**SECTION 27 41 16**

**INTEGRATED AUDIO-VIDEO SYSTEMS AND EQUIPMENT**

**GUIDE SPECIFICATION**

*Specifier: The Specifier/Design Professional is responsible for the accuracy of all project specifications, including system application and coordination with related sections. This guide specification is provided as a convenience and requires editing to match actual project requirements. CRESTRON ELECTRONICS, INC. SHALL NOT BE LIABLE FOR ANY DAMAGES ARISING OUT OF THE USE OF ANY OF ITS GUIDE SPECIFICATIONS. For Crestron design assistance and design review please contact Sales Support Services Department at 800.237.2041 or techsales@crestron.com.*

*Specifier: Please see PART 4 for a listing of products specified in this Guide Specification.*

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# **GENERAL**

*NOT USED in this Guide Specification. Specifier shall Specify PART 1 administrative and procedural requirements as needed.*

## **Description: 4K HDMI Switchers**

# **PRODUCTS**

## **Switcher Types 1, 2 and 3**

### Basis of Design

#### Crestron HD-MD8X8-4KZ-E

*Specifier Note:*

*See product link for more information:*

*https://www.crestron.com/Products/Video/HDMI-Solutions/HDMI-Switchers/HD-MD8X8-4KZ-E*

#### Crestron HD-MD8X4-4KZ-E

*Specifier Note:*

*See product link for more information:*

*https://www.crestron.com/Products/Video/HDMI-Solutions/HDMI-Switchers/HD-MD8X4-4KZ-E*

#### Crestron HD-MD4X4-4KZ-E

*Specifier Note:*

*See product link for more information:*

*https://www.crestron.com/Products/Video/HDMI-Solutions/HDMI-Switchers/HD-MD4X4-4KZ-E*

### Device Architecture

#### Physical Form factor

##### 19-inch rack-mountable,1 Rack Unit

### Functions

#### Simplified System Integration

*Specifier Note:*

*This functionality is provided by control processors with Crestron .AV support.*

*https://www.crestron.com/Products/Featured-Solutions/AV-Framework*

##### Built-In support for simplified configuration and deployment solution by same manufacturer

*Specifier Note: The .AV Framework software is included in the following controllers:*

*AVF Controllers:*

*Crestron Virtual Control*

*AM-200*

*AM-300*

*DMPS3 Series*

*MPC3-101-B*

*MPC3-102-B*

*MPC3-201-B*

*MPC3-302-B*

*MPC3-302-W*

*RMC3*

###### Configuration and deployment method shall facilitate custom programming features without utilizing a specialized programmer.

###### Configuration and deployment method shall utilize a web browser, specialized sofware shall not be required.

*Specifier Note: Please see the following link for additional .AV Framework UI configuration information.*

*http://www.crestron.com/downloads/pdf/product\_misc/av-framework-dmps-ui-guide.pdf*

#### The switcher shall support input switching with the following options:

#### Configuration via built-in web interface

#### HDMI audio de-embedding

##### Switcher shall include two analog audio outputs which may be configured to output 2-channel audio from any connected HDMI source with stereo audio.

#### 3rd party System Integration

##### When integrated with a control processor and Touch 10 Routing and Control Program by same manufacturer the unit shall be capable of integrating with the Cisco Touch 10, providing routing and expanded inputs and switching control.

*Specifier Note:*

*The Crestron and Cisco® Touch 10 Routing and Control Program is a program that allows Crestron® A/V switcher devices to be integrated into a Cisco room control solution and controlled via the Cisco Touch 10 touch screen, increasing the available HDMI® inputs within the room. The Crestron and Cisco® Touch 10 Routing and Control Program requires no custom programming and can be scaled to easily configure thousands of Cisco rooms through the provided user interface.*

*Please see link below for additional info and comaptible products:*

*https://www.crestron.com/Products/Control-Hardware-Software/Software/Development-Software/Crestron-and-Cisco-Touch-10*

#### Remote switching and control via control processor by same manufacturer

#### Manual switching via front panel input and output selection buttons

#### Device Control

*Specifier Note:*

*Device control via CEC requires custom programming or .AV Framework configuration using supported controller and source/display devices.*

##### Display device CEC control

##### Source device CEC control

##### Automatic on/off control of display device via CEC control

#### Configuration via web interface

### Connectors

#### The device shall include the following connectors:

##### Input and output configurations:

###### 8x8 unit includes eight (8) HDMI outputs and eight (8) HDMI inputs

###### 8x4 unit includes four (4) HDMI outputs and eight (8) HDMI inputs

###### 4x4 unit includes four (4) HDMI outputs and four (4) HDMI inputs

##### All outputs shall support for the following:

###### HDMI with Deep Color and 4K60 4:4:4

###### HDCP 2.3 compliant

###### HDR10, HDR10+, Dolby Vision

###### EDID

##### All inputs shall support for the following:

###### HDMI with Deep Color and 4K60 4:4:4

###### HDCP 2.3 compliant

###### HDR10, HDR10+, Dolby Vision

###### EDID

##### Two (2) balanced or unbalanced Line Level outputs

##### One (1) 24 VDC power input jack

##### One (1) USB Type A connector with support for:

###### Service and firmware update connection

##### One (1) RJ45 100BASE-TX/1000BASE-T Ethernet ports

### Power

#### Typical Consumption:

##### 8x4 unit: 21 W

##### 8x8 unit: 29 W

#### Power supply

##### External 1.3 A @ 100-240 VAC, 50/60 Hz

##### Output: 2.5A @ 24 VDC

### Compliance

#### Bureau Veritas Listed for US and Canada, CE, IC, FCC Part 15 Class B digital device

### Cloud provisioning service

#### Cloud provisioning and management service by same manufacturer

## **Switcher Types 4 and 5**

### Basis of Design

#### Crestron HD-MD4X2-4KZ-E

*Specifier Note:*

*See product link for more information:*

*https://www.crestron.com/Products/Video/HDMI-Solutions/HDMI-Switchers/HD-MD4X2-4KZ-E*

