GARMIN®

GTEMP10-TH NMEA 2000® Thru-hull Temperature Sensor

Installation Instructions

Important Safety Information

⚠ **WARNING**

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

⚠ **CAUTION**

Failure to install and maintain this equipment in accordance with these instructions could result in damage or injury.

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.

This equipment should be installed by a qualified marine installer.

To obtain the best performance and to avoid damage to your boat, you must install the Garmin® 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.

Registering Your Device

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

- Go to 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 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.

Mounting Considerations

- The sensor should not be mounted in a location where it might be jarred when launching, hauling, or storing.
- The sensor must be mounted where the hull thickness is from 0 to 57 mm (from 0 to $2^1/_4$ in.).

- If you have a question about the location of the thru-hull sensor, you should contact your vessel builder or other owners of similar vessels for advice.

Tools Needed

- Drill
- 25 mm (1 in.) hole saw
- 34 to 37 mm ($1^1/_3$ to $1^1/_2$ in.) hole saw (cored-fiberglass hull installations)
- Marine sealant
- Silicone grease
- Metal file (metal-hull installations)
- Fiberglass cloth and resin (option for sealing a cored-fiberglass hull)
- 25 mm (1 in.) cylinder, wax, tape, and casting epoxy (option for sealing a cored-fiberglass hull)

Installing the Thru-hull Temperature Sensor

Before you can mount the sensor in a cored-fiberglass hull, you must prepare the hull (*Preparing a Cored-Fiberglass Hull, page 1*).

1 From outside the boat, use a 25 mm (1 in.) hole saw to cut through the hull at the mounting location.
2 Clean the area using a mild detergent or weak solvent, such as isopropyl alcohol, to remove any dust and dirt.
3 From outside the boat, thread the cable through the hull, and gently slide the threaded housing into place to check the fit.
   NOTE: The housing should slip into place easily, with the flange contacting the hull.
4 Remove the housing.
5 Apply marine sealant to the flange, reinsert the housing into the drilled hole, and tighten the nut.
6 After the marine sealant has cured, remove the nut and apply sealant to the inner side of the hull and the housing.
7 Tighten the nut by hand.
8 Allow the sealant to cure.

Preparing a Cored-Fiberglass Hull

NOTICE

If the core of a cored-fiberglass hull is not sealed properly, water may seep into the core and severely damage the boat.
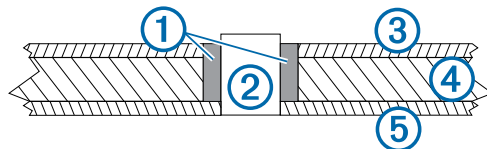
①	Fiberglass or casting epoxy (not included)
②	Cylinder spacer (not included)
③	Inner fiberglass skin
④	Core
⑤	Outer fiberglass skin

1 Drill the hole through the hull.
2 Seal the core inside the hull using either fiberglass (*Sealing the Core with Fiberglass, page 2*) or casting epoxy (*Sealing the Core with Casting Epoxy, page 2*).

Drilling a Hole in a Cored-Fiberglass Hull

1 From inside the boat, drill a 3 mm ($^1/_8$ in.) pilot hole completely through the hull.

2 Examine the pilot hole on the outside of the boat, and select an option:

- If the pilot hole is not in the correct location, seal the hole with epoxy and repeat step 1.
- If the pilot hole is in the correct location, use a 25 mm (1 in.) hole saw to cut a hole from the outside of the boat through the outer fiberglass skin only. Do not cut completely through the hull.

3 On the inside of the boat, at the pilot hole location, use a hole saw to cut a hole 9 to 12 mm ($^3/_8$ to $^1/_2$ in.) larger than the hole you cut in the outside of the boat in step 2.

Cut through the inner fiberglass skin and most of the core, without cutting the outer skin.

NOTE: When cutting the inner fiberglass skin and core, be careful to not cut the outer fiberglass skin, or you will not be able to correctly seal the hull.

4 Remove the inner fiberglass skin and core you cut in step 3.

You should be able to see the inside of the outer fiberglass skin.

5 Sand the inside of the hole and the areas immediately around both the inside and outside fiberglass skin.

6 Clean the area using a mild detergent or weak solvent, such as isopropyl alcohol, to remove any dust and dirt.

Sealing the Core with Fiberglass

1 From inside the boat, coat a layer of fiberglass cloth with fiberglass resin and place it inside the hole to seal the core.

2 Add layers of fiberglass cloth and resin until the hole is 25 mm (1 in.) in diameter.

3 After the fiberglass has hardened, sand and clean inside and around the hole.

The cored-fiberglass hull is now prepared, and you can complete the sensor installation.

Sealing the Core with Casting Epoxy

Before you can seal the core with casting epoxy, you must create a cylinder with a diameter of 25 mm (1 in.) to act as a spacer as the epoxy sets.

1 Coat a 25 mm (1 in.) cylinder with wax.

2 From outside the boat, insert the cylinder into the hole, and tape it in place on the outer surface.

3 Fill the space between the cylinder and the core with casting epoxy.

4 After the epoxy has hardened, remove the cylinder, then sand and clean inside and around the hole.

The cored-fiberglass hull is prepared, and you can complete the sensor installation.

