



Programmers Guide

SP-SW1900-HD

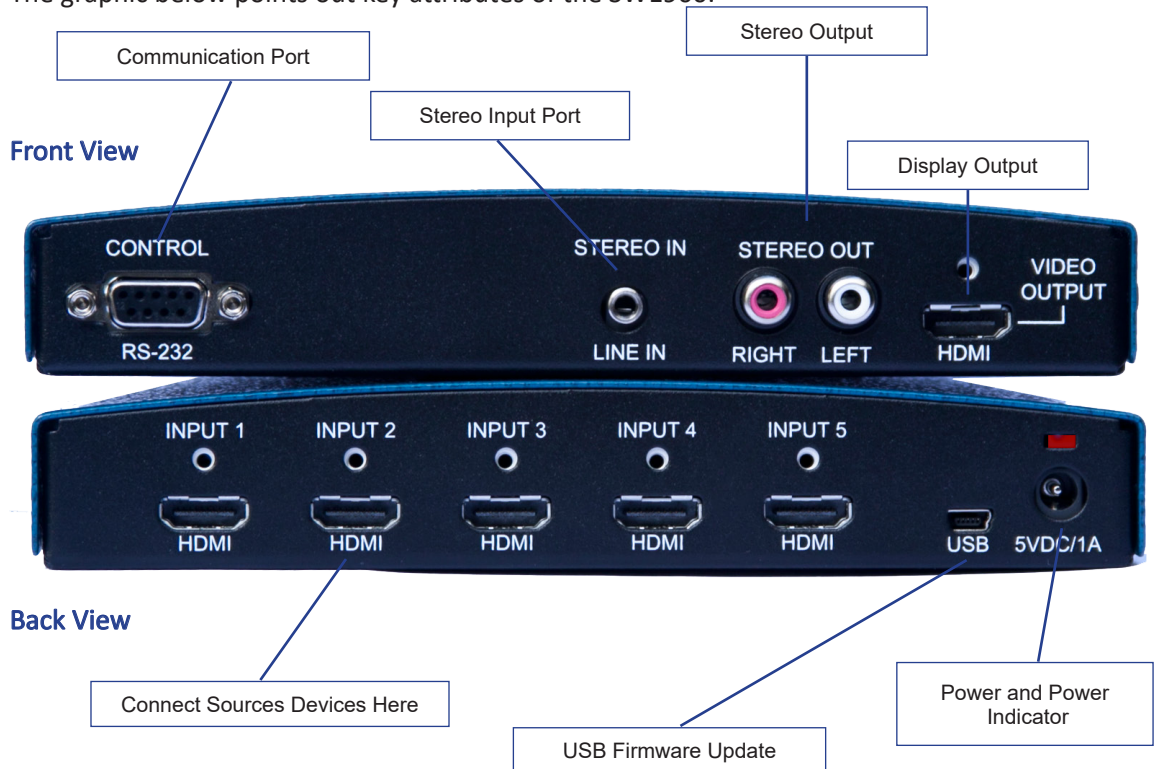
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Introduction

Getting to Know the SP-SW1900-HD (SW1900)

The graphic below points out key attributes of the SW1900.



Auto-Sense, Auto-Switching

Auto-sense, automatic switching (ASW) is a very powerful feature of the SW1900 and will be explained further to best understand how it can be utilized. ASW is enabled by default and can be disabled using the RS-232 interface.

The SW1900 is very sensitive. When a user connects a device to one of the 5 HDMI input ports, the SW1900 responds immediately by routing the video from the newly connected device to the display. If the color space is different than the display, the color space is automatically converted internally to ensure the highest quality image is displayed at the highest resolution practicable.

If another person connects a computer or mobile device to an HDMI input port, that device will immediately appear on the display. The rule is: The last to connect will always appear on the display.

