

Raymarine[®]

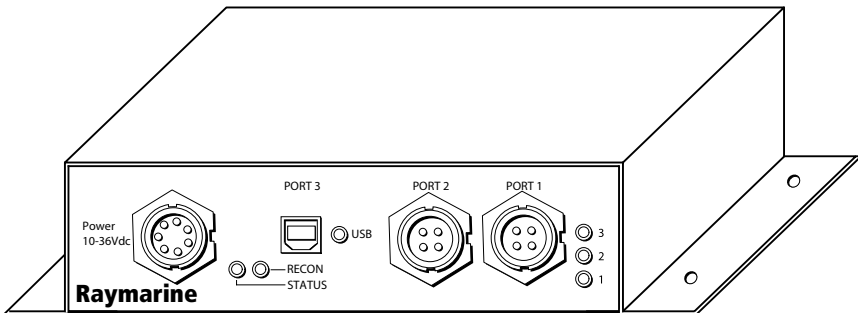
USB2 to hsb² Interface Box User's Guide

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RayTech USB2 to hsb² Interface Box

The Raymarine USB2 to hsb² Interface Box connects your PC to an hsb² network, enabling you to view RayTech data on all hsb² PLUS Series (Pathfinder) displays on the network. The Interface Box provides a USB2 port for connecting to the PC and two internally terminated and separate hsb² ports, which the Interface Box links into one contiguous hsb² network. The PC is not required for proper operation of Ports 1 and 2 on the hsb² network.

The USB2 to hsb² Interface Box works with USB 2.0 only. If your PC does not have a USB 2.0 port, you will need to install one using a PCI or PCMCIA USB 2.0 adapter. The Interface Box does not work properly on a USB 1.x port.



IMPORTANT NOTE: To use the USB2 to hsb² Interface Box you must ensure that RayTech HSB2 configuration is set to USB2.0. This can be done when you run RayTech Navigator. Select FILE > SETUP > INSTRUMENTS > HSB2 CONFIG > USB2.0 FOR HSB2 NETWORK CARD.

Connector Panel

The USB2 to hsb² Interface Box connector panel provides the following connections:

- **POWER** connects to the DC power supply via the supplied power cable.
- **PORT 3** connects to the USB2 port in your computer via the supplied USB cable.
- **PORT 2** connects to Pathfinder display unit(s) and DSM(s) on the second hsb² network.
- **PORT 1** connects to display(s) and DSM(s) on the first hsb² network.

Note: *PORT 1 and PORT 2 are attached to separate networks. The Interface Box links these into one contiguous hsb² network. hsb² connection cables must be purchased separately.*

The USB2 to hsb² Interface Box connector panel provides the following indicators:

- **STATUS** is a green LED that lights when the Interface Box is operating properly.
- **RECON** is an amber LED that lights when there is an error situation.
- **USB** is a green LED that lights when the unit is properly connected to the PC.
- **3** is a green LED that lights when the PC is properly connected to the Interface Box and the USB firmware is loaded.
- **2** is a green LED that blinks when the unit is powered on and then lights solid when the unit is properly connected to the network and receiving data on Port 2.
- **1** is a green LED that blinks when the unit is powered on and then lights solid when the unit is properly connected to the network and receiving data on Port 1.

Hardware Installation

The Raymarine USB2 to hsb² Interface Box is designed to be mounted in a dry location where it is:

- protected from physical damage and excessive vibration
- protected from exposure to rain, salt spray and direct sunlight
- well ventilated

Mounting

To install the Interface Box:

1. Use the four mounting holes to secure the Interface Box in the desired location.
2. Attach the required cables.

DC Power Connection

The USB2 to hsb² Interface Box is intended for use on boat's DC power systems rated from 10 to 36 volts. A 5ft (1.5 m) power cable is supplied for connecting the boat's DC power to the unit. The power cable may be extended by up to 60 ft (20 m) using a wire gauge of AWG 12 or greater.

