GST™ 10 Installation and Configuration Instructions

Use the Garmin® GST 10 sensor adapter to adapt analog information provided by a compatible water-speed sensor, water-temperature sensor, or combined water-speed and water-temperature sensor on your boat to your NMEA 2000® network. Your GST 10 adapter allows you to observe water-speed and water-temperature information on the compatible Garmin display devices connected to your NMEA 2000 network. For a list of compatible Garmin chartplotters and devices, visit www.garmin.com.

The GST 10 adapter is compatible with the following water-speed and water-temperature sensors:

- Garmin (Airmar ST850) thru-hull water-speed and water-temperature sensor (010-11413-00)
- Garmin (Airmar T80) water-temperature sensor (010-11413-01)
- Garmin transom-mount water-speed sensor (010-10279-02)

These sensors are sold at your local Garmin dealer and are sold on the Garmin web site at www.garmin.com.

Compare the contents of this package with the packing list on the box. If any pieces are missing, contact your Garmin dealer immediately.

Product Registration

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.

Contact Garmin

Contact Garmin Product Support if you have any questions while using your GST 10 adapter. In the USA, go to www.garmin.com/support, or contact Garmin USA by phone at (913) 397.8200 or (800) 800.1020.

In the UK, contact Garmin (Europe) Ltd. by phone at 0808 2380000.

In Europe, go to www.garmin.com/support and click **Contact Support** for in-country support information, or contact Garmin (Europe) Ltd. by phone at +44 (0) 870.8501241.

> ⚠ See the *Important Safety and Product Information* guide in the compatible Garmin display device box for product warnings and other important information.

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

⚠ **NOTICE:** When drilling or cutting, always check the opposite side of the drilling or cutting surface.

Needed Tools and Supplies

- Cable ties
- Additional NMEA 2000 cabling and connectors (optional)

Determining an Installation Location

When you are selecting a location to install the GST 10 adapter, consider the following:

- During installation, you connect the GST 10 adapter to the compatible sensor and to the NMEA 2000 network, and to the NMEA 2000 network.
    - Choose a location that is within 173 in. (4.4 m) of the sensor. You cannot extend the cable connecting the GST 10 adapter to the sensor.
    - Choose a location between the NMEA 2000 backbone and sensor.
    - If you cannot connect the adapter directly to the NMEA 2000 network, add a drop cable. See below for more information.
- The adapter is IEC 60529 IPX7 waterproof, and can be submerged up to 30 minutes at 1 meter. Do not install the adapter in a location where it will be submerged regularly, though the location can be subject to wash-down.
- You can use cable ties (not included) to secure the adapter to an existing structure on your boat.
- You can use mounted-head cable ties (not included) and screws (not included) to secure the adapter to a bulkhead or other suitable surface on your boat.
- Install the adapter at least 2 in. (5 cm) from a magnetic compass to prevent electromagnetic interference, which can cause inaccurate compass readings.
- The GST 10 adapter provides temperature readings from -22°F to 194°F (from -30°C to 90°C). Temperature sensor readings beyond those extremes will not be displayed.

Connecting the GST 10 Adapter to a Water-Speed or Water-Temperature Sensor

The connector opposite the NMEA 2000 connector on the GST 10 adapter is designed to connect directly to a compatible water-speed or water-temperature sensor. No cutting, splicing, or additional wiring is necessary.

Connecting the GST 10 Adapter to a NMEA 2000 Network

After you have connected the GST 10 adapter to the sensor, connect it to the existing NMEA 2000 network on your boat. If you do not have a NMEA 2000 network on your boat, you must build one. For more information on NMEA 2000 and to purchase additional connectors and cables, go to www.garmin.com.
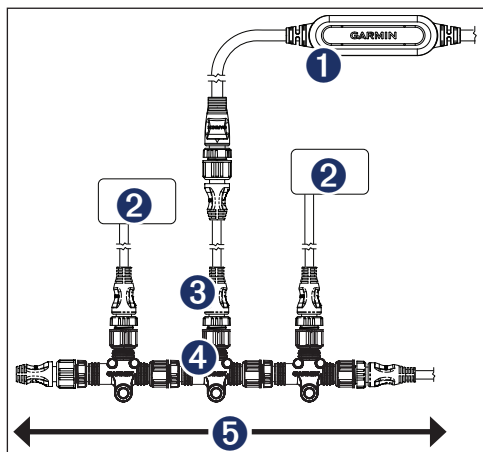
To connect the GST 10 adapter to your existing NMEA 2000 network:
1. Determine where to connect the GST 10 adapter to your existing NMEA 2000 backbone.
2. Disconnect one side of a NMEA 2000 T-connector from the backbone. To extend the NMEA 2000 backbone, connect a NMEA 2000 backbone extension cable to the side of the disconnected T-connector.
3. Add the included T-connector for the GST 10 adapter to the NMEA 2000 backbone by connecting it to the side of the disconnected T-connector.

