



H2X/H2XC Matrix Switcher API

MX-1010-HDBT-H2X | MX-1616-HDBT-H2X | MX-1010-H2XC | MX-1616-H2XC

Application Programming Interface

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Supported Firmware:	10x10 Main Board FW v1.3 16x16 Main Board FW v1.4

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1. Overview

The following document contains the Application Program Interface (API) commands to control an H2X 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.

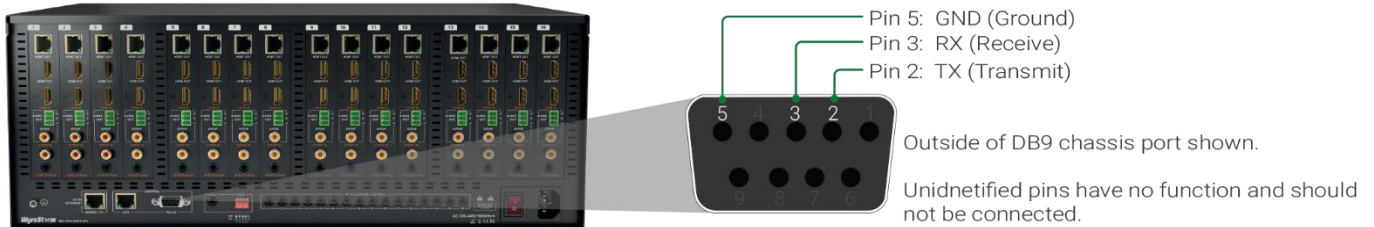
- An H2X or H2XC Matrix
MX-1010-HDBT-H2X | MX-1616-HDBT-H2X | MX-1010-H2XC | MX-1616-H2XC
- Control System and Control System Documentation
- PC or Mac for Configuring Product and Telnet Communications
- Network Connection with Network Passwords
- Visit the Product Page on WyreStorm.com to download firmware 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:	57600
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)
- aout = 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	SET SW <i>in out</i> <CR><LF> Response: SW <i>in# out#</i> <CR><LF> Example: Send Input 2 to Output 6 SET SW <i>in2 out6</i> <CR><LF> Returns: SW <i>in2 out6</i> <CR><LF>	<i>in</i> = {in1~in16} <i>out</i> = {out1~out16, all}
Query Video Input Mapping	GET MP <i>out</i> <CR><LF> Response: MP <i>in# out#</i> <CR><LF> Example: Input 2 sent to Output 6 MP <i>in2</i> <CR><LF> Returns: MP <i>in2 out6</i> <CR><LF>	<i>in</i> = {in1~in16} <i>out</i> = {out1~out16, all}

Audio Switching

Action	Command	Parameters
Configure Audio Switch Mode	SET AUDIOSW_M prm<CR><LF> Response: AUDIOSW_M prm<CR><LF> Example: Have Audio independent from video SET AUDIOSW_M on<CR><LF> Response: AUDIOSW_M on<CR><LF>	prm={on off} On: Audio independent from video Off: Audio follows video
Query Audio Switch Mode	GET AUDIOSW_M prm<CR><LF> Response: AUDIOSW_M prm<CR><LF> Example: Have Audio independent from video GET AUDIOSW_M on<CR><LF> Response: AUDIOSW_M on<CR><LF>	Prm={on off} On: Audio independent from video Off: Audio follows video
Switch Audio Input to Output	SET AUDIOSW <i>in out</i> <CR><LF> Response: AUDIOSW <i>in# out#</i> <CR><LF> Example: Send S/PDIF Audio 2 to Audio Out 6 SET AUDIOSW <i>spdif2 audioout6</i> <CR><LF> Returns: AUDIOSW <i>spdif2 audioout6</i> <CR><LF>	<i>in</i> = {hdmi1~hdmi16, spdif1~spdif16, arc1~arc16} <i>out</i> = {audioout1~audioout16, all}
Query Audio Input Mapping	GET AUDIOMP <i>out</i> <CR><LF> Response: AUDIOMP <i>in out</i> <CR><LF> Example: S/PDIF Audio 2 sent to Audio Out 6 AUDIOMP <i>spdif2 audioout6</i> <CR><LF> Returns: AUDIOSW <i>spdif2 audioout6</i> <CR><LF>	<i>in</i> = {hdmi1~hdmi16, spdif1~spdif16, arc1~arc16} <i>out</i> = {audioout1~audioout16, all}

