



WyreStorm SW-540-TX-W 4K HDBaseT Switcher with Wireless Casting User Manual

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SW-540-TX-W



User Manual
v1.1

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Connections



A USB Device Ports	Allows you to connect local USB peripheral devices to the switcher such as a keyboard/mouse, speakerphone, camera, etc....these devices will connect to a host PC via the USB-B or USB-C port.
B USB Host Ports	USB 2.0 Type B host ports for accessing devices connected either to the 3 x device ports on the switcher or USB devices connected over an HDBaseT connection. The host ports can be set as auto-switch to follow video sync or manually assigned via the web UI.
C RS232 Connectors	RS232 Passthrough allows a serial signal to transmit over an HDBaseT link to control a peripheral device such as a display or projector. The RS232 Control port allows serial control of the switcher via API commands.
D Wi-Fi Antennas	Wi-Fi antennas for casting to the switcher wirelessly. The built-in access point can be configured via the web UI based on application requirements.
E A/V Inputs	Video inputs for PCs and mobile devices. The USB-C port supports alt-mode meaning it can transmit A/V and also act as a USB Host for accessing connected peripheral USB devices.
F LAN	Allows access to the integrated web interface for configurations. Can also be used for connecting to the API for controlling the switcher.
G Audio Output	3.5mm stereo audio de-embed which will follow Output 1.
H A/V Outputs	Output 1 features a mirrored HDMI and HDBaseT output. Output 2 is a semidiscrete matrix output (details on limitations below).

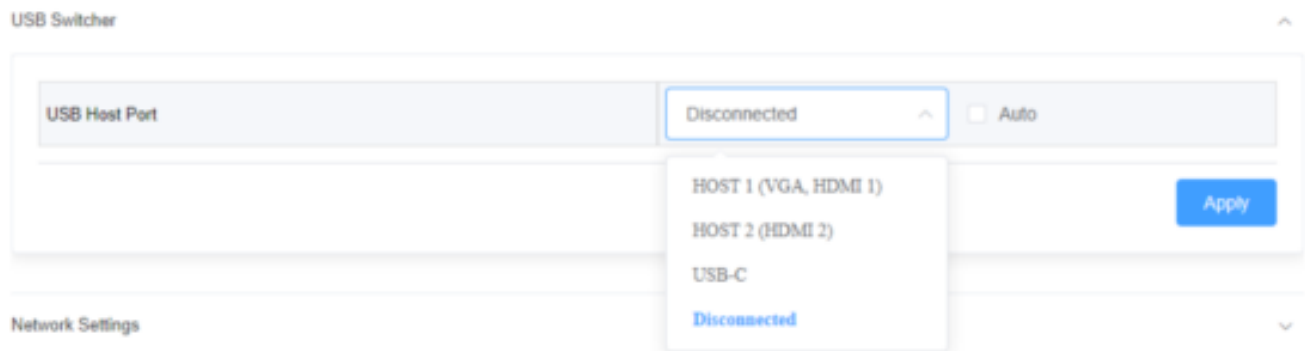
USB Behavior & Performance

The SW-540-TX-W features 3 x USB host ports. Two ports are USB-B 2.0 connections and the third utilizes the USB-C port. By default, the switcher is configured to auto-switch the active USB host based on the selected video input port.

USB-B Host 1 is tied to the VGA and HDMI 1 inputs and USB-B Host 2 is tied to HDMI 2.

For example, if the active video input on the switch is HDMI 1 the active USB host port will be USB-B 1. If the active video input is the USB-C connection, then the USB-C connection becomes the active host port.

This auto-switch behavior can be manipulated via the web interface of the switcher. If you do not want the USB host to follow an active video input, you can uncheck the Auto check box and manually choose which host port will always be active.



The 3 x USB device ports integrated into the switcher support full USB 2.0 data speeds. The SW-540-TX-W is equipped with HDBaseT spec 2.0 and can transmit USB over the Category output to a compatible receiver (RX-500 recommended). In this scenario, due to limitations with HDBaseT, USB 2.0 bandwidth is restricted to 190Mbps vs the full 480Mbps. Keep this limitation in mind when connecting isochronous devices such as webcams over HDBaseT. WyreStorm has tested our own FOCUS webcams and CAM-200-PTZ to work with the SW-540-TX-W over HDBaseT. WyreStorm cannot guarantee the performance or compatibility of 3rd-party

webcams.

