# Installation Guide

**SW-0501-HDBT**

<table>
<thead>
<tr>
<th>Document Revision:</th>
<th>v2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Date:</td>
<td>March 6th 2018</td>
</tr>
<tr>
<td>Supported Firmware:</td>
<td>V1.0.0 or higher</td>
</tr>
</tbody>
</table>
## IMPORTANT! Safety Information

<table>
<thead>
<tr>
<th>Note</th>
<th>Provides special information for installing, configuring, and operating the equipment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPORTANT!</td>
<td>Provides special information that is critical to installing, configuring, and operating the equipment.</td>
</tr>
<tr>
<td>CAUTION!</td>
<td>Provides special information on avoiding situations that may cause damage to equipment.</td>
</tr>
<tr>
<td>WARNING!</td>
<td>Provides special information on avoiding situations that may cause physical danger to the installer, end user, etc.</td>
</tr>
<tr>
<td>ELECTRIC SHOCK!</td>
<td>The source power poses an electric shock hazard that has the potential to cause serious injury to installers and end users.</td>
</tr>
<tr>
<td>ELECTRICAL DISCONNECT:</td>
<td>The source power outlet and power supply input power sockets should be easily accessible to disconnect power in the event of an electrical hazard or malfunction.</td>
</tr>
<tr>
<td>WEIGHT INJURY!</td>
<td>Installing some of the equipment requires two installers to ensure safe handling during installation. Failure to use two installers may result in injury.</td>
</tr>
</tbody>
</table>

### Safety Statements

1. Read these instructions in their entirety and retain a copy for later reference.
2. Follow all instructions and heed all warnings.
3. Do not expose this apparatus to rain, moisture, sprays, drips or splashes and ensure that no objects containing liquids are placed on the apparatus, including cups, glasses and vases.
4. Do not place this unit in a confined space such as enclosed shelving, cabinets or bookshelves. Ensure the unit is adequately ventilated.
5. To prevent the risk of electric shock or fire hazard due to overheating, do not cover the unit or obstruct ventilation openings with material, newspaper, cardboard or anything that may restrict airflow into the unit.
6. Do not install near external heat sources such as radiators, heat registers, boilers or any device that produces heat such as amplifiers or computers and do not place near sources of naked flame.
7. Unplug apparatus from power supply during lightning storms or when unused for long periods of time.
8. Protect the power cable from being walked on, pinched or restricted in any way, especially at plug connections.
9. Only use attachments/accessories specified by the manufacturer.
10. Units contain non-serviceable parts - Refer all servicing to qualified service personnel.

⚠️ IMPORTANT!

Do Not hot swap HDMI or HDBaseT connections - Insert and extract cables carefully with the power SWITCHED OFF. Power is passed along transmissions so connecting and disconnecting cables while powered can result in damage to circuitry or possible injury.
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Product Overview

In the Box
1x SW-0501-HDBT Presentation Switcher/Scaler
1x AC Power Cord
1x 11-pin Screw Down Phoenix Connector
1x 5-pin Screw Down Phoenix Connector
2x 4-pin Screw Down Phoenix Connector
4x 3-pin Screw Down Phoenix Connector
2x Mounting brackets
1x Quickstart guide

Front Panel

| A | Mic Gain | Adjusts the gain of the Mic Input from 0 to 40db. |
| B | HDMI Input 1-4 Selection | Press to select an HDMI input as the current source. An illuminated LED indicates the currently selected HDMI source. |
| C | VGA Input Selection | Press to select VGA input as the current source. An illuminated LED indicates the currently selected source is VGA. |
| D | Status | Flashing (at 2 second intervals): The SW-0501-HDBT is operating normally. |
| E | (Power) | Solid: The SW-0501-HDBT is powered On. |
## Rear Panel

![Rear Panel Diagram]

### AC Power
Connect to a 100–240V AC 50/60Hz AC mains outlet.

### Phantom Power
- **On:** Provides 48V DC 100mA to a microphone connected to **Mic In**
- **Off:** No power supplied – Use this setting for dynamic (passive) microphones.

