



H2A Matrix Switcher API

MX-0404-HDBT-H2A-KIT

Application Programming Interface

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Supported Firmware:	v1.0.0 or higher



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1. Overview

The following document contains the Application Program Interface (API) commands to control the MX-0404-HDBT-H2A-KIT matrix via serial and IP commands. Read this document in its entirety before starting any communication with the product.

1.1 Before You Begin

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

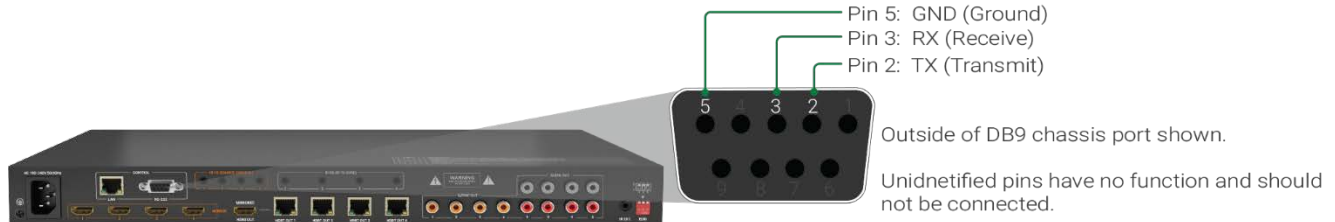
- MX-0404-HDBT-H2A-KIT
- Control System and Control System Documentation.....
- PC or Mac for Configuring Product and Telnet Communications.....
- Network Connection with Network Passwords.....
- Visit the Product Page on WyreStorm.com to download firmware and additional product information.....

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 switcher. 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.



2.2 Serial and IP Settings

Baud rate:	9600
Data Bits:	8bits
Parity:	None
Stop Bits:	1bit
Flow Control:	None
Default IP Address:	192.168.11.143
Default IP Port:	23

3. Command Elements

Command Type: ASCII

Key Words are Case Sensitive

prm = optional parameters

in = Video Input (HDMI/HDBaseT)

out = Video Output (HDMI/HDBaseT)

audio = Audio Output

Command termination requires <CR><LF>

Example: SET AUTOCEC_D *out prm* <CR><LF>

4. Matrix Function Commands

4.1 Audio/Video Output Control

Video Switching

Action	Command	Parameters
Switch Video Input to Output	Command: SET SW <i>in out</i> <CR><LF> Return: SW <i>in# out#</i> <CR><LF> Example: Send Input 2 to Output 4 SET SW <i>in2 out4</i> <CR><LF> Returns: SW <i>in2 out4</i> <CR><LF>	<i>in</i> = {in1~in4} <i>out</i> = {out1~out4, all}
Query Video Input Mapping	Command: GET MP <i>out</i> <CR><LF> Return: MP <i>in# out#</i> <CR><LF> Example: Input 2 sent to Output 4 MP <i>in2</i> <CR><LF> Returns: MP <i>in2 out6</i> <CR><LF>	<i>in</i> = {in1~in4} <i>out</i> = {out1~out4, all}

Audio Switching

Action	Command	Parameters
Switch Audio Input to Output	Command: SET AUDIOSW <i>in out</i> <CR><LF> Return: AUDIOSW <i>in# out#</i> <CR><LF> Example: Send S/PDIF Audio 2 to Audio Out 4 SET AUDIOSW <i>spdif2 audioout4</i> <CR><LF> Returns: AUDIOSW <i>spdif2 audioout4</i> <CR><LF>	<i>in</i> = {hdmi1~hdmi4} <i>out</i> = {audioout1~audioout4, all}
Query Audio Input Mapping	Command: GET AUDIOMP <i>out</i> <CR><LF> Return: AUDIOMP <i>in out</i> <CR><LF> Example: S/PDIF Audio 2 sent to Audio Out 4 AUDIOMP <i>spdif2 audioout4</i> <CR><LF> Returns: AUDIOSW <i>spdif2 audioout4</i> <CR><LF>	<i>in</i> = {hdmi1~hdmi4} <i>out</i> = {audioout1~audioout4, all}
Set Audio Switch Mode	Command: SET AUDIOSW_M <i>prm</i> <CR><LF> Return: AUDIOSW_M <i>prm</i> <CR><LF> Example: Turn on Audio Switch Mode SET AUDIOSW_M <i>on</i> <CR><LF> Returns: AUDIOSW_M <i>on</i> <CR><LF>	<i>prm</i> = {on, off}
Query Audio Switch Mode	Command: GET AUDIOSW_M<CR><LF> Return: AUDIOSW_M <i>prm</i> <CR><LF> Example: Audio Switch Mode is On GET AUDIOSW_M<CR><LF> Returns: AUDIOSW_M <i>on</i> <CR><LF>	<i>prm</i> = {on, off}

