm M6×1 Phillips screw.

3 Seal the cable pass-through holes with marine sealant.

Fastening the Swivel Mount with the Cables Running through the Mount

You should complete this procedure only when running the power and transducer cables under the mounting surface and through the swivel-mount base.

1 Feed the cables through the 16 mm ($^5/_8$ in.) center hole you drilled when preparing to run cables beneath the mounting surface.

2 Place the base on the mounting surface.

3 Route the cables through the cable pass-through holes.

4 Loosely fasten the base using the appropriate screws or bolts.

5 Place the swivel mount on the base, but do not fasten it.

6 Place the cradle or device into the swivel mount (*Installing the Device in the Cradle*, page 3).

7 Pull out enough slack from the power and transducer cables so the mount can fully swivel to the desired positions when the cables are connected.

8 Remove the cradle and the swivel mount from the base.

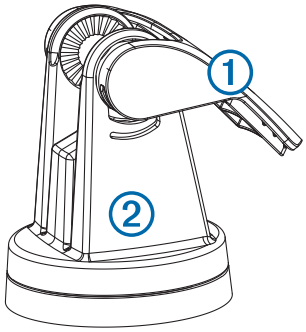
9 Apply marine sealant to the 16 mm ($^5/_8$ in.) center hole and to the cable pass-through holes.

10 Securely fasten the base with the appropriate screws or bolts.

11 Place the swivel mount on the base, and fasten it using the included 10 mm M6×1 Phillips screw.

Installing the Cradle in the Mount

1 Pull up the locking arm ①.



2 Place the cradle into the swivel mount ②.

3 Tilt the mount to the desired viewing angle.

4 Press down the locking arm.

Installing the Cables and Connectors

Wiring to Power

1 Route the power cable from the swivel mount to the boat battery or fuse block.

2 If necessary, extend the wires using 0.82 mm^2 (18 AWG) or larger wire.

3 Connect the red wire to the positive terminal on the battery or fuse block, and connect the black wire to the negative terminal.

Connecting the Device to a Transducer

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 correctly install it on your boat.

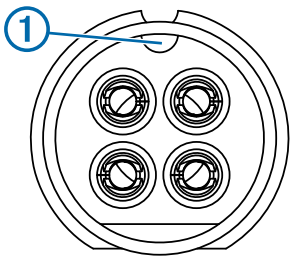
2 Route the transducer cable to the back of your device, away from sources of electrical interference.

3 Connect the transducer cable to the appropriate port on your device.

Connecting the Cables to the Cradle

The connectors on the cables are keyed to fit only in the correct ports on the device or cradle.

1 Compare the divots ① on each cable connector to the keying on each port to determine which cable corresponds to each port.



2 Securely connect each cable to a port.

Installing the Device in the Cradle

If your device uses a cradle and the cables are connected to the cradle, you can quickly place the device in the cradle without plugging in any cables.

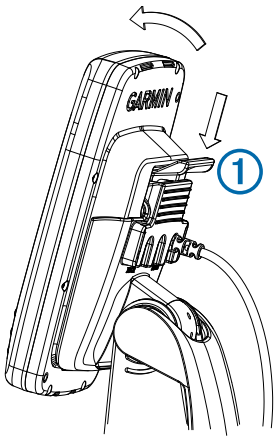
1 Place the base of the device in the bottom of the cradle.

2 Tilt the top of the device toward the cradle until it fastens in place.

There is an audible click when the device is secured in the cradle.

Removing the Device from the Cradle

1 Press the release lever ① on the cradle until the device is released.



2 Tilt the device forward, and lift it out of the cradle.

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.

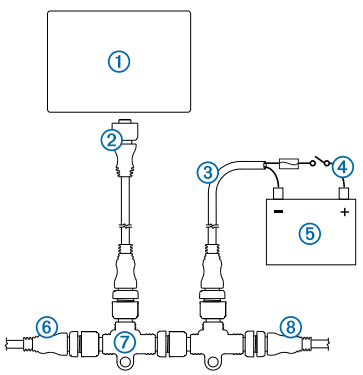
If you are installing a NMEA 2000 power cable, you must connect it to the boat ignition switch or through another in-line switch. NMEA 2000 devices will drain your battery if the NMEA 2000 power cable is connected to the battery directly.

NMEA 2000 compatible models can connect to a NMEA 2000 network on your boat to share data from NMEA 2000 compatible devices such as sensors or 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, go to www.garmin.com and select Manuals on the product page for your device.