Should an actively displayed device be disconnected, the SW1900 will search from input 1

through input 5 for the first active signal. Once found, the image from that device will appear on the display. From a design standpoint, consider having the home room computer on input 1 and any ancillary or guest connections on inputs 2 through 5.

Automatic Display On/Off

Automatic display on/off (CEC) is another powerful feature of the SW1900. CEC is enabled by default but can be disabled using the RS-232 interface.

CEC must be enabled on the display itself for this feature to work with the SW1900.



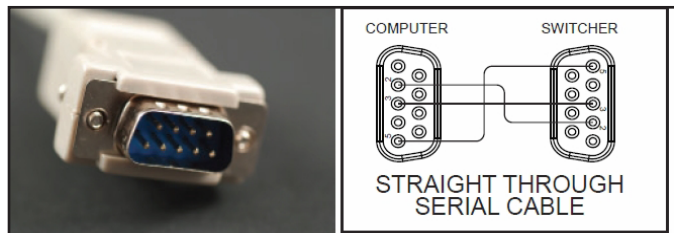
Trade names for CEC are Anynet+ (Samsung), Aquos Link (Sharp), BRAVIA Link and BRAVIA Sync (Sony), HDMI-CEC (Hitachi), E-link (AOC), Kuro Link (Pioneer), INlink (Insignia), CE-Link and Regza Link (Toshiba), RIHD (Remote Interactive over HDMI) (Onkyo), RuncoLink (Runco International), SimpLink (LG), T-Link (ITT), HDAVI Control, EZ-Sync, VIERA Link (Panasonic), EasyLink (Philips), and NetCommand for HDMI (Mitsubishi).

If a user connects to the SW1900, the SW1900 will automatically turn the display on. When the last person disconnects, the SW1900 will wait 30 seconds of inactivity then turn off the display. In many cases, this feature eliminates the need for television remotes, extends display life, saves power, and simplifies classrooms, conference rooms, and huddle spaces, making them more user friendly.

RS-232 Connection

Communications Interface

The SW1900 uses a serial interface (RS-232) to change attributes and behavior of the SW1900.



Parameters are as follows: 115200 baud, 8 bit, no parity, and 1 stop bit. The baud rate is adjustable. Pins 2 (Rx), 3 (Tx), and 5 (GND) are used.

Attribute	Value
Type (on SW1900)	DB-9, Female
Baud Rate	115,200 (adjustable)
Data Size	8 bit
Parity	None
Stop Bits	1

RS-232 Control Codes

Help / Available Commands

Type "HELP" to list all available commands for this version of SW1900.

Command Format	
HELP	
Examples in ASCII	Response
HELP	Complete list of available commands. See Command Line Example below.
Examples in HEX	Response
48 45 4C 50 0D	Complete list of available commands. See Command Line Example below.
Command Line Example	
<pre>Firmware Revision 1.0 \$ HELP ----- Published Commands ----- HELP - This page. ID - Displays Device Identification FRUN # - Freerun Mode (0 = Disable, 1 = Enable) ASW - Displays Auto-Switch Feature Status. ASW # - Selects Auto-Switch (0=Off, 1=On). SW - Displays currently selected input being displayed. SW # - Selects input '#' (1-5) to be displayed. RES - Displays EDID output resolution. RES # - Selects output resolution from table (1-7), 1=1080p MUTE # - Mutes Audio Output (0=Unmute, 1=Mute) VOL - Displays Volume Level VOL # - Set Volume Level (1-100) + - Increase Volume by 1 Step (1-100) - - Decreases Volume by 1 Step (1-100) LIN - Displays Line Input Volume Level (1-100) LIN # - Changes Line In Level (1-100) TRIM - Displays all TRIM Settings TRIM # # - Sets Selected Input (#) to TRIM Setting (#) DBG # - Sets Devices to Debug Mode TV # - Uses CEC to control Display (0=Off, 1=On) CEC # - Turns CEC On/Off (0=Off, 1=On)</pre>	

Select Input / Source

This command selects a source or input device to display.

