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## Application Programming Interface

Product Model	SW-740-TX
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# 1. Overview

The following contains the connection info and commands to control the SW-740-TX HDBaseT switcher. By following the content contained in this document the switcher can be controlled and configured via a 3<sup>rd</sup> party IP or RS-232 control system.

## 1.1 Before You Begin

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

- |  |                          |
|--|--------------------------|
| Connected and operational SW-740-TX.....             | <input type="checkbox"/> |
| Control System and Control System Documentation..... | <input type="checkbox"/> |
| PC or Mac for Configuring Product.....               | <input type="checkbox"/> |

## 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 LAN Connection

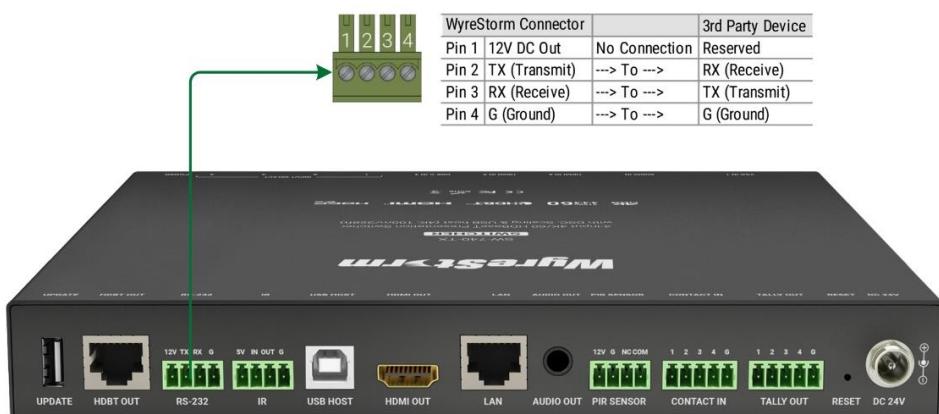
The SW-740-TX is set to acquire an IP address from a DHCP server by default. Connect the switcher to your network and either check your DHCP server client list or perform a network scan to find the IP address.

#### Connection Settings

Protocol	Telnet
Port	23

### 2.2 RS-232 Connection

The following wiring diagram shows the pinout 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 connect connections can be made.



#### RS-232 Port Settings

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

## 3. Command Overview

### 3.1 Command Delimiter for Sent Commands

When sending commands using the RS-232 API channel, all command lines sent from the 3rd-party controller to the switcher should end with a specific character. This signifies when the command is processed by the switcher. 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. Controlling Matrix Switching

### 4.1 Switching Inputs

#### Switching Video Inputs

Command structure:

**SET SW <INPUT> all**

Response Syntax:

**SW <INPUT> all**

Example Command:

**SET SW in1**

Example Response:

**SW in2 all**

<INPUT> = in1 ~ in4

in1 (VGA)

in2 (HDMI 1)

in3 (HDMI 2)

in4 (USBC)

#### Query Active Input

Command structure:

**GET MP all**

Response Syntax:

**MP <INPUT> all**

Example Command:

**GET MP all**

Example Response:

**MP in1 all**

<INPUT> = on | off

#### Set Auto-Switch Mode

Command structure:

**SET AUTOSW\_FN <PRM>**

Response Syntax:

**AUTOSW\_FN <PRM>**

Example Command:

**SET AUTOSW\_FN on**

Example Response:

**AUTOSW\_FN on**

## 5. Controlling Display Power via CEC

### CEC Display Power

Command structure:

**SET CEC\_PWR <PRM>**

Response Syntax:

**CEC\_PWR <PRM>**

<PRM> = on | off

Example Command:

**SET CEC\_PWR on**

Example Response:

**CEC\_PWR on**

This command uses the default and most commonly used CEC one-touch-play power commands. If you are having issues with these commands working with a display, use the custom CEC command below.

### Send Custom CEC Commands

Command structure:

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

<OUTPUT> = out1 | out2

OUT1 (HDMI)

OUT2 (HDBT)

Response Syntax:

**CEC\_CMD <OUTPUT> <PRM>**

Example Command:

**SET CEC\_CMD out1 e0 04**

<PRM> = Hexadecimal CEC value for your display

Example Response:

**CEC\_CMD out1 e0 04**

### Set CEC Auto Power Mode

Command structure:

**SET AUTOCEC\_FN <PRM>**

<PRM> = on | off

Response Syntax:

**AUTOCEC\_FN <PRM>**

Example Command:

**SET AUTOCEC\_FN on**

Example Response:

**AUTOCEC\_FN on**

The switcher can automatically send a CEC Power On command through its output when an 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**

Response Syntax:

**AUTOCEC\_FN <PRM>**

Example Command:

**GET AUTOCEC\_FN**

Example Response:

**AUTOCEC\_FN on**

## Set CEC Auto Power Off Delay

Command structure:

**SET AUTOCEC\_D <PRM>**

Response Syntax:

**AUTOCEC\_D <PRM>**

<PRM> = 1~30

Example Command:

**SET AUTOCEC\_D 5**

Example Response:

**AUTOCEC\_D 5**

<PRM> is in minutes. A value of 5 is equal to a 5-minute delay.

