

# SW HDMI LC

Two and Four Input HDMI Switchers



**Extron® Electronics**  
INTERFACING, SWITCHING AND CONTROL

# Safety Instructions • English

- 

This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.
- 

This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

## Caution

- Read Instructions** • Read and understand all safety and operating instructions before using the equipment.
- Retain Instructions** • The safety instructions should be kept for future reference.
- Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.
- Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

# Consignes de Sécurité • Français

- 

Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).
- 

Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

## Attention

- Lire les instructions** • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.
- Conservier les instructions** • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.
- Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.
- Eviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

# Sicherheitsanleitungen • Deutsch

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Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.
- 

Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

## Achtung

- Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.
- Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.
- Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.
- Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

# Instrucciones de seguridad • Español

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Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.
- 

Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

## Precaucion

- Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.
- Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.
- Obedecer las advertencias** • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.
- Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

# 安全须知 • 中文

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这个符号提示用户该设备用户手册中有重要的操作和维护说明。
- 

这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

## 注意

- 阅读说明书** • 用户使用该设备前必须阅读并理解所有安全和使用说明。
- 保存说明书** • 用户应保存安全说明书以备将来使用。
- 遵守警告** • 用户应遵守产品和用户指南上的所有安全和操作说明。
- 避免追加** • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

## Warning

- Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.
- Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).
- Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.
- Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.
- Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.
- Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

## Avertissement

- Alimentations** • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.
- Déconnexion de l'alimentation** • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.
- Protection du cordon d'alimentation** • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.
- Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.
- Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.
- Lithium Batterie** • Il y a danger d'explosion s'il y a un remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandée par le fabricant. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

## Vorsicht

- Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.
- Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.
- Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegestellt werden können.
- Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.
- Schlitze und Öffnungen** • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.
- Litium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

## Advertencia

- Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.
- Desconexión de alimentación eléctrica** • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.
- Protección del cables de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.
- Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.
- Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.
- Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

## 警告

- 电源** • 该设备只能使用产品上标明的电源。设备必须使用有地线的供电系统供电。第三号线（地线）是安全设施，不能不用或跳过。
- 拔掉电源** • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。
- 电源线保护** • 妥善布线，避免被踩踏，或重物挤压。
- 维护** • 所有维修必须由认证的维修人员进行。设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。
- 通风孔** • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。不要用任何东西挡住通风孔。
- 锂电池** • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

## FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

**NOTES:** This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance with FCC emissions limits

For complete safety information about these products please read the Safety Compliances sheet, which is available online at [www.extron.com](http://www.extron.com).

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## Trademarks

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# Introduction

This section gives an overview of the SW HDMI LC switchers. Topics covered include:

- [About this Guide](#)
- [About the SW HDMI LC Switchers](#)
- [Features](#)
- [Application Diagram](#)

## About this Guide

This manual describes the Extron SW HDMI LC switchers and discusses how to install, configure, and operate them.

In this manual, the term “SW HDMI LC” refers to both the SW2 HDMI LC and the SW4 HDMI LC switchers. “Switcher” and “SW HDMI LC” are used interchangeably to refer to any single unit.

## About the SW HDMI LC Switchers

The Extron SW HDMI LC switchers are two and four input, one output, High-definition Multimedia Interface (HDMI) switchers that allow multiple HDMI signals, including digital video and embedded multi-channel digital audio to be switched to one compatible display. These switchers support all standard single link HDMI 1.3a (up to 225 MHz) and DVI 1.0 signal formats and are compatible, at 60 Hz, with all HDTV resolutions up to 1080p and with PC resolutions up to 1920x1200.

The SW HDMI LC switchers can be controlled via the front panel, the RS-232 interface, or the optional IR 102 Remote Control. You can select inputs by pressing the front panel buttons, enabling auto-input switching, entering Simple Instruction Set (SIS™) commands via RS-232, or by pressing buttons on the IR 102.

## Features

**Auto-input switching** — The SW HDMI LC can be configured to automatically switch to the highest-numbered active input when the switcher detects a signal.

**Signal presence LEDs** — Each input is represented by a front panel bicolored LED, which lights if a signal is present for the input and there is activity on the TMDS lines.

