

# QUICK START GUIDE

## VGA / HDMI / MHL AUTO-SWITCHING SENDER

WITH  **UHDBT™** ASE OUTPUT



UHBX-SW3-S

QSG1239 Rev 1.0

CELEBRATING 30 YEARS OF INNOVATION

1984 **30** 2014

**HR** HALL  
RESEARCH  
A NEW WAVE IN CONNECTIVITY

[www.hallresearch.com](http://www.hallresearch.com)

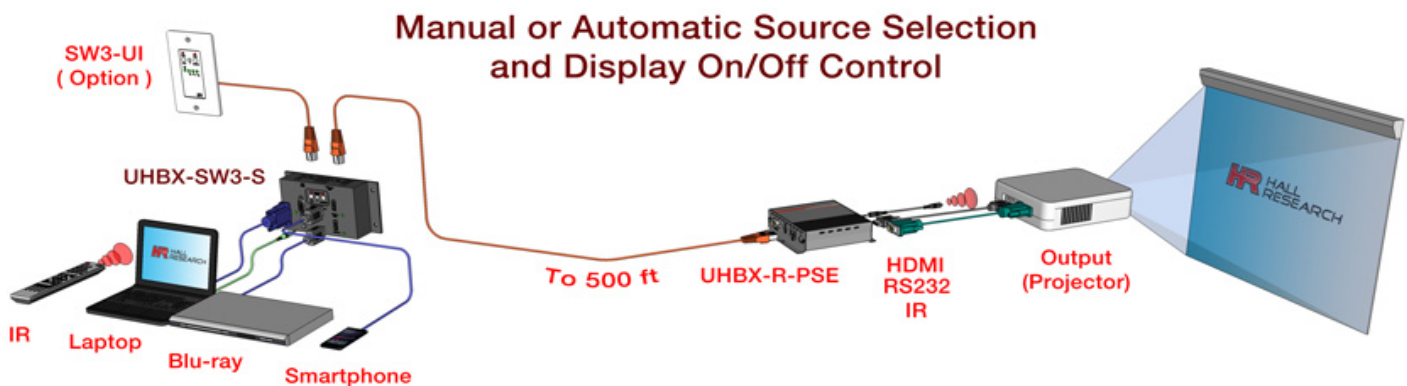
714.641.6607

## Description

The Model UHBX-SW3-S is a video extender with 3 video inputs in a compact surface mountable form factor. The video inputs are:

- Input 1 – **HDMI or MHL** (Mobile High-Definition Link )
- Input 2 – **HDMI**
- Input 3 – **VGA or YPbPr** with separate audio

The device can manually or automatically switch between the various video inputs, and send user defined RS232 commands to control the On/Off state of the display. The extender also features an IR sensor and can extend IR control signals to the Receiver. For a few IR protocols, if the format, data, and address bytes of the IR signal are known, the extender may also be capable of generating the IR signals.

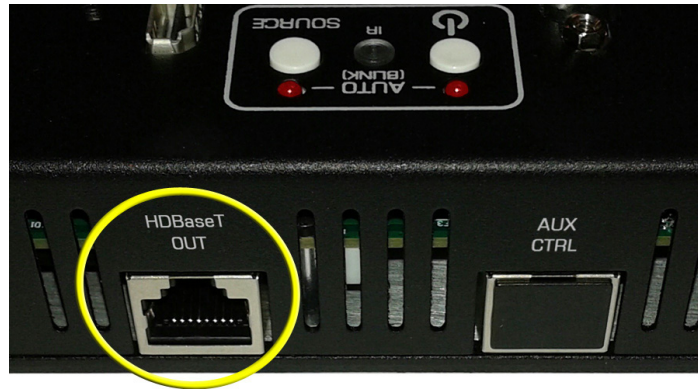


Using just a **single twisted pair** (Cat6) cable, the extender connects to a compatible receiver, such as the model [UHBX-R-PSE](#).

The single Cat6 cable carries all AV and control signals (RS232 or IR) from the extender to the receiver. The same Cat6 cable also delivers power to the extender using Power-over-HDBaseT (PoH) standard as defined by HDBaseT® Alliance. There is no power input connection on the extender, so a PoH compliant receiver that acts as PSE (Power Sourcing Equipment) is required.

