USB-EXT-DM

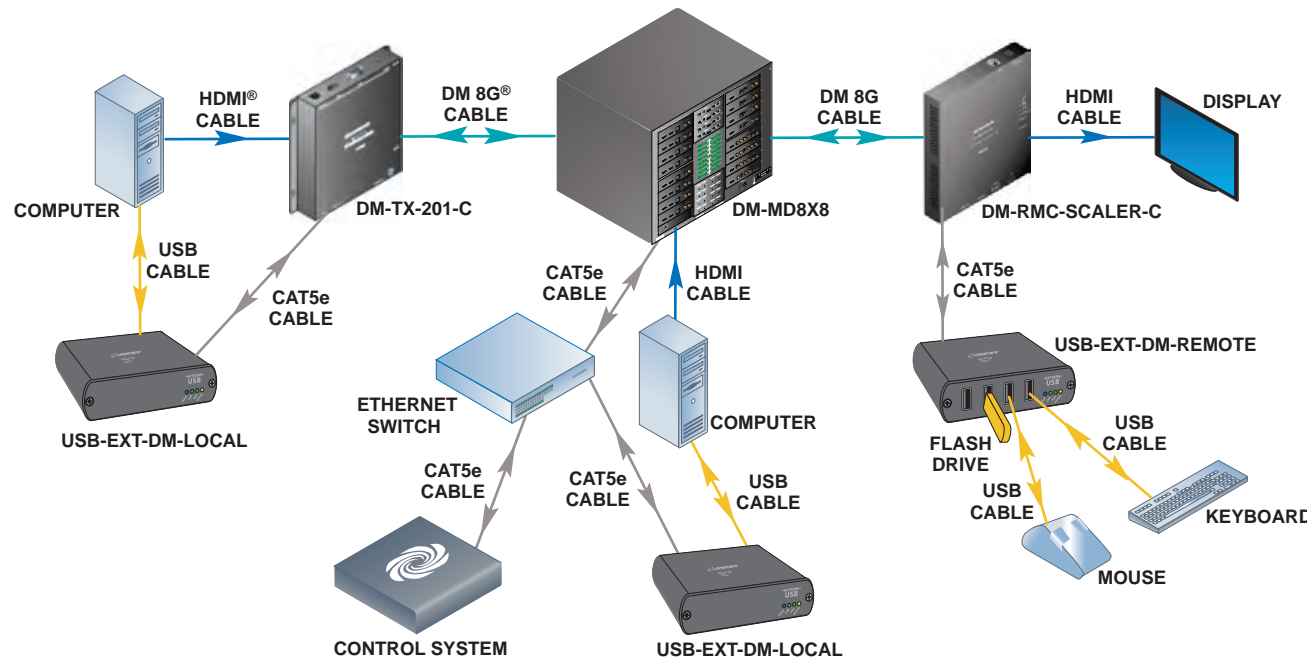## USB over Ethernet Extender with Routing

1 Introduction

The Crestron® USB-EXT-DM consists of the USB-EXT-DM-LOCAL and the USB-EXT-DM-REMOTE (sold separately). The USB-EXT-DM enables USB signal routing under the control of a Crestron control system or DigitalMedia™ system. As part of a DigitalMedia system, the USB-EXT-DM provides seamless routing of all types of USB signals alongside video and audio. Without a control system or DigitalMedia system, the USB-EXT-DM can be used to provide point-to-point USB extension over a LAN or a dedicated CAT5e (or higher) cable.

The USB-EXT-DM-LOCAL connects to virtually any host device—such as a computer, media server, or game system—and, typically, also connects to an Ethernet switch. When integrated with a DigitalMedia system, the USB-EXT-DM-LOCAL can connect directly to a DM-TX series transmitter (for example, the DM-TX-201-C).