DC power is connected at the POWER connector on the unit's connector panel. The RED wire must be connected to the feed from the positive (+) battery terminal and the BLACK wire to the feed from the negative (-) battery terminal. The other wires in this cable are not used.

The Interface Box is reverse polarity protected and has a current draw of 400ma @ 12VDC or 5 watts (max).

USB2 Connection

Connect the provided USB2 cable from the port marked USB on the Interface Box to a USB2 connection on your PC.

hsb² Connection

To connect the Interface Box to the Pathfinder display(s) or DSM(s), obtain the appropriate 3-pin (Pathfinder side) to 4-pin (Interface Box side) hsb² cable(s) from your authorized Raymarine dealer.:

- E65009 – hsb² Cable Assembly, 3-pin-to-4-pin, 3m
- E05016 – hsb² Cable Assembly, 3-pin-to-4-pin, 10m

Terminators

The hsb² network must be terminated on each end of the line. You can obtain hsb² In Line Terminators (part number R58117) from your authorized Raymarine dealer.

The Interface Box provides an internal terminator at both PORT 1 and PORT 2. You must attach an hsb² terminator plug at the end of the hsb² cable where it connects to the last Pathfinder display or DSM on the network. This applies to both networks if both ports are used.

Driver Installation

1. Place the CD that has the AI-USB driver into the CD drive.
2. Connect the Interface Box to an available USB 2.0 port on your host computer.
3. Turn on the power supply to the Interface Box.
4. Windows[®] should detect the new hardware and display the "Found New Hardware Wizard" window. Click Next to automatically install the software.
5. Click "Continue Anyway" if Windows displays "The software you are installing for this hardware: AI-USB Firmware Loader has not passed Microsoft Logo testing to verify its compatibility with Windows XP...".
6. Click "Finish" when the computer reports "Complete the Found New Hardware Wizard...".
7. Windows may again display the "Found New Hardware Wizard" window to install the second driver. Repeat Step 4 and 5.

If Windows does not show "Found New Hardware Wizard" when you first connect the Interface box to the host PC, you can manually install the drivers:

1. Copy the file AIUSB.INF to the C:\WINDOWS\INF subfolder.
2. Copy AIUSBLDR.SYS and AIUSBDRV.SYS to the C:\WINDOWS\SYSTEM32\DRIVERS subfolder.
3. Reboot the computer.

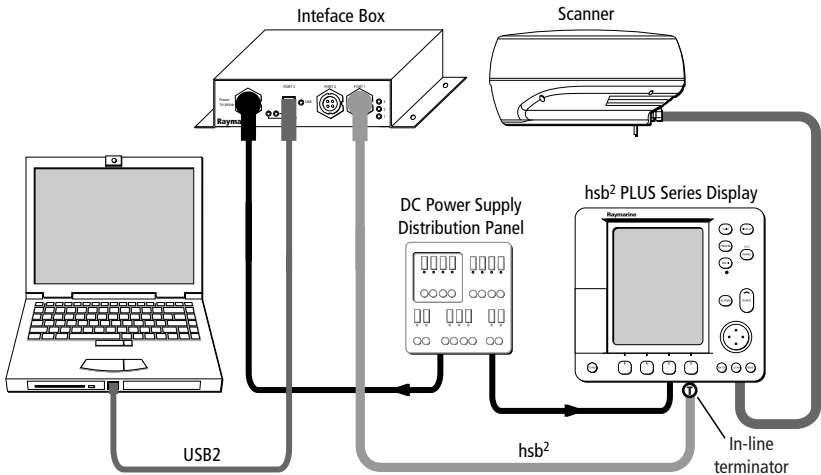
Note: *If you cannot view the listed subfolders under the Windows root directory, it may be that they are hidden. From Windows Explorer, select TOOLS > FOLDER OPTIONS and click the "Show hidden files and folders" radio button on the VIEW tab.*

Network Configuration

Because the USB2 to hsb² Interface Box provides you with two separate hsb² network connections, you can set up several different configurations:

