

RS485 Adapters

SC485 • USB485B • USB485

User Manual
May 15, 2006
V1.0

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Introduction

The Light-O-Rama (LOR) network of controllers uses the RS485 electrical protocol for data communication. This is a differential transmission standard which is highly immune to interference and allows for up to 4000 ft of cable. PC serial ports and USB ports limit cable length to less than 100 ft.

In order to use a Windows PC to configure and control an LOR network you must use one of our RS485 adapters. There are adapters for PC serial ports and USB ports. The on the next page will help you choose the best adapter for your purposes.

You can mix and match these adapters on a single PC. Each adapter appears as a separate COM port. The current software can only use one COM port at a time, a future release of the software will remove this restriction.

If the USB485B is powering LOR accessories, like the RF-V4 Wireless Module, the USB485B MUST be connected to a USB port on the PC, NOT to a hub. Using a USB hub severely restricts the power available to the USB485B.

Adapter Feature Matrix

The table headings are defined below.

Adapter Model	PC Port	Cable to controller	Accessory Power	Quick Turnaround	Double RJ45
SC485	Serial	100 ft	No	No	No
USB485	USB	4000 ft	No	No	No
USB485B	USB	4000 ft	Yes	Yes	Yes

PC Port

The type of port that must be available on your PC to support this type of adapter.

Cable to controller

This is the maximum number of feet of Cat5 cable between the adapter and the first controller. The SC485 is powered by the controller(s), so the voltage drop on the cable sets this limit. The USB adapters derive their power from the USB port so they are limited only by RS485's capability.

Accessory Power

LOR accessories like the RF-V4 Wireless Module require power to operate. Accessories are usually powered by attached controller(s). In the case where there are no attached controllers, power must come from another source. The USB485B has a power booster in it to up the USB +5v to a level that can power LOR accessories.

Quick Turnaround

LOR controllers have the ability to respond to polls from the show director (your PC or the DC-MP3.) A future release of the software will support polling the controllers so that the inputs can be sensed while a show is playing. This will allow the building of interactive displays. The USB485B has additional components in it that allow the communications line to be quickly turned around (from pointing at the controllers to pointing at the show director and back again) so that inputs can be read without disrupting the show. If you anticipate using this facility, the USB485B will be necessary.

Double RJ45

The adapter has two RJ45 connectors that are in parallel. This allows for more flexible placement of the adapter in an LOR network.

Another way of looking at this is that the adapter has two paths from the PC to the LOR network. Each path can have one or more LOR devices. Remember, the connectors are in parallel, so if a device on one connector path transmits on the network, devices on the other connector path will see the transmission.

What's in the Box

SC485 Serial to RS485 Adapter

The SC485 plugs directly into a PC 9-pin serial port. It requires no driver software, you just plug it in and use it. It does not come with a manual or a serial port extension cable. If you need an extension cable, you can find one by going to www.lightorama.com ► Web Store ► Accessories ► DB9 Extension Cable (6ft)

USB485 USB to RS485 Adapter

The USB485 is supplied with a 6ft USB cable to connect it to a PC USB port. Also included is a manual and a CD with the Windows drivers for the device.

USB485B USB to RS485 Adapter

The USB485B is supplied with a 6ft USB cable to connect it to a PC USB port. Also included is a manual and a CD with a new LOR Hardware Utility and the Windows drivers for the device.

A copy of the RS485 Adapters manual is available at www.lightorama.com ► Support ► RS485 Adapters.

If your LOR Hardware Utility does not have “LOR MP3” and “LOR RF” tabs, it will NOT work with the USB485B. The new Hardware Utility is included on the installation CD or may be obtained by going to www.lightorama.com ► Support ► Hardware Utility.

USB COM Port Behavior

After the software installation below is done, the COM port assigned to the individual device you installed will appear when the device is plugged in and disappear when it is unplugged from the PC. This particular adapter will always have the same COM port number, i.e. it will always be COM6 (or whatever number it gets.)

If you add another USB to RS485 adapter, it will automatically install using the software already on the PC. It will get its own unique COM port number that will also appear and disappear depending upon whether or not this adapter is plugged into the PC.

To uninstall the USB COM ports, go to Control Panel's "Add or Remove Programs" and select "FTDI USB Serial Converter Drivers." Note that the name of the software to remove varies slightly for the different Windows versions.

Software Installation (USB Only)

USB485B & USB485 USB to RS485 Adapters



The pages that follow are quick instructions to install the USB device and virtual serial port drivers on your PC. More detailed instructions, trouble-shooting information and device drivers are available from the manufacturer of the USB chipset. If you have problems with the install, go to www.ftdichip.com. Select documentation and drivers for the VCP (Virtual Com Port) and for the FT232R chip set.