4. Connect the NMEA 2000 connector on the GST 10 adapter to the T-connector added in step 3.

5. (Optional) If the GST 10 adapter cannot connect directly to the NMEA 2000 backbone, route a NMEA 2000 drop cable (not included) to the bottom of the T-connector added in step 3. Use a drop cable with a length up to 20 ft. (6 m). Connect the drop cable to the T-connector and to the NMEA 2000 connector on the adapter.

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

❶ *GST 10 adapter*

❷ *NMEA 2000 device (not included)*

❸ *Drop cable (optional - not included)*

❹ *T-connector (one included)*

❺ *Existing NMEA 2000 network*

Connecting the GST 10 Adapter to an Existing NMEA 2000 Network

Configuring the GST 10 Adapter

NOTE: This section provides specific configuration information for the GST 10 adapter using your compatible Garmin display device. To access the NMEA 2000 configuration menu on your display device, consult the documentation provided with your display device.

Calibrating the Water Speed

To use the GST 10 adapter, you must calibrate the water speed.

1. From the NMEA 2000 Devices list, select the GST 10 device.

2. Select an option:
   • For most Garmin chartplotters, select **Review** > **Calibrate Water Speed**.
   • For other Garmin marine devices, select **Config** > **Calibrate Water Speed**.

3. Follow the on-screen instructions to calibrate the water speed.

Assigning a NMEA 2000 Temperature Source

To use the GST 10 adapter, you must select the source for the temperature data.

1. From the NMEA 2000 Devices list, select the GST 10 device.
2. Select an option:
   - For most Garmin chartplotters, select **Review** > **N2K Temp. Source**.
   - For other Garmin marine devices, select **Config** > **N2K Temp. Source**.
3. Select the location of the temperature sensor.

Configuring the Temperature Offset

If the temperature data displayed on the gauge connected to the GST 10 adapter is not the same as temperature data displayed on other devices, you can configure the temperature offset to increase or decrease the displayed temperature by a specific amount.

1. From the NMEA 2000 Devices list, select the GST 10 device.
2. Select an option:
   - For most Garmin chartplotters, select **Review** > **Temperature Offset**.
   - For other Garmin marine devices, select **Config** > **Temperature Offset**.
3. Select the temperature offset as a positive or negative decimal number, in degrees.
4. Select **Done**.

Troubleshooting the Sensor Number

If multiple GST 10 adapters are assigned to the same NMEA 2000 temperature source, each adapter is assigned a unique sensor number automatically. If the "Invalid NMEA 2000 temperature configuration" error message appears, you must assign a unique sensor number to each adapter.

For example, if two adapters are assigned the NMEA 2000 temperature source value of Live Well and the error message appears, you must assign each adapter a unique number.

1. From the NMEA 2000 Devices list, select the GST 10 device.
2. Select an option:
   - For most Garmin chartplotters, select **Review** > **Sensor Number**.
   - For other Garmin marine devices, select **Config** > **Sensor Number**.
3. Select a sensor number.
4. Select **OK**.

Configuring the GST 10 Adapter if the Water Speed, Location, Temperature Offset, and Sensor Number Selections Are Not Displayed

Depending on the version of software loaded on your Garmin marine instrument, the specific configuration options may not be displayed on the configuration screens.

To calibrate the water speed if the menu option is not displayed:

To use the GST 10 adapter, you must calibrate the water speed.

1. From the NMEA 2000 Devices list, select the GST 10 device.
2. Select an option:
    • For most Garmin chartplotters, select **Review** > **Generic Config**.
    • For other Garmin marine devices, select **Config** >**Generic Configuration**.
3. Ensure that the boat is stationary; the engine should be off or idling.
4. Enter the following command: "**WATERSPEED=0Done**"
5. Accelerate the boat to cruising speed and observe the maximum speed, in miles per hour.
6. Bring the boat to a stop; the engine should be off or idling.
7. Enter the following command: "**WATERSPEED=**"
8. After the command, enter a positive decimal number that indicates the maximum cruising speed in miles per hour, followed by **Done**. For example, **WATERSPEED=35.5Done**.

