DMF and DMCF Series

DigitalMedia™ 4K/60 Fiber Distribution System

Reference Guide
Crestron Electronics, Inc.

Contents

DMF and DMCF Series: DigitalMedia™ 4K/60 Fiber Distribution System

Introduction

The Crestron® DigitalMedia™ 4K/60 fiber distribution system provides 4K/60 video at fiber distances. The system is composed of 4K fiber transmitters and receivers that use SFP+ (Small Form-factor Pluggable Plus) transceiver modules. The modules support multimode and single-mode fiber.

The transmitters and receivers are available as stand-alone endpoints (DMF-TX-4K-SFP and DMF-RMC-4K-SFP) and as cards (DMCF-TX-4K-SFP and DMCF-RX-4K-SFP). An eight-card slot chassis (DMF-CI-8) is designed to accommodate and power the DMCF series cards.

This guide provides the following information about the 4K/60 fiber distribution system:

- Features and benefits

- 4K/60 fiber components

- Application scenarios

In addition, information about each of the available transmitter and receiver kits is provided.

Features and Benefits

The major features and benefits of the 4K/60 fiber distribution system are as follows:

- Full DigitalMedia 4K/60 support

- IT industry-standard fiber support

- Single solution for fiber across the DigitalMedia product line

- End-to-end HDCP 2.2 support

Each of these features is discussed on the following page.

Full DigitalMedia 4K/60 Support

The DMF and DMCF series of fiber transmitters and receivers enable uncompressed 4K/60 video signal extension over fiber-optic cable. Support for 4K video ensures support for the latest generation of computers and monitors with native resolutions beyond 1080p and WUXGA. The DMF and DMCF series can handle uncompressed Full HD 1080p, Ultra HD, 2K, and 4K video signals with support for Deep Color and HDCP 2.2. Audio capabilities include support for high-bitrate 7.1 audio formats such as Dolby® TrueHD, Dolby Atmos®, and DTS-HD Master Audio™ as well as uncompressed linear PCM.

Single Solution for Fiber across the DigitalMedia Product Line

The DMF and DMCF series of fiber transmitters and receivers provide a single solution to add 4K fiber input and output capability when integrated with a DigitalMedia switcher. The DMF or DMCF fiber transmitter can be used to add a single 4K fiber output to a DigitalMedia switcher. Connection of an HDMI® input of the fiber transmitter to any available HDMI output on the switcher enables 4K fiber output capability.

The DMF or DMCF fiber receiver can be used to add a single 4K fiber input to a DigitalMedia switcher. Connection of the HDMI output of the fiber receiver to any available HDMI input on the switcher enables 4K fiber input capability

IT Industry-Standard Fiber Support

SFP+ transceiver modules enable compatibility with multimode or single-mode fiber types and provide fiber flexibility. The following industry-standard SFP+ transceiver module options are offered:

- **SFP-10G-SR :** Supports OM3 duplex multimode fiber up to 1000 ft (300 m) and OM4 duplex multimode fiber up to 1300 ft (400 m)

- **SFP-10G-BX-D** and **SFP-10G-BX-U:** Support ITU-T G.652.D simplex single-mode fiber up to 6.2 miles (10 km)

NOTE: For existing installations of CresFiber® 8G simplex multimode fiber up to 650 ft (200 m), the SFP-10G-S-D and SFP-10G-S-U transceiver modules can be used. CresFiber 8G fiber and the corresponding SFP-10G-S-D and SFP-10G-S-U transceiver modules are not recommended for new installations.

The SFP+ transceiver modules support a 10G data transmission rate.

End-to-End HDCP 2.2 Support

The DMF and DMCF series are compliant with HDCP 2.2. HDCP 2.2, commonly referred to as HDCP 2, is the next generation of HDCP (High-Definition Content Protection). Compared to HDCP 1, HDCP 2 brings a higher level of cryptographic protection to HDMI technology. Although not all 4K content requires HDCP 2, most 4K consumer video content does require HDCP 2.

HDCP matters only when the source demands HDCP. If the source demands HDCP 2, then every device in the signal path must support HDCP 2. There are no issues related to HDCP 2 and cabling—all cables are "compatible."