Step 1 (Before you plug the adapter in)

Make sure you have the USB Drivers CD or have downloaded the drivers from www.ftdichip.com and extracted the appropriate ZIP file to a directory on the PC.

Step 2

Plug the adapter into your PC. This will start the Install New Hardware Wizard. If you have Win98/ME go to that section, otherwise continue on the next page.

WinXP/2000 USB Installation Continues

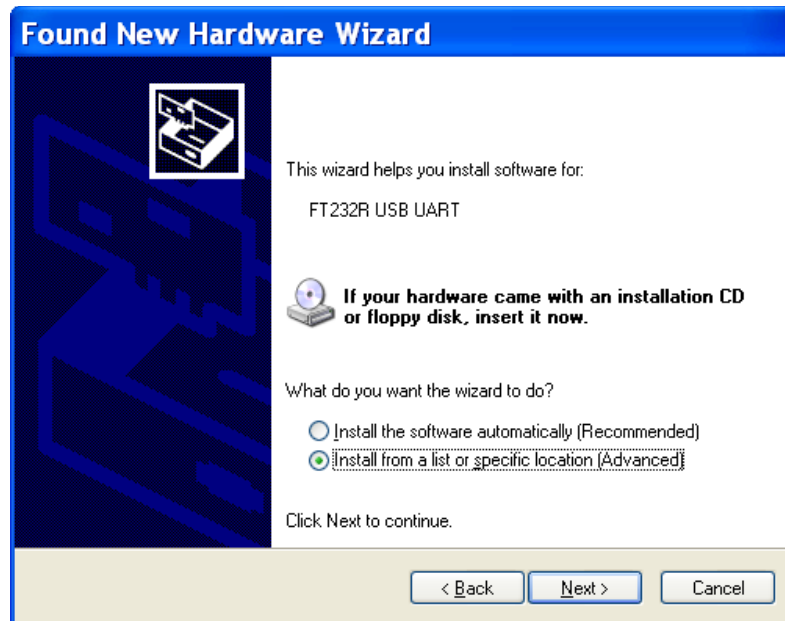
WinXP Step 3a

On the following screen, click “No, not this time” and then click Next>.



WinXP Step 3b

On the following screen click “Install from a list or specific location (Advanced)” and then click Next>.
(Note that the device name may be different from what is shown on the screen below.)

**WinXP Step 3c**

On the following screen click “Search for the best driver in these locations,” click “Include this location in the search,” *Browse* to the location of the WinXP drivers, usually D:\WinXP_2000 and then click Next>.

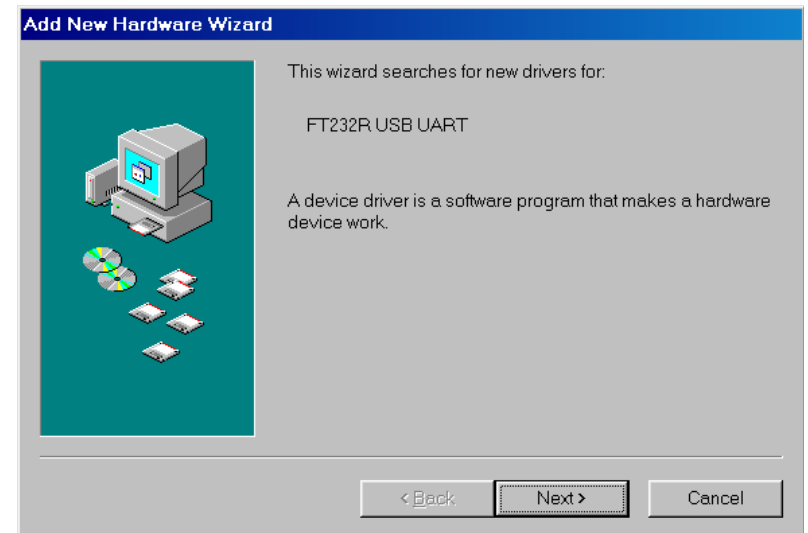


WinXP Step 3d

On the following screen, click "Finish." You will then see the screen from Step 3a above again. Windows needs to install the virtual serial port on top of the USB device you just installed. Repeat WinXP Steps 3a, 3b, 3c and 3d. After the second round, a new COM port will appear in your hardware configuration.

