



## EXP-MX-0404-H2 Express Matrix Switcher

### Application Programming Interface

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Supported Firmware	Refer to <a href="#">Supported Product Firmware/Software</a> for details.

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# 1. Overview

This API (Application Programming Interface) document provides the necessary connections, configurations and commands needed in order to control the EXP-MX-0404-H2.

## 1.1 Supported Product Firmware/Software

The following products and firmware versions are supported by this version of the API. The firmware versions listed are the minimum supported at time of publication, firmware may be higher except where otherwise noted.

Product	Status Since Last Doc Rev	Supported Product Versions
EXP-MX-0404-H2	New	v1 or higher

## 1.2 Before You Begin

Verify that the following items are on hand and that all documentation is reviewed before continuing.

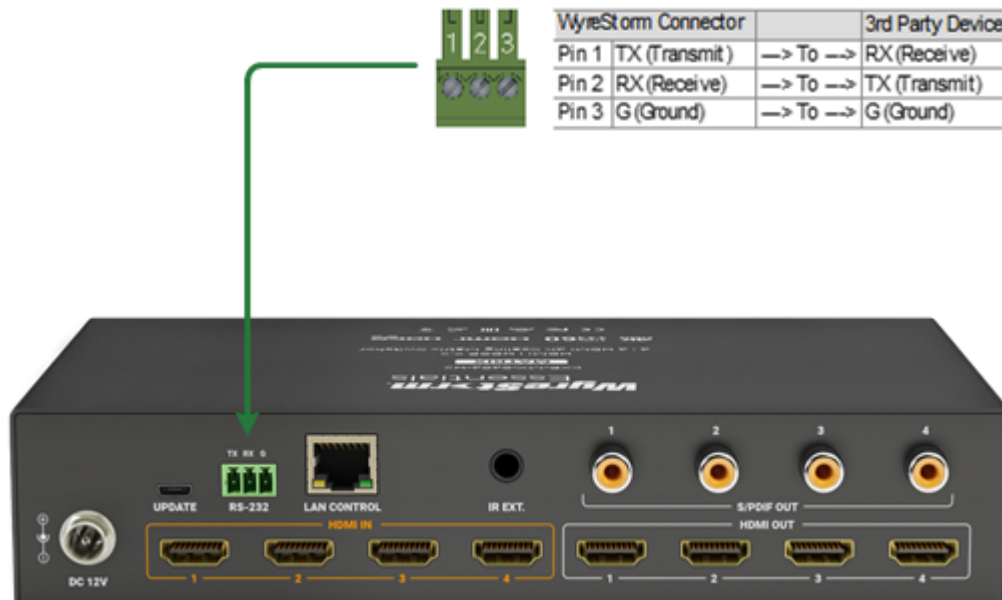
- Operational EXP-MX-0404-H2 Matrix .....
- Control System and Control System Documentation.....
- PC or Mac for Configuring Product and Telnet Communications .....
- Network Connection with Network Passwords .....

## 2. Wiring and Communication Configuration

WyreStorm recommends that all wiring for the installation is run and terminated prior to making connections to the switcher. Read through this section in its entirety before running or terminating the wires to ensure proper operation and to avoid damaging equipment.

### 2.1 RS-232 Connections

The following wiring diagrams show the pinouts for the WyreStorm device. While not shown, connect the TX (transmit) to RX (receive) pins at the control system or PC side of the cable. Most control systems and computers are configured for Digital Terminal Equipment (DTE) where pin 2 is RX and pin 3 is TX. This can vary from device to device, refer to the documentation for the connected device for pin functionality to ensure that the correct connections can be made.