### Mic In
3-pin Screw Down Phoenix Connector
Connect to a microphone to allow for combining with selected source audio.

**IMPORTANT!** Verify that Phantom Power switch on the rear panel is set to **Off** before connecting dynamic (passive) microphones.

### Audio In
3-pin Screw Down Phoenix Connector
Connect to the analog audio output of the VGA source connected to the **VGA In**. Audio signal received on this port is played only when the VGA input is selected.

### Audio Out
3-pin Screw Down Phoenix Connector
Connect to the line level input of an audio pre-amplifier or powered speaker for audio output from selected sources.

### Contact In/LED Out
11-pin Screw Down Phoenix Connector
Connect to a remote I/O control device such as a panel switch for selecting inputs remotely.

### RS-232 1–2
4-pin Screw Down Phoenix Connector
- **RS-232 1** is used for controlling the SW-0501-HDBT via an external control system.
- **RS-232 2** is used for controlling local devices such as connected sources. Refer to **RS-232 Wiring** for more details.

### IR
5-pin Screw Down Phoenix Connector
Used to send and receive IR signals to/from the remote display location via HDBaseT.

### RS-232
3-pin Screw Down Phoenix Connector
Used to send RS-232 signals to/from devices connected to an HDBaseT receiver via the **HDBaseT Out** port. Refer to **RS-232 Wiring** for more details.

### Reset
Press and hold for 5 seconds while the SW-0501-HDBT is powered on to restore factory default settings.

### HDMI In 1–4
19-pin type A HDMI female digital video/audio input.
Supports HDMI and DVI/D (requires adapter-not included).

### VGA In
15-pin VGA VESA (DSUB 15)
Connect to DSUB 15 VGA output of device such as a computer.
A 15-pin VGA cable is required.

### HDMI Out
19-pin type A HDMI female digital video/audio input.
Supports HDMI and DVI/D (requires adapter-not included).

### HDBaseT Out
8-pin RJ-45 female
Connect to an HDBaseT receiver.

### LAN
8-pin RJ-45 female | 10/100 Mbps auto-negotiating
Connect to a network router or switch for accessing the Web UI or IP Control.
## Specifications

### Audio and Video

| Inputs | 4x HDMI 19-pin type A | 1x VGA 15-pin DSUB15 VGA |
| 1x Audio In (VGA Audio) 3-pin Screw Down Phoenix Connector | 1x Audio Out 3-pin Screw Down Phoenix Connector |
| Outputs | 1x HDMI 19-pin type A | 1x HDBaseT 8-pin RJ-45 female |
| Audio Formats | 2ch PCM |
| Video Resolutions (Max) | HDMI: 1920x1200p @60Hz 12bit (15m/50ft) | 16bit (7m/23ft) |
|  | Cat6: 1920x1200p @60Hz 12bit (100m/328ft) | @60Hz 16bit (70m/230ft) |
|  | Cat6a/7: 1920x1200p @60Hz 12bit (100m/328ft) |
| Color Depth | 1080p: 16bit |
| Maximum Pixel Clock | HDMI: 194MHz | HDBaseT: 194MHz |

### Communication and Control

| HDMI | HDCP 1.4 compliant | DVI/D supported with adapter (not included) |
| HDBaseT | HDCP 1.4 compliant | EDID | 1-way PoH | Bidirectional IR and Ethernet |
| Ethernet | 1x 8-pin RJ-45 female | Web UI | IP Control | Bidirectional over HDBaseT |
| IR | 5-pin Phoenix (1x IR TX / 1x IR RX) | Bidirectional over HDBaseT |
| RS-232 | Matrix Control | Firmware Updates |
|  | 3-pin Phoenix | Bidirectional over HDBaseT |

### Power

| Power Supply | Input: 100~240V AC 50/60Hz |
| PoH | 48V 15.4W |
| Max Power Consumption | 88.6W |