**Rack and furniture mounting** — The SW HDMI LC can be mounted on a rack shelf or under a desk or podium with an optional mounting kit.

**IR remote control (optional)** — The hand-held IR 102 Remote Control can control the SW HDMI LC via infrared signals that it sends to the switcher from a distance of up to 30 feet (9 m).

**Front panel security lockout (executive mode)** — To prevent unauthorized access to the switchers, executive mode can be enabled via the front panel or SIS commands. When the switcher is in executive mode, all front panel controls are disabled (RS-232 and IR control remain available).

**Power supply** — An included external 12 VDC, 1 A power supply with a 2-pin captive screw connector accepts 100 to 240 VAC. This power supply is universal ENERGY STAR® qualified, providing worldwide compatibility, low power consumption, and reduced operating costs (part number **70-775-01**).

**Remote control** — The switcher can be controlled via SIS commands issued through an RS-232 computer interface. (see **“Using Simple Instruction Set (SIS) Commands”** in the “Remote Communication and Control” section).

**Input cable equalization** — Selectable via SIS commands, input cable equalization compensates for signal loss when long cable assemblies are used.

**HDCP compliant** — HDCP communication is passed through directly from the selected input source to the output device.

## Application Diagram

The following diagram shows an example of how an SW HDMI LC switcher can be connected.

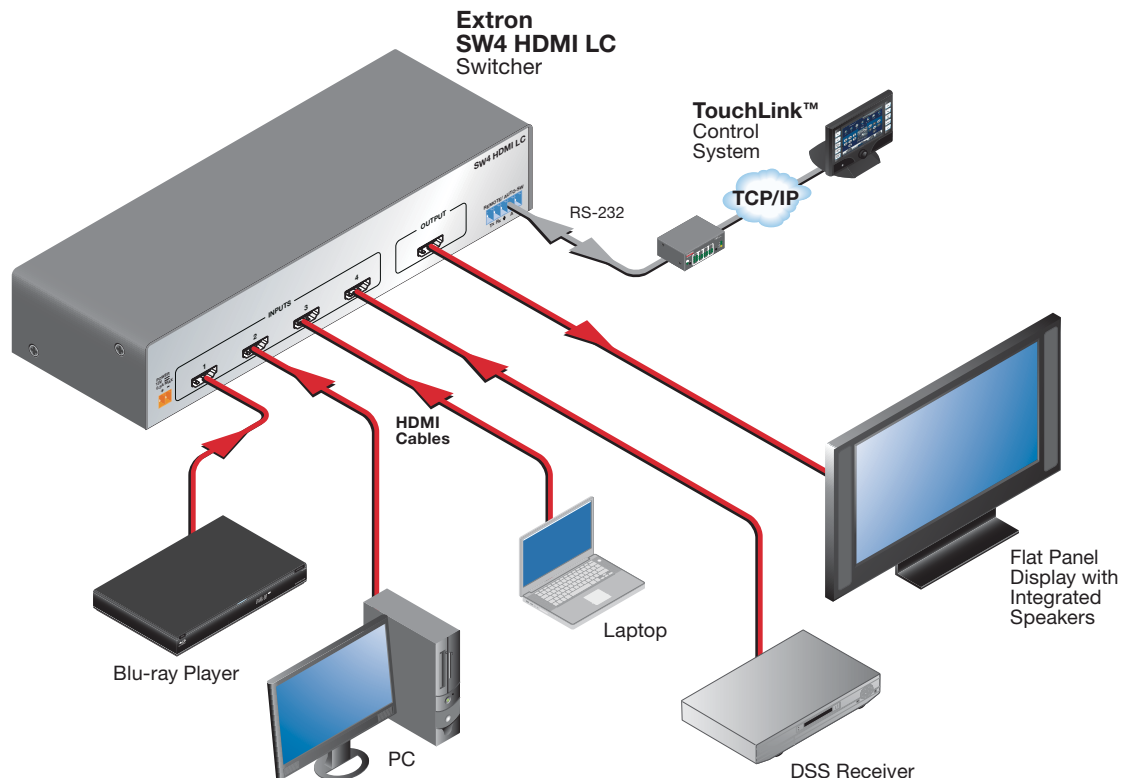


**Figure 1.** Application Diagram for an SW4 HDMI LC Switcher

**NOTE:** HDCP compliant sources require HDCP compliant displays. Refer to the user manual for the source or display device for information on its HDCP compliance.