Audio Output Volume Control

Action	Command	Parameters
Set Output Gain Level	SET VOLGAIN_DATA <i>aout prm</i> <CR><LF> Response: VOLGAIN_DATA <i>aout prm</i> <CR><LF> Example: Set volume of audio out 10 to -4 SET VOLGAIN_DATA <i>audioout10 -4</i> <CR><LF> Returns: VOLGAIN_DATA <i>audioout10 -5</i> <CR><LF>	<i>aout</i> = {audioout1~audioout16, all} H2X 10x10 Main Board FW below v1.3 H2X 16x16 Main Board FW below v1.4 prm = {-10~10} // -10 = -10dB, 10 = 10dB, default value is 0 dB. H2X and H2XC 10x10 Main Board FW v1.3 or higher H2X and H2XC 16x16 Main Board FW v1.4 or higher prm = {-80~0} //Values in 2db increments

Action	Command	Parameters
Query Current Output Gain	GET VOLGAIN_DATA aout <CR><LF> Response: VOLGAIN_DATA aout prm <CR><LF> Example: Volume of audio out10 set to -5 VOLGAIN_DATA audioout10 <CR><LF> Returns: VOLGAIN_DATA audioout10 -5 <CR><LF>	aout = {audioout1~audioout16, all} 10x10 Main Board FW below v1.3 16x16 Main Board FW below v1.4 prm = {-10~10} // -10 = -10dB, 10 = 10dB, default value is 0 dB. 10x10 Main Board FW v1.3 or higher 16x16 Main Board FW v1.4 or higher prm = {-80~0} //Values in 2db increments
Mute Audio	SET MUTE aout prm <CR><LF> Response: MUTE aout prm <CR><LF> Example: Mute audio out 10 SET MUTE audioout10 on <CR><LF> Returns: MUTE audioout10 on <CR><LF>	aout = {spdifout1~spdifout16, audioout1~audioout16, all} prm = {on, off} // on means mute; off means unmute.
Query Current Audio Mute State	GET MUTE aout <CR><LF> Response: MUTE AOUT prm <CR><LF> Example: Audio out 10 is muted MUTE audioout10 <CR><LF> Returns: MUTE audioout10 on <CR><LF>	aout = {spdifout1~spdifout16, audioout1~audioout16, all} prm = {on, off} // on means mute; off means unmute.
The following commands require 10x10 Main Board FW v1.3 or higher or 16x16 Main Board FW v1.4 or higher		
Set Audio Out Level as Fixed or Variable	SET VOLGAIN_FIX aout prm <CR><LF> Response: VOLGAIN_FIX aout prm <CR><LF> Example: Set audio output as fixed. SET VOLGAIN_FIX audioout16 on <CR><LF>	aout = {audioout1~audioout16, all} prm = {on off} On: Audio output level is fixed Off: Audio output level is variable
Query Audio Out Level Setting	GET VOLGAIN_FIX aout prm <CR><LF> Response: VOLGAIN_FIX aout prm <CR><LF> Example: Set audio output as fixed. GET VOLGAIN_FIX audioout16 on <CR><LF>	aout = {audioout1~audioout16, all} prm = {on off} On: Audio output level is fixed Off: Audio output level is variable
Set Attenuation Method for Mute	SET MUTE_M aout prm <CR><LF> Response: MUTE_M aout prm <CR><LF> Example: Set mute to ramp down to mute level. SET MUTE_M audioout16 ramp <CR><LF>	aout = {audioout1~audioout16, all} prm = {cut ramp} Cut: Audio output goes directly to mute level Ramp: Audio output ramps to mute level
Increase Volume Output Level	SET VOLGAIN_INC aout <CR><LF> Response: VOLGAIN_INC aout prm <CR><LF> Example: Increase volume level of audio out 16. SET VOLGAIN_INC audioout16 <CR><LF> Example Response: VOLGAIN_INC audioout16 - 2 <CR><LF>	aout = {audioout1~audioout16, all} prm = {-80~0} // Steps are 2db by default. Refer to Configure Step Length of Volume Increase/Decrease
Decrease Volume Output Level	SET VOLGAIN_DEC aout <CR><LF> Response: VOLGAIN_DEC aout prm <CR><LF> Example: Decrease volume level of audio out 16. SET VOLGAIN_DEC audioout16 <CR><LF> Example Response: VOLGAIN_DEC audioout16 - 2 <CR><LF>	aout = {audioout1~audioout16, all} prm = {-80~0} //Steps are 2db by default. Refer to Configure Step Length of Volume Increase/Decrease .
Configure Step Length of Volume Increase/Decrease	SET VOLGAIN_STEP aout prm <CR><LF> Response: VOLGAIN_STEP aout prm <CR><LF> Example: Configure volume increase/decrease step to 2. SET VOLGAIN_DEC audioout16 <CR><LF> Example Response: VOLGAIN_DEC audioout16 - 2 <CR><LF>	aout = {audioout1~audioout16, all} prm = {2 4 8}
Query Step Length of Volume Increase/Decrease	GET VOLGAIN_STEP aout prm <CR><LF> Response: VOLGAIN_STEP aout prm <CR><LF> Example: Configure volume increase/decrease step to 2. GET VOLGAIN_DEC audioout16 <CR><LF> Example Response: VOLGAIN_DEC audioout16 - 2 <CR><LF>	aout = {audioout1~audioout16, all} prm = {2 4 8}