## Connection to the Receiver

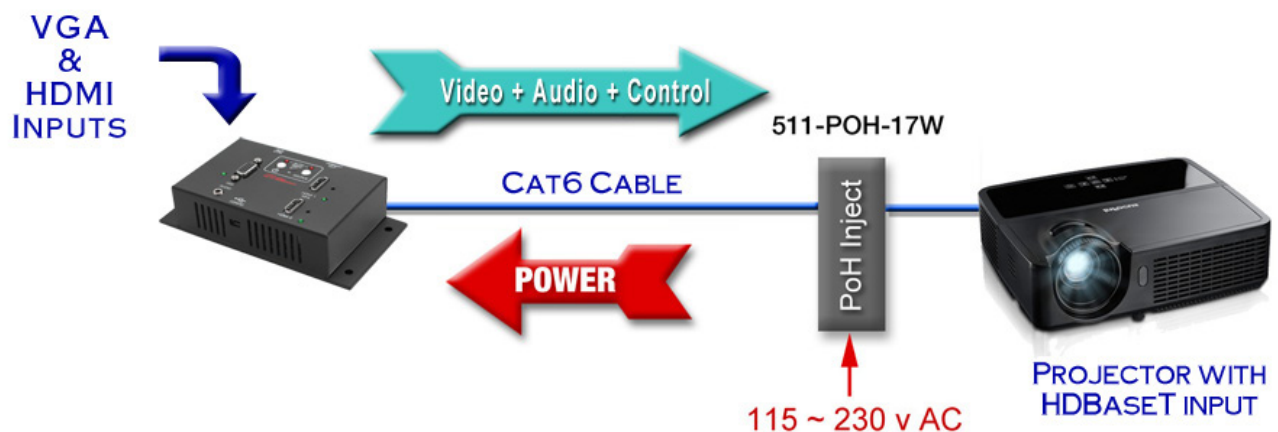
First ensure that the Receiver power is off by unplugging the power supply from the Receiver. Then connect a Cat6 from the RJ45 HDBaseT Output of the extender to the Receiver. There are two RJ45's on the extender, so make sure to use the one labeled as HDBaseT Output.



Video Output  
To Receiver

## Connection to Displays with Native HDBaseT inputs

The Extender can be directly plugged in to displays or projectors with HDBaseT® inputs. In this configuration the extender still sends RS232 control commands to the display (check your display's specifications for details). To power up the extender, a power inserter would be required as shown below (Hall Research PoH inserter p/n [511-POH-17W](#)).



## Controlling the Display Power

The extender can be used to **control the display on/off function** (Power Command). The extender can store and send RS232 control commands to displays or projectors with RS232 control capability. The extender can extend IR signals, by pointing IR remote to the extender and connecting an IR emitter to the Receiver, however the extender also has limited capability to generate user defined IR commands and some popular IR protocols are supported. Since there are thousands of IR commands and dozens of protocols, it may be difficult for the user to obtain all the information necessary for IR control. Using programmed IR commands is further complicated because to keep the power state of the extender synchronized with the TV, unique IR commands for ON and OFF are needed. Many TVs only have one IR command that toggles the state between on and off, making programmed IR control unsuitable.

To configure the extender and enter RS232 power commands for your display, use the mini-USB connector (on the bottom side) together with the included USB cable to connect the unit to a Windows® PC. A free Windows® GUI software is available on the product's webpage. It is the user's responsibly to determine, for their specific display, the control method and to obtain the commands from the display manufacturer. As mentioned earlier for best results use a display or a projector with an RS232 control port if you desire the extender to control its power.

