



# EP-80R TH

## Electronic Thru-Hull Temp Sensor Installation and Configuration Instructions

This document shows how to install an EP-80R TH thru-hull temp sensor and how to connect it to a NMEA 2000® network. It also provides instructions on how to configure your temp sensor with Lowrance digital gauges (LMF-200 & LMF-400) and display units.

NMEA 2000 is the communication bus standard developed by the National Marine Electronics Association (NMEA) for use in boats. Lowrance has introduced a line of products that can communicate over a NMEA 2000 network (LowranceNet).

All Lowrance NMEA 2000 capable devices are either NMEA 2000 certified or certification is pending.

### **CAUTION:**

*Installing LowranceNET NMEA 2000 devices is **significantly different** from installing earlier Lowrance components without NMEA 2000 features. You should read all of the installation instructions before proceeding. Decide where you want to install all components before drilling any holes in your vessel.*

Some sonar or GPS units may require a software upgrade to display NMEA 2000 data correctly. For free software upgrades or additional information on the LowranceNet NMEA 2000® network system, visit our web site, [www.lowrance.com](http://www.lowrance.com).



**The EP-80R TH temperature sensor.**

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The EP-80R TH consists of the temp sensor module, a red cable connector and the smart module, which converts analog temperature data to NMEA 2000 data format. The cable length measures 18 inches (46 cm) from the connector to the smart module and 10 feet (3 meters) from the smart module to the temp module. The EP-80R TH temp sensor is designed to operate in a temperature range of 4° to 176° F (-20° to 80° C).

Like other LowranceNet Electronic Probe (EP) sensors, your thru-hull temp is designed for use with a NMEA 2000 Network. Your sensor, however, is also compatible with LowranceNet blue connector networks. It can be added to a blue connector network by using a red female to blue female adapter cable. Your sensor *MUST* be connected to a NMEA 2000 network or it *WILL NOT* function.



**The NMEA 2000 red female to blue female adapter cable allows users to add red connector devices to a blue connector network.**

**Caution:**

*The maximum hull thickness for the EP-80R TH is 1-1/4" (31 mm).*

**Tools and Supplies**

Your EP sensor packs with a T connector needed to attach it to a NMEA 2000 LowranceNet network. If you are connecting to an existing LowranceNET network, those are all the electronic components you need. If this is the first sensor you are connecting, you will need to purchase a LowranceNET Node Kit.

For complete instructions on setting up a new NMEA 2000 network or expanding an existing one, see the NMEA 2000 document packed with your EP-80R TH temp, "*Setup and Installation of NMEA 2000 Networks, General Information*," part number 988-0154-173. If that document is missing, it can be downloaded free from the Lowrance web site.



**LowranceNET Node Kit for a NMEA 2000 network. Includes a 2-foot extension cable, T connector and two 120-ohm terminators.**

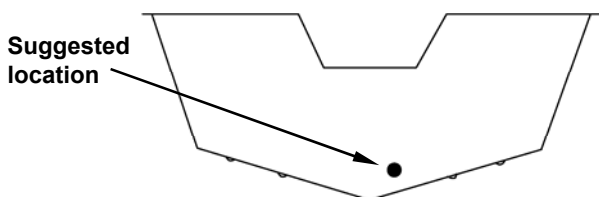
### **Recommended Tools and supplies**

Recommended tools for this job include: drill, 1/8" (3 mm) drill bit for pilot hole, 1-1/16" (27 mm) hole saw with a blade type appropriate for the composition of your transom.

Required supplies for this job include: *high quality, marine grade* above- or below-waterline sealant/adhesive compound. We recommend 3M Polyurethane Marine Adhesive Sealant 5200 or an equivalent brand. The sensor is packed with a lock nut used for mounting.

### **Installation**

1. The EP-80R TH thru-hull temperature sensor can be mounted in any location on the hull, with the most common application being on the transom. Wherever you install it, make sure the temp module will be in contact with the water at all times and that it does not interfere with the boat's trailer.



**To install the EP-80R TH, use a hole saw to cut a 1-1/16" (27 mm) hole in the transom. The hole should be below the waterline.**

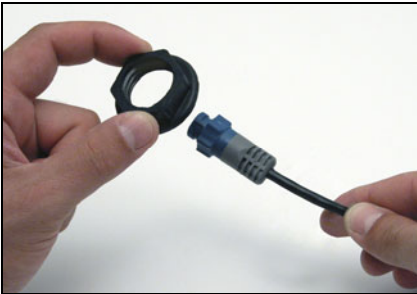
2. After you've determined the proper location on the transom for the EP-80R TH, drill a 1/8" (3 mm) pilot hole from inside the transom.

3. The EP-80R TH requires a 1-1/16" (27 mm) hole. Using a hole saw, drill from the outside of the transom to prevent the gel coat from cracking on fiberglass boats. Use eye and face protection when drilling the hole.

Afterwards, clean the area around the hole with detergent or alcohol. This will establish a good surface for the adhesive.

5. Using a high quality, marine-grade above- or below-waterline sealant/adhesive compound, apply a 1/8" (3 mm) bead of sealant around the lip of the EP-80R TH housing.

6. Make sure the nut has been removed from the sensor module, then from the outside of the transom, pass the EP-80R TH cable through the hole and push the housing with sealant into it. Use a twisting motion to squeeze out excess sealant. Remove excess sealant from the outside of the transom before it dries.