### Environmental

| Operating Temperature | 32°F ~ 113°F (0°C ~ 45°C) | 10% ~ 90%, non-condensing |
| Storage Temperature | -4°F to ~ 158°F (-20°C ~ +70°C) | 10% ~ 90%, non-condensing |
| Maximum BTU | 302.3 BTU/hr |

### Dimensions and Weight

| Rack Units/Wall Box | 1U |
| Height with | without feet | 51.3mm/2.02in | 43.5mm/1.72in |
| Width | without Rack Ears | N/A | 220mm/8.67in |
| Depth | without Handles | 297.8mm/11.73in | 280mm/11.03in |
| Weight | 2.3kg/5.07lbs |

### Regulatory

| Safety and Emission | CE | FCC | RoHS |
Wiring and Connections

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.

⚠️ IMPORTANT! Wiring Guidelines

- The use of patch panels, wall plates, cable extenders, kinks in cables, and electrical or environmental interference will have an adverse effect on signal transmission which may limit performance. Steps should be taken to minimize or remove these factors completely during installation for best results.
- WyreStorm recommends using pre-terminated HDMI and VGA cables due to the complexity of these connector types. Using pre-terminated cables will ensure that these connections are accurate and will not interfere with the performance of the product.

Audio/Microphone Wiring

Audio In/Out

<table>
<thead>
<tr>
<th>Pin 1:</th>
<th>Left Positive (+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 2:</td>
<td>Right Positive (+)</td>
</tr>
<tr>
<td>Pin 3:</td>
<td>Ground (GND)</td>
</tr>
</tbody>
</table>

Wiring colors shown are for identification only and do not represent any wiring standard.

Microphone

<table>
<thead>
<tr>
<th>Pin 1:</th>
<th>Positive (+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 2:</td>
<td>Negative (-)</td>
</tr>
<tr>
<td>Pin 3:</td>
<td>Ground (GND)</td>
</tr>
</tbody>
</table>

Wiring colors shown are for identification only and do not represent any wiring standard.

IMPORTANT! IR TX/RX Guidelines

Using WyreStorm infrared emitters and receivers is the best way to ensure that most IR coding formats are transmitted and received by the SW-0501-HDBT. Other 3rd party emitters and receivers can be used; however, these devices must operate in the same manner as the WyreStorm devices.

Due to differences in IR across 3rd party control systems their IR ports should never be connected directly to the switcher as an incompatibility may exist. WyreStorm offers a cable that compensates for voltage differences as well adjusts for differences in the pins used within the port. Refer to the CAB-IR-LINK product page for more information.

Remote I/O Control Device Wiring

The SW-0501-HDBT may be controlled using a contact closure remote I/O device. Connection uses an 11-pin phoenix connector that also provides LED feedback to the device for all 5 inputs.

![Remote I/O Control Device Wiring Diagram]

Wire colors shown are for identification only and do not represent any wiring standard.
RS-232 Wiring
There are 3 different RS-232 connections on the SW-0501-HDBT that use 2 different connectors.

- RS-232 1 - Control of the SW-0501-HDBT using a 4-pin phoenix connector.
- RS-232 2 - Control of local devices using a 4-pin phoenix connector.
- RS-232 - Control of devices in a remote location by sending control signals via HDBaseT using a 3-pin phoenix connector.

RS-232 Connection Guidelines
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 connect connections can be made.

Method 1 - Individual Ports for Switcher and Device Control
This is the preferred method for switcher, local, and remote device control when there are multiple ports available on the control system.

Use Method 2 - Shared Port for Switcher and Remote Device Control to control the switcher and remote devices via a single RS-232 port on the control system.

![Wiring Diagram]
Method 2 - Shared Port for Switcher and Remote Device Control
Use this method for switcher and remote device control when there is a single port available on the control system.

Use Method 1 - Individual Ports for Switcher and Device Control to control the switcher, local, and remote devices via multiple RS-232 ports on the control system.