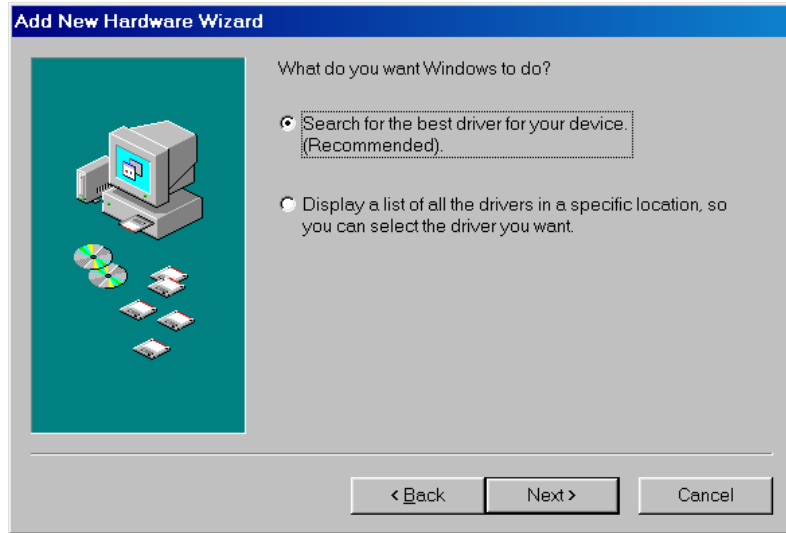
**Win98/ME USB Installation Continues****Win98 Step 3a**

On the following screen click Next>. (Note that the device name may be different from what is shown on the screen below.)



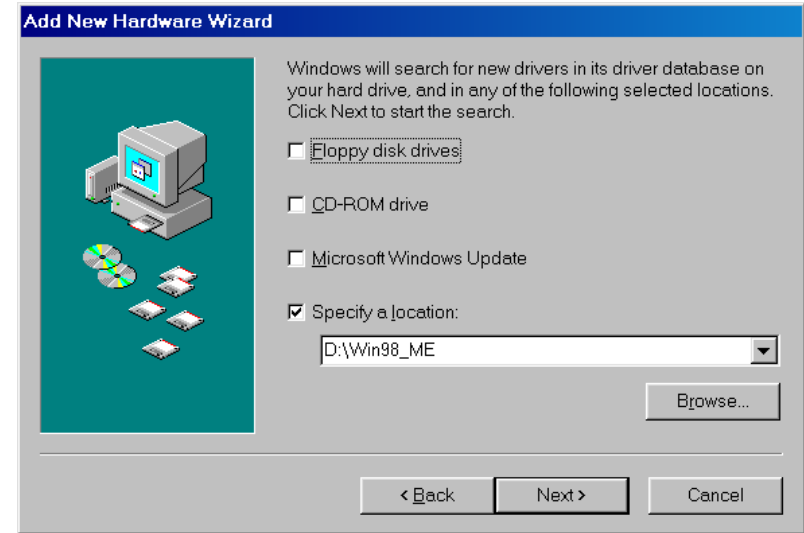
Win98 Step 3b

On the following screen, select “Search for the best driver for your device. (Recommended)” and then click Next>.



Win98 Step 3c

On the following screen, click “Specify a Location:,” then *Browse* to the directory where the driver files are, usually D:\Win98_ME, and then click Next>.

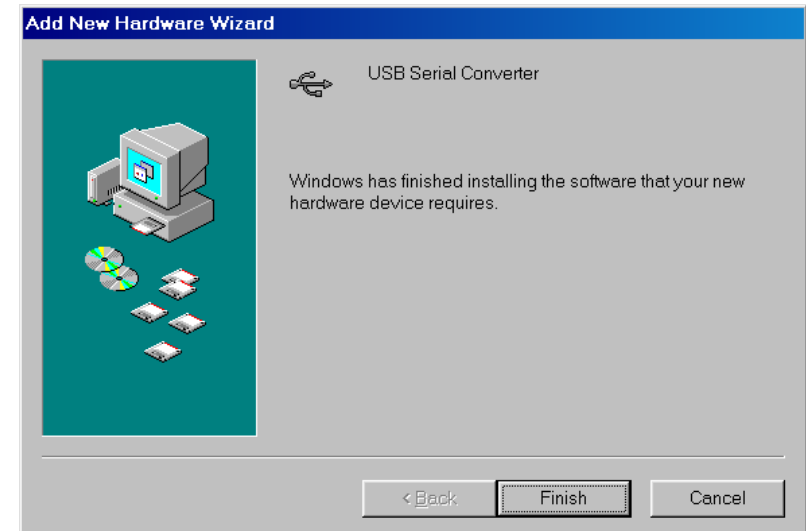


Win98 Step 3d

On the following screen, click Next>.

**Win98 Step 3e**

On the following screen, click "Finish." Windows has finished installing the USB device. Windows needs to install a virtual serial port driver for the device. Some versions of Win98 go ahead and do this without further interaction, on others you will see the screen in Win98 Step 3a again. If you do, repeat Win98 Steps 3a, 3b, 3c, 3d and 3e. After the second round, a new COM port will appear in your hardware configuration.



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