4K/60 Fiber Components

The core components of a 4K/60 fiber distribution system are the following:

- Fiber transmitter (DMF-TX-4K-SFP stand-alone endpoint or DMCF-TX-4K-SFP card)

- Fiber receiver (DMF-RMC-4K-SFP stand-alone endpoint or DMCF-RX-4K-SFP card)

- Fiber card chassis (DMF-CI-8)

- SFP+ transceiver module (SFP-10G-SR, SFP-10G-BX-U, or SFP-10G-BX-D for new installations and SFP-10G-S-U or SFP-10G-S-D for existing CresFiber 8G installations)

Each of the 4K/60 fiber components is discussed below.

Fiber Transmitter

The fiber transmitter is available in two physical configurations: the DMF-TX-4K-SFP stand-alone endpoint and the DMCF-TX-4K-SFP card.

DMF-TX-4K-SFP and DMCF-TX-4K-SFP Transmitters

DMF-TX-4K-SFP   DMCF-TX-4K-SFP

DMF-TX-4K-SFP Transmitter

The DMF-TX-4K-SFP enables uncompressed 4K/60 video signal extension over a fiber-optic cable. It is used with a companion receiver (DMF-RMC-4K-SFP or DMCF-RX-4K-SFP discussed below) to support point-to-point signal extension and may also be used to add 4K fiber output capability to a DigitalMedia switcher. The front and rear panels are shown below.

DMF-TX-4K-SFP Front Panel and Rear Panels

Front

Rear

The SFP+ cage, labeled DM OUT, allows for the insertion of an appropriate Crestron SFP+ transceiver module to enable compatibility with multimode or single-mode fiber.

NOTE: The DMF-TX-4K-SFP is sold as part of a kit that includes one SFP+ transceiver module. For additional information, refer to the Appendix on page 12.

The DMF-TX-4K-SFP includes two HDMI inputs for the connection of HD and 4K sources. Switching between the HDMI inputs can be performed automatically using autoswitching mode, manually using the onboard INPUT SEL (select) button, or programmatically via a Crestron control system. The local HDMI output allows the selected video and audio input signals to be fed to a local display or monitor.

A balanced analog audio input is also included to allow a stereo audio source to be connected and combined with the video signal from either of the HDMI inputs. The analog audio input can be configured to be selected automatically if a digital audio signal is not detected on the active HDMI input.

A gigabit Ethernet port provides integration with a Crestron control system via the local network. Ethernet is also transported over the fiber interface, eliminating the need for a separate LAN connection at the receiver, and allowing the receiver's LAN port to be used to provide LAN connectivity for the connected display device or other device.

NOTE: Connection to the LAN can be made via the LAN port of the DMF-TX-4K-SFP or the LAN port of the companion receiver—the LAN port of each device cannot be connected to the LAN simultaneously.

The DMF-TX-4K-SFP also includes built-in RS-232 and IR control ports to allow for programmable control of the connected sources and other devices via the control system. Additional control capability is afforded by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI technology. Via its Ethernet connection to the control system, the DMF-TX-4K-SFP provides a gateway for controlling the sources through their HDMI connections, potentially eliminating the need for any dedicated serial cables or IR emitters.

The DMF-TX-4K-SFP mounts to a wall, ceiling, or other flat surface. Its compact, surface-mountable form factor fits easily behind furniture, underneath a table, or inside a lectern or credenza. It can also be attached directly to a single rack rail in the back of an equipment cabinet. Power is provided by an external 100-240V universal power pack.

DMCF-TX-4K-SFP Transmitter

The DMCF-TX-4K-SFP is functionally identical to the DMF-TX-4K-SFP with the exception of RS-232 and IR control ports. As an alternative to conventional RS-232 or IR control methods, control is afforded by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI technology. Through its connection to a control system, the DMCF-TX-4K-SFP provides a gateway for controlling devices through their HDMI connections, potentially eliminating the need for any dedicated control wires or IR emitters.

Unlike the DMF-TX-4K-SFP, the DMCF-TX-4K-SFP is a card designed to occupy one card slot of the DMF-CI-8 chassis. The DMCF-TX-4K-SFP is shown below.