## Query CEC Auto Power Off Delay

Command structure:

**GET AUTOCEC\_D**

Response Syntax:

**AUTOCEC\_D <PRM>**

Example Command:

**GET AUTOCEC\_D**

Example Response:

**AUTOCEC\_D 5**

<PRM> is in minutes. A value of 5 is equal to a 5-minute delay.

## 6. Serial Passthrough over HDBT

### Routing a Serial Command

Command structure:

**<HEADER> <OUTPUT> <BAUDRATE> <PARITY> <BITS> <COMMAND>**

Response Syntax:

**<COMMAND>**

Example Command:

**05 55 55 57 01 06 00 05 62 67 20 0D 0A**

Example Response:

**62 67 20 0D 0A**

**<HEADER>** = 05 55 55 57 (fixed data)

**<OUTPUT>** = 01 (fixed data)

**<BAUDRATE>** =

05 = 4800

06 = 9600

07 = 14400

08 = 19200

09 = 38400

0A = 56000

0B = 57600

0C = 115200

**<PARITY>** =

00 = None

01 = Odd

02 = Even

03 = Mark

04 = Space

**<BITS>** = Bit length of <COMMAND>

**<COMMAND>** = Command that is to be passed to display (must be hex format).

Although this command appears to be hexadecimal format, it should be sent as an ASCII command to the switcher. Therefore, still requires <CR> <LF> delimiters in ASCII format.

## 7. Adjusting Video Settings

### Set Input EDID

Command structure:

**SET EDID <INPUT> <PRM>**

Response Syntax:

**EDID <INPUT> <PRM>**

Example Command:

**SET EDID in1 1**

Example Response:

**EDID in1 1**

**<INPUT>** = in1 ~ in4

in1 (VGA)  
in2 (HDMI 1)  
in3 (HDMI 2)  
in4 (USBC)

**<PRM>** = EDID Value

#### VGA EDID

8: 1024x768@60Hz 2CH  
7: 1280x768@60Hz 2CH  
6: 1360x768@60Hz 2CH  
5: 1440x900@60Hz 2CH  
4: 1600x900@60Hz 2CH  
3: 1680x1050@60Hz 2CH  
2: 1920x1080@60Hz 2CH  
1: 1920x1200@60Hz 2CH

#### HDMI/USB-C EDIDs

8: 1600x900@60Hz 2CH  
7: 1600x1200@60Hz 2CH  
6: 1680x1050@60Hz 2CH  
5: 1920x1200@60Hz 2CH  
4: 1280x720@60Hz 2CH  
3: 1920x1080@60Hz 2CH  
2: 3840x2160@30Hz 2CH  
1: 3840x2160@60Hz 2CH

### Query Input EDID

Command structure:

**GET EDID <INPUT>**

Response Syntax:

**EDID <INPUT> <PRM>**

**<PRM>** = EDID Value (See above for EDID numeric values)

Example Command:

**GET EDID in1**

Example Response:

**EDID in1 1**

### Set Scaling Mode

Command structure:

**SET SCALE <PRM>**

Response Syntax:

**SCALE <PRM>**

**<PRM>** = auto | manual

Example Command:

**SET SCALE auto**

Example Response:

**SCALE auto**

When set to manual scaling mode, an additional scaling command will need to be sent. See the section "**Set Output Scaling Resolution**".