**Slide the nut over the red connector (left); Place the nut on the sensor module, add sealant on the inside of the hull and tighten the nut (right).**

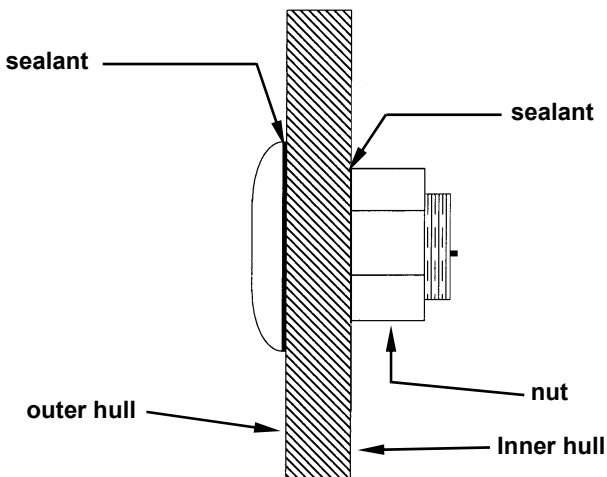
7. On the inside of the hull, slide the nut over the back end of the sensor module and add a 1/8" bead of sealant around the edge of the hole on the inside of the transom. Hand-tighten the nut; be careful not to over-tighten. ***Do not use a wrench to tighten the nut!*** Remove excess sealant from the inside of the hull before it dries.

8. Route the EP-80R TH cable to the T on the network backbone where you intend to attach it, and plug it in.

**NOTE:**

Allow marine grade sealant/adhesive compound to dry for 12 hours before taking your boat out on the water.

9. ***Check for leaks!*** After the boat is placed in the water, check for leaks immediately. Check the boat for leaks again several times during the next 24 hours. If you notice any leakage at all, the EP-80R TH should be re-installed with a new coat of adhesive.

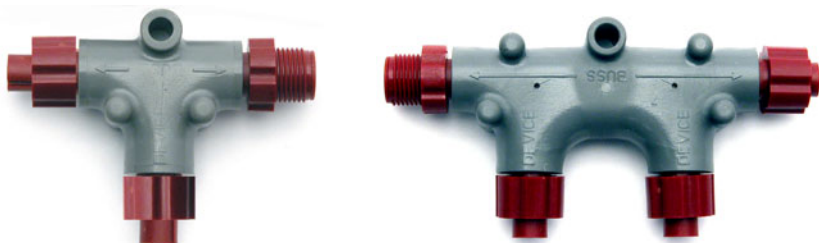


**Cross section of transom showing EP-80R TH installed.**

### **Connecting to a NMEA 2000 Network**

A NMEA 2000 network is a communications link between two or more devices that transfer NMEA 2000 information. LowranceNET is the NMEA 2000 networking system developed by Lowrance Electronics. A NMEA 2000 network functions like the phone wiring in a house. If, for example, you pick up a phone in the living room you will be able to hear the conversation someone is having on a phone in the bedroom.

In similar fashion, a NMEA 2000 network allows multiple display units to receive data from a GPS antenna or multiple sonar units to receive messages sent by a temperature sensor. A NMEA 2000 network gives you the flexibility to view information like engine diagnostics and fuel level data on digital gauges or display units located anywhere on your boat.



**There are two types of LowranceNet red connectors: the single T connector (left) and the double T connector (right).**

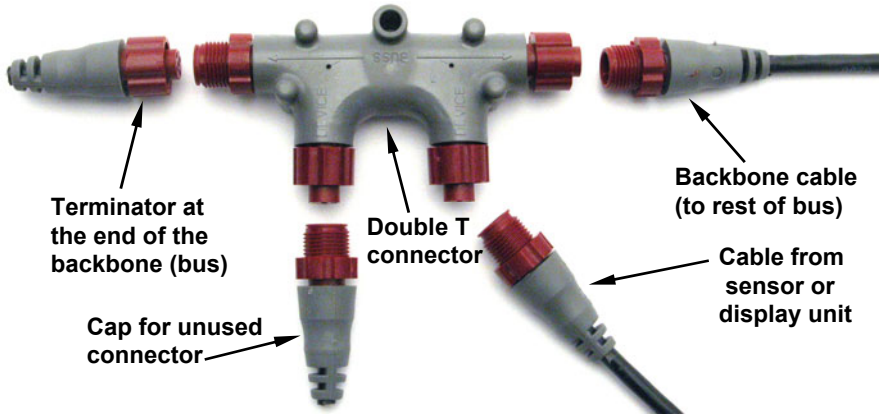
## Network Backbone and Network Nodes

A network bus backbone consists of network cabling, terminators and T connectors. Network nodes are made by fitting T-shaped connectors into the backbone (using the sockets on the sides) and attaching any network device to the bottom of the T.

Staying with the previous phone wiring example, T connectors on the backbone are the equivalent of phone jacks spread throughout a house. To pick up a phone and be able to hear a conversation from another phone in the house, both phones have to be connected to the main phone line. In similar fashion, only sensors and display units plugged into the NMEA network can share information. The network backbone is like the phone wiring that runs throughout a home.

It connects the network nodes, allowing them to communicate across the network. Connections found in the middle of the bus could have T connectors or backbone network cable plugged into one or both sides.

Connections at the end of a network will have the backbone cable plugged into one side and a terminator plugged into the other, as shown in the following figure.



NMEA 2000 network node located at the end of a NMEA 2000 backbone.