The USB-EXT-DM-REMOTE connects to USB peripheral devices—such as keyboards, mice, and game controllers. Up to four peripheral devices can be connected. When integrated with a DigitalMedia system, the USB-EXT-DM-REMOTE can connect directly to a DM-RMC series receiver (for example, the DM-RMC-SCALER-C).
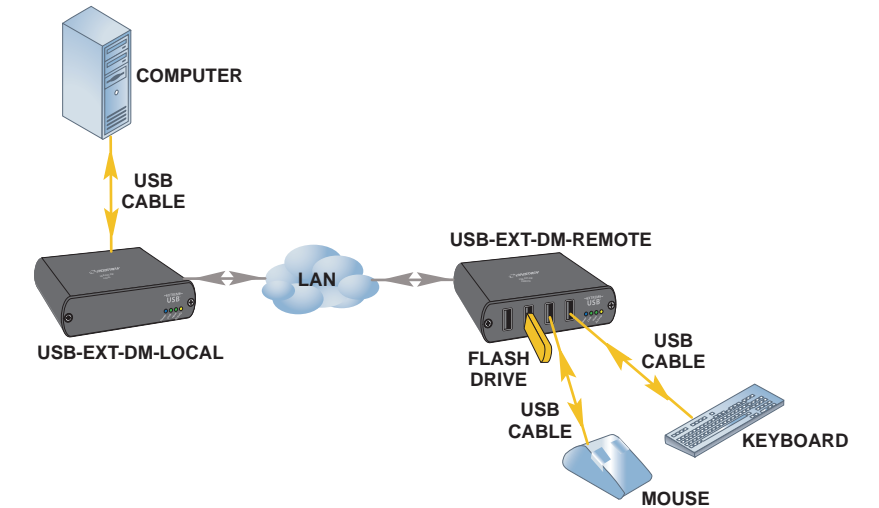
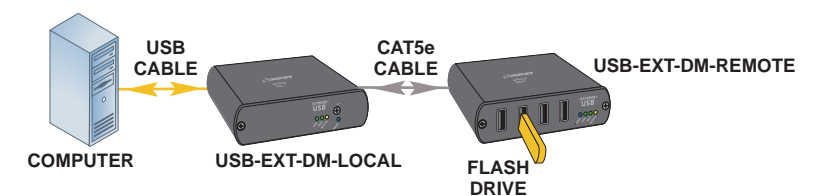*Sample Application of USB Extension with DigitalMedia Integration*

Sample Application of Point-to-Point Configuration over a LAN

Sample Application of Point-to-Point Configuration over a CAT5e Cable

NOTE: The USB-EXT-DM is engineered to deliver maximum compatibility with the widest possible range of devices. Crestron does not guarantee that all USB devices or hosts are compatible with the USB-EXT-DM.

NOTE: The USB-EXT-DM supports high-speed (480 Mbps) USB devices; however, DM 8G+® Ethernet links support speeds up to 100 Mbps only. If higher bandwidth is required, ensure that the USB-EXT-DM is communicating via a gigabit Ethernet network.

2 Mounting

Using the two supplied brackets, mount a USB-EXT-DM extender onto any of the following:

- Flat surface, such as a table or wall
- Rack rail
- DigitalMedia receiver (DM-RMC-200 series or DM-RMC-SCALER series only)

For mounting instructions, refer to the sections that follow.

Attaching the Brackets

Attach the two supplied brackets to the rear of the extender using the four supplied Phillips head screws (two screws for each bracket).

Phillips Head Screws (4)

Mounting onto a Flat Surface

With the two brackets attached to the extender, attach the brackets to a flat surface using the outer middle mounting hole of each bracket and the appropriate mounting screws (not supplied).

Surface Mount Hole — Surface Mount Hole

Mounting onto a Rack Rail

With the two brackets attached to the extender, attach either the left or right bracket to the rack rail using the top and bottom mounting holes and the appropriate mounting screws (not supplied).