Command Format	
SW #	Replace # with the input to display (1-5). End command with carriage return.
Examples in ASCII	Response
SW 2	None.
Examples in HEX	Response
53 57 20 32 0D	None.
Command Line Example	
<pre>Firmware Revision 1.0 \$ SW 2 SW 2</pre>	

Get Current Input / Source

This command displays the currently selected input being routed to the output device.

Command Format	
SW	Type return (carriage return) after typing SW.
Examples in ASCII	Response
SW	SW 4
Examples in HEX	Response
53 57 0D	53 57 20 34 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ SW SW 4</pre>	

Set Master Volume Level

This command sets the current master volume level of the SW1900.

Command Format	
VOL #	Replace # with the volume level (1-100). End command with carriage return.
Examples in ASCII	Response
VOL 85	VOL 85
Examples in HEX	Response
56 4F 4C 20 38 35 0D	56 4F 4C 20 38 35
Command Line Example	
<pre>Firmware Revision 1.0 \$ VOL 85 VOL 85</pre>	

Get Master Volume Level

This command obtains the current master volume level of the SW1900.

Command Format	
VOL	Type return (carriage return) after typing VOL.
Examples in ASCII	Response
VOL	VOL 85
Examples in HEX	Response
56 4F 4C 0D	56 4F 4C 20 38 35
Command Line Example	
<pre>Firmware Revision 1.0 \$ VOL VOL 85</pre>	

Increase Volume

The “+” command increases the volume by 1 step (1-100).

Command Format	
+	Type plus '+'. No carriage return is required.
Examples in ASCII	Response
+	None
Examples in HEX	Response
2B	None
Command Line Example	
<pre>Firmware Revision 1.0 \$ +</pre>	

Decrease Volume

The minus or dash “-” command decreases the volume by 1 step (1-100).

Command Format	
-	Type minus or dash '-'. No carriage return is required.
Examples in ASCII	Response
-	None.
Examples in HEX	Response
2D	None.
Command Line Example	
<pre>Firmware Revision 1.0 \$ -</pre>	

Mute, Stereo Output

This command will turn off the audio to the stereo output port. This command does not interfere with the HDMI audio output.

Command Format	
MUTE #	Replace '#' with 0 to unmute or 1 to mute audio. End command by typing a carriage return.
Examples in ASCII	Response
MUTE 0	MUTE 0
Examples in HEX	Response
4D 55 54 45 20 30 0D	4D 55 54 45 20 30 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ MUTE 0 MUTE 0</pre>	

Set Resolution

This command sets the current resolution of the SW1900.

Command Format	
RES #	Replace # with the resolution (0-7). End command with carriage return. Resolutions: 0. Passthru. Use EDID from display without any modification. 1. 1080p (1920 x 1080 @ 60Hz) 2. 720p (1280 x 720 @ 60Hz) 3. 1920 x 1200 @ 60Hz 4. 1600 x 1200 @ 60Hz 5. 1280 x 1024 @ 60Hz 6. 1280 x 768 @ 60Hz 7. 1024 x 768 @ 60Hz Once command is accepted the system will force a hot plug detect on all inputs. All sources should react by resending its video at the defined resolution.
Examples in ASCII	Response
RES 1	RES 1
Examples in HEX	Response
52 45 53 20 31 0D	52 45 53 20 31 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ RES 1 RES 1</pre>	

Get Current Resolution Setting

This command obtains the current resolution table value.

Command Format	
RES	Type return (carriage return) after typing RES.
Examples in ASCII	Response
RES	RES 1
Examples in HEX	Response
52 45 53 0D	52 45 53 20 31 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ RES RES 1</pre>	

Set Stereo Line Input Audio Level

This command sets the current master volume level of the SW1900.