### NOTE:

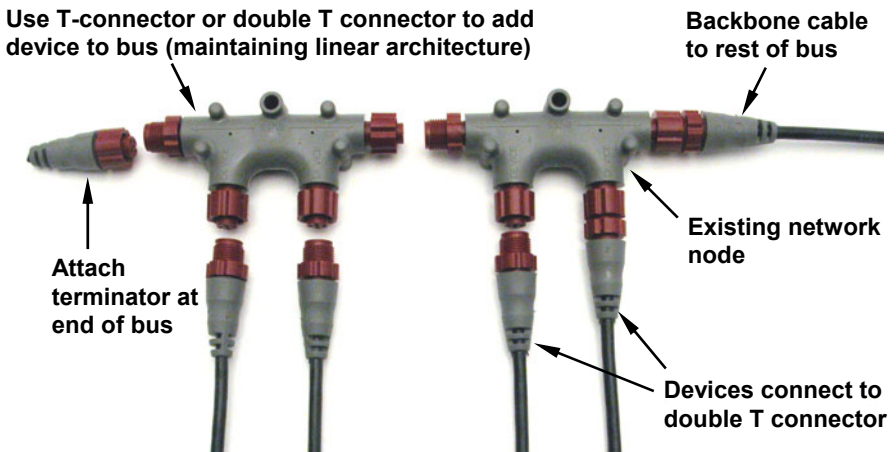
If you have a double T Connector on your network that is not attached to a device, you must cap the unused connector with a NMEA 2000 cap. This will protect the pin connectors from corrosion. The NMEA 2000 cap looks like a terminator, but has "Cap" stamped into the connector housing.

All T connectors on your network probably will be connected to a device. If you want to add another node to a working network, add another T connector. T connectors may be purchased from LEI (ordering information appears on the back page of this booklet). If you are adding a Lowrance or LEI NMEA 2000 sensor, it will come with a T connector.

### Adding a Network Node

You can add a node to any existing connection, anywhere along the network backbone. This connection could be between a T connector and a terminator, between two T connectors, between a T connector and a backbone extension cable or between two extension cables. Wherever you want to add the new node, separate the sockets of the existing connection and install the T connector between them.

If you want to add a node at the end of the backbone (network bus) remove the terminator from the last connector, like the figure above. Install the new T connector and attach the terminator to the side of the connector.



In this example, a new device is added to the NMEA 2000 bus by installing a T connector between a T connector and a terminator at the end of the backbone (network bus).

### Additional Network Information

For more information on creating or expanding a network refer to the NMEA 2000 network setup booklet, part number 988-0154-173, which came packed with this document.

# Notes

# LMF-200: EP-80R TH Temp Configuration

This section will show you how to use the LMF-200 Multi-function gauge to configure your EP-80R TH Temperature Sensor.

## NOTE:

You will notice the LMF-200 does not have an Exit key. Menus will time out after a preset amount of time (3, 5, 10 or 15 seconds). The default setting is 5 seconds. Refer to your LMF-200 instruction manual for more information on the Timeout feature.



LMF-200 Multi-function Digital Gauge

## Boat Setup

If this is the first time you have turned on your LMF-200, you will have to complete Boat Setup before you will be able to configure your temp sensor. If you have already completed Boat Setup skip ahead to the segment covering EP-80R TH Configuration.

### To execute Boat Setup:

1. With Boat Setup highlighted on the screen, press **MENU**. The Boat Setup menu will appear, allowing you to select an engine-tank configuration to match the number of engines and fuel tanks on your vessel. Boat Setup options include: 1 En/1 Tk, 1 En/2 Tk, 2 En/1 Tk, 2 En/2 Tk, 3 En/1 Tk and 3 En/3 Tk.
2. Use the **UP** and **DOWN** keys to select the correct configuration and press **MENU**.

3. If you selected a configuration with more than one tank you will have to select the tank you want to set up and press **MENU**, which will open the Tank Size window. (If you choose a single-tank configuration, you will not have to choose the tank. You will be directed straight to the Tank Size window covered in Step 4.)

4. Use the **UP** and **DOWN** keys to input the number of gallons the tank will hold and press **MENU**. Repeat steps 3 and 4 for each additional tank. After all tanks have been set up, you will be directed to the main display.

### **Boat Setup Reset**

If you want to access the Setup screen (Boat Setup) after an engine-tank configuration has been chosen you will have to reset the configuration to default settings.

#### **To reset engine tank configuration:**

1. Press **MENU**, highlight **SYSTEM SETUP** and press **MENU**.
2. Choose **ENG/TANK** and press **MENU** twice. The following message will appear: *Hit menu to reset Eng/Tnk.*
3. Press **MENU**. The Setup screen will appear with Boat Setup highlighted.

### **EP-80R TH Configuration**

The EP-80R TH temperature sensor has three configuration options: Inside, Outside and Water. An unconfigured temperature sensor will appear on the Bus Devices list as UnCfg Temp.

#### **To configure a temp sensor:**

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **MENU**.
2. Highlight **B. DEVICES** and press **MENU**. After a few moments the Bus Devices list will appear.
3. Highlight **UNCFG TEMP** and press **MENU**. The following message will appear: *Hit Menu to Cfg Temp Sns.*
4. Press **MENU** to be taken to the Selecting Temp menu, which will have three options: Inside, Outside and Water.
5. Highlight the desired temp option and press **MENU**. The temp sensor has now has been configured. You will be directed to the Bus Devices list.

#### **NOTE:**

If your temp sensor is not updated on the Bus Devices list, refresh the list by letting it time out and then access it again.