Action	Command	Parameters
Set the Output Mute Method	SET MUTE_M ayout prm <CR><LF> Response: MUTE_M ayout prm <CR><LF> Example: Configure to ramp down. SET MUTE_M audioout16 ramp <CR><LF> Example Response: MUTE_M audioout16 ramp <CR><LF>	aout = {audioout1~audioout16, all} prm = {cut ramp}
Query Output Mute Method	GET MUTE_M ayout <CR><LF> Response: MUTE_M ayout prm <CR><LF> Example: Configure to ramp down. GET MUTE_M audioout16 <CR><LF> Example Response: MUTE_M audioout16 ramp <CR><LF>	aout = {audioout1~audioout16, all} prm = {cut ramp}

Audio Delay Configuration

Action	Command	Parameters
Set Audio Output Delay Time	SET AUDIO_D ayout prm <CR><LF> Response: AUDIO_D ayout prm <CR><LF> Example: Set Audio Out 10 to 50ms AUDIO_D audioout10 50 <CR><LF> Returns: AUDIO_D audioout10 50	ayout = {audioout1~audioout16, all} prm = {0~500} // prm numbers are in milliseconds (ms) with default wait time of 2 minutes, entering a 0 will set no delay.
Query Audio Output Delay Time	GET AUDIO_D ayout <CR><LF> Response: AUDIO_D ayout prm <CR><LF> Example: Query delay on Audio Out 10 GET AUDIO_D audioout10 <CR><LF> Returns: AUDIO_D audioout10 50	ayout = {audioout1~audioout16, all} prm = {0~500} // prm numbers are in milliseconds (ms) with default wait time of 2 minutes, entering a 0 will set no delay.

Audio Output EQ

Action	Command	Parameters
Enable EQ	SET EQ_FN ayout prm <CR><LF> Response: EQ_FN ayout prm <CR><LF> Example: Enable EQ on Audio Out 10 SET EQ_FN audioout10 on <CR><LF> Returns: EQ_FN audioout10 on <CR><LF>	ayout = {audioout1~audioout16, all} prm = {on, off}; // on means enable, off means bypassed.
Query EQ Function Status (On/Off)	GET EQ_FN ayout <CR><LF> Response: EQ_FN ayout <CR><LF> Example: EQ on Audio Out 10 is enabled GET EQ_FN audioout10 <CR><LF> Returns: EQ_FN audioout10 on <CR><LF>	ayout = {audioout1, audioout2,...audioout16, all} prm = {on, off} // on means enabled, off means bypassed.
Set Audio Out EQ Level	SET AUDIO_EQ out freq gain <CR><LF> Response: AUDIO_EQ out freq gain <CR><LF> Example: EQ frequency 500 on Audio Out 10 to 5db SET AUDIO_EQ audioout10 500 5 <CR><LF> Returns: AUDIO_EQ audioout10 500 5 <CR><LF>	ayout = {audioout1~audioout16, all} freq = {31, 62, 125, 250, 500, 2000, 4000, 8000, 16000} // frequencies are in Hz, 62=62Hz, 8000=8kHz gain={-10~10} // gain is in db, -10=-10db, 10=10db
Query Audio Out EQ Level	GET AUDIO_EQ out freq <CR><LF> Response: AUDIO_EQ out freq gain <CR><LF> Example: Query EQ frequency and gain of Audio Out 10 GET AUDIO_EQ audioout10 <CR><LF> Returns: AUDIO_EQ audioout10 500 5 <CR><LF>	ayout = {audioout1~audioout16, all} freq = {31, 62, 125, 250, 500, 2000, 4000, 8000, 16000} // frequencies are in Hz, 62=62Hz, 8000=8kHz gain={-10~10} // gain is in db, -10=-10db, 10=10db