DMCF-TX-4K-SFP

Similar to the DMF-TX-4K-SFP, the DMCF-TX-4K-SFP features an SFP+ cage (labeled DM OUT), two HDMI inputs, a local HDMI output, one analog audio input, and a gigabit Ethernet LAN port.

NOTE: The DMCF-TX-4K-SFP is sold as part of a kit that includes one SFP+ transceiver module. For additional information, refer to the Appendix on page 12.

Fiber Receiver

The fiber receiver is available in two physical configurations: the DMF-RMC-4K-SFP stand-alone endpoint and the DMCF-RX-4K-SFP card.

DMF-RMC-4K-SFP and DMCF-RX-4K-SFP Receivers

DMF-RMC-4K-SFP   DMCF-RX-4K-SFP

DMF-RMC-4K-SFP Receiver

The DMF-RMC-4K-SFP enables uncompressed 4K/60 video signal extension over a fiber-optic cable. It is used with a companion transmitter (DMF-TX-4K-SFP or DMCF-TX-4K-SFP) to support point-to-point signal extension and may also be used to add 4K fiber input capability to a DigitalMedia switcher. The front and rear panels are shown below.

DMF-TX-4K-SFP Front Panel and Rear Panels

Front

Rear

The SFP+ cage, labeled DM IN, allows for the insertion of an appropriate Crestron SFP+ transceiver module to enable compatibility with multimode or single-mode fiber.

NOTE: The DMF-RMC-4K-SFP is sold as part of a kit that includes one SFP+ transceiver module. For additional information, refer to the Appendix on page 12.

The DMF-RMC-4K-SFP includes one HDMI input for the connection of any HD or 4K source. Switching between the DM and HDMI inputs can be performed automatically using auto-switching mode, manually using the onboard INPUT SEL (select) button, or programmatically via a Crestron control system.

A balanced analog audio output is also included to allow stereo audio signals to be extracted from the digital output and fed to an audio amplifier or sound bar. The output volume is adjustable via a control system.

NOTE: The analog stereo audio output is active only when the DMF-RMC-4K-SFP is receiving a 2-channel stereo input signal.

Built-in Crestron 4K/60 scaling technology ensures that input sources of any resolution or frame rate can be displayed reliably. The DMF-RMC-4K-SFP accepts any input resolution from standard definition NTSC 480i to ultra high-definition DCI 4K, and scales it to any output resolution up to DCI 4K (4096 x 2160 @ 60 Hz). Intelligent frame rate conversion enables support of 24p and PAL format sources. Fully automatic operation eliminates any complicated setup.

A gigabit Ethernet port provides integration with a Crestron control system via the local network. Ethernet is also transported over the fiber interface, eliminating the need for a separate LAN connection at the transmitter, and allowing the transmitter's LAN port to be used to provide LAN connectivity for a local computer or other device.

NOTE: Connection to the LAN can be made via the LAN port of the DMF-RMC-4K-SFP or the LAN port of the companion transmitter—the LAN port of each device cannot be connected to the LAN simultaneously.

The DMF-RMC-4K-SFP also includes built-in RS-232 and IR control ports to allow for programmable control of the connected display and other devices via the control system. Additional control capability is afforded by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI technology. Via its Ethernet connection to the control system, the DMF-RMC-4K-SFP provides a gateway for controlling the display device through its HDMI connection, potentially eliminating the need for any dedicated serial cables or IR emitters.

The DMF-TX-4K-SFP mounts to a wall, ceiling, or other flat surface. Its compact, surface-mountable form factor fits easily behind a flat panel display, above a ceiling-mounted projector, beneath a tabletop, or inside a lectern or credenza. It can also be attached directly to a single rack rail in the back of an equipment cabinet. Power is provided by an external 100-240V universal power pack

DMCF-RX-4K-SFP Receiver

The DMCF-RX-4K-SFP is functionally identical to the DMF-RMC-4K-SFP with the exception of RS-232 and IR control ports. As an alternative to conventional RS-232 or IR control methods, control is afforded by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI technology. Through its connection to a control system, the DMCF-RX-4K-SFP provides a gateway for controlling devices through their HDMI connections, potentially eliminating the need for any dedicated control wires or IR emitters.