**To unconfigure a temp sensor:**

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **MENU**.
2. Highlight **B. DEVICES** and press **MENU**, which will open the Bus Devices list.
3. Select a temp sensor from the Bus Devices list and press **MENU**. The Configuration Options menu will appear with two choices: Unconfig (Unconfigure) and Reconfig (Reconfigure).
4. Select **UNCONFIG** and press **MENU**. The following message will appear:  
*Hit Menu to Unset Device Name.*
5. Press **MENU** to unconfigure the sensor. You will be directed to the Bus Devices list, where the temp you unconfigured will be listed as Uncfg Temp.

**To reconfigure a temp sensor:**

To reconfigure a sensor, there must be a configuration name available (Water, Outside or Inside). If you try to reconfigure a sensor when the desired configuration name (Water, Outside and Inside) is in use, a *Name Already Selected* message will appear.

*If all three temps are configured — meaning there is no name configuration available — follow the first set of instructions. If the desired configuration name is available, follow the second set of instructions.*

The first set of instructions below will show you how to switch the configuration of a water temp to an outside temp.

**If all temps configured (Configuration name unavailable):**

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **MENU**.
2. Highlight **B. DEVICES** and press **MENU**, which will open the Bus Devices list.
3. Highlight **WTR TEMP** and press **MENU**. The Configuration Options menu will appear.
4. Select **UNCONFIG** and press **MENU**. The following message will appear:  
*Hit Menu to Unset Device Name.*
5. Press **MENU** to unconfigure the sensor and return to the Bus Devices list, where the temp you unconfigured (Water Temp) will be listed as Uncfg Temp.
6. Highlight **OUT T** (Outside Temp) and press **MENU**. The configuration options menu will appear.

7. Select **RECONFIG** and press **MENU** to open the Selecting Temp menu. Highlight **WATER** and press **MENU**. You will be directed to the Bus Devices list.

8. Highlight **UNCFG TEMP** and press **MENU**. The following message will appear: *Hit Menu to Cfg Temp Sns.*

9. Press **MENU** to be taken to the Selecting Temp menu. Choose **OUTSIDE** and press **MENU**. You will be directed to the Bus Devices list, where the two sensors will be listed with their new configuration names.

#### **If desired configuration name available:**

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **MENU**.

2. Highlight **B. DEVICES** and press **MENU**, which will open the Bus Devices list.

3. Highlight **WTR TEMP** and press **MENU**, which will launch the Configuration Options menu.

4. Select **RECONFIG** and press **MENU** to open the Selecting Temp menu. Highlight **OUTSIDE** and press **MENU**. You will be directed to the Bus Devices list, where the temp will now be shown as Out T. (Outside Temp).

## **Displaying EP-80R TH Temp Sensor Data**

You can display your temperature sensor data on the Gauge, Single Digital and Dual Digital pages.

### **Page Screen Rotation**

The Page Screen Rotation consists of multiple pages that have been set for display. Once pages have been added to the rotation, they can be set to scroll across the screen automatically or manually. Press the **UP** and **DOWN** keys to manually scroll pages across the screen. Pressing the **UP** key moves the scroll in one direction. Pushing the **DOWN** key moves the scroll in the other direction. You can use Autoscroll if you want the pages to automatically scroll across the screen. Refer to your LMF -200 manual for information about Autoscroll.

#### **Adding a page:**

1. Press **MENU**, use the **UP** and **DOWN** keys to select **PAGES** and press **MENU**, which will open the Pages menu with the following options: Add Page, Rem Page, Autoscroll and Set Pop-up.

2. Highlight **ADD PAGE** and press **MENU**.

3. Select Gauge, Single Digital or Dual Digital and press **MENU**. You will be taken back to the main display, where the page you selected will be shown.

## Customizing Pages

The customizing pages feature allows you to choose what data will be displayed and how it will be displayed on select pages. You can customize the Gauge, Single Digital and Dual Digital pages with temp sensor data.

### To customize Gauge page:

1. After the Gauge page has been added to the page screen rotation, use the **UP** and **DOWN** keys to display it on the screen.
2. Press **MENU**, select **CUSTOMIZE** and press **MENU**.
3. Highlight **TEMP** and press **MENU**. The Select Temp menu will appear with three temp types: Inside, Water and Outside.
4. Select the desired temp type and press **MENU**. You will be taken back to the main display.

### To customize Single Digital page:

1. After the Single Digital page has been added to the page screen rotation, use the **UP** and **DOWN** keys to display it on the screen.
2. Press **MENU**, select **CUSTOMIZE** and press **MENU**.
3. Highlight **TEMP** and press **MENU**. The Select Temp will appear, allowing you to choose from three temp types: Inside, Water and Outside.
4. Select the desired type and press **MENU**. You will be taken back to the main display.

### To customize Dual Digital page:

1. After the Dual Digital page has been added to the page screen rotation, use the **UP** and **DOWN** keys to display it on the screen.
2. Press **MENU**, select **CUSTOMIZE** and press **MENU**. The Position menu will appear with two options: Top Data and Bottom Data.
3. Select the desired data position and press **MENU**.
4. Highlight **TEMP** and press **MENU**. The Select Temp menu will appear with three temp types: Inside, Water and Outside.
5. Select the desired type and press **MENU**. You will be taken back to the main display. Repeat these steps to customize the other data position.

# Notes

# LMF-400: EP-80R TH Temp Configuration

This section will show you how to use the LMF-400 Multi-function gauge to configure your EP-80R TH Temperature Sensor.



LMF-400 Multi-function Digital gauge.

## Boat Setup

If this is the first time you have turned on your LMF-400, you will have to complete Boat Setup before you will be able to configure your temp sensor. If you have already completed Boat Setup, skip ahead to the segment covering EP-80R TH Configuration.