Scene Save and Recall

Action	Command	Parameters
Save Video Scene	10x10 Main Board FW below v1.3 16x16 Main Board FW below v1.4 SAVE PRESET_V prm <CR><LF> Response: PRESET_V prm <CR><LF> Example: Save current audio and video settings to scene 5 SAVE PRESET_V 5 <CR><LF> Returns: PRESET_V 5 <CR><LF>	prm = {1~20}
Recall Video Scene	10x10 Main Board FW below v1.3 16x16 Main Board FW below v1.4 SAVE PRESET_V prm <CR><LF> Response: PRESET_V prm <CR><LF> Example: Save current audio and video settings to scene 5 SAVE PRESET_V 5 <CR><LF> Returns: PRESET_V 5 <CR><LF> RESTORE PRESET_V prm <CR><LF> Response: PRESET_V prm <CR><LF> Example: Recall audio and video settings stored in scene 5. RESTORE PRESET_V 5 <CR><LF> Returns: PRESET_V 5 <CR><LF>	prm = {1~20}

Action	Command	Parameters
The following commands require 10x10 Main Board FW v1.3 or higher or 16x16 Main Board FW v1.4 or higher		
Save Audio Scene	SAVE PRESET_A <i>prm</i> <CR><LF> Response: PRESET_A <i>prm</i> <CR><LF> Example: Save current audio and video settings to scene 5 SAVE PRESET_A 5 <CR><LF> Returns: PRESET_A 5 <CR><LF>	prm = {1~20}
Recall Audio Scene	RESTORE PRESET_A <i>prm</i> <CR><LF> Response: PRESET_A <i>prm</i> <CR><LF> Example: RESTORE current audio and video settings to scene 5 RESTORE PRESET_A 5 <CR><LF> Returns: PRESET_A 5 <CR><LF>	prm = {1~20}

4.2 Display Power Control

Action	API Command Reference	Parameters
Power Display On/off	SET CEC_PWR <i>out prm</i> <CR><LF> Response: CEC_PWR <i>out prm</i> <CR><LF> Example: Power on display on HDBT Out 10 SET CEC_PWR hdbtout10 on <CR><LF> Returns: CEC_PWR hdbt10 on <CR><LF>	prm = {on, off} out = {hdmiout1~hdmiout16, hdbtout1~hdbtout16, all} // all includes hdmiout1~hdmiout16 and hdbtout1~hdbtout16
Query CEC Power Status	GET CEC_PWR <i>out</i> <CR><LF> Response: CEC_PWR <i>out prm</i> <CR><LF> Example: Display on HDBT Out 10 is On GET CEC_PWR hdbtout10 <CR><LF> Returns: CEC_PWR hdbt10 on <CR><LF>	prm = {on, off} out = {hdmiout1~hdmiout16, hdbtout1~hdbtout16, all} // all includes hdmiout1~hdmiout16 and hdbtout1~hdbtout16
Set CEC Power Delay Time	SET AUTOCEC_D <i>out prm</i> <CR><LF> Response: AUTOCEC_D <i>out prm</i> <CR><LF> Example: Set delay time of HDBT 5 to 1 minute SET AUTOCEC_D hdbt5 1 <CR><LF> Returns: AUTOCEC_D hdbt5 1	prm = {0~30} // prm 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	GET AUTOCEC_D <i>out prm</i> <CR><LF> Response: AUTOCEC_D <i>out prm</i> <CR><LF> Example: Delay time of display on HDBT 5 set to 1 minute GET AUTOCEC_D hdbt5 <CR><LF> Returns: AUTOCEC_D hdbt5 1	prm = {0~30} // prm numbers are in minutes with default wait time of 2 minutes, 0 will power off the display immediately if there is no active signal.