Unlike the DMF-RMC-4K-SFP, the DMCF-RX-4K-SFP is a card designed to occupy one card slot of the DMF-CI-8 chassis. The DMCF-RX-4K-SFP is shown below.

DMCF-RX-4K-SFP

Similar to the DMF-RMC-4K-SFP, the DMCF-RX-4K-SFP features a built-in 4K/60 scaler, an SFP+ cage (labeled DM IN), one local HDMI input, a local HDMI output, one analog audio input, and a gigabit Ethernet LAN port.

NOTE: The DMCF-RMC-4K-SFP is sold as part of a kit that includes one SFP+ transceiver module. For additional information, refer to the Appendix on page 12.

Fiber Card Chassis

The DMF-CI-8 is a chassis designed to provide a dense 2 RU rack-mountable solution for up to eight DMCF series transmitter and receiver cards. The chassis provides power to the cards and the ability for basic configuration of the cards as well as the chassis itself.

NOTE: The DMF-CI-8 is not a DigitalMedia switcher.

The rear of the DMF-CI-8 accepts the DMCF series cards. The transmitter and receiver cards can occupy any card slot of the DMF-CI-8, and any combination of cards can be installed. Specifically, the DMF-CI-8 can accommodate eight DMCF-TX-4K-SFP cards, eight DMCF-RX-4K-SFP cards, or a mix of any quantity of DMCF-TX-4K-SFP and DMCF-RX-4K-SFP cards—up to a maximum of eight cards (for example, six DMCF-TX-4K-SFP cards and two DMCF-RX-4K-SFP cards).

The following illustration shows the rear of the DMF-CI-8. The view shows a fully occupied chassis containing four DMCF-RX-4K-SFP cards in slots 1-4 and four DMCF-TX-4K-SFP cards in slots 5-8.

DMF-CI-8 Rear View with DMCF Cards Installed

The DMF-CI-8 provides a front panel LCD display and associated push-button controls. Menus on the front panel display allow status information about the installed cards and the chassis to be viewed. In addition, the chassis and the network settings of each card can be configured. The following illustration shows the front panel of the DMF-CI-8.

DMF-CI-8 Front Panel

As shown above, the front panel also includes SERIAL and USB console ports, a USB host ports, a PWR indicator, and chassis and card status indicators.

SFP+ Transceiver Module

An SFP+ transceiver module plugs into the SFP+ cage of a fiber transmitter and a fiber receiver. Depending on the SFP+ transceiver module being used, single-mode or multimode fiber can be used. A single-mode or multimode fiber-optic cable connects the corresponding SFP+ transceiver modules of the transmitter and receiver. Since the stand-alone endpoints and cards are compatible with one another, the fiber-optic cable can connect the DMF-TX-4K-SFP transmitter to a DMF-RMC-4K-SFP or DMCF-RX-4K-SFP receiver. Similarly, the fiber-optic cable can connect the DMCF-TX-4K-SFP transmitter to a DMF-RMC-4K-SFP or DMCF-RX-4K-SFP receiver.

NOTE: The fiber interface provided by the SFP+ transceiver module is not compatible with Crestron DM® fiber (-F type), DM 8G® fiber (-S type), or DM 8G SM fiber (-S2 type) devices.

The following illustrations show an SFP+ transceiver module and installation of the module into the SFP+ cage of a DMF-RMC-4K-SFP.

SFP+ Transceiver Module
(Dual LC Connectors Shown)

SFP+ Transceiver Module Installation into
SFP+ Cage (DMF-TX-4K-SFP Shown)

As stated previously in this guide, each DMF or DMCF fiber transmitter is sold as part of a kit containing the transmitter and one SFP+ transceiver module. Each DMF or DMCF fiber receiver is sold as part of a kit containing the receiver and one SFP+ transceiver module. For information about the various kits, refer to the Appendix on page 12.

Application Scenarios

Sample application scenarios of the 4K/60 fiber distribution system are the following:

- Long-distance point-to-point fiber run
- Integration with a DigitalMedia switcher
- Fiber distribution in a single room
- Fiber distribution between floors or buildings

The following sections provide an overview of each of the application scenarios.

