



MX-0404-SCL API

MX-0404-SCL

Application Programming Interface

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Supported Firmware	Refer to Supported Product Firmware/Software for details.

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1. Overview

The following contains the connection and commands to control the SCL series matrix switchers. By following the content contained in this document, the switcher can be controlled and configured via a 3rd party RS-232 control system.

IMPORTANT NOTE!

Due to differences between matrix series and model versions within a series, some commands have different parameters based on the model and version. These differences are noted where applicable and should be followed as sending an incorrect parameter may cause the unit to lock up and become inoperative.

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
MX-0404-SCL	added	v1 or higher

1.2 Before You Begin

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

- Configured and Operational SCL Matrix
- Refer to [Supported Product Firmware/Software](#) for a complete list of supported products and versions.
- Control System and Control System Documentation.....
- PC or Mac for configuring product and telnet communications
- Network Connection with Network Passwords.....
- Current Product Firmware (if available), Software, and Documentation downloaded from [WyreStorm.com](#).....

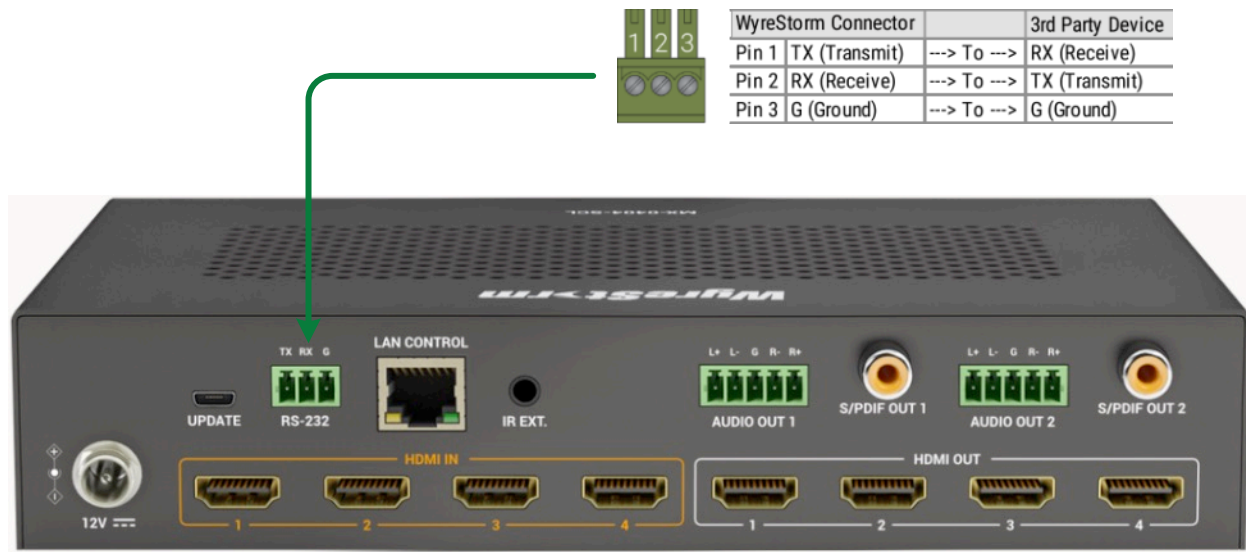
2. Wiring and Communication Configuration

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: MX-0404-H2A-KIT shown above. Port may be in different location for the various models.



RS-232 Port Settings

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

2.2 Network Connections

2.2.1 IP Settings

Default IP Address	SCL Series Version 1: 192.168.11.143 All other models are set by Auto IP method. Refer to IP Addressing and Web UI Access
Default IP Port	23

IP Addressing and Web UI Access

These matrix switchers use an Auto IP method to generate the initial IP address based on the network connections. By default, the IP address is set to DHCP and will pull the IP address from a connected DHCP server. Should the network not contain a DHCP server, the IP address will be generated based on the unit's MAC address. The above operation will occur unless the IP Address setting in the web UI is set to static.

