DMF-RMC-4K-SFP

DigitalMedia™ SFP+ 4K Fiber Receiver

> Uncompressed 4K video signal extension over fiber optic cable

> Configurable for multimode or single-mode fiber using SFP+ transceiver modules [2]

> Seamless integration with DM® switchers to enable 4k fiber input capability

> Built-in 4K/60 scaler

> HDCP 2.2 compliant

> Dolby® TrueHD, Dolby Atmos®, DTS-HD®, and uncompressed 7.1 linear PCM audio support

> HDMI® output

> Auto-switching HDMI input

> Balanced analog stereo audio output [4]

> Stereo HDMI-to-analog audio de-embedding

> IR and RS-232 device control ports

> CEC device control gateway

> Dynamic text overlay

> Gigabit Ethernet LAN port

> Web browser setup

> 100-240V universal power pack included

> Compact, surface-mountable form factor

> Requires a DMF or DMCF series transmitter

The DMF-RMC-4K-SFP is a fiber-based receiver designed to function as part of a Crestron® 4K video signal extender solution. It is used with a companion transmitter (DMF-TX-4K-SFP or DMCF-TX-4K-SFP [1]) to support point-to-point signal extension, and may also be used to add 4K fiber input capability to a DigitalMedia™ switcher (see "DM® Switcher Integration" below for details). Its "DM IN" port allows for the insertion of an appropriate SFP+ transceiver module to enable compatibility with multimode or single-mode fiber.[2] It also features a built-in 4K/60 scaler, HDMI® and analog audio outputs, a local HDMI input, IR and RS-232 control ports, and a gigabit Ethernet LAN port. Its compact, low-profile design allows the DMF-RMC-4K-SFP to be installed discreetly behind a flat panel display or above a ceiling mounted projector.

4K Ultra HD

The DMF-RMC-4K-SFP enables 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-RMC-4K-SFP 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 like Dolby® TrueHD, Dolby Atmos®, and DTS-HD Master Audio™ as well as uncompressed linear PCM.

DM® Switcher Integration

The DMF-RMC-4K-SFP can be used to add a single 4K fiber input to a DM-MD series matrix switcher by simply connecting its HDMI output to any available HDMI input on the switcher. An Ethernet LAN connection is also required to enable communication with the associated control system.[3]

SFP+ Configurable DM Port

The "DM IN" port on the DMF-RMC-4K-SFP is configurable using SFP+ transceiver modules to enable compatibility with multimode or single-mode fiber types.[2] Each DMF-RMC-4K-SFP is sold as a packaged kit containing the receiver and one SFP+ module as follows:

• **DMF-RMC-4K-SR PAK KIT** – Supports duplex multimode fiber at up to 1000 ft (300 m) using OM3, or 1300 ft (400 m) using OM4

• **DMF-RMC-4K-BX PAK KIT** – Supports simplex single-mode fiber at up to 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** – Supports legacy CresFiber® 8G Multimode fiber at up to 650 ft (200 m) *(Only for retrofit applications where Crestron CRESFIBER8G-NP or CRESFIBER8G-P is already installed; not for new installations!)*

Local HDMI® Input

In addition to its DM input port, the DMF-RMC-4K-SFP also includes an HDMI input, which can be used to connect any HD or 4K source. Switching between the DM and HDMI inputs can be done automatically using auto-switching mode, manually using the onboard input select button, or programmatically via a Crestron control system.

Analog Audio De-Embedding

A balanced analog audio output is 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.[4]

4K/60 Scaler

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 beautifully to any

output resolution up to DCI 4K (4096 x 2160 @ 60 Hz). Interlaced sources are converted to progressive scan using motion-adaptive deinterlacing. Intelligent frame rate conversion enables support for 24p and PAL format sources. Fully automatic operation eliminates any complicated setup.

Dynamic Text Overlay

Dynamic text overlay capability allows for labeling of the video image, or can be used to display instructions, schedules, alerts, or other messaging.

Gigabit LAN Connectivity

The DMF-RMC-4K-SFP includes a gigabit Ethernet port for 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.[3]

Device Controller

The DMF-RMC-4K-SFP 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. Via its Ethernet connection to the control system, the DMF-RMC-4K-SFP provides a gateway for controlling the display device right through its HDMI connection, potentially eliminating the need for any dedicated serial cables or IR emitters.

Web Browser Setup

Simplified setup of the DMF-RMC-4K-SFP and its companion transmitter is facilitated using a web browser.

Low-Profile Installation

The DMF-RMC-4K-SFP mounts conveniently 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 even 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.

Please refer to the DigitalMedia Resources Webpage at http://www.crestron.com/dmresources/ for additional design tools and reference documents.