Scene Save and Recall

Action	Command	Parameters
Save Preset Scene	Command: SAVE PRESET <i>prm</i> <CR><LF> Return: PRESET <i>prm</i> <CR><LF> Example: Save current audio and video settings to scene 5 SAVE PRESET <i>5</i> <CR><LF> Returns: PRESET <i>5</i> <CR><LF>	<i>prm</i> = {1~3}
Recall Preset Scene	Command: RESTORE PRESET <i>prm</i> <CR><LF> Return: PRESET <i>prm</i> <CR><LF> Example: Recall audio and video settings stored in scene 5. RESTORE PRESET <i>5</i> <CR><LF> Returns: PRESET <i>5</i> <CR><LF>	<i>prm</i> = {1~3}

4.2 Display Power Control

Action	API Command Reference	Parameters
Power Display On/off	Command: SET CEC_PWR <i>out prm</i> <CR><LF> Return: CEC_PWR <i>out prm</i> <CR><LF> Example: Power on display on HDBT Out 1 SET CEC_PWR <i>hdbt1 on</i> <CR><LF> Returns: CEC_PWR <i>hdbt1 on</i> <CR><LF>	<i>prm</i> = {on, off} <i>out</i> = {hdmi1~hdmi4, hdbt1~hdbt4, all} // all includes hdmi1~hdmi4 and hdbt1~hdbt16
Set CEC Power Delay Time	Command: SET AUTOCEC_D <i>out prm</i> <CR><LF> Return: AUTOCEC_D <i>out prm</i> <CR><LF> Example: Set delay time of HDBT 4 to 1 minute SET AUTOCEC_D <i>hdbt5 1</i> <CR><LF> Returns: AUTOCEC_D <i>hdbt5 1</i>	<i>prm</i> = {0~30} // <i>prm</i> numbers are in minutes with default wait time of 2 minutes, entering a 0 will power off the display immediately if there is no active signal.
Query CEC Power Delay Time	Command: GET AUTOCEC_D <i>out prm</i> <CR><LF> Return: AUTOCEC_D <i>out prm</i> <CR><LF> Example: Delay time of display on HDBT 4 set to 1 minute GET AUTOCEC_D <i>hdbt5</i> <CR><LF> Returns: AUTOCEC_D <i>hdbt5 1</i>	<i>prm</i> = {0~30} // <i>prm</i> numbers are in minutes with default wait time of 2 minutes, 0 will power off the display immediately if there is no active signal.


5. Matrix Configuration

5.1 Input/Output Specific Functions

HDCP Configuration

Action	Command	Parameters
Set Input HDCP On/Off	Command: SET HDCP_S <i>in prm</i> <CR><LF> Return: HDCP_S <i>in prm</i> <CR><LF> Example: Turn On HDCP for input 4 SET HDCP_S 5 on<CR><LF> Returns: HDCP_S 4 on<CR><LF>	<i>in</i> = {in1~in4, all} <i>prm</i> = {on, off}
Query Input HDCP Status	Command: GET HDCP_S <i>in</i> <CR><LF> Return: HDCP_S <i>in prm</i> <CR><LF> Example: Query HDCP status for input 4 GET HDCP_S 5<CR><LF> Returns: HDCP_S 4 on<CR><LF>	<i>in</i> = {in1~in4, all} <i>prm</i> = {on, off}