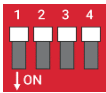
5. Matrix Configuration

5.1 Input/Output Specific Functions

HDCP Configuration

Action	Command	Parameters
Set Input HDCP On/Off	SET HDCP_S <i>in prm</i> <CR><LF> Response: HDCP_S <i>in prm</i> <CR><LF> Example: Turn On HDCP for input 5 SET HDCP_S 5 on <CR><LF> Returns: HDCP_S 5 on <CR><LF>	in = {in1~in16, all} prm = {on, off}
Query Input HDCP Status	GET HDCP_S <i>in</i> <CR><LF> Response: HDCP_S <i>in prm</i> <CR><LF> Example: Query HDCP status for input 5 GET HDCP_S 5 <CR><LF> Returns: HDCP_S 5 on <CR><LF>	in = {in1~in16, all} prm = {on, off}

EDID Configuration

Action	Command	Parameters
<p>Note: The following settings require that the rear panel dipswitches are set to Front Panel, Web UI or API EDID Control {0000}.</p> 		
Query EDID Dip Switch Status	GET EDID_DIP<CR><LF> Response: EDID_DIP <i>prm</i> <CR><LF> Example: Query HDCP dip switch status GET EDID_DIP<CR><LF> Returns: EDID_DIP 10 <CR><LF>	prm = {0~15}
Set Input EDID	SET EDID <i>in prm</i> <CR><LF> Response: EDID <i>in prm</i> <CR><LF> Example: Set input 5 to 4K@30 5.1ch HDR SET EDID in5 23 <CR><LF> Returns: EDID in5 23 <CR><LF>	in = {in1~in16, all} prm = {See EDID Parameter Table. }
Query All Inputs EDID status	GET EDID <i>all</i> <CR><LF> Response: 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 22 <CR> EDID in2 16 <CR> ~ EDID in16 23 <CR><LF>	in = {in1~in16, all} prm = {See EDID Parameter Table. }

EDID Parameter Table

Function	Code
Copy form output #	00~15
Fix 1080P 2ch	16
Fix 1080P 5.1	17
Fix 1080P 7.1	18
Fix 4K@30 2ch 8bit	19
Fix 4K@30 5.1	20
Fix 4K@30 7.1	21
Fix 4K@30 2ch HDR	22
Fix 4K@30 5.1ch HDR	23
Fix 4K@30 7.1ch HDR	24
Fix 4K@60 2ch	25
Fix 4K@60 5.1	26
Fix 4K@60 7.1	27
Fix 1920x1200 2ch	28
Fix 1920x1200 with no audio	29
Smart EDID	30
EDID Write	31

5.2 Global Matrix Functions

IR Call Back Enable/Disable

Action	Command	Parameters
Set IR Call Back Control	SET IRBACK_FN prm <CR><LF> Response: IRBACK_FN prm <CR><LF> Example: Turn On IR Call Back SET IRBACK_FN on <CR><LF> Returns: IRBACK_FN on <CR><LF>	prm = {on, off}
Query IR Call Back Status	GET IRBACK_FN <CR><LF> Response: IRBACK_FN prm <CR><LF> Example: IR Call Back is On GET IRBACK_FN <CR><LF> Returns: IRBACK_FN on <CR><LF>	prm = {on, off}

Long Reach Cable Mode

Action	Command	Parameters
Used to extend the reach of HDBT when problems occur on longer cable runs.		
Set Long Reach mode on/off	SET LR_FN prm1 prm2 <CR><LF> Response: LR_FN prm1 prm2 <CR><LF> Example: Turn on Long Reach Mode SET LR_FN hdbtall on <CR><LF> Returns: LR_FN hdbtall on <CR><LF>	prm1 = {hdbtall} prm2 = {on, off}
Query Long Reach mode status	GET LR_FN prm1 <CR><LF> Response: LR_FN prm1 prm2 <CR><LF> Example: Long Reach Mode is On GET LR_FN hdbtall <CR><LF> Returns: LR_FN hdbtall on <CR><LF>	prm1 = {hdbtall} prm2 = {on, off}

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	SET IR_SYSCODE prm1 <CR><LF> Response: IR_SYSCODE prm1 <CR><LF> Example: Set IR Systems codes to 4E. SET IR_SYSCODE 4E <CR><LF> Returns: IR_SYSCODE 4E <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.
Query IR System Codes	GET IR_SYSCODE <CR><LF> Response: IR_SYSCODE prm1 <CR><LF> Example: IR System Codes set to 4E GET IR_SYSCODE <CR><LF> Returns: IR_SYSCODE 4E <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.