**Note:** EXP-MX-0402-H2 shown above. Port may be in different location for the various models.

### RS-232 Port Settings

<b>Baud rate:</b>	115200 bps
<b>Data Bits:</b>	8bits
<b>Parity:</b>	None
<b>Stop Bits:</b>	1bit
<b>Flow Control:</b>	None

## 2.2 Network Connections

### 2.2.1 IP Settings

Default IP Address	192.168.11.143
Default Subnet Mask	255.255.255.0
Default IP Port	23

## 3. Command Overview

### 3.1 Command Delimiter for Sent Commands

When sending commands using the IPv4 / Telnet API channel, or when using the RS-232 API channel, all command lines sent from the 3rd-party controller to the matrix should end with a specific character. This signifies when the command is processed by the matrix. This is usually specified in 3rd-party control software as the "command delimiter," "stop character," or "line terminator."

Accepted delimiter characters are:

Character	Shorthand	Hex Notation	Escape Notation	Decimal Notation
Line Feed	LF	0A	\n	10
Carriage Return + Line Feed	CR LF	0D 0A	\r\n	13 10

Please note, most 3rd-party control software will either append these characters automatically or an option to specify them will be present.

It is important that the last delimiter character is LF and not CR.

## 4. IP Configuration

### 4.1 IP Setting

Set IP Mode	
Command structure: <b>SET IP MODE &lt;PRM&gt;</b>	
Response Syntax: <b>IP MODE &lt;PRM&gt;</b>	<PRM> = static   dhcp NOTE: Default IP mode=Static
Example Command: <b>SET IP MODE DHCP</b>	
Example Response: <b>IP MODE DHCP</b>	

Set Static Address	
Command structure: <b>SET IPADDR &lt;PRM1&gt; &lt;PRM2&gt; &lt;PRM3&gt;</b>	
Response Syntax: <b>IPDDR &lt;PRM1&gt; &lt;PRM2&gt; &lt;PRM3&gt;</b>	<PRM1> IP Address (xxx.xxx.xxx) <PRM2> Subnet Mask (xxx.xxx.xxx) <PRM3> Gateway Address (xxx.xxx.xxx) NOTE: -IP Mode must be set to Static to set
Example Command: <b>SET IPADDR 192.168.11.143 255.255.255.0 192.168.1.1</b>	
Example Response: <b>IPADDR IP: 192.168.11.143 MASK: 255.255.255.0 GATE: 192.168.1.1</b>	

## 5. Controlling Matrix Switching

### 5.1 Controlling Video

#### Switching Video Outputs

Command structure:  
**SET SW <INPUT> <OUTPUT>**

Response Syntax:  
**SW <INPUT> <OUTPUT>**

Example Command:  
**SET SW hdmiin4 hdmiout1**

Example Response:  
**SW hdmiin4 hdmiout1**

<INPUT> = hdmiin1~hdmiin4  
<OUTPUT> = hdmiout1~hdmiout4 | all

#### Query Video Output Mapping

Command structure:  
**GET MP <OUTPUT>**

Response Syntax:  
**MP GET <INPUT> <OUTPUT>**

Example Command:  
**GET MP hdmiout1**

Example Response:  
**MP hdmiin4 hdmiout1**

<INPUT> = hdmiin1~hdmiin8  
<OUTPUT> = hdmiout1~hdmiout4 | all

### 5.2 Controlling Audio

#### Muting Audio Outputs

Command structure:  
**SET MUTE <OUTPUT> <PRM>**

Response Syntax:  
**MUTE <OUTPUT> <PRM>**

Example Command:  
**SET MUTE audioout1 on**

Example Response:  
**MUTE audioout1 on**

<OUTPUT> = audioout1~audioout4 | all  
<PRM> = on (mute) | off (unmute)

#### Query Audio Mute State

Command structure:  
**GET MUTE <OUTPUT>**

Response Syntax:  
**MUTE <OUTPUT> <PRM>**

<OUTPUT> = audioout1~audioout4 | all  
<PRM> = on (mute) | off (unmute)