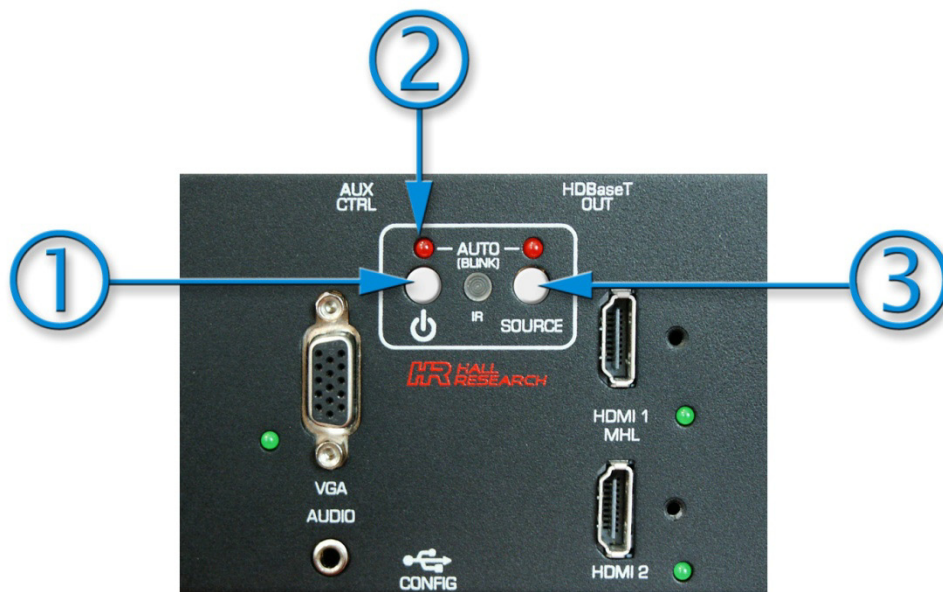
## Dimensions




## Powering the Extender and Selecting a Source

As shipped from the factory the extender is in full manual mode. This means that you have to manually turn on the extender and also manually select the input source you want displayed.

If you have defined a display Power On command, then the extender will issue that command at the same time it turns on. So all you have to do is press the power button on the extender once.



1. Press the  power button
2. The red LED above the power button will turn on and also one of the 3 green LEDs next to the inputs will turn on to indicate which source is selected
3. To change input, press the SOURCE button. For each press the green LED next to each input connector will successively illuminate.

To turn off the extender, press the power button. If you have defined a display Power Off command, the extender will issue the command as it turns off.



## Auto Source Mode

The extender has the ability to detect video connections on its inputs and automatically switch to the connected input.

Change the mode to "Auto Source" either from the button on the extender or using PC software thru the USB port. From the GUI software you can also *lock* the Auto Source mode (so it will stay in that mode permanently).

To enable Auto Source mode first make sure the extender is on. Press and hold the Source button for 3 seconds. The red LED above the Source button will turn on (and blink slowly). This indicates that the extender will automatically select inputs. In this mode, pressing the Source button will not change inputs.

If the extender is turned off and back on, it will recall this mode.

If the Auto Source mode is not locked by the GUI, you can exit this mode from the extender by holding the Source button for 3 seconds. The red LED above the Source button will turn off.

**Notice** *The user can prioritize inputs, in case more than one is active.*

*As shipped from factory, HDMI 1 has the highest priority, then HDMI 2, and last the VGA input.*

*Priorities can be changed through the USB port using the free manager software GUI (Graphical User Interface).*


*If you do not want inputs to usurp each other, you can assign the same priority level to them in the GUI.*

*Component Video cannot be auto-detected. So if you are connecting YPbPr Component to the VGA input, you must select it manually.*

## Auto “Power Command” Mode

The extender can send power on/off commands to the display automatically based on sensing video on its selected input.

In Auto Power Command mode when the extender detects video on the selected input it will issue an ON command to the screen, and if there is no video being detected, an OFF command will be issued after a user specified delay (default delay = 5 minutes).

You can enter the Auto Power Command mode either from the extender or by using the GUI (via USB interface). The GUI also allows you to also *lock* the Auto Power Command mode (so it will stay in that mode permanently). To enable Auto Power Command mode from the panel, first make sure the extender is on. Press and hold the power  button for 3 seconds. The red LED above the power button will start blinking slowly. This indicates that the extender will automatically send on and off commands to the display. In this mode, pressing the power button will not do anything.

If not locked from the GUI, you can exit Auto Power Command mode by pressing and holding the Power button for 3 seconds. The red LED above the Source button will stop blinking. Now you can manually turn the panel on and off (and at the same time issue commands to the display).

## IR Extension

The extender features an IR detector that can be used to extend IR to the remote receiver. An IR blaster cable will be required to plug to the receiver (Hall Research model [CIR-EMT](#) or [CIR-EMT2](#)). In this way the user can point the IR remote to the extender and control the display. It is important that the IR light signal blasted from the IR emitter at the receiver is not incident on the extender's IR detector, since that will create a positive feedback condition and can interfere with proper function.

## VGA Scaler

The UHBX-SW3-S **scales the VGA input** to 720p or 1080p in order to eliminate compatibility issues with the myriad of VGA resolutions that may not be supported on most TV's HDMI input. Scaling the VGA to 1080p (default) which is a standard HDTV resolution assures that there will be a perfect display regardless of the VGA signal source timing. The scaler is designed to work out of the box with no adjustments. However for advanced users, the GUI provides many advanced features such as underscan (zoom out), aspect ratio, brightness, etc.

Since VGA is an analog signal the scaler detects the edges of the video and fits it to the display. Similar to VGA monitors, the extender has an "Auto Adjust" feature. In the unlikely event that the VGA image on the display is grossly misaligned, press both power and source buttons on the panel simultaneously. This will start the "Auto Adjust" procedure after resetting the extender (takes about 15 seconds to complete).