Matrix Switching Mode

Action	Command	Parameters
Allows for adjust of the switching time between input selection and when the image appears on the display. This should only be used if there is an issue with the operation of matrix switching.		
Set Matrix Switching Mode	SET SW_M prm <CR><LF> Response: SW_M prm <CR><LF> Example: Set switching mode to normal. SET SW_M normal <CR><LF> Returns: SW_M normal <CR><LF>	prm = {normal, quick}

Action	Command	Parameters
Query Matrix Switching Mode	GET SW_M <CR><LF> Response: SW_M prm <CR><LF> Example: Switching Mode set to normal. GET SW_M <CR><LF> Returns: SW_M normal <CR><LF>	prm = {normal, quick}

AVR Priority Mode (Theater Zone Locking)

Action	Command	Parameters
Allows for setting AVR Priority mode remotely when an AVR is connected to the matrix in a particular zone.		
Set AVR Priority Mode for an output.	SET ZONE_LOCK out prm <CR><LF> Response: ZONE_LOCK out prm <CR><LF> Example: Turn on AVR priority mode for output 10. SET ZONE_LOCK hdbt10 on <CR><LF> Returns: ZONE_LOCK hdbt10 on <CR><LF>	Prm1 = {hdmiout1~hdmiout16, hdbtout1~hdbtout16, all} Prm2 = {on, off}
Query AVR Priority Mode status for an output.	GET ZONE_LOCK out <CR><LF> Response: ZONE_LOCK out prm <CR><LF> Example: AVR priority mode for output 10 is On. SET ZONE_LOCK hdbt10 <CR><LF> Returns: ZONE_LOCK hdbt10 on <CR><LF>	Prm1 = {hdmiout1~hdmiout16, hdbtout1~hdbtout16, all} Prm2 = {on, off}

Source Zone Lockout

Action	Command	Parameters
Allows for selecting a source to be accessible within a particular zone.		
Note: The parameters listed will set a single, odd numbered, even numbered, or all sources to be available in a particular zone. To create strings for custom configurations, use the H2X Source Lockout Command Calculator .		
Select Sources a Zone Can Access	SET ZONE_R out prm <CR><LF> Response: ZONE_R out prm <CR><LF> Example: Select odd number sources for out 10. SET ZONE_R out10 AAAA <CR><LF> Returns: ZONE_R out10 AAAA <CR><LF>	Out = {out1~16, all} Prm = {See Source Zone Lockout Parameter Table }
Query Sources a Zone Can access	GET ZONE_R out <CR><LF> Response: ZONE_R out prm <CR><LF> Example: .Query sources available to zone 10. GET ZONE_R out10 <CR><LF> Returns: ZONE_R out10 0100 <CR><LF>	Out = {out1~16, all} Prm = {See Source Zone Lockout Parameter Table }

Source Zone Lockout Parameter Table

Source	Parameter
In1	0001
In2	0002
In3	0004
In4	0008
In5	0010
In6	0020
In7	0040
In8	0080
In9	0100
In10	0200
In11	0400
In12	0800
In13	1000
In14	2000
In15	4000
in16	8000
In1~In5	001F
In6~In10	03E0
In1~in8	00FF
In9~in16	FF00
Odd Numbered 10x10	0155
Odd Numbered 16x16	AAAA
Even Numbered 10x10	02AA
Even Numbered 16x16	5555
All 10x10	03FF
All 16x16	FFFF

6. Controlling Remote Devices over HDBaseT

The H2X matrices have the ability to route commands to control devices in remote zones via HDBaseT. These commands require a syntax in order to first tell the matrix that it is talking to a remote device and what the devices baud rate is.

6.1 Routing Command Syntax

Commands for control remote devices must be sent in the following syntax.

[Header] [Card #] [Baud Rate] [Length of Command] [Device Command]

Header=05 55 55 57

Card #=Card slot # on matrix. Note that HDBaseT output cards have different values than HDBaseT cards for the Card #. Refer to [6.2 Card Slot Values](#) for list of values.

Baud Rate=Baud Rate of the connected device to be controlled. Refer to [6.3 Baud Rate Values](#) for a list of values.