### To execute Boat Setup:

1. With Boat Setup highlighted on the screen, press **ENTER**. The Boat Setup menu will appear, allowing you to select an engine-tank configuration to match the number of engines and fuel tanks on your vessel. The Boat Setup menu options are: 1 Eng/1 Tank, 1 Eng/2 Tank, 2 Eng/1 Tank, 2 Eng/2 Tanks, 3 Eng/1 Tank or 3 Eng/3 Tanks.
2. Use the **UP** and **DOWN** keys to select the engine-tank configuration that applies to your vessel and press **ENTER**. After setting the engine/tank configuration, the Tank Size menu will appear with up to three tank options. (If you selected one tank during Boat Setup, you will be taken directly to the Setting Tank Size Window in Step 4.)
3. Select the desired tank and press **ENTER**, which will open the Setting Tank Size window.
4. Use the **UP** and **DOWN** keys to input the number of gallons the tank will hold and press **ENTER**. Press **EXIT** and repeat steps 3 and 4 for each of the remaining tanks.

5. After all tanks on your vessel have been set up, press **EXIT** repeatedly to return to the main display.

### **Boat Setup Reset**

If you want to access the Setup screen (Boat Setup) after an engine-tank configuration has been chosen you will have to reset the configuration to default settings.

#### **To reset engine-tank configuration:**

1. Press **MENU**, highlight **SYSTEM SETUP** and press **ENTER**.
2. Choose **ENG/TANK CFG** and press **ENTER** twice. The following message will appear: *Press ENTER to reset Eng/Tnk Cfg.*
3. Press **MENU**. The Setup Menu will appear with Boat Setup highlighted.

### **EP-80R TH Configuration**

The EP-80R TH Temperature sensor has three configuration options: Inside, Outside and Water. An unconfigured temperature sensor will appear on the bus devices list as UnCfg Temp.

#### **To configure a temp sensor:**

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.
2. Highlight **BUS DEVICES** and press **ENTER**. The Bus Devices list will appear.
3. Select an unconfigured temp sensor (**UNCFG TEMP**) and press **ENTER**. The following message will appear: *Press Enter to Configure Temp Sensor.*
4. Press **ENTER**, which will open the Select Temp menu with three options: Water Temp, Outside Temp and Inside Temp.
5. Highlight the desired option and press **ENTER**. The temp is now configured. You will be directed to the Bus Devices list. Press **EXIT** repeatedly to get back to the main display.

#### **NOTE:**

If your temp sensor is not updated on the Bus Devices list, refresh the list by closing it and then access it again.

#### **To unconfigure a temp sensor:**

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.
2. Highlight **BUS DEVICES** and press **ENTER**. The Bus Devices list will appear, showing all devices detected on the network.

3. Choose the desired temp sensor and press **ENTER**. Select **UNCONFIGURE** from the temp configuration menu and press **ENTER**. The following message will appear: *Press Menu to UnConfig Device Name*.
4. Press **ENTER** to unconfigure the sensor and be directed to the Bus Devices list where the temp now will be listed as UnCfg Temp.



**Bus Devices highlighted in the System Setup menu (left). Searching Bus Devices window (center) with Bus Devices list (right).**

#### **To reconfigure a temp sensor:**

To reconfigure a sensor, there must be a configuration name available (Water, Outside or Inside). If all three temp sensors have been configured, you will have to unconfigure a temp sensor to make its name available for reconfiguration. If you try to reconfigure a sensor when the desired configuration name is in use, a *Name Already Selected* message will appear.

*If all three temps are configured — meaning there is no name configuration available — follow the first set of instructions. If the desired configuration name is available, follow the second set of instructions.*

The first set of instructions below will show you how to switch the configuration of a water temp to an outside temp.

#### **If all temps configured (Configuration name unavailable):**

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.
2. Highlight **BUS DEVICES** and press **ENTER**. Select **OUTSIDE TEMP** and press **ENTER** to open the temp configuration menu.
3. Select **UNCONFIGURE** and press **ENTER**. The following message will appear: *Press Enter to UnConfig Device Name*.
4. Press **ENTER** to unconfigure the sensor and be directed to the Bus Devices list. The Outside temp is now unconfigured and will be displayed as UnCfg Temp. Its configuration name (Outside) is now available, so you will be able to use it to reconfigure the Water temp sensor.
5. Highlight **WATER TEMP** and press **ENTER**, which will open the temp

configuration menu. Select **RECONFIGURE** and press **ENTER**. That will direct you to the Temp Selection menu, which will have three options: Water, Outside and Inside.

6. Select **OUTSIDE** and press **ENTER**. You will be taken back to the Bus Devices list. The temp you just reconfigured (formerly water temp) will now be displayed as Outside Temp.

7. To configure the unconfigured Temp (formerly Outside temp), highlight **UNCFG TEMP** from the Bus Devices list and press **ENTER** to open the Temp Selection menu, which will have three options: Water, Outside and Inside. Highlight **WATER** and press **ENTER**. You will be taken back to the Bus Devices list. The temp (formerly outside temp) will now be displayed as Water Temp.

#### **If desired configuration name available:**

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER**. Select **WATER TEMP** and press **ENTER** to open the configuration options menu.

3. Select **RECONFIGURE** and press **ENTER** to open the Temp Selection menu, which will have three options: Water, Outside and Inside.

4. Highlight **OUTSIDE** and press **ENTER**. You will be directed to the Bus Devices list where the temp will now be shown as Outside Temp.