Example Command:  
**GET MUTE audioout1**

Example Response:  
**MUTE audioout1 on**

## 6. Saving and Recalling an Audio/Video Scene

### Save a Scene

Command structure:  
**SAVE PRESET <PRM>**

Response Syntax:  
**PRESET <PRM>**

Example Command:  
**SAVE PRESET 1**

Example Response:  
**PRESET 1**

<PRM> =1~3

### Recall a Scene

Command structure:  
**RESTORE PRESET <PRM>**

Response Syntax:  
**PRESET <PRM>**

Example Command:  
**RESTORE PRESET 1**

Example Response:  
**PRESET 1**

<PRM> =1~3



## 7. Controlling Display Power via CEC

### IMPORTANT! Command Requirements

- Display must be compatible with CEC and enabled in order to use function.

#### CEC Display Power

Command structure:

**SET CEC\_PWR <OUTPUT> <PRM>**

Response Syntax:

**CEC\_PWR <OUTPUT> <PRM>**

<OUTPUT> = hdmiout1~hdmiout4 | all

<PRM> = on | off

Example Command:

**SET CEC\_PWR hdmiout2 on**

Example Response:

**CEC\_PWR hdmiout2 on**

#### Set CEC Auto Power

Command structure:

**SET AUTOCEC\_FN <OUTPUT> <PRM>**

Response Syntax:

**AUTOCEC\_PWR <OUTPUT> <PRM>**

<OUTPUT> = hdmiout1~hdmiout4

<PRM> = on | off

Example Command:

**SET AUTOCEC\_FN hdmiout2 on**

Example Response:

**AUTOCEC\_FN hdmiout2 on**

The matrix can automatically send a CEC Power On command to an output when an HDMI input signal is detected. CEC Power Off commands can also automatically be sent after "X" amount of time when a signal detection is lost. See "Set CEC Auto Power Off Delay" section for details.

#### Query CEC Auto Power

Command structure:

**GET AUTOCEC\_FN <OUTPUT>**

Response Syntax:

**AUTOCEC\_FN <OUTPUT> <PRM>**

<OUTPUT> = hdmiout1~hdmiout4

<PRM> = on | off

Example Command:

**GET AUTOCEC\_FN hdmiout2**

Example Response:

**AUTOCEC\_FN hdmiout2 on**

### Set CEC Auto Power Off Delay

Command structure:

**SET AUTOCEC\_D <OUTPUT> <PRM>**

Response Syntax:

**AUTOCEC\_D <OUTPUT> <PRM>**

<OUTPUT> = hdmiout1~hdmiout4

<PRM> = 1~30

Example Command:

**SET AUTOCEC\_D hdmiout1 5**

Example Response:

**AUTOCEC\_FN hdmiout1 5**

Note: <PRM> is in minutes. A value of 10 is equal to a 10-minute delay. Default delay time is 2 minutes.

### Query CEC Auto Power Off Delay

Command structure:

**GET AUTOCEC\_D <OUTPUT>**

Response Syntax:

**AUTOCEC\_D <OUTPUT> <PRM>**

<OUTPUT> = hdmiout1~hdmiout4

<PRM> = 1~30

Example Command:

**GET AUTOCEC\_D hdmiout1**

Example Response:

**AUTOCEC\_D hdmiout1 5**

Note: <PRM> is in minutes. A value of 10 is equal to a 10-minute delay. Default delay time is 2 minutes.