NMEA 2000 Connection
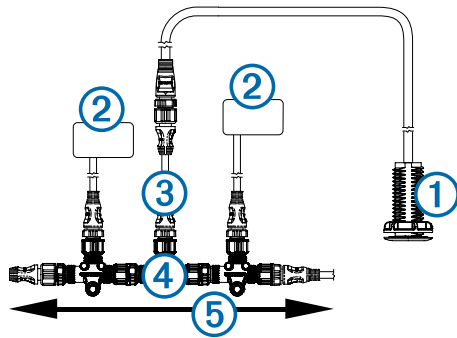
①	NMEA 2000 thru-hull temperature sensor
②	NMEA 2000 device
③	Drop cable
④	T-connector
⑤	Existing NMEA 2000 network

Thru-hull Temperature Sensor Configuration

For instructions on finding the NMEA 2000 device list, see your compatible Garmin chartplotter or instrument manual.

Assigning a NMEA 2000 Temperature Source

1 From the NMEA 2000 device list, select the NMEA 2000 thru-hull device.

2 Select a device.

3 If necessary, select **Review** or **Config.**.

4 Select **Temp. Source**.

5 Select the location of the temperature sensor.

Configuring the Temperature Offset

When the temperature data displayed on the gauge connected to your NMEA 2000 device is not the same as temperature data displayed on other devices, you can configure the temperature offset to compensate for the temperature reading from the sensor connected to the gauge.

1 From the NMEA 2000 device list, select the NMEA 2000 thru-hull device.

2 Select a device.

3 If necessary, select **Review** or **Config.**.

4 Select **Temp. Offset**.

5 Enter a value, in degrees.

NOTE: Enter the temperature offset value as a positive number when the sensor measures the water temperature as being colder than it actually is. Enter the temperature offset value as negative when the sensor measures the water temperature as being warmer than it actually is.

6 Select **Done**.

Troubleshooting the Sensor Number

When multiple adapters are assigned to a NMEA 2000 temperature source, each adapter is assigned a unique sensor number automatically. If an invalid NMEA 2000 temperature configuration error message appears, you must assign a unique sensor number to each adapter manually.

1 From the NMEA 2000 device list, select the NMEA 2000 thru-hull device.

2 Select a device.

3 If necessary, select **Review** or **Config.**.

4 Select **Sensor Number**.

5 Select a sensor number.

6 Select **OK**.

Configuring the Temperature Source when the Location Is Not Displayed

1 From the NMEA 2000 device list, select the NMEA 2000 thru-hull device.

2 Select a device.

3 If necessary, select **Review** or **Config.**.

4 Select **Generic Config.**.

5 Enter **TEMPSOURCE=**.

6 Enter a temperature source value based on the location of the temperature data source, followed by **Done**.

For example, enter TEMPSOURCE=6Done for a temperature data source placed in a bait well.

Temperature Location Source Values

Location	TEMPSOURCE Value
Water	0
Air outside	1
Air inside	2
Engine room	3
Main cabin	4
Live well	5
Bait well	6
Refrigeration	7
Heating system	8
Freezer	13
Exhaust	14

Configuring the Temperature Offset when the Menu Option Is Not Displayed

When the temperature data displayed on the gauge connected to your adapter is different from the temperature data displayed on other devices, you can configure the temperature offset to increase or decrease the displayed temperature.

1 From the NMEA 2000 device list, select the NMEA 2000 thru-hull device.
2 Select a device.
3 If necessary, select **Review** or **Config.**.
4 Select **Generic Config.** or **Generic Configuration**.
5 Enter **TEMPOFFSET=**, followed by a positive or negative decimal number, followed by **Done**.

   For example, enter TEMPOFFSET=-2.5Done to decrease the displayed temperature by 2.5ºC.

Configuring the Sensor Number when the Menu Option Is Not Displayed

1 From the NMEA 2000 device list, select the NMEA 2000 thru-hull device.
2 Select a device.
3 If necessary, select **Review** or **Config.**.
4 Select **Generic Config.** or **Generic Configuration**.
5 Enter **INSTANCE=2**, followed by a positive decimal number, followed by **Done**.
6 Repeat steps 1 through 3 for other devices assigned to a temperature source.

   For example, when to adapters are assigned the value of Live Well, assign INSTANCE=1 to the first adapter and INSTANCE=2 to the second adapter.

Specifications

Hull thickness	Minimum 0 mm (0 in.) Maximum 57 mm (2.25 in.)
Power input	From 9 to 32 Vdc
Power consumption	0.24 W (20 mA at 12V)
Operating temperature range	From -25 to 80ºC (from -13 to 176°F)
Cable length	1.8 m (6 ft.)

NMEA 2000 PGN

Type	PGN	Description
Transmit and receive	059392	ISO acknowledgment
Receive	059904	ISO request
Transmit and receive	060928	ISO address claim
Transmit and receive	065240	ISO commanded address
Transmit and receive	126208	NMEA®: Command, request, and acknowledge group function

Type	PGN	Description
Transmit	126464	Transmit PGN list group function
Transmit	126993	Heartbeat
Transmit	126996	Product information
Transmit	126998	Configuration information
Transmit	130312	Temperature
Transmit	130316	Temperature, extended range