Long-Distance Point-to-Point Fiber Run

The following illustration shows a fiber connection between a DMF-TX-4K-SFP transmitter and a DMF-RMC-4K-SFP receiver in a point-to-point application.

DMF-TX-4K-SFP and DMF-RMC-4K-SFP Point-to-Point Application

**DMF-TX-4K-SFP**   **Fiber**   **DMF-RMC-4K-SFP**

LAN
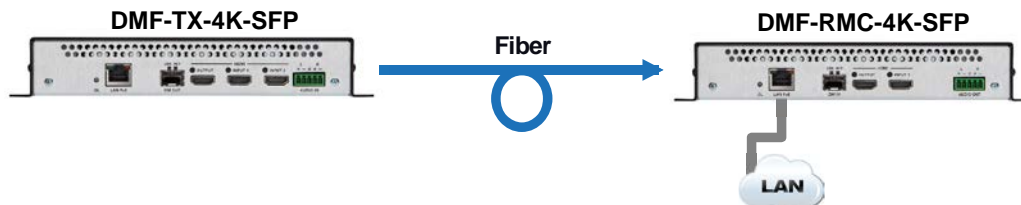
In this application, 4K/60 video can be transmitted over multimode fiber for distances up to 1300 feet (400 meters) or over single-mode fiber for distances up to 6.2 miles (10 km). An Ethernet LAN connection is also required to enable communication with the associated control system. Connection to the LAN can be made using the LAN port of either the fiber transmitter or the fiber receiver—the LAN ports of both the transmitter and receiver cannot be connected to the LAN simultaneously.

Integration with a DigitalMedia Switcher

The following illustration shows seamless integration of the 4K/60 fiber distribution system with a DigitalMedia switcher.

NOTE: In the application below, the DM-MD8X8 is shown as an example only. Any card-based DigitalMedia switcher (DM-MD8X8, DM-MD16X16, and DM-MD32X32) as well as any blade-based DigitalMedia switcher (DM-MD64X64 and DM-MD128X128) can be used.

Logical Integration with a DigitalMedia Switcher
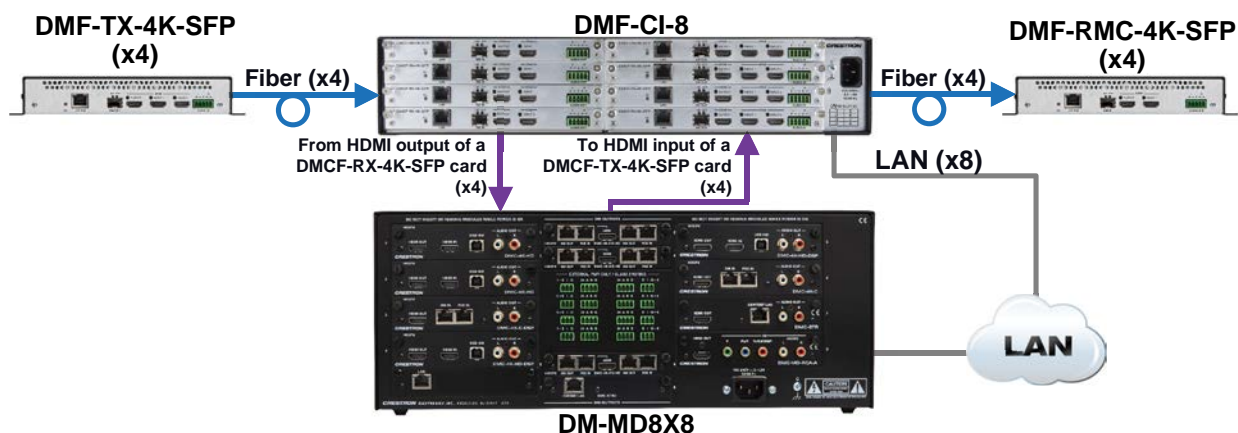
NOTE: For simplicity in the above illustration, only single connections are shown; however, all fiber connections to the cards in the DMF-CI-8 require a companion transmitter or receiver endpoint, and every connection to the DM-MD8X8 requires an HDMI cable and a LAN cable. The information in parentheses (x4 and x8) denotes the actual number of connections that are necessary.