Option 1: Rack Mount Holes — Option 2: Rack Mount Holes
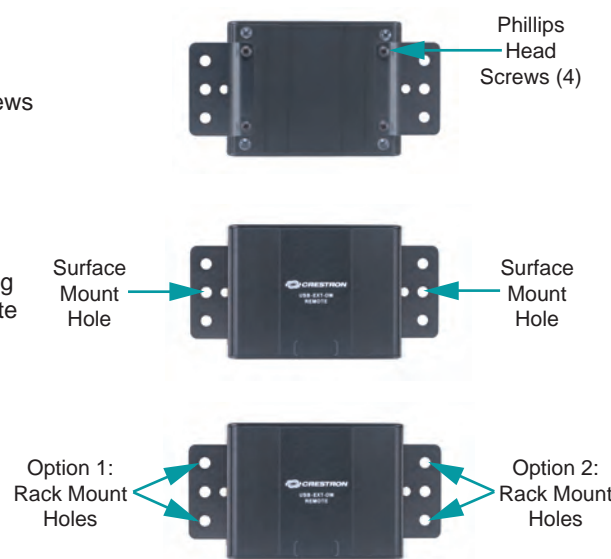
Mounting onto a DigitalMedia Receiver

A USB-EXT-DM extender can be mounted onto DigitalMedia receivers such as the DM-RMC-200-C, DM-RMC-200-S, DM-RMC-200-S2, DM-RMC-SCALER-C, DM-RMC-SCALER-S, and DM-RMC-SCALER-S2.

To mount an extender onto the appropriate DigitalMedia receiver, do the following:

1. Remove the two Phillips head screws from the front of the DigitalMedia receiver and retain the screws for use in step 3 below.

2. With the brackets attached to the extender, align the innermost hole of each bracket with the corresponding hole on the front of the DigitalMedia receiver.

3. Using the two screws removed in step 1, secure the brackets of the extender to the front of the DigitalMedia receiver.

DigitalMedia Receiver (DM-RMC-200-S Shown)
Remove Phillips head screws.
Mounting Holes in Extender Brackets for DigitalMedia Receiver
USB-EXT-DM Extender Mounted onto DigitalMedia Receiver

For regulatory compliance information, refer to Doc. 7564.

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quickstart guide

3 Connections

> **NOTE:** The Config jack on the USB-EXT-DM-LOCAL and USB-EXT-DM-REMOTE is reserved for factory use only.

Connecting the USB-EXT-DM-LOCAL

Connect the extender as follows:

- Using the supplied USB 2.0 A to B cable, connect the USB Type B host port (⟷) to the host device (USB 1.1 or 2.0 compatible).

> **NOTE:** The extender receives power from the USB host port.

- Using a CAT5e or better cable (not supplied), connect the Link port to an Ethernet network, to the LAN port of a DigitalMedia transmitter (for example, the DM-TX-201-C), or to the Link port of a USB-EXT-DM-REMOTE. The maximum cable distance is 330 feet (100 meters).

Connecting the USB-EXT-DM-REMOTE

Connect the extender as follows:

- Using USB 2.0 cables (not supplied), connect the USB Type A device ports to USB devices (USB 1.1 or 2.0 compatible). Up to four USB devices can be connected.
- Using a CAT5e or better cable (not supplied), connect the Link port to an Ethernet network, to the LAN port of a DigitalMedia receiver (for example, the DM-RMC-200-C), or to the Link port of a USB-EXT-DM-LOCAL. The maximum cable distance is 330 feet (100 meters).
- Using the supplied ac power pack, connect the 24 Vdc power jack on the extender to an ac power outlet.

4 Pairing the USB-EXT-DM

> **NOTE:** Pairing a USB-EXT-DM-LOCAL with a USB-EXT-DM-REMOTE establishes a link between the two devices. Manual pairing is required only when a USB-EXT-DM-LOCAL and a USB-EXT-DM-REMOTE are directly connected to each other in a point-to-point configuration. In a point-to-point configuration, USB switching is not performed. In a configuration in which USB switching is to be performed, SIMPL programming automatically pairs the extenders.