#### **NOTE:**

If your temp sensor is not updated on the Bus Devices list, refresh the list by closing it and then access it again.

### **Displaying EP-80R TH Temp Sensor data:**

You can display temp sensor data on the Single Analog, Dual Analog, Quad Analog, Single Digital, Dual Digital and Quad Digital pages.

#### **Page Screen Rotation**

The Page Screen Rotation consists of multiple pages that have been set up for display. Once pages have been added to the page screen rotation, they can be set to scroll across the screen automatically or manually. Use the **ENTER** and **EXIT** keys to manually scroll pages across the screen. Pressing the **ENTER** key moves the scroll in one direction. Pushing the **EXIT** key moves the scroll in the other direction. You will use the Page Scrolling if you want pages to automatically scroll across the screen. Refer to your LMF-400 manual for more information about Page Scrolling.

### **To add a page to the display:**

1. Press **MENU**, use the **UP** and **DOWN** keys to select **PAGES** and press **ENTER**. A menu will pop up with four options: Add Page, Remove Page, Page Scrolling and Pop-Ups Setup.
2. Select **ADD PAGE** and press **ENTER**.
3. Highlight (Single Analog, Dual Analog, Quad Analog, Single Digital, Dual Digital or Quad Digital) and press **ENTER**. The following message will appear: *Press Enter to add the selected page.*
4. Press **ENTER**, which will take you back to the main display, where the page you selected will be shown on the screen.

### **Customizing Pages**

The customizing pages feature allows you to choose what data will be displayed on selected pages. You can use the Single Analog, Dual Analog, Quad Analog, Single Digital, Dual Digital or Quad Digital pages to display temp sensor data.

#### **To customize Single Analog page:**

1. Make sure the Single Analog page has been added to the page screen rotation.
2. Use the **ENTER** and **EXIT** keys to scroll the Single Analog page onto the main display.
3. Press **MENU**, use the **UP** and **DOWN** keys to select **CUSTOMIZE** and press **ENTER**. The data menu will appear.
4. Select **TEMPERATURE** and press **ENTER**. The Select Temp menu will appear with three temp types: Water Temp, Outside Temp and Inside Temp.
5. Highlight desired temp type and press **ENTER**. You will be taken back to the main display.

#### **To customize Dual Analog page:**

1. Make sure the Dual Analog page has been added to the page screen rotation.
2. Use the **ENTER** and **EXIT** keys to scroll the Dual Analog page onto the main display.
3. Press **MENU**, use the **UP** and **DOWN** keys to select **CUSTOMIZE** and press **ENTER**. The Position menu will appear with two options: Top Gauge and Bottom Gauge.
4. Select the desired position and press **ENTER**. The data menu will appear.

5. Highlight **TEMPERATURE** and press **ENTER**. The Select Temp menu will appear with three temp types: Water Temp, Outside Temp and Inside Temp.

6. Select the desired temp type and press **ENTER**. You will be directed to the Position menu. Repeat steps 4 and 5 to customize the other position, or press **EXIT** twice to return to the main display.

#### **To customize Quad Analog page:**

1. Make sure the Quad Analog page has been added to the page screen rotation.

2. Use the **ENTER** and **EXIT** keys to scroll the Quad Analog page onto the main display.

3. Press **MENU**, select **CUSTOMIZE** and press **ENTER**. The Position menu will appear with four options: Top Left, Top Right, Bottom Left and Bottom Right.

4. Select the desired position and press **ENTER**. The data menu will appear.

5. Highlight **TEMPERATURE** and press **ENTER**. The Select Temp menu will appear with three temp types: Water Temp, Outside Temp and Inside Temp.

6. Select the desired temp type and press **ENTER**. You will be directed to the Position menu. Repeat steps 4 and 5 to customize the other positions, or press **EXIT** twice to return to the main display.

#### **To customize Single Digital page:**

1. After the Single Digital page has been added to the page screen rotation, use the **ENTER** and **EXIT** keys to display it on the main screen.

2. Press **MENU**, use the **UP** and **DOWN** keys to select **CUSTOMIZE** and press **ENTER**. The data menu will appear.

3. Select **TEMPERATURE** and press **ENTER**. The Select Temp menu will appear with three temp types: Water Temp, Outside Temp and Inside Temp.

4. Select the desired temp type and press **ENTER**.

#### **To customize Dual Digital page:**

1. After the Dual Digital page has been added to the page screen rotation, use the **ENTER** and **EXIT** keys to display it on the main screen.

2. Press **MENU**, use the **UP** and **DOWN** keys to select **CUSTOMIZE** and press **ENTER**. The Position menu will appear with two options: Top Data and Bottom Data.

3. Highlight the desired data position and press **ENTER**.

4. Select **TEMPERATURE** and press **ENTER**. The Select Temp menu will appear with three temp types: Water Temp, Outside Temp and Inside Temp.

5. Select the desired temp type and press **ENTER**. You will be directed to the Position menu. Repeat steps 3 through 5 to customize the other position, or press **EXIT** twice to return to the main display.

**To customize Quad Digital page:**

1. After the Quad Digital page has been added to the page screen rotation, use the **ENTER** and **EXIT** keys to display it on the main screen.

2. Press **MENU**, use the **UP** and **DOWN** keys to select **CUSTOMIZE** and press **ENTER**. The Position menu will appear with four options: Data Box 1, Data Box 2, Data Box 3 and Data Box 4.

3. Highlight the desired data position and press **ENTER**.

4. Select **TEMPERATURE** and press **ENTER**. The Select Temp menu will appear with three temp types: Water Temp, Outside Temp and Inside Temp.