Note: When the switcher is in a multiview layout, USB auto-switching is disabled and a manual assignment must be made via the web UI or API.

Security

Security protocols are implemented on the SW-540-TX-W including HTTPS for secure access to the switcher's web interface and TLS for accessing the API.

HTTPS is enabled by default but can be disabled if required. TLS is disabled by default and the switcher uses a standard Telnet connection to access the API. If a secure connection to the API is required, TLS can be enabled. The TLS connection allows you to change the default password to a custom value. Keep in mind that WyreStorm drivers will use default credentials. It is recommended to keep the default credentials unless you are writing a custom driver for the switcher.

Connection information and API commands can be found in the SW-540-TX-W's API document available at wyrestorm.com.

Network Security

Telnet over TLS	Enable	Apply
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Old Password	
New Password	
Confirm New Password	

Note: Password must be 4 to 16 characters in length, alphanumeric only.

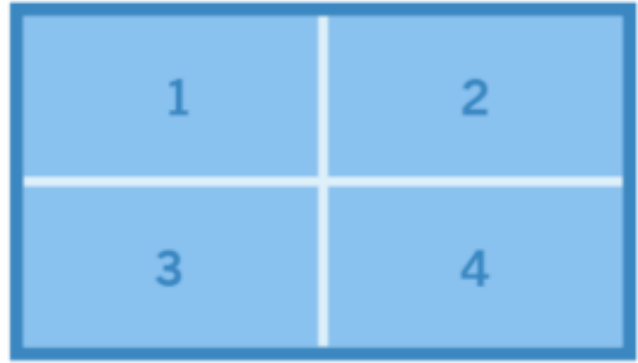
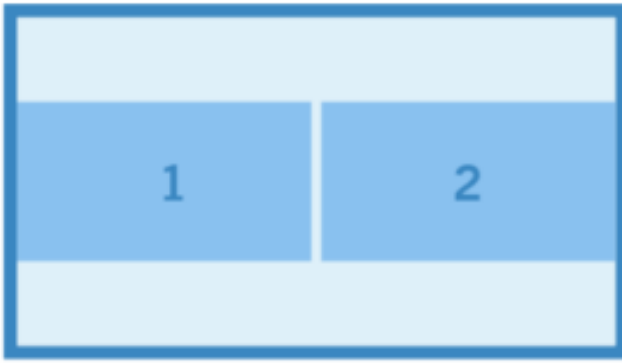
Apply

HTTPS	Enable	Apply
-------	--------	-------

Show IP address on Guide screen	Enable	Apply
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Multiview

The SW-540-TX-W is capable of processing up to four inputs on a single display in a multiview layout. By default, the switcher automatically builds the multi-view layout based on the number of simultaneous sources that are connected. For example, if two laptops are connected via HDMI 1 and HDMI 2 the switcher will automatically build a split-screen layout. If four devices are connected the screen will be split into quadrants. Examples are shown below.



Multiview sources can be any combination of wired and wireless devices (Airplay & Miracast). For example, an iPad casting via AirPlay and a hardwired connection via HDMI can be in a split screen layout. Any combination is possible but limited to four simultaneous streams.

Multiview layouts can be customized via API commands if a specific layout is required. Refer to the API document for details.

Input Switching & Modes

The SW-540-TX-W features three unique switching modes.

Standard: This is the default mode of the switcher. It supports full-screen and multiview processing. Multiview layouts are automatically built by the switcher when it detects a second, third or fourth input. When the switch is in the multiview mode you will be able to select or de-select multiple inputs for the Primary output (output 1). The Primary and Secondary outputs are mirrored in this mode.

Input Switching

Primary	Secondary	Video Source	Timing	Format	Addition
<input type="radio"/>	<input type="radio"/>	TYPE-C	NoSignal		
<input type="radio"/>	<input type="radio"/>	VGA	NoSignal		
<input checked="" type="radio"/>	<input checked="" type="radio"/>	HDMI1	1920x1080P@60	YUV444	
<input checked="" type="radio"/>	<input checked="" type="radio"/>	HDMI2	1920x1080P@60	YUV444	

☐ Show Guide Screen
 ☐ Full Screen Mode
 ☐ Matrix Mode
 Refresh

Full Screen: Multiview processing is not supported in this mode. Both the Primary and Secondary outputs will mirror the same content.