In the sample application, the DMF-CI-8 contains four DMCF-RX-4K-SFP cards in slots 1–4 and four DMCF-TX-4K-SFP cards in slots 5–8. Four DMF-TX-4K-SFP endpoints are required to connect to the four DMCF-RX-4K-SFP cards in the DMF-CI-8, totaling four fiber connections. Four DMF-RMC-4K-SFP endpoints are required to connect to the four DMCF-TX-4K-SFP cards in the DMF-CI-8 chassis, totaling four fiber connections.

The HDMI output of each DMCF-RX-4K-SFP card in the DMF-CI-8 can connect to any available HDMI input on the switcher, adding a 4K fiber input to the switcher. Conversely, an HDMI input of each DMCF-TX-4K-SFP card in the DMF-CI-8 can connect to any available HDMI output on the switcher, adding a 4K fiber output to the switcher. In the application above, a total of eight HDMI connections is required to connect the switcher to the DMCF-RX-4K-SFP and DMCF-TX-4K-SFP cards.

NOTE: When the HDMI output of a fiber receiver or an HDMI input of a fiber transmitter connects to a DigitalMedia switcher, the switcher automatically configures the IP table of the fiber transmitter according to the SIMPL program. The fiber transmitter hosts the configuration settings of the fiber receiver.

For each pair containing a transmitter and companion receiver, an Ethernet LAN connection is required to enable communication with the associated control system. Connection to the LAN can be made using the LAN port of either the fiber transmitter or companion receiver—the LAN ports of both the transmitter and receiver cannot be connected to the LAN simultaneously. In the application above, eight LAN connections are required for the eight pairs of fiber transmitters and companion receivers that connect the DMF-CI-8 to the DigitalMedia switcher.

Fiber Distribution in a Single Room

The following application illustrates a 4K/60 fiber distribution system integrated with a DigitalMedia DMPS3-4K-150-C presentation system for fiber distribution in a single room.

NOTE: In the application below, the DMPS3-4K-150-C is shown as an example only. Any 4K DigitalMedia presentation system (DMPS3-4K-150-C, DMPS3-4K-50, and DMPS3-4K-100-C) can be used.

Fiber Distribution in a Single Room
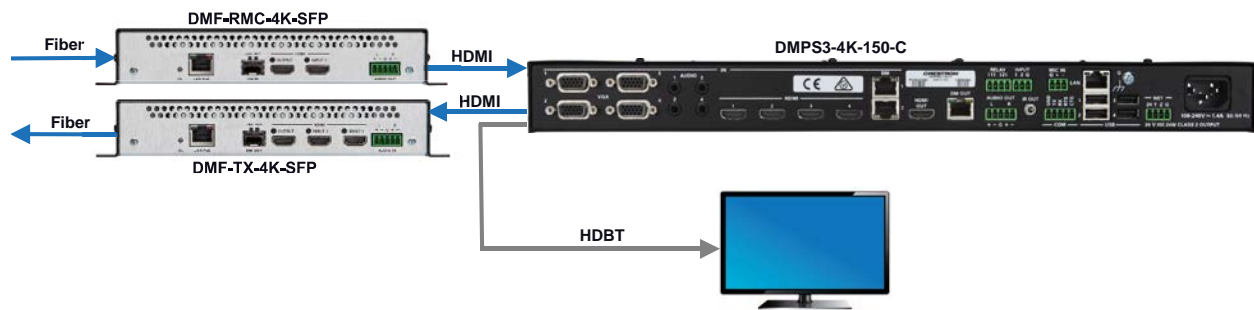
In the sample application, the HDMI output of a DM-RMC-4K-SFP connects to an available HDMI input of the DMPS3-4K-150-C, adding a 4K fiber input to the DMPS3-4K-150-C. An HDMI input of the DMF-TX-4K-SFP connects to the HDMI output of the DMPS3-4K-150-C, adding a 4K fiber output to the DMPS3-4K-150-C.