# Installation

This section describes the installation and setup of the SW HDMI LC switchers, including:

- **Installation Overview**
- **Rear Panel Features**
- **Wiring the Power Connector (Optional)**
- **HDMI Video Connectors Pin Assignments**
- **Wiring for RS-232 Control**
- **Enabling Auto-input Switching**

## Installation Overview

To install and set up the SW HDMI LC switcher:

- 1** Mount the switcher on a rack shelf or furniture, if desired. See “**Mounting the SW HDMI LC**” in the “Reference Information” section.
- 2** Connect HDMI input sources to one or more of the SW HDMI LC input connectors.
- 3** Connect an output device to the HDMI output connector on the switcher rear panel.
- 4** Wire an RS-232 cable to pins 1, 2, and 3 of one of the provided 5-pin captive screw plugs. Insert this plug into the 5-pin Remote/Auto-SW connector on the switcher’s rear panel, and connect the other end of the cable to your computer. (See “**Wiring for RS-232 Control**,” later in this section.)
- 5** (Optional) If you want to enable auto-input switching, use a jumper to connect pins 4 and 5 of the 5-pin captive screw plug that you plugged into the Remote/Auto-SW connector in step **4**. (See “**Enabling Auto-input Switching**,” later in this section.)
- 6** If using a different external power supply from the one provided with the switcher, wire a 2-pin captive screw connector to your power supply. (See “**Wiring the Power Connector (Optional)**,” later in this section.)
- 7** Power on the output display.
- 8** Connect power to the switcher.
- 9** Power on the input devices.

## Rear Panel Features

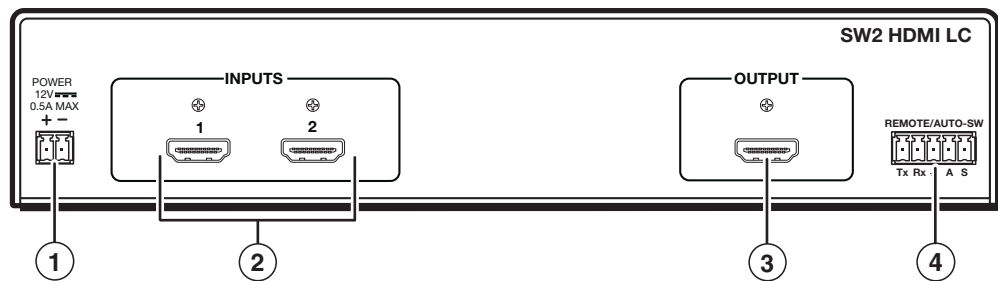


Figure 2. SW2 HDMI LC Rear Panel

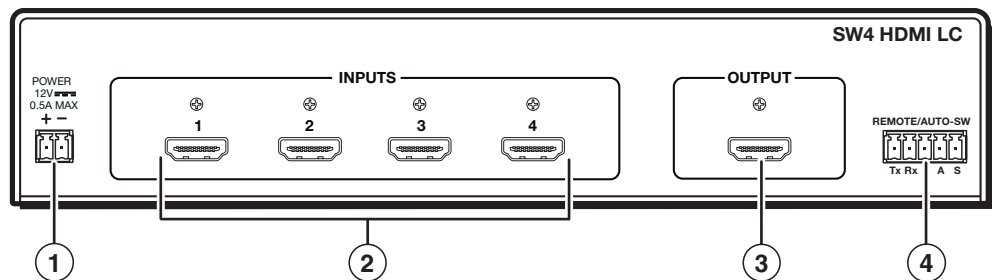


Figure 3. SW4 HDMI LC Rear Panel

- ① **Power connector** — Plug the provided external 12 VDC power supply into this 2-pole, 3.5 mm captive screw connector.
- ② **Video input connectors** — Connect HDMI video input sources to these Type A female single-link HDMI connectors. Pixel clock rates of up to 225 MHz (2.25 Gbps per channel) are supported.
- ③ **Video output connector** — Connect an HDMI display device to this female Type A HDMI connector.