Input Switching

Primary	Secondary	Video Source	Timing	Format	Addition
<input type="radio"/>	<input type="radio"/>	TYPE-C	NoSignal		
<input type="radio"/>	<input type="radio"/>	VGA	NoSignal		
<input checked="" type="radio"/>	<input checked="" type="radio"/>	HDMI1	1920x1080P@60	YUV444	
<input type="radio"/>	<input type="radio"/>	HDMI2	1920x1080P@60	YUV444	

☐ Show Guide Screen
 ☒ Full Screen Mode
 ☐ Matrix Mode
 Refresh

Matrix: In this mode, the Secondary output (output 2) can be matrix switched independently from output 1. However, when in matrix mode output 2 does not support multiview processing. Only a single full-screen input can

be selected and displayed on output 2. The Primary output can still process multiview.

Input Switching

Primary	Secondary	Video Source	Timing	Format	Addition
<input type="radio"/>	<input type="radio"/>	TYPE-C	NoSignal		
<input type="radio"/>	<input type="radio"/>	VGA	NoSignal		
<input checked="" type="radio"/>	<input checked="" type="radio"/>	HDMI1	1920x1080P@60	YUV444	
<input checked="" type="radio"/>	<input type="radio"/>	HDMI2	1920x1080P@60	YUV444	

☐ Show Guide Screen ☐ Full Screen Mode ☒ Matrix Mode Refresh

Wireless Access Point & Casting

This switcher has a built-in wireless access point that can be used to cast content via AirPlay or Miracast. There are three modes for the AP.

Router Mode: This is the default mode. When connecting to the AP in this mode, the switcher acts as a bridge to an existing network via its LAN connection. This is useful if there is no existing Wi-Fi network available and you wish to use the switcher as the primary wireless AP.

Router Disabled: This mode doesn't allow the switcher to bridge the wireless connection to its LAN port. This mode is useful if you wish to isolate the wireless casting from an enterprise/existing network. When clients connect to the switcher's AP in this mode, they will only be able to wirelessly cast content. They will not have internet access.

Soft AP Router Enable

Note: This feature depends on the soft AP, to use this feature, please make sure the soft AP is enabled.

Apply

AP Disabled: This mode completely disables the built-in AP. This mode should be used when you plan to use an existing network's access point(s). This requires a LAN connection to the switcher in order for it to be found and discoverable on the existing network.

Access Point

Soft AP Enable

Apply

There are a number of additional settings related to the AP and screencasting. The AP password can be set to a custom value. This must be an alphanumeric value. It cannot contain special characters or spaces.

Soft AP Password 12345678

Note: The soft ap password must be 8~20 characters in length(letters numbers '_' or '~').

Apply

Casting can be discretely enabled or disabled separately to the access point. If you wish to leave the access point enabled but disable Airplay and Miracast abilities, disable the BYOD functionality.

Also related to screencasting is an access code. By default, no access code is set, however, you can enable this feature as an extra layer of security to prevent accidental or malicious casting. The access code can be either a static 4-digit number or uniquely generated each time a new casting session is attempted by checking the Auto box.

The screenshot shows two configuration sections. The top section, titled 'BYOD Feature', has a dropdown menu set to 'Enable' and an 'Apply' button. The bottom section, titled 'Access Code', has a text input field, a label '(0000 ~ 9999 or blank)', and an 'Auto' checkbox. Below this section are 'Refresh' and 'Apply' buttons.

You can change the AP SSID/screencast name by changing the Device Name field and clicking apply. The AP also allows for adjusting the wireless channel it broadcasts on. This is adjustable for both the 2.4 and 5Ghz bands. WyreStorm recommends leaving this set on the default values. Only change a wireless channel if severe interference is occurring or connection problems arise.

Before changing the wireless channel, it is best practice to perform a radio frequency search to show you the surrounding area's Wi-Fi. This can show you what channels are already occupied so you can appropriately choose the best option available.

inSSIDer is a great free software that can analyze Wi-Fi signals and usage.