Note: This method can only be used if the switcher will not be controlling a local device using RS-232 2 as the port will be used to jump the signal to the HDBaseT RS-232.

![Diagram showing RS-232 ports and pinout connections](image)

**RS-232 1 Pinout**
- Pin 1: (Not Used)
- Pin 2: TX (Transmit)
- Pin 3: RX (Receive)
- Pin 4: Ground (GND)

**Jumper Pinout**
- Pin 1: (Not Used)
- Pin 2: TX (Transmit) to Pin 2: RX (Receive)
- Pin 3: RX (Receive) to Pin 1: TX (Transmit)
- Pin 4: Ground (GND) to Pin 3: Ground (GND)

Wire colors shown are for pin identification only and do not represent any wiring standard.
## Installation

### Using the Table Mounting Bracket

The SW-0501-HDBT Presentation Switcher is supplied with a bracket to install under a table or shelf allowing for the unit to hidden out of site in a conference where access is not required.

### Bracket Parts Included

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x Mounting Brackets</td>
<td>![Image 1]</td>
</tr>
<tr>
<td>1x Installation Alignment Plate</td>
<td>![Image 2]</td>
</tr>
<tr>
<td>2x Switcher Mounting Ears</td>
<td>![Image 3]</td>
</tr>
<tr>
<td>4x Switcher Mounting Ear Screws</td>
<td>![Image 4]</td>
</tr>
<tr>
<td>4x Switcher Bracket Screws</td>
<td>![Image 5]</td>
</tr>
</tbody>
</table>

⚠️ **IMPORTANT!** Screws to mount the bracket to the table or shelf are not included. Consider the weight of the switcher when selecting these screws in order to avoid the unit from becoming loose. WyreStorm assumes no responsibility for units that are improperly mounted.
Bracket Installation
Before the bracket can be mounted to the table/shelf, it must be assembled using the alignment plate. This allows for the bracket to be installed prior to installing the switcher.

1. Install the Alignment Plate onto the brackets using the 4 supplied Switcher Bracket Screws.

2. Once assembled, install the brackets under the table or shelf.

3. After installing the bracket to the table or shelf, remove the alignment plate and retain the screws for mounting the switcher later.
4. Attach the supplied Mounting Ears to the switcher using the supplied Mounting Ear Screws.

5. Install the switcher into the bracket that was mounted to under the table or shelf in step 2 using the 4 supplied Switcher Bracket Screws.

The installation is now complete and the switcher can be connected to the system.
Setup and Configuration

First Time Configuration
By default, the switcher is set to a static IP that must be changed before using the switcher to a network. Due to various versions in firmware, there are 2 specific IP addresses and the steps are different for each. Follow these steps to set the switcher to an appropriate IP address for the network.

1. Connect the PC ethernet port directly to the switcher or connect them to the same network.
2. Set the PCs IPv4 address based on the unit’s firmware version:

<table>
<thead>
<tr>
<th>Firmware Version</th>
<th>IP Address</th>
<th>Subnet Mask</th>
<th>Gateway</th>
</tr>
</thead>
<tbody>
<tr>
<td>v2.9.0 or below</td>
<td>192.168.1.xxx</td>
<td>255.255.255.0</td>
<td>Leave Blank</td>
</tr>
<tr>
<td>v3.0.7 or above</td>
<td>192.168.11.xxx</td>
<td>255.255.0.0</td>
<td>Leave Blank</td>
</tr>
</tbody>
</table>

3. Once saved, open any browser and enter the IP address based on the unit’s firmware version:

- Firmware v2.9.0 or below 192.168.1.1
- Firmware v3.0.7 or above 192.168.11.243

4. In the open dialog, enter the Username and Password. Default- Username: admin / Password: admin
5. In the open window, navigate to System > Network.
6. Set the parameters for IP address to either DHCP or static for an IP address that is within the range of the connected network and save the parameters.
7. Set the PCs IPv4 address back to the values used before configuring the switchers IP address.