Parity=Parity bit of device being controlled. Refer to [6.4 Parity Values](#) for a list of values.

Length of Command=Length in bytes of the connected device command. Refer to [6.1 Command Length HEX](#) for a list of values.

Device Command=Command to be sent in HEX to control the device. ASCII commands must be converted to HEX.

Example Command – HDBaseT Out Card

Header	05 55 55 57
Card	HDBaseT Output in slot 2
Baud Rate	Device Baud Rate is 9600
Parity	Parity for device being controlled.
Length of Command	05 (5 bytes)
Device Command	62 67 20 0D 0A
Full Command	05 55 55 57 02 06 05 62 67 20 0D 0A

6.2 Card Slot Values

Card #	Value
Output to Zone	
1	01
2	02
3	03
4	04
5	05
6	06
7	07
8	08
9	09
10	0a
11	0b
12	0c
13	0d
14	0e
15	0f
16	10

Card #	Value
Input from Zone (HDBT In Card TX-H2X-HDBT)	
1	11
2	12
3	13
4	14
5	15
6	16
7	17
8	18
9	19
10	1a
11	1b
12	1c
13	1d
14	1e
15	1f
16	20

6.3 Baud Rate Values

The baud rate for the device must be sent as a HEX value in order for the command to be sent.

Baud Rate	Value
110	00
300	01
600	02
1200	03
2400	04
4800	05
9600	06
14400	07
19200	08
38400	09
56000	0A
57600	0B
115200	0C

6.4 Parity Values

Parity Bit	Value
None	00
ODD	01
Even	02
Mark	03
Space	04

6.1 Command Length HEX

Length (# of Bytes)	HEX Value
1	01
2	02
3	03
4	04
5	05
6	06
7	07
8	08
9	09
10	0A
11	0B
12	0C
13	0D
14	0E
15	0F
16	10
17	11
18	12
19	13
20	14

Length (# of Bytes)	HEX Value
21	15
22	16
23	17
24	18
25	19
26	1A
27	1B
28	1C
29	1D
30	1E
31	1F
32	20
33	21
34	22
35	23
36	24
37	25
38	26
39	27
40	28

7. Diagnostic Troubleshooting

Cable Connections and Link Quality

Action	Command	Parameters
Query Input Cable Connection Status	GET CABLEC_IN <i>prm1</i> <CR><LF> Response: CABLEC_IN <i>prm1 prm2</i> <CR><LF> Example: Cable for input 1 is connected. GET CABLEC_IN <i>in1</i> <CR><LF> Returns: CABLEC_IN <i>in1 good</i> <CR><LF>	Prm1 = {in1~in16, all} Prm2 = {connected, not connected}
Query Output Cable Connection Status	GET CABLEC_OUT <i>prm1</i> <CR><LF> Response: CABLEC_OUT <i>prm1 prm2</i> <CR><LF> Example: HDBaseT cable for output 10 is connected. GET CABLEC_OUT <i>hdout10</i> <CR><LF> Returns: CABLEC_OUT <i>in10 connected</i> <CR><LF>	Prm1 = {hdmiout1~hdmiout16, hdbtout1~hdbtout16, all} Prm2 = {connected, not connected}
Query HDBaseT Input Link Quality	GET HDBTL_IN <i>prm1</i> <CR><LF> Response: HDBTL_IN <i>prm1 prm2</i> <CR><LF> Example: HDBaseT link quality is 80% for input 10. GET HDBTL_IN <i>hdbtin10</i> <CR><LF> Returns: HDBTL_IN <i>hdbtin10 8</i> <CR><LF>	Prm1 = { hdbtin1~hdbtin16, all} Prm2 = {1~10, no link}
Query HDBaseT Output Link Quality	GET HDBTL_OUT <i>prm1</i> <CR><LF> Response: HDBTL_OUT <i>prm1 prm2</i> <CR><LF> Example: HDBaseT link quality is 80% for output 10. GET HDBTL_OUT <i>hdbtout10</i> <CR><LF> Returns: HDBTL_OUT <i>hdbtout10 8</i> <CR><LF>	Prm1 = { hdbtout1~hdbtout16, all} Prm2 = {1~10, no link}