**NOTE:** DDC (Display Data Channel) communication (EDID and HDCP) is passed directly from the selected input source to the output device.

- ④ **Remote and auto-input switching connector** — This 5-pole, 3.5 mm captive screw connector (labeled “Remote/Auto-SW”) can be used for RS-232 communication with the switcher, including firmware updates, and to enable auto-input switching.
  - **To connect for RS-232 control** connect the Tx (transmit), Rx (receive) and  $\perp$  (ground) pins to your computer’s serial port. (See “[Wiring for RS-232 Control](#),” later in this section.)
  - **To enable auto-input switching**, short pins 4 and 5 of this connector together. In auto-input switch mode, the switcher automatically switches to the highest numbered active input. (See “[Enabling Auto-input Switching](#),” later in this section.)

## Wiring the Power Connector (Optional)

A 12 VDC, 1 A desktop power supply with a 2-pin captive screw connector attached is provided with the SW HDMI LC. If you are using a different external power supply from the provided one, you may need to wire the captive screw connector for your power supply.

**CAUTIONS:** The power supply must not be permanently fixed to the building structure or similar structures.

The power supply must not be located within environmental air handling spaces or the wall cavity.

The installation must be in accordance with the applicable provisions of the National Electrical Code ANSI/NFPA 70, Article 725 and the Canadian Electrical Code, Part 1, Section 16.

The power supply must be located in the same vicinity as the Extron A/V processing equipment in an ordinary location, Pollution Degree 2, secured to a podium, a desk, or an equipment rack within a dedicated closet.

Always use a power supply specified by Extron for the SW HDMI LC. Use of an unauthorized power supply voids all regulatory compliance certification and may cause damage to the supply and the switcher.

1. Cut the DC output cord to the length needed.
2. Strip the jacket to expose 3/16 inch (5 mm) of the conductors.

**CAUTION:** Exposing more than 3/16 inch (5 mm) of the copper wires could allow the stripped wires to touch each other, causing a short circuit. This could result in the external DC power supply overheating and burning.

Stripping the wires to expose less than the recommended amount may cause them to slide out of the connector too easily, even if they are tightly pinched by the captive screws.

3. Slide the leads into the supplied 2-pin captive screw plug and secure them, using a small screwdriver.
4. To verify the power cord polarity before connecting the plug, connect in the power supply with no load and check the output with a voltmeter.

**WARNING:** The two power cord wires must be kept separate while the power supply is plugged in. Remove power before wiring.

**CAUTION:** Do not tin the stripped power supply leads before attaching the captive screw plug to them. Tinned wires are not as secure in the captive screw connectors and can be easily pulled out. They may also break after being bent several times.

5. Use the supplied tie-wrap to strap the power cord to the extended tail of the connector.

The figure below shows how to wire the connector.

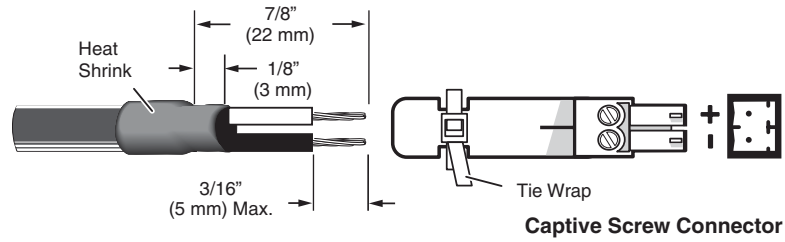
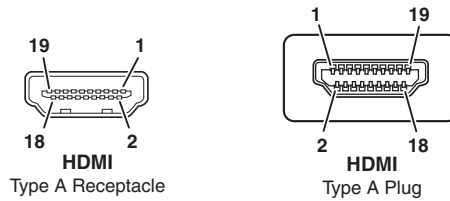


**Figure 4. Power Connector Wiring**

## HDMI Video Connector Pin Assignments

The pin assignments for the video connectors are shown in the table below.