The screenshot shows two configuration sections. The top section, titled 'Device Name', has a text input field containing 'SW-540-TX-W' and an 'Apply' button. Below the input field is a red note: 'Note: The device name must be 1~20 characters in length(letters numbers '_' or '-').'. The bottom section, titled 'Wireless Screen Sharing', has two rows of configuration. The first row is 'Band' with a dropdown set to '5G'. The second row is 'Channel' with a dropdown set to '48' and an 'Auto' checkbox that is checked. Below this section is an 'Apply' button.

Output Settings

Each output features a scaler that can be used to force a specific video timing to a display. By default, the switcher is set to auto-negotiate the output timing based on a display's EDID. However, if you experience compatibility problems you can choose to force a resolution and refresh rate. Also, by forcing an output timing you may experience slightly faster switching times.

Note: Forcing an output timing does not affect the HDBT output, only the HDMI ports.

If you are using the 3.5mm stereo audio output and experience lip-sync problems, you can adjust the latency on the Output Settings webpage as well. Simply enter in a value between 0-200ms and click apply.

Output Setting

Primary output timing

3840x2160P@60

☐ Auto

Refresh

Apply

Secondary output timing

1920x1080P@60

☐ Auto

Refresh

Apply

Output HDCP Support

Enable

Apply

Analog Audio Latency

80

(0-200ms)

Note: The acceptable range is [0, 200] and it must be an integer multiple of 20.

Apply

Adjusting EDID

Each input allows for the manual assignment of an EDID. If you experience compatibility problems with a device, you can adjust the EDID for the input port respectively. You can also upload a custom EDID binary file if the pre-loaded files do not meet a timing requirement.

EDID Settings

TYPE-C	4K@30Hz, Audio 2CH PCM.bin
VGA	1080P@60Hz, No Audio.bin
HDMI1	4K@30Hz, Audio 2CH PCM.bin
HDMI2	4K@30Hz, Audio 2CH PCM.bin

Note: Restart to take effect.

EDID File:

Browse

Upload

Display Control

The SW-540-TX-W is capable of sending both CEC and RS232 (RS232 for HDBT only) signals to a connected display for power on/off.

CEC will use the default one-touch play and standby commands. These values will work with most major display manufacturers. If you experience issues with one or both of these default commands not working, you can enter a custom HEX value for both the Wakeup and Standby commands.

To send an RS232 string to a display over HDBT simply enter the connection parameters along with the wakeup and standby commands in the RS232 section.

These display commands can be triggered in two ways, either via hot plug detection when you connect a PC for the first time or manually via an API command.

CEC

Configure

Wakeup Command	<input type="text" value="40 04"/>	example: 40 04
Standby Command	<input type="text" value="ff 36"/>	

Note: The format of CEC commands support Hex only, the limitation for longest byte is within 15.

Apply

Send

RS232

Configure

RS232 parameter	<input type="text" value="9600-8n1"/>	example: 115200-8n1
Wakeup Command	<input type="text"/>	
Standby Command	<input type="text"/>	
RS232 hex string enable	<input type="text" value="Enable"/>	

Apply

Send

The switcher is also capable of automatically sending a power-off command after X minutes when there is no input sync detected. In the Control Strategy drop-down enter in a value between 0-60 to set how long the switcher will wait before sending the power off command. Enter in a value of 0 to disable auto standby. You can also choose what type of command is sent (CEC, RS232, or Both) during auto-sync detection.

Control Strategy

Auto StandBy (Minute, ranges from 0 to 60, set to 0 for deactivation)	<input type="text" value="1"/>
Sink Power Mode	<input type="text" value="Both"/>
Stop Video Signal In Standby Mode	<input type="text" value="Enable"/>

Apply

Splash Screen

When no video signal is being transmitted, the SW-540-TX-W will display a splash screen. This screen shows quick connection steps, so users understand how to cast to the display. This image can be replaced with any image you require. This is useful for inserting company logos or custom background images based on the installation environment.



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Documents / Resources

	<p>WyreStorm SW-540-TX-W 4K HDBaseT Switcher with Wireless Casting [pdf] User Manual SW-540-TX-W, 4K HDBaseT Switcher with Wireless Casting</p>
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References

- [WyreStorm - Professional Audio Visual Solution Provider](#)