

USB-EXT

USB over Twisted Pair Extender

1 Introduction

The Crestron® USB over Twisted Pair Extender (USB-EXT) delivers reliable USB signal extension for use in a boardroom, classroom, auditorium, command center, or residence. Without any special setup or configuration, the USB-EXT enables wire runs up to 100 meters (~330 feet) over a single, low-cost twisted-pair cable.

The USB-EXT is compatible with USB 1.1 and High-Speed USB 2.0, supporting virtually any USB device such as keyboards and mice, game controllers, cameras, mobile devices, printers, hubs, and memory devices. It is compatible with Windows® and Mac® computers without requiring any additional drivers.

NOTE: Crestron does not guarantee that all USB devices are compatible with the USB-EXT.

The USB-EXT is composed of two extender components. The “local” extender connects to your computer or other USB host, while the “remote” extender provides connections for your USB devices at some remote location. Linking the two extender components requires just one run of inexpensive CAT5 (or better) twisted-pair cable.

The USB-EXT contains a local extender, remote extender, power supply and a USB cable.

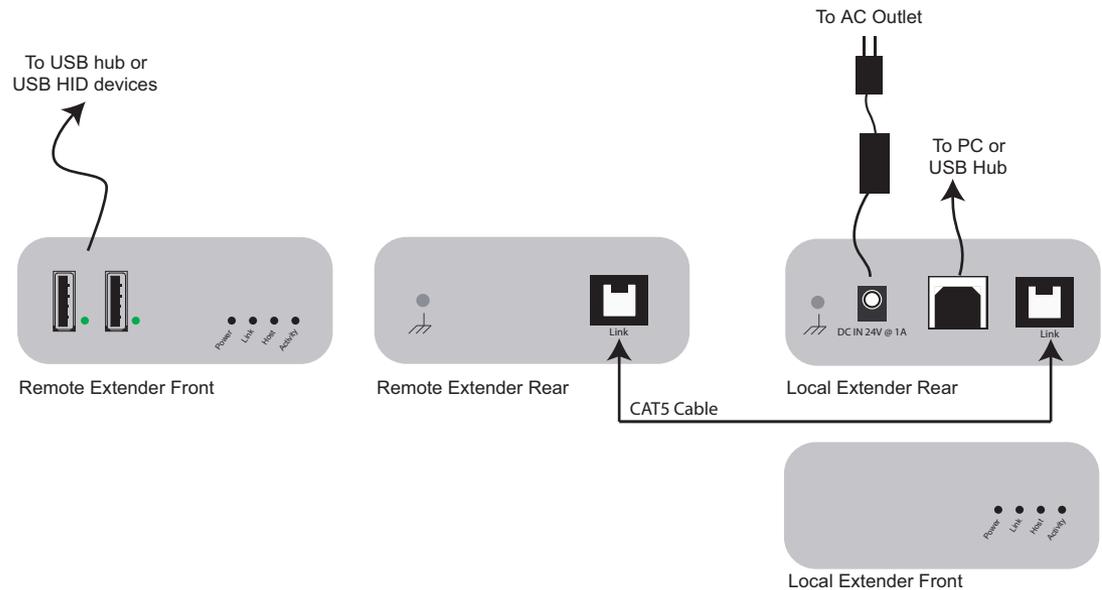
2 Mounting

After determining where the local computer and remote USB device(s) are to be placed, place the local and remote boxes of the USB-EXT on a flat surface near each of the two locations. The rubber feet help ensure the units do not slip.

3 Installing

1. Insert the supplied USB cable in the local extender and in an available USB Type A port on the computer.
2. Using CAT5 (or better) cable, connect the **Link** ports of the local and remote extenders.
3. Plug the power adapter into the local extender and then plug the 24V power adapter into an AC outlet.

NOTE: If using pre-installed in wall CAT5 wiring, plug one end of the CAT5 patch cable (not supplied) into the **Link** port on the local extender. Plug the other end of the patch cord into the wall outlet near the host computer. Plug one end of the second CAT5 patch cord (not supplied) into the **Link** port on the remote extender. Plug the other end of the second patch cable into the wall outlet near the USB device. Make sure that the two patch cables and in wall cabling does not exceed 100M (~330 feet).



4 Connecting a USB Device

1. On the PC, install any software required to operate the USB device(s). Refer to the documentation for the USB device(s) as required.
2. Connect the USB device to either USB port on the front of the remote extender.
3. Check that the device is installed and detected properly by the operating system.