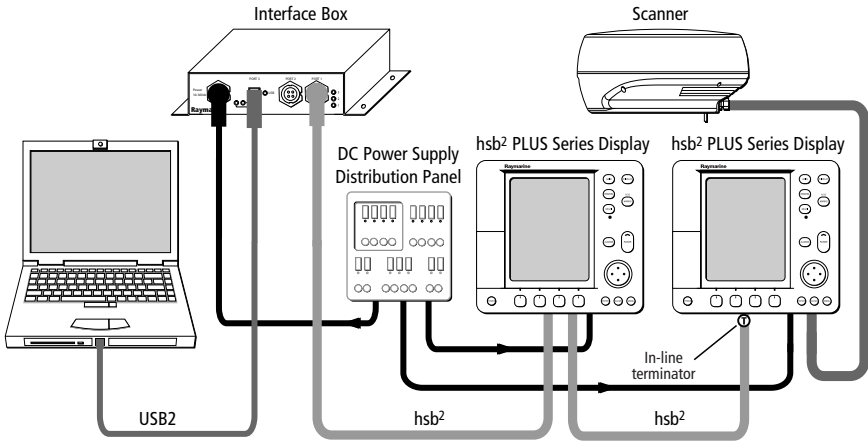
Single Display

When you are integrating the RayTech PC with a single Pathfinder display, connect the cables as shown in the following figure. Install a terminator at the end of the hsb² cable where it connects to the display.



Multiple Units on a Single Network

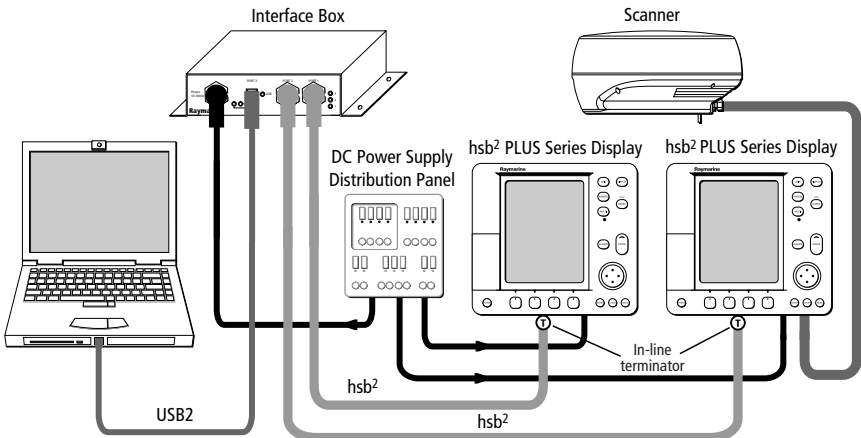
You can connect multiple Pathfinder displays and DSMs by linking them together with hsb² cables as demonstrated in the following figure. Install a terminator at the end of the hsb² cable where it connects to the last unit on the network. Although the following illustration only shows displays attached, you can also connect a DSM to the network.