## 8. Matrix EDID Settings

Set Input EDID	
Command structure: <b>SET EDID &lt;INPUT&gt; &lt;PRM&gt;</b>	<INPUT> = hdmiin1~hdmiin4 <PRM> = 1~12
Response Syntax: <b>EDID &lt;INPUT&gt; &lt;PRM&gt;</b>	1) Copy form output 1 2) Copy form output 2 3) Copy form output 3 4) Copy form output 4
Example Command: <b>SET EDID hdmiin1 2</b>	5) 4K@60Hz 5.1ch audio w/ HDR 6) 4K@60Hz 2.0ch audio w/ HDR 7) 4K@60Hz 2.0ch audio 8) 4K@30Hz 5.1ch audio w/ HDR 9) 4K@30Hz 5.1ch audio w/ Dolby Vision 10) 4K@30Hz 2.0ch audio w/ HDR 11) 4K@30Hz 2.0ch audio 12) 1080P@60Hz 2.0ch audio
Example Response: <b>EDID hdmiin1 2</b>	
Get All Input EDID Status	
Command structure: <b>GET EDID &lt;INPUT&gt;</b>	<INPUT> = hdmiin1~hdmiin4   all <PRM> = 1~14
Response Syntax: <b>EDID &lt;INPUT&gt; &lt;PRM&gt;</b>	1) Copy form output 1 2) Copy form output 2 3) Copy form output 3 4) Copy form output 4
Example Command: <b>SET EDID hdmiin1 2</b>	5) 4K@60Hz 5.1ch audio w/ HDR 6) 4K@60Hz 2.0ch audio w/ HDR 7) 4K@60Hz 2.0ch audio 8) 4K@30Hz 5.1ch audio w/ HDR 9) 4K@30Hz 5.1ch audio w/ Dolby Vision 10) 4K@30Hz 2.0ch audio w/ HDR 11) 4K@30Hz 2.0ch audio 12) 1080P@60Hz 2.0ch audio 13) Empty 14) EDID Write
Example Response: <b>EDID hdmiin1 2</b>	
Set EDID Input Write	
Command structure: <b>SET EDID_W &lt;INPUT&gt; &lt;PRM1&gt; &lt;PRM2&gt;</b>	
Response Syntax: <b>EDID &lt;INPUT&gt; &lt;PRM1&gt; &lt;PRM3&gt;</b>	<INPUT> = hdmiin1~hdmiin4 <PRM1> = block0~block1 <PRM2> = one block of 256 bytes EDID ASCII data w/ spaces (HEX data must be converted to ASCII) <PRM3> = ok, error (error= check sum error)
Example Command: <b>SET EDID_W hdmiin1 block0 XX...XX</b>	
Example Response: <b>EDID_W hdmiin1 block0 ok</b>	

## Get EDID Output Read

Command structure:  
GET EDID\_R <OUTPUT>

Response Syntax:  
EDID\_R <OUTPUT> <PRM1> <PRM2>

Example Command:  
**GET EDID\_R hdmiout1**

Example Response:  
**EDID\_R hdmiout1 block0 XX...XX --- Read EDID  
ok**

<OUTPUT> = hdmiout1~hdmiout4  
<PRM1> = block0~block1  
<PRM2> = one block of 256 bytes EDID ASCII data  
**w/o spaces** (HEX data must be converted to ASCII),  
error, disconnected

## 9. Troubleshooting

Query IP Address	
Command: GET IPADDR	<PRM> = IPv4 Address
Response Syntax: IPADDR <PRM>	
Query Firmware Version	
Command: GET VER	<PRM> = current installed firmware version
Response Syntax: VER <PRM>	
Reboot Matrix	
Command: REBOOT	No Parameters
Response: REBOOT	
Restore Factory Defaults	
Command: RESET	No Parameters
Response: RESET	

## 10. Contacting Technical Support

Should further clarification of the content in this document or assistance on troubleshooting be required, please contact WyreStorm technical support.

Phone: UK: +44 (0) 1793 230 343 | ROW: 844.280.WYRE (9973)

Contact Request: <http://wyrestorm.com/contact-tech-support>

## 11. Document Revision History

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### V1.0 – April 2020

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New Matrix Model

EXP-MX-0404-H2

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## Publication Disclaimer

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### WyreStorm Offices

North America: 23 Wood Road, Round Lake, NY 12151

Tel: +1 518-289-1293

EMEA: Unit 22, Ergo Business Park, Swindon, Wiltshire, SN3 3JW, UK

Tel: +44 (0) 1793 230 343

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