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

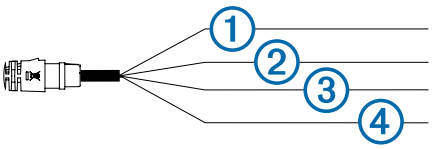
NOTE: Models that are not directly NMEA 2000 compatible require the included 4-pin adapter cable to connect to the NMEA 2000 network.



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

Wiring Harness

- The wiring harness connects the device to power and NMEA® 0183 devices.
- The device has one internal NMEA 0183 port that is used to connect to NMEA 0183 compliant devices.
- If it is necessary to extend the power and ground wires, you must use 0.82 mm^2 (18 AWG) or larger wire.
- If it is necessary to extend the NMEA 0183 or alarm wires, you must use .33 mm^2 (22 AWG) wire.



Item	Wire Function	Wire Color
①	NMEA 0183 internal port Rx (in)	Brown
②	NMEA 0183 internal port Tx (out)	Blue
③	Ground (power and NMEA 0183)	Black
④	Power	Red

Connecting the Wiring Harness to Power

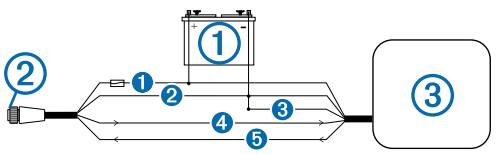
1 Route the wiring harness to the power source and to the device.

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

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. Each port may have one or two transmitting wires, or one or two receiving wires.
- When connecting NMEA 0183 devices to ports containing two transmitting (Tx) wires or two receiving (Rx) wires each, it is not necessary for the NMEA 0183 device to connect to a common ground.
- When connecting a NMEA 0183 device to ports containing one transmitting (Tx) wire or one receiving (Rx) wire each, the NMEA 0183 device must be connected to a common ground.
- When the device is mounted in a location that prevents the internal antenna from acquiring a satellite signal, you can connect an external GPS 19x antenna through a NMEA 0183 connection. For more information, see the *GPS 19x Installation Instructions*.

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
❶	Power	Red	Power
❷	Ground	Black	Data ground
❸	Tx	Blue	Rx/A (+)
❹	Rx	Brown	Tx/A (+)

Specifications

Device	Specification	Measurement
echoMAP CHIRP 40	Dimensions (W x H x D)	10.2 x 16.8 x 4.6 cm (4 x 6.6 x 1.8 in.)
	Display size (W x H)	5.4 x 9.5 cm (2.1 x 3.7 in.)
	Weight	0.4 kg (0.9 lbs.)
	Power input	From 9 to 18 Vdc
	Max. power usage	5 W
	Compass-safe distance	25 cm (9.8 in.)
echoMAP CHIRP 50	Dimensions (W x H x D)	17.3 x 13.5 x 4.4 cm (6.81 x 5.35 x 1.73 in.)
	Display size (W x H)	9 x 9 cm (3.54 x 3.54 in.)
	Weight	0.58 kg (1.28 lbs.)
	Power input	From 9 to 18 Vdc
	Max. power usage	7.1 W
	Compass-safe distance	70 cm (27.6 in.)
All Models	Temperature range	From -15 to 55°C (from 5 to 131°F)
	Material	Polycarbonate plastic
	Water rating*	IEC 60529 IPX7
	Transmit power (RMS)**	500 W
	Maximum depth***	701 m (2,300 ft) at 77 kHz
	Frequencies****	• CHIRP Traditional: 50, 77, 83, or 200 kHz • CHIRP DownVü: 260, 455, or 800 kHz.

*The device withstands incidental exposure to water of up to 1 m for up to 30 min. For more information, go to www.garmin.com/waterrating.

**Dependent upon transducer rating and depth.

***Maximum depth, dependent upon transducer, water salinity, bottom type, and other water conditions.

****Dependent upon echoMAP model.

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
	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
	RMC/GGA/GLL	GPS position
	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)		

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
	126996	Product information
	127250	Vessel heading
	128259	Speed: Water referenced
	128267	Water depth
	129539	GNSS DOPs
	129799	Radio frequency, mode, and power
	130306	Wind data
	130312	Temperature
Transmit	126464	Transmit and receive PGN list group function
	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

Type	PGN	Description
	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
	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.		

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