Fiber Distribution between Floors

The following application illustrates a fiber connection between two floors with seamless integration of two DigitalMedia switchers, each of which is located on a different floor.

NOTE: In the application below, the DM-MD8X8 is shown as an example only. Any card-based DigitalMedia switcher (DM-MD8X8, DM-MD16X16, and DM-MD32X32) as well as any blade-based DigitalMedia switcher (DM-MD64X64 and DM-MD128X128) can be used.

Fiber Distribution between Floors
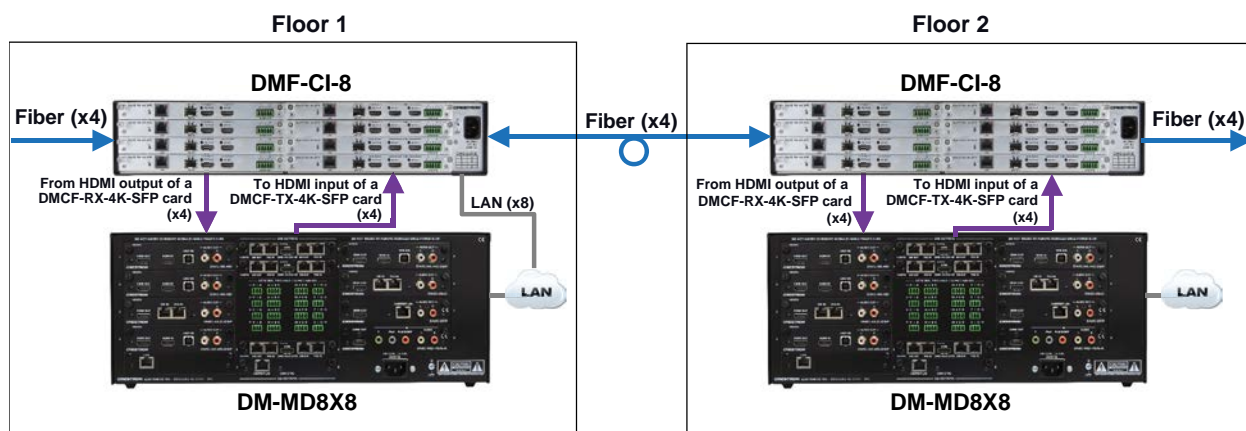
In the sample application, the physical configuration of the DMF-CI-8 on Floor 1 and Floor 2 is the same as the configuration of the DMF-CI-8 discussed in the "Integration with a DigitalMedia Switcher" section on page 9. HDMI connections between a switcher and the fiber transmitters and companion receivers add 4K fiber outputs and inputs to the switcher. The switcher automatically configures the IP table of the fiber transmitters according to the SIMPL program. The fiber transmitters host the configuration settings of the companion fiber receivers.

For each pair containing a transmitter and companion receiver, an Ethernet LAN connection is required to enable communication with the associated control system. The LAN connection can be made using the LAN port of either the fiber transmitter or companion receiver—the LAN ports of both the transmitter and receiver cannot be connected to the LAN simultaneously. For Floor 1 in the application above, eight LAN connections are required for the eight pairs of fiber transmitters and companion receivers that connect the DMF-CI-8 to the DigitalMedia switcher. On Floor 2, only a single LAN connection from the DigitalMedia switcher to the LAN is required.

Appendix: Transmitter and Receiver Kits

As mentioned previously in this guide, each DMF or DMCF fiber transmitter is sold as part of a kit containing the transmitter and one SFP+ transceiver module. Similarly, each DMF or DMCF fiber receiver is sold as part of a kit containing the receiver and one SFP+ transceiver module. The following sections provide information about each of the available kits.

DMF-TX-4K-SFP Kits

For the DMF-TX-4K-SFP, the available kits are listed in the following table.