Accessing the Web UI (Web-UI)
Before accessing the Web-UI, perform the steps under First Time Configuration to ensure that the default IP address of the switcher has been changed. Leaving the default IP address set can prevent the switcher from being seen on a network or create an IP address conflict.

1. Enter the IP address of the switcher in any web browser address bar. If DHCP was used, scan the network using an IP scanner before attempting to access the web UI.
2. In the open dialog enter the Username and Password. Default- Username: admin / Password: admin

ScreenLink Presentation Software
WyreStorm's ScreenLink is a free firmware update that enables wireless connection to the presentation software. It is a powerful collaboration tool that is ideally suited for the corporate and educational environment. This feature was not always available on the SW-0501-HDBT v1 and units with firmware v2.8.5.1 or lower require that new firmware is installed in order to take advantage of ScreenLink within an installation.

Refer to the SW-0501-HDBT ScreenLink Installation App Note located on WyreStorm.com for details on installing ScreenLink before proceeding with using ScreenLink.

Configuring EDID Operation
By default, the switcher resolution output to the display will be based on the display's Extended Display Identification Data (EDID). However, should the need arise, a specific output resolution can be used if the other connected display only supports a lower resolution.

1. Open the Web-UI by following the steps under Accessing the Web UI (Web-UI)
2. Navigate to: Functions > Output Timing
3. To set the output resolution using the displays EDID:
   a. Select Auto in the Output Timing drop down list to set the output resolution using the displays EDID.
   b. Select the resolution in the Output Timing drop down list that matches the lowest resolution supported by both displays.
4. Click Apply to save the changes.
Configuring the Audio Output
The Audio Out is disabled by default and the output level can be adjusted to suit the environment.

Enabling / Disabling the Audio Output
1. Open the Web-UI by following the steps under Accessing the Web UI (Web-UI)
2. Navigate to: Functions > Audio
3. Select Enable in the Mute drop down list to turn on the audio out.
   Select Disable to turn off the audio out (default setting).
4. Click Apply to save the changes.

Adjusting the Audio Output Level
1. Open the Web-UI by following the steps under Accessing the Web UI (Web-UI)
2. Navigate to: Functions > Audio
3. Move the slider left to decrease the audio output level and right to increase the level testing the level as it is adjusted. Adjustment Range: -100dB to +12 dB
4. Click Apply to save the changes.

Tip: WyreStorm recommends setting the audio output level to 0dB to start as the output will be at an average level for most environments.

Display Power Management Configuration
The switcher can provide power management of the displays to ensure that they are powered On during presentations. While there are multiple methods available, there are limitations to the combinations based on the displays being used.

Using CEC for Display Power Management
CEC is a function of HDMI where commands to power On (wake up) or power Off (sleep / standby) display devices based on the current switcher input selection, source power state and the displays power state. When the switcher is powered Off, all connected displays will also power Off.

In order to use CEC, the devices used in the system (sources and displays) must be CEC enabled. Refer to the documentation from the manufacturer for verification of CEC operation.

Within the switcher, CEC is always enabled, the only configuration required is the timeout to allow for display devices to power On and Off correctly.
1. Access the Web-UI. See Accessing the Web User Interface (Web-UI)
2. Navigate to: Functions > Sink Power Management
3. Enter a time to delay power On and Off commands to the displays.
   Default: 120sec (2min) | Range: 0 to 3600sec (60min)
4. Click Apply to save the changes.

Using RS-232 for Display Power Management
If CEC is not available on the display devices, RS-232 can be used as alternative should it be available on the device.