## Component Video Input

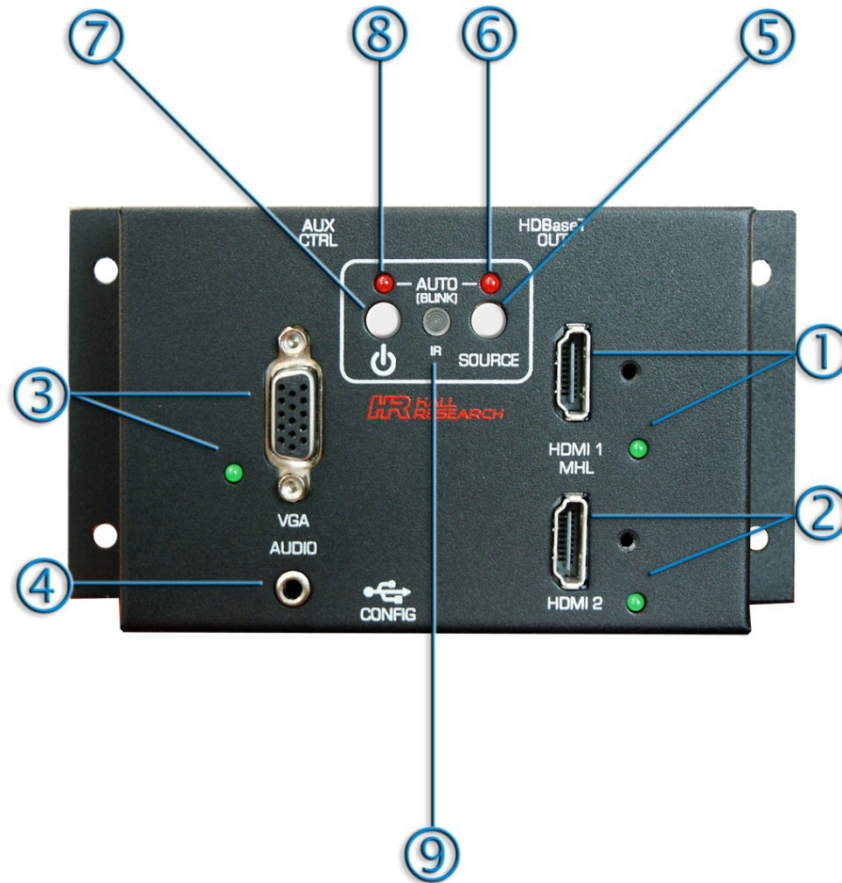
Using HD15 to 3 RCA cable, the VGA input can accommodate component video (YPbPr). But you have to configure the extender to expect YPbPr using the configuration GUI. In this mode, the Auto Source selection mode is not available.

## Independent "Audio-Only" Extension

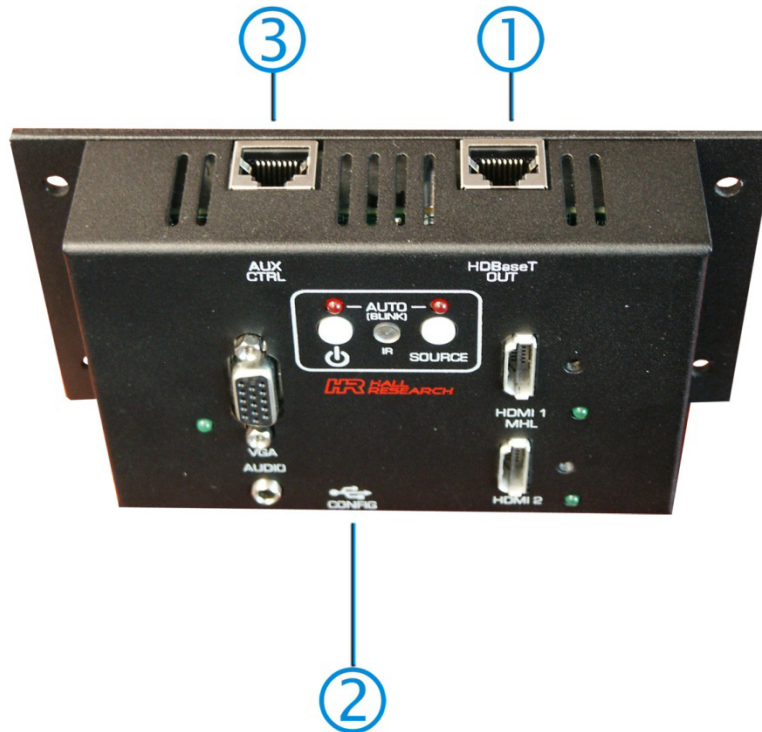
The user can configure the unit to pass-through the 3.5mm audio input (associated with the VGA) on its HDMI output signal without having to connect a live VGA signal. In this way audio from **MP3 audio players** can also be extended to the TV (screen will be dark). To enable pass-thru of 3.5mm audio without VGA signal, refer to the configuration Software documentation.