Command Format	
LIN #	Replace # with the line input level (1-100). End command with carriage return.
Examples in ASCII	Response
LIN 75	LIN 75
Examples in HEX	Response
4C 49 4D 20 37 35 0D	4C 49 4D 20 37 35 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ LIN 75 LIN 75</pre>	

Get Stereo Line Input Audio Level

This command obtains the current stereo line input level of the SW1900.

Command Format	
LIN	Type return (carriage return) after typing LIN.
Examples in ASCII	Response
LIN	LIN 65
Examples in HEX	Response
4C 49 4D 0D	4C 49 4D 20 36 35 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ LIN LIN 65</pre>	

Turn Auto-Switch On/Off

This command controls the status of the auto-sensing auto-switch capability of the SW1900. When turning this feature off, switching can only occur using the RS232 serial interface.

Command Format	
ASW #	Replace # with either 0 or 1. 0 = Disable, 1 = Auto-Switch enabled. End command with carriage return.
Examples in ASCII	Response
ASW 0	ASW 0
Examples in HEX	Response
41 53 57 20 30 0D	41 53 57 20 30 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ ASW 0 ASW 0</pre>	

Get Auto-Switch Feature Status

This command indicates whether the auto-sense auto-switching feature is currently enabled or disabled.

Command Format	
ASW	Type return (carriage return) after typing ASW.
Examples in ASCII	Response
ASW	ASW 1
Examples in HEX	Response
41 53 57 0D	41 53 57 20 31 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ ASW ASW 1</pre>	

Trim Audio on Specific HDMI Input

Sometimes audio levels from a source can be louder than the other devices. This feature attenuates, or trims, the audio level of the loud device so that it roughly equals the loudness of the other devices.

Command Format	
TRIM # #	Replace the first # with the input (1-5) and the second # with the trim level (1-100).
Examples in ASCII	Response
TRIM 2 85	TRIM 2 85
Examples in HEX	Response
54 52 49 4D 20 32 20 38 35 0D	54 52 49 4D 20 32 20 38 35 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ TRIM 2 85 TRIM 2 85</pre>	

Get Trim Levels for All Inputs

This routine retrieves the audio trim levels (settings) for all of the HDMI inputs.

Command Format	
TRIM	Type return (carriage return) after typing TRIM.
Examples in ASCII	Response
TRIM	See Command Line Example below.
Examples in HEX	Response
54 52 49 4D 0D	See Command Line Example below.
Command Line Example	
<pre>Firmware Revision 1.0 \$ TRIM TRIM 1 100 TRIM 2 85 TRIM 3 100 TRIM 4 100 TRIM 5 100</pre>	

Turn Automatic Display Control (CEC) On/Off

This function turns the automated Display Control feature on and off.

Command Format	
CEC #	Replace the “#” with a 0 - disable display power control or 1 - enable the display power on/off control feature.
Examples in ASCII	Response
CEC 0	CEC 0
Examples in HEX	Response
43 45 43 20 30 0D	43 45 43 20 30 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ CEC 0 CEC 0</pre>	

Turn Display On/Off

This function turns the Display's Power on and off.

Command Format	
TV #	Replace the “#” with a 0 - turn off display or 1 to turn on the display.
Examples in ASCII	Response
TV 0	TV 0
Examples in HEX	Response
54 56 20 30 0D	54 56 20 30 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ TV 0 TV 0</pre>	

Turn Freerun Feature On/Off

Freerun involves displaying a Blue Screen at 480i when the currently selected input does not have a valid signal present. This happens when auto-switch is disabled and the SW1900 is switched to a input with no signal present. When this feature is turned off, the display will show a signal not present or disconnect. By default, FRUN is enabled.

Command Format	
FRUN #	Replace the “#” with a 0 - turn off freerun or 1 to turn on freerun.
Examples in ASCII	Response
FRUN 1	FRUN 1
Examples in HEX	Response
46 52 55 4E 20 31 0D	46 52 55 4E 20 31 0D
Command Line Example	
<pre>Firmware Revision 1.0 \$ FRUN 1 FRUN 1</pre>	

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