1. Connect the matrix to the same network as a PC.
2. Using a 3rd party network scanner, scan the network for the IP address of the matrix.
3. Open a web browser and enter the IP Address of the matrix.
4. Enter the password for the matrix. The default password is: admin.

IP Address Notes

- The installer password and general password are the same by default. WyreStorm recommends changing the password for installer login to avoid any unwanted changes being made to the matrix configuration.

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.

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

4. Controlling Matrix Switching

4.1 Controlling Video

Switching Video Outputs	
Command structure: SET SW <INPUT> <OUTPUT>	<u>SCL Series</u> <INPUT> = in1 ~ in4 , in0 <OUTPUT> = out1~out8 , all Note: <INPUT> value of “in0” power downs the output.
Response Syntax: SW <INPUT> <OUTPUT>	
Example Command: SET SW in4 out1	
Example Response: SW in4 out1	

Query Video Output Mapping	
Command structure: GET MP <OUTPUT>	<u>SCL Series</u> <INPUT> = in1 ~ in4 , in0 <OUTPUT> = out1~out8, all
Response Syntax: MP GET <INPUT> <OUTPUT>	
Example Command: GET MP out1	
Example Response: MP in4 out1	

4.2 Controlling Audio

Muting Audio Outputs	
Command structure: SET AUDIO_MUTE <OUTPUT> <PRM>	
Response Syntax: AUDIO_MUTE <OUTPUT> <PRM>	
Example Command: SET AUDIO_MUTE zone2 on	
Example Response: AUDIO_MUTE zone2 on	

Query Audio Mute State	
Command structure: GET AUDIO_MUTE <OUTPUT>	
Response Syntax: AUDIO_MUTE <OUTPUT> <PRM>	
Example Command: GET MUTE audioout2	
Example Response: GET MUTE audioout2	

5. Saving and Recalling an Audio/Video Scene

Muting Audio Outputs

Command structure:

```
SET AUDIO_MUTE <OUTPUT> <PRM>
```

Response Syntax:

```
AUDIO_MUTE <OUTPUT> <PRM>
```

Example Command:

```
SET AUDIO_MUTE zone2 on
```

Example Response:

```
AUDIO_MUTE zone2 on
```

<OUTPUT> = zone1, zone2

<PRM> = on (mute) | off (unmute)

Note: Mute function is not supported on the MK2 platform.

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

6. Controlling Display Power via CEC

CEC Display Power	
Command structure: SET CEC_PWR <OUTPUT> <PRM>	<u>SCL Series</u> <OUTPUT> = out1 ~ out4 all <PRM> = on off
Response Syntax: CEC_PWR <OUTPUT> <PRM>	
Example Command: SET CEC_PWR out2 on	
Example Response: CEC_PWR out2 on	

Set CEC Auto Power	
Command structure: SET AUTOCEC_FN <OUTPUT> <PRM>	<u>SCL Series</u> <OUTPUT> = out1~out4 all <PRM> = on off
Response Syntax: AUTOCEC_PWR <OUTPUT> <PRM>	
Example Command: SET AUTOCEC_FN out2 on	
Example Response: AUTOCEC_FN out2 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>	<u>SCL Series</u> <OUTPUT> = out1~out4 all <PRM> = on off
Response Syntax: AUTOCEC_FN <OUTPUT> <PRM>	
Example Command: GET AUTOCEC_FN out2	
Example Response: AUTOCEC_FN out2 on	

Set CEC Auto Power Off Delay

Command structure:

SET AUTOCEC_D <OUTPUT> <PRM>

SCL Series

Response Syntax:

AUTOCEC_D <OUTPUT> <PRM>

<OUTPUT> = out1~out4 | all

<PRM> = 1~30

Example Command:

SET AUTOCEC_D out1 5

Example Response:

AUTOCEC_D out1 5

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

Query CEC Auto Power Off Delay

Command structure:

GET AUTOCEC_D <OUTPUT>

SCL Series

Response Syntax:

AUTOCEC_D <OUTPUT> <PRM>

<OUTPUT> = out1~out4 | all

<PRM> = 1~30

Example Command:

GET AUTOCEC_D out1

Example Response:

AUTOCEC_D out1 5

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

7. Matrix EDID Settings

Set Input EDID

Command structure:
SET EDID <INPUT> <PRM>

Response Syntax:
EDID <INPUT> <PRM>

Example Command:
SET EDID in1 2

<INPUT> = in1~in4 , all
<PRM> = 1~12

- 1) Copy form output 1
- 2) Copy form output 2
- 3) Copy form output 3
- 4) Copy form output 4
- 5-10 Reserved
- 11) Fixed 4K60 2.0CH PCM Audio with HDR
- 12) Fixed 4K60 2.0CH PCM Audio with SDR
- 13) Fixed 4K30 2.0CH PCM Audio with HDR
- 14) Fixed 4K30 2.0CH PCM Audio with SDR
- 15) Fixed 1080p60 2.0CH PCM Audio with HDR
- 16) Fixed 1080p60 2.0CH PCM Audio with SDR

Example Response:

EDID in1 2

Get All Input EDID Status

Command structure:
GET EDID <INPUT>

Response Syntax:
EDID <INPUT> <PRM>

Example Command:
SET EDID in1 2

<INPUT> = hdmiin1~hdmiin4 | all
<PRM> = 1~14

- 1) Copy form output 1
- 2) Copy form output 2
- 3) Copy form output 3
- 4) Copy form output 4
- 5-10 Reserved
- 11) Fixed 4K60 2.0CH PCM Audio with HDR
- 12) Fixed 4K60 2.0CH PCM Audio with SDR
- 13) Fixed 4K30 2.0CH PCM Audio with HDR
- 14) Fixed 4K30 2.0CH PCM Audio with SDR
- 15) Fixed 1080p60 2.0CH PCM Audio with HDR
- 16) Fixed 1080p60 2.0CH PCM Audio with SDR

Example Response:

EDID in1 2

Set EDID Input Write

Command structure:
SET EDID_W <INPUT> <PRM1> <PRM2>

Response Syntax:
EDID <INPUT> <PRM1> <PRM3>

Example Command:
SET EDID_W in1 block0 XX...XX

Example Response:
EDID_W in1 block0 ok

<INPUT> = in1~in4 , all
<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)

Get EDID Output Read	
Command structure: GET EDID_R <OUTPUT>	<OUTPUT> = out1~out4 <PRM1> = block0~block1 <PRM2> = one block of 256 bytes EDID ASCII data w/o spaces (HEX data must be converted to ASCII), error, disconnected
Response Syntax: EDID_R <OUTPUT> <PRM1> <PRM2>	
Example Command: GET EDID_R out1	
Example Response: EDID_R out1 block0 XX...XX --- Read EDID ok	

8. Matrix Low Power Mode (Standby)

To save energy when the matrix is not in use a Low Power Mode has been incorporated into the architecture. By turning on this mode the unit will go into Standby, using less power than normal operating mode. While in this mode, the Front Panel display and LEDs will be Off and outputs will be powered down. Once a command is sent via the Front Panel buttons, IR remote/control system, or RS-232/IP control system the unit will wake from Standby and be fully operational. The unit can be placed back into standby via an API command.

Place Matrix into Standby	Command: STANDBY	No Parameters
Wake Unit from Standby	Command: WAKE	
Query Standby Status	Command: GET STANDBY Note: response will be the commands listed above.	

9. Scaling Configuration

9.1 Configuring the scaling outputs

Should the output video need to be scaled to the native resolution of a connected display, the following commands can be implemented.

Set scaling mode for output	
Command structure: SET VIDOUT_SCALE <OUTPUT> <PRM>	<u>SCL Series</u>
Response Syntax: VIDOUT_SCALE <OUTPUT> <PRM>	<OUTPUT> = out1~out4 <PRM> = auto, manual, bypass
Example Command: SET VIDOUT_SCALE out1 auto	
Example Response: VIDOUT_SCALE out1 auto	
auto – Outputs video signal that is based on the output display’s EDID automatically. manual – Manually select a fixed resolution for the output display. bypass -- Bypasses the HDMI source signal to output display (Only available for out1 + 2)	