RS-232 commands for power On and Off are entered and sent in ASCII format. If the devices being controlled use HEX commands, these commands can be used as well.
1. Access the Web-UI. See Accessing the Web User Interface (Web-UI)
2. Navigate to: Functions > Sink Power Management
3. In the RS-232 Parameter field, enter the COM port settings for the device in the following format:
   [Baud Rate]-[Data Bits]-[Parity]-[Stop Bits] | Example: 15200-8n1
4. In the RS-232 Standby field, enter the RS-232 command string to power Off (standby) the display.
5. In the RS-232 Wakeup field, enter the RS-232 command string to power On (wakeup) the display.
6. In the RS-232 Hex String Enable field, select Enable to use Hex string commands for RS-232 control.
7. Click Apply to save the changes.

Changing Web-UI Login Password
1. Access the Web-UI. See Accessing the Web User Interface (Web-UI)
2. Navigate to: System > Password
3. In the New Password field, enter the new password ranging from 4 to 16 alphanumeric characters.
   Note: Password is case sensitive.
4. Click Apply to save the changes.
Rebooting and Restoring Factory Defaults

To Reboot the Switcher
1. Access the Web –UI. See Accessing the Web User Interface (Web –UI)
2. Navigate to: System > Commands
3. Select Reboot to reboot the switcher.
4. Click Apply to save the changes.

To Restore Factory Defaults
1. Access the Web –UI. See Accessing the Web User Interface (Web –UI)
2. Navigate to: System > Commands
3. Select Reset to Factory Defaults to restore defaults for the switcher.
   Note: Resetting defaults will erase all configured settings and return the switcher to the factory settings including the login password.
4. Click Apply to save the changes.

Viewing Switcher Information
The current use status and version information of the switcher can be viewed through the Web –UI.
1. Access the Web –UI. See Accessing the Web User Interface (Web –UI)
2. Navigate to: System and scroll down to view the various sections.

  - Status & Statistics displays the latest source and display information
  - Version Info current firmware version installed in the switcher
  - Log displays the last 100 recorded operations

Troubleshooting

No or Poor-Quality Picture (snow or noisy image)
- Verify that sources are powered On and playing content.
- Verify that power is connected to the switcher and HDBaseT receiving device. If using a display with a built in receiver, verify that the device is powered On.
- Verify that the switcher supports the output resolution of the source.
- Verify that the receiving device and display support the output resolution of the source. If the output resolution of one of the connected displays is lower than the other, follow the step outlined in the ScreenLink Presentation Software

WyreStorm’s ScreenLink is a free firmware update that enables wireless connection to the presentation software. It is a powerful collaboration tool that is ideally suited for the corporate and educational environment. This feature was not always available on the SW-0501-HDBT v1 and units with firmware v2.8.5.1 or lower require that new firmware is installed in order to take advantage of ScreenLink within an installation.

Refer to the SW-0501-HDBT ScreenLink Installation App Note located on WyreStorm.com for details on installing ScreenLink before proceeding with using ScreenLink.

- Configuring EDID Operation section.
- Verify that the HDBaseT cable is properly terminated.
- Verify that all source and HDBaseT connections are not loose and are functioning properly.

No or Poor Quality Audio
- Verify that sources are powered On and playing content.
- Verify that all source and HDBaseT connections are not loose and are functioning properly.
- Verify that all cables are properly terminated per the appropriate wiring section.

Tip: WyreStorm recommends using a cable tester or connecting the cable to others devices to verify functionality.
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)
Contact Request: http://wyrestorm.com/contact-tech-support

Revision History
v2.0 – March 2018
Section | Update
-- | --
First Time Configuration | Updated to contain information due to changes in default IP address.
Accessing the Web UI (Web-UI) | Updated to contain information due to changes in default IP address.
Using the Table Mounting Bracket | Added section to explain the use of the included bracket.

Publication Disclaimer
The material contained in this document consists of information that is the sole property of WyreStorm. This document is intended to provide information to allow interfacing to the relevant WyreStorm equipment by third party products.

WYRESTORM IS NOT RESPONSIBLE FOR MALFUNCTIONS AND/OR THE IN-OPERABILITY WHICH MAY BE CAUSED BY THE APPLICATION OF THIS INFORMATION, WHETHER EXPECTED OR NOT.

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