5. Select the desired temp type and press **ENTER**. You will be directed to the Position menu. Repeat steps 3 through 5 to customize the other positions, or press **EXIT** twice to return to the main display.

# Notes

# Display Unit: EP-80R TH

## Temp Configuration

All NMEA 2000 capable Lowrance sonar and sonar/GPS combo display units can be used to configure your EP-80R TH thru-hull temp sensor on a NMEA 2000 network.



**The LMS-525cDF is one of many Lowrance display units that may be used to configure an EP-80R TH thru-hull temp sensor.**

### **NMEA 2000 Menu/Networking Menu**

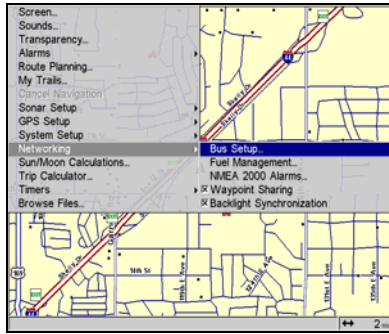
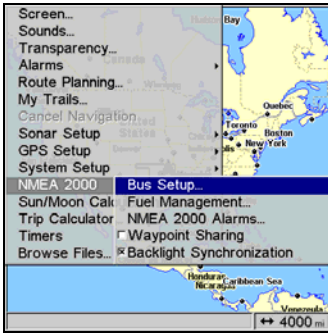
Your unit may have a NMEA 2000 menu or a Networking menu, depending on the software version installed in your unit. Both menus allow you to perform the same NMEA 2000 related functions.

#### **NOTE:**

Some of the menus shown in this section may differ slightly from the menus in your display unit, but your unit will perform the same functions in a similar manner.

### **Bus Setup**

Selecting Bus Setup from the NMEA 2000 or Networking menu will open the Bus Configuration menu. The Bus Configuration menu gives you access to the NMEA 2000 Devices list, which allows you to manage devices on the network. When you are ready to configure your temp sensor, select it from the NMEA 2000 Devices list.



**Bus Setup** highlighted on the NMEA 2000 menu (left). **Bus Setup** selected on Networking menu (right).

## EP-80R TH Temp Sensor Configuration

The Temp Type function will be used when configuring your temp sensor through a display unit. You will select a configuration name for the temp from the Temp Type menu. You can also change the Device Name for your temp sensor.

### Device Name

You can change how your temp sensor will be displayed on your unit's NMEA 2000 Devices list by inputting a customized device name in the Device Name dialog box. *You do not have to change the device name to configure your temp sensor.*

### NOTE:

Changing the Device Name only will affect the way the EP-80R is shown on your display unit. The customized device name will not be seen by other devices or display units on the NMEA 2000 network.

### To input a Device Name:

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.
2. Highlight **BUS SETUP** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.
3. Select the desired temp sensor and press **ENTER**. The Device Configuration menu will appear with the Device Name dialog box highlighted.

4. Press **ENTER**. Use the arrow keys to input the desired name for the temp sensor and press **ENTER**. Press **EXIT** repeatedly to return to the main display.

**To reset device name to default setting:**

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENTER**, to open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired temp sensor and press **ENTER**. The Device Configuration menu will appear with the Device Name dialog box highlighted.

4. Press **ENTER**. Depress the left arrow key until the device name disappears. Press **ENTER**, then press **EXIT** to return to the NMEA 2000 menu.

5. Highlight the device and press **ENTER**. The Device Configuration menu will open. The device name will be reset to its default setting. Press **EXIT** repeatedly to return to the main display.

**To select Temp Type:**

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired temp sensor and press **ENTER**. The Device Configuration menu will appear.

4. Highlight **TEMP TYPE** and press **ENTER**. The following temp options will appear: Water, Outside, Inside, Engine Room, Cabin, Live Well, Bait Well, Refrigeration, Heating System and Unknown (default).

5. Highlight the desired Temp Type and press **ENTER**. The following confirmation message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **Yes** and press **ENTER**. Press **EXIT** repeatedly to return to the main display.

## Unconfiguring a Temp Sensor

You could unconfigure a temp sensor by changing its temp type to unknown or you can use the Restore Defaults command, which will reset the temp type and device name to default settings.

### To restore default settings:

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.
2. Highlight **BUS SETUP** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.
3. Select the desired temp sensor and press **ENTER**. The Device Configuration menu will appear.
4. Highlight **ADVANCED OPTIONS** and press **ENTER**.
5. Select **RESTORE DEFAULTS** and press **ENTER**. The following message will appear: *Are you sure you wish to change this device's configuration?*
6. Highlight **Yes** and press **ENTER**. Press **EXIT** repeatedly to return to the main display.

### Reconfiguring a temp sensor

A temp sensor can be reconfigured by changing its temp type. If the desired configuration name is already configured to another temp sensor, you can unconfigure that sensor to make its configuration name available.

### To change Temp Type:

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.
2. Highlight **BUS SETUP** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.
3. Select the desired temp sensor and press **ENTER**. The Device Configuration menu will appear.
4. Highlight **TEMP TYPE** and press **ENTER**. The following options will appear: Water, Outside, Inside, Engine Room, Cabin, Live Well, Bait Well, Refrigeration, Heating System and Unknown.
5. Highlight the desired Temp Type and press **ENTER**. The following confirmation message will appear: *Are you sure you wish to change this device's configuration?*
6. Highlight **Yes** and press **ENTER**. Press **EXIT** repeatedly to return to the main display.