Top View
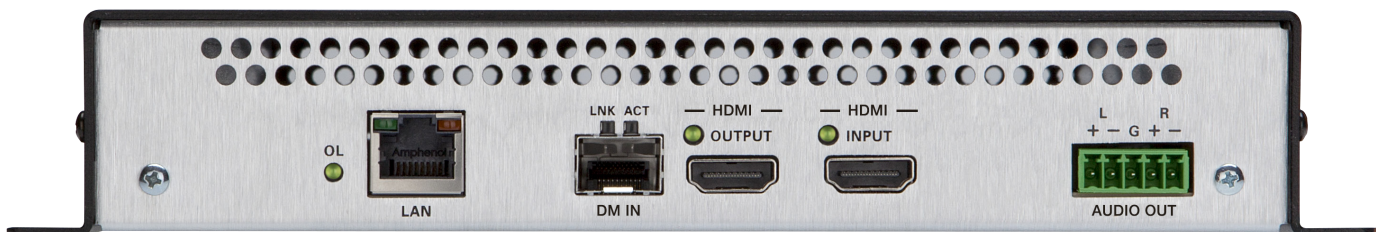
Bottom View

SPECIFICATIONS

Fiber Types

Fiber Type	Connector Type	Maximum Cable Length	SFP+ Module [2]	Package Model
Multimode, duplex, 850 nm	Dual LC	1000 ft (300 m) using OM3 1300 ft (400 m) using OM4	SFP-10G-SR	DMF-RMC-4K-SR PAK KIT
Single-mode, simplex, 1330/1270 nm	Single LC	6.2 miles (10 km)	SFP-10G-BX-D	DMF-RMC-4K-BX PAK KIT
CresFiber 8G Multimode, simplex *(Only for retrofit applications where CresFiber 8G multimode fiber is already installed; not for new installations)*	Single SC *(via LC-to-SC patch cord and adapter, included)*	650 ft (200 m) using CRESFIBER8G-NP or CRESFIBER8G-P	SFP-10G-S-D	DMF-RMC-4K-S PAK KIT

NOTE: The maximum cable length for single-mode fiber is measured using ITU-T G.652.D fiber optic cable, Crestron model CRESFIBER8G-SM-P or equivalent.

Video

Input Signal Types: DM SFP+ 4K Fiber w/Deep Color, 3D [5], & 4K support (configurable for multimode or single-mode fiber [2]); HDMI w/Deep Color, 3D [5], & 4K support (DVI & Dual-Mode DisplayPort compatible [6])

Output Signal Types: HDMI w/Deep Color & 4K support (DVI compatible [6])

Switcher: 2x1 auto-switching, Crestron QuickSwitch HD™ technology

Scaler: 4K video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, 3D to 2D conversion [5], widescreen format selection (zoom, stretch, maintain aspect-ratio, or 1:1), dynamic text overlay

Maximum Resolutions:

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 4K DCI & 3840x2160 Ultra HD	24 Hz	4:4:4	30 bit
		30 Hz	4:4:4	24 bit
		30 Hz	4:2:2	36 bit
		60 Hz	4:2:0	24 bit
	2560x1600 WQXGA	60 Hz	4:4:4	36 bit
	1920x1080 HD 1080p	60 Hz	4:4:4	36 bit
Interlaced (Input only)	1920x1080 HD 1080i	30 Hz	4:4:4	36 bit

NOTE: Common resolutions are shown; other custom resolutions are supported at pixel clock rates up to 300 MHz

Audio

Input Signal Types: DM SFP+ 4K Fiber (configurable for multimode or single-mode fiber [2]), HDMI (Dual-Mode DisplayPort compatible [6])

Output Signal Types: HDMI, analog stereo [4]

Digital Formats: Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, LPCM up to 8 channels

Analog Formats: Stereo 2-channel

Switcher: 2x1 audio-follow-video

Digital-To-Analog Conversion: 24-bit 48 kHz

Analog Performance: Frequency Response: 20 Hz to 20 kHz ±0.5 dB; S/N Ratio: >95 dB 20 Hz to 20 kHz A-weighted; THD+N: <0.005% @ 1 kHz; Stereo Separation: >90 dB

Analog Volume Adjustment: -80 to +20 dB

Communications

Ethernet: 10/100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP, IEEE 802.1X, IPv4 or IPv6, web browser setup and control, Crestron control system integration

USB: Computer console

RS-232: 2-way device control and monitoring up to 115.2k baud with hardware and software handshaking (via control system); computer console

IR/Serial: 1-way device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5 Volts) up to 19.2k baud (via control system)

DM: DM SFP+ 4K Fiber, HDCP 2.2, EDID, CEC, Ethernet

HDMI: HDCP 2.2, EDID, CEC

NOTE: Supports management of HDCP and EDID; supports management of CEC between the connected HDMI devices and a control system

Connectors

LAN: (1) 8-pin RJ45 female; 10Base-T/100Base-TX/1000Base-T Ethernet port

DM IN: (1) DM SFP+ 4K Fiber input port; Accepts one Crestron SFP-10G series SFP+ transceiver module (included as part of a DMF-RMC-4K PAK KIT)

HDMI OUTPUT: (1) 19-pin Type A HDMI female; HDMI digital video/audio output (DVI compatible [6])

HDMI INPUT: (1) 19-pin Type A HDMI female; HDMI digital video/audio input; (DVI & Dual-Mode DisplayPort compatible [6])