To pair a USB-EXT-DM-LOCAL with a USB-EXT-DM-REMOTE, do the following:

1. Ensure that the units are directly connected to each other.
2. On the USB-EXT-DM-LOCAL, press and hold the **Pair** button for less than 10 seconds. The Link LED on the bottom panel of the extender starts blinking green, indicating that the unit is in Pairing mode. (Pressing and holding the **Pair** button a second time for less than 10 seconds cancels Pairing mode.)
3. Within 10 minutes of activating Pairing mode on the USB-EXT-DM-LOCAL, press and hold the **Pair** button on the USB-EXT-DM-REMOTE for less than 10 seconds. The Link LED on the bottom panel of the extender starts blinking green, indicating that the unit is in Pairing mode. (Pressing and holding the **Pair** button a second time for less than 10 seconds cancels Pairing mode.)
4. Observe that the Link LEDs on both units may start blinking slowly before turning solid green. Once the Link LEDs are solid green, a valid link is established between both units.
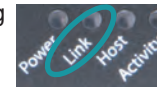
> **NOTE:** If more than 10 minutes pass and the units are not yet paired, the units switch back to the regular mode of operation and reestablish the previous links they had (if any).

If, for any reason, pairing must be removed from a unit, press and hold the **Pair** button for more than 10 seconds.

5 Programming

Program the USB-EXT-DM extenders using the USB-EXT-DM Control Module in the Crestron Studio® application or SIMPL Windows.

6 LED Indicators

The table below provides a description of the LEDs that are provided on the bottom panels of the USB-EXT-DM-LOCAL and USB-EXT-DM-REMOTE.

LED	DESCRIPTION
Power	Blue indicates that the extender is receiving power.
Link	The Link LED indicates one of the following: - Solid green indicates that a valid link is established between the USB-EXT-DM-LOCAL and the USB-EXT-DM-REMOTE. - Fast-blinking green indicates that the extender is in Pairing mode. - Slow-blinking green indicates that the extender is attempting to establish a link.
Host	Solid green indicates that the host device is recognizing the extender.
Activity	Blinking amber indicates that data transmission is occurring between the USB-EXT-DM-LOCAL and the USB-EXT-DM-REMOTE.

7 Troubleshooting

TROUBLE	POSSIBLE CAUSE	CORRECTIVE ACTION
Power LED on the USB-EXT-DM-LOCAL is off.	Device is not receiving power from the USB port.	Ensure that the host device is connected to the USB-EXT-DM-LOCAL. If the problem persists, connect the USB cable to another USB port on the host device.
Power LED on the USB-EXT-DM-REMOTE is off.	Device is not receiving power from the supplied ac power pack.	Ensure that the power pack is properly connected to the device. If the problem persists, check the power pack connection to the ac power source.
Link LED is off.	No connection exists between the USB-EXT-DM-LOCAL and the USB-EXT-DM-REMOTE.	Verify CAT5e (or better) cable connections between the extenders.
	CAT5e (or better) cable is defective.	Replace the cable.
Link LED is blinking fast.	No connection exists between the USB-EXT-DM-LOCAL and the USB-EXT-DM-REMOTE.	Verify that the extenders are connected directly or are connected to active network switches.
	Network switches exist on different subnets.	Ensure that network switches can communicate with each other and are on the same subnet.
	Network switch is blocking traffic from the extenders.	Ensure that traffic is not blocked due to MAC address or traffic patterns. If the problem persists, contact the network administrator.
Link LED is blinking slowly.	The USB-EXT-DM-LOCAL and USB-EXT-DM-REMOTE are paired with each other but have not yet established a link.	If the Link LED does not display solid green after a few minutes, contact the network administrator to determine if any traffic is being blocked between the devices.
Link LED on the USB-EXT-DM-LOCAL is on, but the Host LED is off.	One or more of the following conditions exist: - The host device is not powered on. - The USB-EXT-DM-LOCAL is not connected to the computer. - The host device is not recognizing the USB-EXT-DM-LOCAL. - The host device does not support USB hubs.	Do the following: 1. Disconnect all USB devices from the USB-EXT-DM-REMOTE. 2. Disconnect the USB-EXT-DM-LOCAL from the host device. 3. Disconnect the USB-EXT-DM-REMOTE from the ac power adapter. 4. Reconnect the USB-EXT-DM-LOCAL to the host device. 5. Reconnect the USB-EXT-DM-REMOTE to the ac power pack.

USB-EXT-DM

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Specifications subject to change without notice.

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