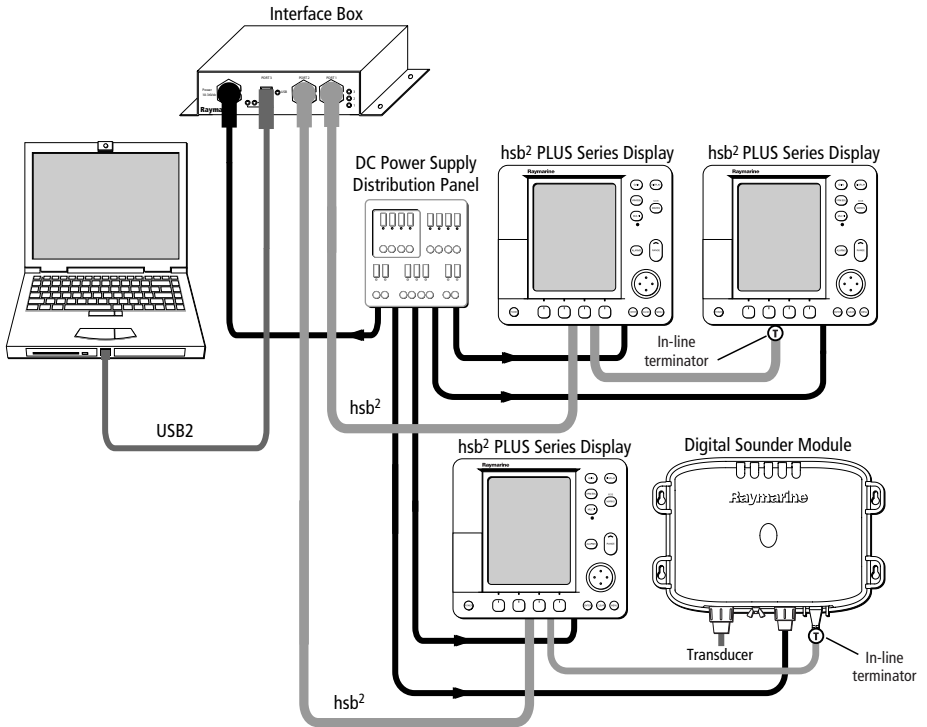
Multiple Units on Two Networks

By connecting a display to both PORT1 and PORT2 you place each display on a separate hsb² network. This means you can attach multiple displays and DSMs to each network by linking them together with hsb² cables. Under normal circumstances, if you have multiple displays and DSMs installed, you would distribute the units equally between the two networks. The Interface Box links the two ports into one contiguous hsb² network.

You must install terminators at the end of the hsb² cables that connect to the last units on BOTH networks. The following figure demonstrates connecting one display to each network.



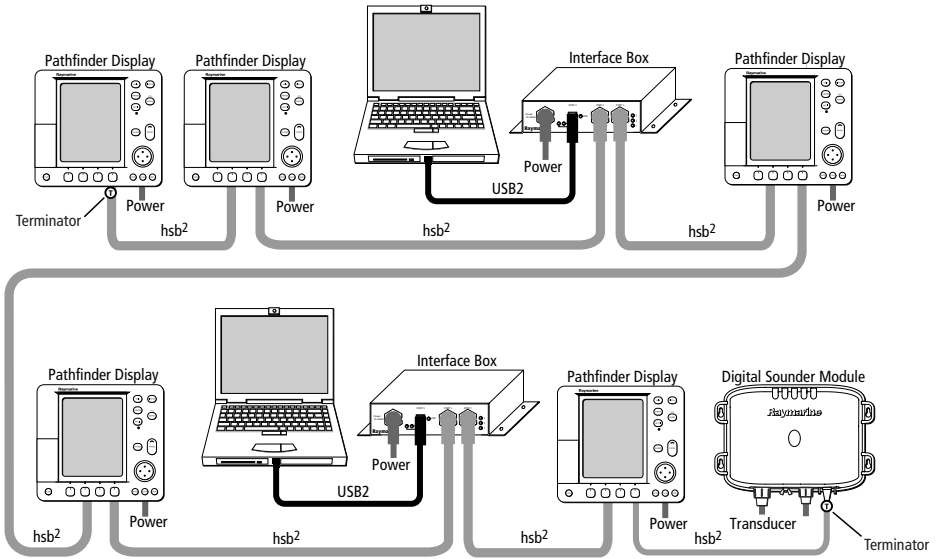
The following figure demonstrates connecting two units to each network, including a DSM. You must install terminators at the end of the hsb² cables that connect to the last units on BOTH networks.



Using Multiple Interface Boxes

You can also incorporate multiple Interface Boxes within the hsb² network. If you have multiple units installed, distribute them equally between the Interface Boxes.

You must install terminators at the end of the hsb² cables that connect to the last display or DSM on each side of the network. This configuration is demonstrated in the following figure. For clarity, the power connection cables are not shown.



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