To configure the temperature source if the location menu option is not displayed:

To use the GST 10 adapter, you must select the source for the temperature data.

1. From the NMEA 2000 Devices list, select the GST 10 device.
2. Select an option:
    • For most Garmin chartplotters, select **Review** > **Generic Config**.
    • For other Garmin marine devices, select **Config** >**Generic Configuration**.
3. Enter the following command: **"TEMPSOURCE="**
4. After the command, enter a number between **0** and **8**, or **13**, to indicate the source of the temperature data as defined in the following table, followed by **Done**.

    For example, **TEMPSOURCE=6Done** indicates that the bait well is the source for the temperature data.

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

To configure the temperature offset if the menu option is not displayed:

If the temperature data displayed on the gauge connected to the GST 10 adapter is not the same as temperature data displayed on other devices, you can configure the temperature offset to increase or decrease the displayed temperature by a specific amount.

1. From the NMEA 2000 Devices list, select the GST 10 device.
2. Select an option:
   - For most Garmin chartplotters, select **Review** > **Generic Config**.
   - For other Garmin marine devices, select **Config** >**Generic Configuration**.
3. Enter the following command: **"TEMPOFFSET="**
4. After the command, enter a positive or negative decimal number, followed by **Done**.

   For example, **TEMPOFFSET=-2.5Done** indicates that the temperature readings displayed on the gauge connected to the GST 10 adapter will be decreased by 2.5 degrees Celsius.

To configure the sensor number if the menu option is not displayed:

If multiple GST 10 adapters are assigned to the same NMEA 2000 temperature source, each adapter is assigned a unique sensor number automatically. If the "Invalid NMEA 2000 temperature configuration" error message appears, you must assign a unique sensor number to each adapter.

For example, if two adapters are assigned the NMEA 2000 temperature source value of Live Well and the error message appears, you must assign each adapter a unique number.

1. From the NMEA 2000 Devices list, select one of the multiple the GST 10 devices assigned to the same temperature source.
2. Select an option:
   - For most Garmin chartplotters, select **Review** > **Generic Config**.
   - For other Garmin marine devices, select **Config** >**Generic Configuration**.
3. Enter the following command: **"INSTANCE="**
4. After the command, enter a positive decimal number, followed by **Done**.
5. Repeat steps 1–4 for each GST 10 device assigned to the same temperature source.

   For example, if two GST 10 adapters are assigned the value of Live Well, assigning **INSTANCE=1** to the first adapter and assigning **INSTANCE=2** to the second adapter prevents the error message.

Restoring Factory Default Settings

You will lose all custom configuration settings when you restore factory default settings.

1. From the NMEA 2000 Devices list, select the GST 10 device.
2. Select an option:
   - For most Garmin chartplotters, select **Review** > **Factory Defaults**.
   - For other Garmin marine devices, select **Config** > **Factory Defaults**.
3. Select **Yes**.

Specifications

Physical

Weight: 13.33 oz. (380 g)

Size: (W × H × L) $^{31}/_{32}$ × $^{43}/_{64}$ × 3 $^{3}/_{32}$ in. (24.7 x 17.0 x 78.6 mm)

Total Cable Length: 16 ft. (4.9 m)

Case Material: Thermoplastic rubber (PCB overmold); PVC jacket (cable); PVC overmold (connectors/strain reliefs). Waterproof to IEC 529 IPX7 standards.

Temperature Range: From 5°F to 158°F (from -15°C to 70°C)

Compass Safe Distance: 2 in. (5 cm)

Electrical

Power Input Source: 9–16 Vdc from the NMEA 2000 bus

NMEA 2000 Power Usage: 0.9 W max

NMEA 2000 Load Equivalency Number (LEN): 1 (50 mA)

Communications

Use the following table to determine the approved NMEA 2000 PGN information that is transmitted and received a GST 10 adapter during communication with a NMEA 2000-compliant device.

Transmit		Receive	
059392	ISO Acknowledgment	059392	ISO Acknowledgment
060928	ISO Address Claim	059904	ISO Request
126208	NMEA - Command/Request/ Acknowledge Group Function	060928	ISO Address Claim
126464	Transmit/Receive PGN List Group Function	126208	NMEA - Command/Request/ Acknowledge Group Function
126996	Product Information		
128259	Speed - Water Referenced		
130312	Temperature		

The GST 10 is NMEA 2000 certified

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For the latest free software updates (excluding map data) throughout the life of your Garmin products, visit the Garmin Web site at www.garmin.com.

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