AUDIO OUT: (1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output [4]; Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced; Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced

CONSOLE, SERIAL: (1) 8-pin RJ45 female; RS-232 computer console port

CONSOLE, USB: (1) USB Type B female; USB computer console port

IR 1 – 2: (1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5 Volts) up to 19200 baud

COM: (1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support

24VDC 2.0A: (1) 2.1 x 5.5 mm DC power connector; 24 Volt DC power input; PW-2420RU power pack included

G: (1) 6-32 screw; Chassis ground lug

Controls & Indicators

OL: (1) Green LED, indicates online connection to a control system via Ethernet

LAN: (2) LEDs, green indicates Ethernet link status, amber indicates Ethernet activity

DM IN LINK: (1) Green LED, indicates DM link status

DM IN ACT: (1) Green LED, indicates DM link activity

HDMI OUTPUT: (1) Green LED, indicates video signal transmission at the HDMI output

HDMI INPUT: (1) Green LED, indicates sync detection at the HDMI input

PWR: (1) Bi-color green/amber LED, indicates operating power supplied via the power pack, illuminates amber while booting and green when operating

RESET: (1) Recessed pushbutton for hardware reset

SETUP: (1) Red LED and (1) recessed pushbutton for Ethernet setup

INPUT SEL: (1) Pushbutton for manual input selection and (2) bi-color green/amber LEDs to indicate the current active input and signal presence at each corresponding input

Power

Power Pack (included):
   Input: 1.5 Amps maximum @ 100-240 Volts AC, 50/60 Hz;
   Output: 2 Amps @ 24 Volts DC;
   Model: PW-2420RU

Power Consumption: 25 Watts typical

Environmental

Temperature: 32° to 104° F (0° to 40° C)

Humidity: 10% to 90% RH (non-condensing)

Heat Dissipation: 85 BTU/hr

Enclosure

Chassis: Metal, black finish, integral mounting flanges, fan cooled; vented top, front, bottom, and sides

Mounting: Freestanding, surface mount, or attach to a single rack rail

Dimensions

Height: 8.44 in (215 mm)

Width: 9.27 in (236 mm)

Depth: 1.50 in (39 mm)

Weight

2.0 lb (0.91 kg)

MODELS & ACCESSORIES

Available Models

DMF-RMC-4K-SR PAK KIT: DigitalMedia™ SFP+ 4K Fiber Receiver, includes SFP-10G-SR SFP+ Transceiver Module for Duplex Multimode Fiber

DMF-RMC-4K-BX PAK KIT: DigitalMedia™ SFP+ 4K Fiber Receiver, includes SFP-10G-BX-D SFP+ Transceiver Module for Simplex Single-Mode Fiber

DMF-RMC-4K-S PAK KIT: DigitalMedia™ SFP+ 4K Fiber Receiver, includes SFP-10G-S-D SFP+ Transceiver Module for CresFiber® 8G (for retrofit applications only)

Included Accessories

PW-2420RU: 24 Volt DC Power Pack

SFP-10G-SR: SFP+ Transceiver Module, Duplex Multimode 850 nm (Qty. 1 included with DMF-RMC-4K-SR PAK KIT)

SFP-10G-BX-D: SFP+ Transceiver Module, Simplex Single-Mode 1330/1270 nm, Downlink (Qty. 1 included with DMF-RMC-4K-BX PAK KIT)

SFP-10G-S-D: SFP+ Transceiver Module, CresFiber® 8G Multimode, Downlink (Qty. 1 included with DMF-RMC-4K-S PAK KIT)

Available Accessories

DMF-TX-4K-SFP: DigitalMedia™ SFP+ 4K Fiber Transmitter

DMCF-TX-4K-SFP: DigitalMedia™ SFP+ 4K Fiber Transmitter Card for DMF-CI-8

CBL Series: Crestron® Certified Interface Cables

CNSP-XX: Custom Serial Interface Cable

IRP2: IR Emitter Probe

Notes:

1. Item(s) sold separately.
2. The DM port on this device is designed for use with Crestron SFP-10G series SFP+ transceiver modules only. The fiber interface provided by the SFP+ module is exclusively for connection to a Crestron DMF or DMCF series transmitter device. It is not compatible with older Crestron DM Fiber (-F type), DM 8G® Fiber (-S type), or DM 8G SM Fiber (-S2 type) devices.
3. The LAN connection can be made via the local LAN port on the DMF-RMC-4K-SFP, or via the LAN port on the companion transmitter, but not both.
4. The analog stereo audio output is only active when the DMF-RMC-4K-SFP is receiving a 2-channel stereo input signal.
5. Does not support pass-through or scaling of 3D video signals. 3D signals are automatically converted to 2D, then scaled and output as 2D.
6. HDMI connections require an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. CBL-HD-DVI interface cables are available separately.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: patents.crestron.com.

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource.

8.44 in
215 mm

8.24 in
210 mm

8.22 in
209 mm

1.50 in
39 mm

9.27 in
236 mm

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