## Get Scaling Mode

Command structure:

**GET SCALE**

Response Syntax:

**SCALE <PRM>**

Example Command:

**GET SCALE**

Example Response:

**SCALE auto**

## Set Output Scaling Resolution

Command structure:

**SET RES <PRM>**

Response Syntax:

**RES <PRM>**

Example Command:

**SET RES 5**

**<PRM>** = Output Resolution Value

- 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

Example Response:

**RES 5**

## Get Output Resolution

Command structure:

**GET RES**

Response Syntax:

**RES <PRM>**

Example Command:

**GET RES**

Example Response:

**RES 5**

**<PRM>** = Output Resolution Value (See above for numeric resolution values)

## Set Video Mute

Command structure:

**SET VIDOUT\_MUTE <PRM>**

Response Syntax:

**VIDOUT\_MUTE <PRM>**

<PRM> = on | off

Example Command:

**SET VIDOUT\_MUTE on**

Example Response:

**VIDOUT\_MUTE on**

## Query Video Mute

Command structure:

**GET VIDOUT\_MUTE**

Response Syntax:

**VIDOUT\_MUTE <PRM>**

Example Command:

**GET VIDOUT\_MUTE**

Example Response:

**VIDOUT\_MUTE on**

## 8. Adjusting Audio Settings

### Set Audio Mute

Command structure:

**SET AUDOUT\_MUTE <PRM>**

Response Syntax:

**AUDOUT\_MUTE <PRM>**

<PRM> = on | off

Example Command:

**SET AUDOUT\_MUTE on**

Example Response:

**AUDOUT\_MUTE on**

This only effects the stereo audio output port

### Query Video Mute

Command structure:

**GET AUDOUT\_MUTE**

Response Syntax:

**AUDOUT\_MUTE <PRM>**

Example Command:

**GET AUDOUT\_MUTE**

Example Response:

**AUDOUT\_MUTE on**

## **Set Audio Out Volume**

Command structure:

**SET VOLUME <PRM>**

Response Syntax:

**VOLUME <PRM>**

Example Command:

**SET VOLUME 50**

<PRM> = 0 ~ 100

Example Response:

**VOLUME 50**

## **Query Audio Out Volume**

Command structure:

**GET VOLUME <PRM>**

Response Syntax:

**VOLUME <PRM>**

Example Command:

**GET VOLUME**

Example Response:

**VOLUME 50**

## **9. PIR Settings**

### **Enable/Disable Sensor**

Command structure:

**SET SENSOR <PRM>**

Response Syntax:

**SENSOR <PRM>**

<PRM> = on | off

Example Command:

**SET SENSOR on**

Example Response:

**SENSOR on**

### **Query Sensor Status**

Command structure:

**GET SENSOR**

Response Syntax:

**SENSOR <PRM>**

<PRM> = on | off

Example Command:

**GET SENSOR**

Example Response:

**SENSOR on**

## Set Sensor Inactivity Time

Command structure:

**SET SENSOR\_TIME <PRM>**

Response Syntax:

**SENSOR\_TIME <PRM>**

<PRM> = 1 ~ 30

Example Command:

**SET SENSOR\_TIME 5**

Example Response:

**SENSOR\_TIME 5**

<PRM> is in minutes. A value of 5 is equal to a 5-minute delay.

## Query Sensor Inactivity Time

Command structure:

**GET SENSOR\_TIME**

Response Syntax:

**SENSOR\_TIME <PRM>**

<PRM> = 1 ~ 30

Example Command:

**GET SENSOR\_TIME**

Example Response:

**SENSOR\_TIME 5**

# 10. System Settings

## Query Input Status

Command structure:

**GET SIG\_S <INPUT>**

Response Syntax:

**SIG\_S <PRM>**

<INPUT> = VGA, HDMI1, HDMI2, USB-C

<PRM> = Have\_Signal, No\_Signal

Example Command:

**GET SIG\_S VGA**

Example Response:

**SIG\_S Have\_Signal**

## Set Standby Mode

Command structure:

**SET STANDBY <PRM>**

Response Syntax:

**STANDBY <PRM>**

Example Command:

**SET STANDBY on**

Example Response:

**STANDBY on**

<PRM> = on | off

Enabling Standby Mode will put the switcher into a low power state, saving energy. Only the API channel will stay active while in Standby Mode, no other functions will operate.

## Query Standby Mode

Command structure:

**GET STANDBY**

Response Syntax:

**STANDBY <PRM>**

Example Command:

**GET STANDBY**

Example Response:

**STANDBY on**

## Query IP Address

Command:

**GET IPADDR**

<PRM> = IP Address and Subnet Mask

Response Syntax:

**<PRM>**

## Reboot Switcher

Command:

**REBOOT**

**No Parameters**

Response:

**REBOOT**

## Restore Factory Defaults

Command:

**RESET**

**No Parameters**

Response:

**RESET**

## **11. 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>

## **12. Document Revision History**

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V1.0 – July 2020

Changes: Initial release of document

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V1.1 – October 2020

Changes: Added PIR Sensor commands

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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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