EDID Configuration

Action	Command	Parameters
Note: The following settings require that the rear panel dipswitches are set to Front Panel, Web UI or API EDID Control {000}.		
Query EDID Dip Switch Status	Command: GET EDID_DIP<CR><LF> Return: EDID_DIP <i>prm</i> <CR><LF> Example: Query HDCP dip switch status GET EDID_DIP<CR><LF> Returns: EDID_DIP 7<CR><LF>	<i>prm</i> = {0~7}
Set Input EDID	Command: SET EDID <i>in prm</i> <CR><LF> Return: EDID <i>in prm</i> <CR><LF> Example: Set input 5 to 4K@30 5.1ch HDR SET EDID in5 12<CR><LF> Returns: EDID in5 20<CR><LF>	<i>in</i> = {in1~in4, all} <i>prm</i> = {00~99} 00~04: Copy form output # 10: Fix 4K@60Hz 2.0ch audio with HDR 11: Fix 4K@30Hz 7.1ch audio with HDR 12: Fix 4K@30Hz 5.1ch audio with HDR 13 : Fix 4K@30Hz 2.0ch audio with HDR 14: Fix 4K@30Hz/8bit only 2.0ch audio without HDR 15: Fix 1080P@60Hz 2.0ch audio 20: Smart EDID
Query All Inputs EDID status	Command: GET EDID <i>all</i> <CR><LF> Return: EDID <i>in prm</i> <CR> EDID <i>in prm</i> <CR> ~ EDID <i>in prm</i> <CR><LF> Example: Query HDCP status for all inputs GET EDID all<CR><LF> Returns: EDID in1 10<CR> EDID in2 15<CR> ~ EDID in4 20<CR><LF>	<i>in</i> = {in1~in4, all} <i>prm</i> = {00~99} 00~04: Copy form output # 10: Fix 4K@60Hz 2.0ch audio with HDR 11: Fix 4K@30Hz 7.1ch audio with HDR 12: Fix 4K@30Hz 5.1ch audio with HDR 13 : Fix 4K@30Hz 2.0ch audio with HDR 14: Fix 4K@30Hz/8bit only 2.0ch audio without HDR 15: Fix 1080P@60Hz 2.0ch audio 20: Smart EDID


5.2 Global Matrix Functions

IR System Codes

Action	Command	Parameters
Allows for the use of 4E codes in addition to the standard 00 codes. This should only be used when IR from 3 rd party devices interferes with the operation of the matrix.		
Set IR System Codes	Command: SET IR_SYSCODE <i>prm1</i> <CR><LF> Return: IR_SYSCODE <i>prm1</i> <CR><LF> Example: Set IR Systems codes to 4E. SET IR_SYSCODE 4E<CR><LF> Returns: IR_SYSCODE 4E<CR><LF>	<i>prm1</i> = {00, 4E, all} //all allows the matrix to respond to 00 and 4E code sets. Note that the remote included with the matrix will need to be set to send 4E commands when 4E is selected.

Action	Command	Parameters
Query IR System Codes	Command: GET IR_SYSCODE <CR><LF> Return: IR_SYSCODE <i>prm1</i> <CR><LF> Example: IR System Codes set to 4E GET IR_SYSCODE <CR><LF> Returns: IR_SYSCODE <i>4E</i> <CR><LF>	prm1 = {00, 4E, all} //all allows the matrix to respond to 00 and 4E code sets. Note that the remote included with the matrix will need to be set to send 4E commands when 4E is selected.

5.1 Diagnostic Troubleshooting

 **IMPORTANT!** WyreStorm strongly recommends not including these commands in a control system. Their use can render the matrix in a non-operating state. These commands should only be used for troubleshooting purposes by a qualified technician.

Action	Command	Parameters
System Reboot	Command: REBOOT<CR><LF> Return: REBOOT<CR><LF> Example: REBOOT to factory defaults REBOOT<CR><LF> Returns: REBOOT<CR><LF>	None
Factory Reset	Command: RESET<CR><LF> Return: RESET<CR><LF> Example: Reset to factory defaults RESET<CR><LF> Returns: RESET<CR><LF>	None

6. Contacting Technical Support

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

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

Email: Support@WyreStorm.com

On Line Chat (Accessible through website): <http://WyreStorm.com/Contact-Tech-Support>

7. Revision History

V1.1- 170710 - July 2017

Section	Update
2.2 Serial and IP Settings	Updated baud rate to 9600

v1 - 170627 - June 2017

Section	Update
All	Original Release

Publication Disclaimer

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