DMF-TX-4K-SFP Kits

Kit	SFP+ Transceiver Model	Fiber Type	Connector Type	Maximum Cable Length
DMF-TX-4K-SR PAK KIT	SFP-10G-SR	Multimode, duplex, 850 nm	Dual LC	1000 ft (300 m) using OM3, 1300 ft (400 m) using OM4
DMF-TX-4K-BX PAK KIT	SFP-10G-BX-U	Single-mode, simplex, 1270/1330 nm	Single LC	6.2 miles (10 km) using ITU-T G.652.D fiber, Crestron model CRESFIBER8G-SM-P or equivalent
DMF-TX-4K-S PAK KIT*	SFP-10G-S-U	CresFiber® 8G multimode, simplex	Single SC†	650 ft (200 m) using CRESFIBER8G-NP or CRESFIBER8G-P

* Applicable only to retrofit applications in which CresFiber 8G multimode fiber is already installed, not applicable to new installations
† Via LC-to-SC patch cord and adapter, included

DMF-RMC-4K-SFP Kits

For the DMF-RMC-4K-SFP, the available kits are listed in the following table.

DMF-RMC-4K-SFP Kits

Kit	SFP+ Transceiver Model	Fiber Type	Connector Type	Maximum Cable Length
DMF-RMC-4K-SR PAK KIT	SFP-10G-SR	Multimode, duplex, 850 nm	Dual LC	1000 ft (300 m) using OM3, 1300 ft (400 m) using OM4
DMF-RMC-4K-BX PAK KIT	SFP-10G-BX-D	Single-mode, simplex, 1330/1270 nm	Single LC	6.2 miles (10 km) using ITU-T G.652.D fiber, Crestron model CRESFIBER8G-SM-P or equivalent
DMF-RMC-4K-S PAK KIT*	SFP-10G-S-D	CresFiber 8G multimode, simplex	Single SC†	650 ft (200 m) using CRESFIBER8G-NP or CRESFIBER8G-P

* Applicable only to retrofit applications in which CresFiber 8G multimode fiber is already installed, not applicable to new installations
† Via the included LC-to-SC patch cord and adapter

DMCF-TX-4K-SFP Kits

For the DMCF-TX-4K-SFP, the available kits are listed in the following table.

DMCF-TX-4K-SFP Kits

Kit	SFP+ Transceiver Model	Fiber Type	Connector Type	Maximum Cable Length
DMCF-TX-4K-SR PAK KIT	SFP-10G-SR	Multimode, duplex, 850 nm	Dual LC	1000 ft (300 m) using OM3, 1300 ft (400 m) using OM4
DMCF-TX-4K-BX PAK KIT	SFP-10G-BX-U	Single-mode, simplex, 1270/1330 nm	Single LC	6.2 miles (10 km) using ITU-T G.652.D fiber, Crestron model CRESFIBER8G-SM-P or equivalent
DMCF-TX-4K-S PAK KIT*	SFP-10G-S-U	CresFiber® 8G multimode, simplex	Single SC[†]	650 ft (200 m) using CRESFIBER8G-NP or CRESFIBER8G-P

* Applicable only to retrofit applications in which CresFiber 8G multimode fiber is already installed, not applicable to new installations
[†] Via the included LC-to-SC patch cord and adapter

DMCF-RX-4K-SFP Kits

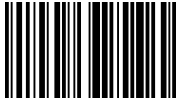For the DMCF-RX-4K-SFP, the available kits are listed in the following table.

DMCF-RX-4K-SFP Kits

Kit	SFP+ Transceiver Model	Fiber Type	Connector Type	Maximum Cable Length
DMCF-RX-4K-SR PAK KIT	SFP-10G-SR	Multimode, duplex, 850 nm	Dual LC	1000 ft (300 m) using OM3, 1300 ft (400 m) using OM4
DMCF-RX-4K-BX PAK KIT	SFP-10G-BX-D	Single-mode, simplex, 1330/1270 nm	Single LC	6.2 miles (10 km) using ITU-T G.652.D fiber, Crestron model CRESFIBER8G-SM-P or equivalent
DMCF-RX-4K-S PAK KIT*	SFP-10G-S-D	CresFiber 8G multimode, simplex	Single SC[†]	650 ft (200 m) using CRESFIBER8G-NP or CRESFIBER8G-P

* Applicable only to retrofit applications in which CresFiber 8G multimode fiber is already installed, not applicable to new installations
[†] Via the included LC-to-SC patch cord and adapter

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