Matrix Card and Internal Component Status

Action	Command	Parameters
Query Card Connection Status	GET CARD_C <i>prm1</i> <CR><LF> Response: CARD_C <i>prm1 prm2</i> <CR><LF> Example: Card in slot 10 connected. GET CARD_C <i>10</i> <CR><LF> Returns: CARD_C <i>slot10 connected</i> <CR><LF>	Prm1 = {Slot1~slot16, all} Prm2 = {connected, not connected}
Query Card Type	GET CARD_T <i>prm1</i> <CR><LF> Response: CARD_T <i>prm1 prm2</i> <CR><LF> Example: Card in slot 10 is HDBaseT. GET CARD_T <i>10</i> <CR><LF> Returns: CARD_T <i>slot10 hdbt</i> <CR><LF>	Prm1 = {Slot1~slot16, all} Prm2 = {hdmi,hdbt}
Query Card Communication Status With Motherboard	GET CARD_COM <i>prm1</i> <CR><LF> Response: CARD_COM <i>prm1 prm2</i> <CR><LF> Example: Card in slot 10 is communicating with the motherboard. GET CARD_COM <i>10</i> <CR><LF> Returns: CARD_COM <i>slot10 good</i> <CR><LF>	Prm1 = {slot1~slot16, all} Prm2 = {good, none}
Query Board/Card Status	GET CARD_S <i>prm1</i> <CR><LF> Response: CARD_S <i>prm1 prm2</i> <CR><LF> Example: Card in slot 10 is functioning properly. GET CARD_S <i>10</i> <CR><LF> Returns: CARD_S <i>slot10 good</i> <CR><LF>	Prm1 = {mainboard, card1~card16, all} Prm2 = {good, none}
Query Fan Status	GET FANS <i>prm1</i> <CR><LF> Response: FANS <i>prm1 prm2</i> <CR><LF> Example: HDBaseT link quality is 80% for output 10. GET FANS <i>hdbtout10</i> <CR><LF> Returns: FANS <i>hdbtout10 8</i> <CR><LF>	Prm1 = { fan1~fan4, all} Prm2 = {working, unworking}

Rebooting and Restoring Defaults

Action	Command	Parameters
Reboot the Matrix	REBOOT prm<CR><LF> Response: REBOOT prm<CR><LF> Example: Reboot entire matrix. REBOOT all<CR><LF> Returns: REBOOT all <CR><LF>	Prm = {all mainboard, ledboard, card1~card16}
Restore Factory Defaults	RESET<CR><LF> Response: RESET<CR><LF> Example: Restore factory defaults. RESET<CR><LF> Returns: RESET<CR><LF>	None

8. 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>

9. Document Revision History

Section	Update
V3.0 – 181023 – October 2018	
Updated Commands for 10x10 Main Board FW v1.3 and 16x16 Main Board FW v1.4 under Audio Output Volume Control	<ul style="list-style-type: none">• Set Output Gain Level• Query Current Output Gain
Added Commands for 10x10 Main Board FW v1.3 and 16x16 Main Board FW v1.4 under Audio Output Volume Control	<ul style="list-style-type: none">• Set Audio Out Level as Fixed or Variable• Query Audio Out Level Setting• Set Attenuation Method for Mute• Increase Volume Output Level• Decrease Volume Output Level• Configure Step Length of Volume Increase/Decrease• Query Step Length of Volume Increase/Decrease• Set the Output Mute Method• Query Output Mute Method
Updated Commands for 10x10 Main Board FW v1.3 and 16x16 Main Board FW v1.4 under Scene Save and Recall	<ul style="list-style-type: none">• Save Video Scene• Recall Video Scene
Added Commands for 10x10 Main Board FW v1.3 and 16x16 Main Board FW v1.4 under Audio Output Volume Control	<ul style="list-style-type: none">• Save Audio Scene• Recall Audio Scene
Controlling Remote Devices over HDBaseT	Updated to reflect missing parity section of syntax.
V2.0 - 180620 – June 2018	
Controlling Remote Devices over HDBaseT	Added section to cover routing commands over HDBaseT to remote receivers.
v1.4 - 180425 – April 2018	
Rebooting and Restoring Defaults	Added section with commands.
Cover	Added H2XC to cover as supported products
v1.3 - 180129 – January 2018	
Display power Control	Corrected example for Power Display On/off (CEC Power)
v1.1 - 171020 - October 2017	
Zone Source Lockout	Added
v1 - 170606 - June 2017	
All	Original Release

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