## Displaying EP-80R TH Temp Sensor Information

The Overlay Data function will be used to show temp sensor data on your unit's main display.

### NOTE:

Make sure your temp sensor has been configured before attempting to display temperature data on your display unit.

### To add temp sensor as overlay data:

1. Press **MENU**, highlight **OVERLAY DATA** and press **ENTER**.
2. Select (**PRESS ENT TO ADD...**) and press **ENTER**.
3. Highlight **NMEA 2000** and press **ENTER**. A list of devices on the network will appear.
4. Select the desired temp sensor and press **ENTER**. Its temp type (configuration) will appear underneath it next to a checkbox.
5. Highlight the temp type and press **ENTER**, which will place a checkmark in its checkbox. It now will be shown as overlay data on your unit's main display.
6. Repeat steps 4 and 5 to display the other temp sensor data, or press **EXIT** repeatedly to return to the main display.

# Notes

# Notes

# Notes

## **LOWRANCE ELECTRONICS FULL ONE-YEAR WARRANTY**

"We," "our," or "us" refers to LOWRANCE ELECTRONICS, INC., the manufacturer of this product. "You" or "your" refers to the first person who purchases this product as a consumer item for personal, family or household use.

We warrant this product against defects or malfunctions in materials and workmanship, and against failure to conform to this product's written specifications, all for one (1) year from the date of original purchase by you. WE MAKE NO OTHER EXPRESS WARRANTY OR REPRESENTATION OF ANY KIND WHATSOEVER CONCERNING THIS PRODUCT. Your remedies under this warranty will be available so long as you can show in a reasonable manner that any defect or malfunction in materials or workmanship, or any non-conformity with the product's written specifications, occurred within one year from the date of your original purchase, which must be substantiated by a dated sales receipt or sales slip. Any such defect, malfunction, or non-conformity which occurs within one year from your original purchase date will either be repaired without charge or be replaced with a new product identical or reasonably equivalent to this product, at our option, within a reasonable time after our receipt of the product. If such defect, malfunction, or non-conformity remains after a reasonable number of attempts to repair by us, you may elect to obtain without charge a replacement of the product or a refund for the product. THIS REPAIR, OR REPLACEMENT OR REFUND (AS JUST DESCRIBED) IS THE EXCLUSIVE REMEDY AVAILABLE TO YOU AGAINST US FOR ANY DEFECT, MALFUNCTION, OR NON-CONFORMITY CONCERNING THE PRODUCT OR FOR ANY LOSS OR DAMAGE RESULTING FROM ANY OTHER CAUSE WHATSOEVER. WE WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO ANYONE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR OTHER INDIRECT DAMAGE OF ANY KIND.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This warranty does NOT apply in the following circumstances: (1) when the product has been serviced or repaired by anyone other than us; (2) when the product has been connected, installed, combined, altered, adjusted, or handled in a manner other than according to the instructions furnished with the product; (3) when any serial number has been effaced, altered, or removed; or (4) when any defect, problem, loss, or damage has resulted from any accident, misuse, negligence, or carelessness, or from any failure to provide reasonable and necessary maintenance in accordance with the instructions of the owner's manual for the product.

We reserve the right to make changes or improvements in our products from time to time without incurring the obligation to install such improvements or changes on equipment or items previously manufactured.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

REMINDER: You must retain the sales slip or sales receipt proving the date of your original purchase in case warranty service is ever required.

**LOWRANCE ELECTRONICS  
12000 E. SKELLY DRIVE, TULSA, OK 74128  
(800) 324-1356**

## How to Obtain Service...

### ...in the USA:

Contact the Factory Customer Service Department. Call toll-free:

**For Lowrance: 800-324-1356. For Eagle: 800-324-1354**

8 a.m. to 5 p.m. Central Standard Time, M-F

*Lowrance Electronics and Eagle Electronics may find it necessary to change or end their shipping policies, regulations and special offers at any time. They reserve the right to do so without notice.*

### ...in Canada:

Contact the Factory Customer Service Department. Call toll-free:

**800-661-3983**

**905-629-1614 (not toll-free)**

8 a.m. to 5 p.m. Eastern Standard Time, M-F

### ...outside Canada and the USA:

Contact the dealer in the country where you purchased your unit. To locate a dealer near you, see the instructions in paragraph number 1 below.

## Accessory Ordering Information

LEI Extras™, Inc. is the accessory source for sonar and GPS products manufactured by Lowrance Electronics and Eagle Electronics. To order Lowrance or Eagle accessories, please contact:

1) Your local marine dealer or consumer electronics store. To locate a Lowrance dealer, visit the web site, [www.lowrance.com](http://www.lowrance.com), and look for the Dealer Locator. To locate an Eagle dealer, visit the web site, [www.eaglesonar.com](http://www.eaglesonar.com), and look for the Dealer Locator. Or, consult your telephone directory for listings.

2) U.S. customers: LEI Extras Inc., PO Box 129, Catoosa, OK 74015-0129  
**Call toll free in the U.S., 800-324-0045**, 8 a.m. to 5 p.m. Central Standard Time, M-F, or visit our web site [www.lei-extras.com](http://www.lei-extras.com).

3) Canadian customers: Lowrance/Eagle Canada, 919 Matheson Blvd. E. Mississauga, Ontario L4W2R7 or fax 905-629-3118.

Call toll free in Canada, 800-661-3983, or dial 905 629-1614 (not toll free), 8 a.m. to 5 p.m. Eastern Standard Time, M-F.



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