#### Crestron HD-MD4X1-4KZ-E

*Specifier Note:*

*See product link for more information:*

*https://www.crestron.com/Products/Video/HDMI-Solutions/HDMI-Switchers/HD-MD4X1-4KZ-E*

### Device Architecture

#### Physical Form factor

##### Surface mount and single rack rail mount

### Functions

#### Simplified System Integration

*Specifier Note:*

*This functionality is provided by control processors with Crestron .AV support.*

*https://www.crestron.com/Products/Featured-Solutions/AV-Framework*

##### Built-In support for simplified configuration and deployment solution by same manufacturer

*Specifier Note: The .AV Framework software is included in the following controllers:*

*AVF Controllers:*

*Crestron Virtual Control*

*AM-200*

*AM-300*

*DMPS3 Series*

*MPC3-101-B*

*MPC3-102-B*

*MPC3-201-B*

*MPC3-302-B*

*MPC3-302-W*

*RMC3*

###### Configuration and deployment method shall facilitate custom programming features without utilizing a specialized programmer.

###### Configuration and deployment method shall utilize a web browser, specialized sofware shall not be required.

*Specifier Note: Please see the following link for additional .AV Framework UI configuration information.*

*http://www.crestron.com/downloads/pdf/product\_misc/av-framework-dmps-ui-guide.pdf*

#### The switcher shall support input switching with the following options:

#### Configuration via built-in web interface

#### HDMI audio de-embedding

##### Switcher shall include two analog audio outputs which may be configured to output 2-channel audio from any connected HDMI source with stereo audio.

#### Remote switching and control via control processor by same manufacturer

#### Manual switching via front panel input and output selection buttons

#### Device Control

*Specifier Note:*

*Device control via CEC requires custom programming or .AV Framework configuration using supported controller and source/display devices.*

##### Display device CEC control

##### Source device CEC control

##### Automatic on/off control of display device via CEC control

#### Configuration via web interface

#### 3rd party System Integration

##### When integrated with a control processor and Touch 10 Routing and Control Program by same manufacturer the unit shall be capable of integrating with the Cisco Touch 10, providing routing and expanded inputs and switching control.

*Specifier Note:*

*The Crestron and Cisco® Touch 10 Routing and Control Program is a program that allows Crestron® A/V switcher devices to be integrated into a Cisco room control solution and controlled via the Cisco Touch 10 touch screen, increasing the available HDMI® inputs within the room. The Crestron and Cisco® Touch 10 Routing and Control Program requires no custom programming and can be scaled to easily configure thousands of Cisco rooms through the provided user interface.*

*Please see link below for additional info and comaptible products:*

*https://www.crestron.com/Products/Control-Hardware-Software/Software/Development-Software/Crestron-and-Cisco-Touch-10*

### Connectors

#### The device shall include the following connectors:

##### 4x2 unit includes two (2) HDMI outputs and the 4x1 unit includes one (1) output. All outputs shall support for the following:

###### HDMI with Deep Color and 4K60 4:4:4

###### HDCP 2.3 compliant

###### HDR10, HDR10+, Dolby Vision

###### EDID

##### Four (4) HDMI inputs with support for the following:

###### HDMI with Deep Color and 4K60 4:4:4

###### HDCP 2.3 compliant

###### HDR10, HDR10+, Dolby Vision

###### EDID

##### Two (2) balanced or unbalanced Line Level outputs

##### One (1) 24 VDC power input jack

##### One (1) USB Type A connector with support for:

###### Service and firmware update connection

##### One (1) RJ45 100BASE-TX/1000BASE-T Ethernet ports

### Power

#### Typical Consumption:

##### 4x1 unit: 10 W

##### 4x2 unit: 12 W

#### Power supply

##### External 1.3 A @ 100-240 VAC, 50/60 Hz

##### Output: 2.5A @ 24 VDC

### Compliance

#### Bureau Veritas Listed for US and Canada, CE, IC, FCC Part 15 Class B digital device

### Cloud provisioning service

#### Cloud provisioning and management service by same manufacturer

# **EXECUTION**

*NOT USED in this Guide Specification. Specifier shall Specify PART 3 On-Site work as needed.*

# **APPENDICES**

## **SPECIFIED PRODUCTS**

### Crestron HD-MD8X8-4KZ-E

### Crestron HD-MD8X4-4KZ-E

### Crestron HD-MD4X4-4KZ-E

### Crestron HD-MD4X2-4KZ-E

### Crestron HD-MD4X1-4KZ-E