Query scaling mode	
Command structure: GET VIDOUT_SCALE <OUTPUT>	<u>SCL Series</u>
Response Syntax: VIDOUT_SCALE <OUTPUT> <PRM>	<OUTPUT> = out1~out4 <PRM> = auto, manual, bypass
Example Command: GET VIDOUT_SCALE out1	

Setting output resolution (Only available in manual scaler mode)	
Command structure: SET VIDOUT_RES <OUTPUT>	<u>SCL Series</u>
Response Syntax: VIDOUT_RES <OUTPUT> <PRM>	<OUTPUT> = out1~out4 <PRM> = 1~26
Example Command: SET VIDOUT_RES out1 5	1) 4096x2160@60 2) 4096x2160@30 3) 4096x2160@25
Example Response: VIDOUT_RES out1 5	4) 4096x2160@24 5) 3840x2160@60 6) 3840x2160@50 7) 3840x2160@30 8) 3840x2160@25 9) 3840x2160@24 10) 1920x1200@60 11) 1920x1080@60 12) 1920x1080@50

- 13) 1280x720@60
- 14) 1280x720@50
- 15) 1680x1050@60
- 16) 1600x1200@60
- 17) 1600x900@60
- 18) 1440x900@60
- 19) 1366x768@60
- 20) 1360x768@60
- 21) 1280x1024@60
- 22) 1280x960@60
- 23) 1280x800@60
- 24) 1280x768@60
- 25) 1024x768@60
- 26) 800x600@60

Query output resolution

Command structure:
GET VIDOUT_RES <OUTPUT>

Response Syntax:
VIDOUT_RES <OUTPUT><PRM>

Example Command:
GET VIDOUT_RES out1

Example Response:
VIDOUT_SCALE out1 1

SCL Series
 <OUTPUT> = out1~out4
 <PRM> = 1~26

- 1 : 4096x2160@60
- 2 : 4096x2160@30
- 3 : 4096x2160@25
- 4 : 4096x2160@24
- 5 : 3840x2160@60
- 6 : 3840x2160@50
- 7 : 3840x2160@30
- 8 : 3840x2160@25
- 9 : 3840x2160@24
- 10 : 1920x1200@60
- 11 : 1920x1080@60
- 12 : 1920x1080@50
- 13 : 1280x720@60
- 14: 1280x720@50
- 15: 1680x1050@60
- 16: 1600x1200@60
- 17: 1600x900@60
- 18: 1440x900@60
- 19: 1366x768@60
- 20: 1360x768@60
- 21: 1280x1024@60
- 22: 1280x960@60
- 23: 1280x800@60
- 24: 1280x768@60
- 25: 1024x768@60
- 26: 800x600@60

10. Infrared Configurations

10.1 Configuring IR System Code

Should the IR for the matrix interfere with other 3rd party devices in the system the IR code can be changed to resolve the conflict. This IR code can be changed within the Web UI or by using the following commands.

Set System IR Code	
Command structure: SET IR_SC <PRM>	<PRM> = mode1 mode2 all
Response Syntax: IR_SC <PRM>	
Example Command: SET IR_SC mode2	
Example Response: IR_SC mode2	
Mode1 = IR Code Set 0x00, Mode2 = IR Code Set 0x4e	

Query System IR Code	
Command structure: GET IR_SC	<PRM> = mode1 mode2 all
Response Syntax: IR_SC <PRM>	
Example Command: GET IR_SC	
Example Response: IR_SC mode2	
Mode1 = IR Code Set 0x00, Mode2 = IR Code Set 0x4e	

11. Troubleshooting

Query IP Address

Command:
GET IPADDR

Response Syntax:
IPADDR <PRM>

<PRM> = IPv4 Address

Query Firmware Version

Command:
GET VER

Response Syntax:
VER <PRM>

<PRM> = current installed firmware version

Reboot Matrix

Command:
REBOOT

Response:
REBOOT

No Parameters

Restore Factory Defaults

Command:
RESET

Response:
RESET

No Parameters

12. 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>

13. Document Revision History

VI.0 - November 2023 - Initial release

Publication Disclaimer

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