## Connectors, Controls and Indicators



- |   |   |
|---|---|
| <p><b>1</b> HDMI 1 input &amp; selection indicator<br/>Supports MHL signal</p>                          | <p><b>6</b> Auto Input Selection Indicator<br/>When lit (with a slow blink), the extender scans for active input</p>  |
| <p><b>2</b> HDMI 2 input &amp; selection indicator</p>  | <p><b>7</b> Power button. Will turn panel on and off and issue corresponding commands to display. Hold for 3 seconds to enter or exit Auto Power Command mode</p> |
| <p><b>3</b> VGA input &amp; selection indicator<br/>Can be configured for YPbPr</p>                     | <p><b>8</b> Power Indicator<br/>When lit solid the panel is on. When blinking slowly it indicates Auto "Power Command" mode</p>                                   |
| <p><b>4</b> Stereo audio input for VGA.<br/>Can be configured to pass audio without VGA connected.</p>  | <p><b>9</b> IR Extension Detector<br/>Any incident IR signal is extended to the receiver's IR output</p>  |
| <p><b>5</b> Manual Source Selection button<br/>Hold for 3 seconds to enter or exit Auto Source mode</p> |   |



- 1 HDBaseT Output.  
The extender requires PoH (power over HDBaseT), so the receiver has to be a PSE (power sourcing equipment) type, or a power inserter is needed.
- 2 Mini-USB port for connection to a PC. A free GUI is available that can be used to configure the extender. A USB to mini-USB cable is provided
- 3 For connection to SW3-UI and SW3-UI-VOL optional auxiliary control panel (sold separately)

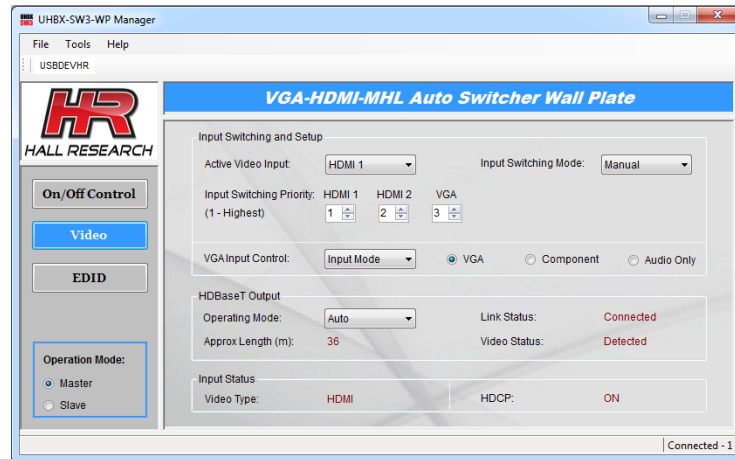
 Do not plug HDBaseT cable from Receiver to this port

## Configuration Using the USB port

The extender is ready to use out of the box and in many cases no special configuration is needed.

If the user desires to control the On/Off function of the display or to tweak some of the parameters (such as prioritizing the input selection in Auto input mode), a onetime set up is needed.

Install the Windows® GUI software available for free download from the website, and connect the USB port to the PC. Please refer to the GUI User Guide available on the website for more information.



## Optional Auxiliary Control Keypads

Two single gang Decora® style keypads are available: SW3-UI and SW3-UI-VOL. These keypads plug to the UHBX-SW3-S using a Cat5 cable and can be located up to 200 ft away at a convenient location. The SW3-UI duplicates all the controls and indicators that are on the extender. It is perfect for monitoring and controlling the system from a convenient spot instead of using the buttons on the UHBX-SW3-S extender. The SW3-UI-VOL adds 3 additional buttons that can be tied to volume commands of your display. These additional buttons do not change the volume embedded in the HDMI output, but they are meant to send Volume Up/Down, Mute, and Unmute commands to the projector or display.





© Copyright 2015 Hall Research, Inc.

All rights reserved.

1163 Warner Ave., Tustin, CA 92780

Ph: (714)641-6607