5 Checking the Installation

On the local and remote units, check that the **Power**, **Host** and **Link** LEDs are on and that the **Activity** LED for the connected USB port is blinking. If any LED is permanently off, then the cabling between the local and remote units is not properly installed or is defective.

Verify device is properly installed on computer:

For Windows Users:

Open Device Manager to confirm that that USB-EXT has been installed correctly. Expand the entry for Universal Serial Bus controllers by clicking the + sign. If the USB-EXT has been installed correctly, you should find it listed as a “Generic USB Hub”.

For Mac OS X Users:

Open the System Profiler to confirm that the USB-EXT has been installed correctly. In the left hand column under Hardware, select “USB” and inspect the right hand panel. If the USB-EXT has been installed correctly you should find it listed as a “Hub” under the USB High-Speed Bus/USB Bus.

If the unit is not detected correctly or fails to detect, please consult the Troubleshooting section on the following page.

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Troubleshooting

The following table provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
No LEDs on the local extender illuminate.	The local extender is not receiving power from the AC power adapter.	Ensure that the AC power adapter is properly connected to the local extender. Check that the AC adapter is connected to a live power source.
No LEDs on the remote extender illuminate.	The remote extender is not receiving power over the CAT5 cable.	Ensure that the CAT5 cabling between the local and remote extender is properly installed. Verify power pack connection to local extender and AC power source. Check that the local extender Power LED is illuminated.
Link LEDs on local extender and remote extender are off.	There is no connection between the local and remote extenders. The CAT5 cable is defective.	Ensure CAT5 cable is connected between the local and remote extenders. CAT5 cable, or better, UTP with a straight through connector and no crossovers, and eight connector RJ-45 connectors are used at both ends. To determine if the CAT5 cable is defective connect a short CAT5 patch cord between the two units.
Link LEDs for local extender is illuminated but Host LED is off.	The host computer is not powered on. The local extender is not connected to the computer. The computer does not support USB hubs. The USB-EXT is malfunctioning.	Power on host computer. Check that the local extender is properly connected to the computer. Connect the USB-EXT to a PC that supports USB hubs. Complete the following procedure: 1. Disconnect power to the local extender. 2. Disconnect all USB devices from the remote extender. 3. Disconnect the local extender from the computer. 4. Reconnect the local extender to the computer. 5. Reapply power to the local extender 6. In Windows, make sure that the devices is recognized as a "Generic USB Hub" in the Universal Serial Bus controllers section of the Device Manager.
Loss of functionality due to electrostatic discharge.	Improper grounding.	Check that all ground connections have been made properly.
USB-EXT device was working but the Host LEDs on the local and remote extenders are now blinking.	The remote unit is in <i>suspend</i> mode. The operating system may put the USB-EXT in suspend mode when a computer is put into a suspend/standby state. No USB devices are attached.	Recover/resume the operating system from suspend/standby mode. Attach a USB device to the USB-EXT.
All LEDs on both the local extender and remote extender are on, but the USB device does not operate correctly, or, is detected as an "Unknown Device" in the operating system.	The USB device is malfunctioning The computer does not recognize the USB device. The application software for the device is not operating The USB-EXT is malfunctioning.	Perform either of the following: <ul style="list-style-type: none"> Disconnect the USB-EXT from the computer and connect it directly to the USB port on the computer. If the device does not operate properly, consult the user documentation for the device for further troubleshooting. If the device operates properly when directly connected to the computer, connect another device (of a different type) to the USB-EXT. If the second device does operate properly, the first device may not be compatible with the USB-EXT. If the steps above do not solve the issue, update your system BIOS, chipset or USB host controller drivers from your System/Mother board manufacturer's Web site.
USB device is attached to either of the remote USB ports but the associated USB LED is off.	A USB device must have the appropriate driver installed on the computer.	Install the USB device driver on the computer prior to attaching the USB device to the remote extender. Refer to your USB device manufacturer's Web site for details.
USB LED on remote extender is orange and device is not functioning	Overcurrent condition has occurred because USB device draws more power than can be supplied per USB specification (500 mA).	Power cycle the local extender.
Host and Link LEDs on the local and remote extender blink intermittently.	Firmware mismatch between the local and remote extender.	Use a different local/remote pair which have the same firmware revision. Contact Crestron customer support as the firmware may need to be upgraded.

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