**NOTE:** Appropriate HDMI to DVI cables or adapters are required for DVI signal input and output.



| Pin | Signal             | Pin | Signal             | Pin | Signal          |
|-----|--------------------|-----|--------------------|-----|-----------------|
| 1   | TMDS data 2+       | 7   | TMDS data 0+       | 13  | CEC*            |
| 2   | TMDS data 2 shield | 8   | TMDS data 0 shield | 14  | Reserved (NC)   |
| 3   | TMDS data 2-       | 9   | TMDS data 0-       | 15  | SCL             |
| 4   | TMDS data 1+       | 10  | TMDS clock+        | 16  | SDA             |
| 5   | TMDS data 1 shield | 11  | TMDS clock shield  | 17  | DDC/CEC ground  |
| 6   | TMDS data 1-       | 12  | TMDS clock-        | 18  | +5 V power      |
|     |                    |     |                    | 19  | Hot plug detect |

\*Not supported

**Figure 5. HDMI Pin Configurations**

## Wiring for RS-232 Control

The 5-pin, 3.5 mm Remote/Auto-SW captive screw connector is used for optional RS-232 communication, such as firmware updates, and to enable auto-input switching between inputs connected to the switcher.

Use a female 9-pin, D to bare wire RS-232 cable or a universal control cable (UC 50', UC 100', or UC 200') to connect your computer or control system to the RS-232/Auto-SW connector. One end of the UC cable is terminated with a female 9-pin D connector, and the other end is unterminated.

1. Wire the unterminated end of the RS-232 cable to the provided 5-pole captive screw plug as described below. Connect only the **red**, **orange**, and **green** wires of the cable; and use only the **first three pins** on the connector, starting at the left.
  - a. Connect the red wire to pin 1, which plugs into the Tx (transmit) port.
  - b. Connect the orange wire to pin 2, which plugs into the Rx (receive) port.
  - c. Connect the green wire to pin 3, which plugs into the ground ( $\varnothing$ ) port.
2. Plug the 5-pole connector into the Remote/Auto-SW receptacle on the switcher's rear panel.

The figure below shows how to wire this shared connector for RS-232.

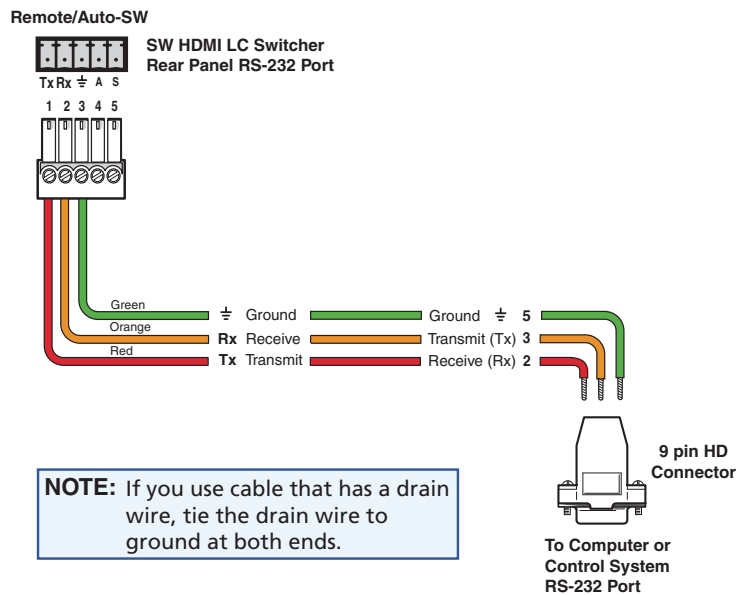


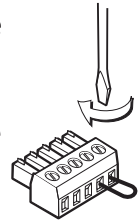
**Figure 6.** Remote/Auto-SW Connector Pin Assignments

## Enabling Auto-input Switching

You can set up the SW HDMI LC to automatically select the active, connected input based on detection of an active video signal. If two or more inputs are active, the input with the highest number is selected (for example, input 4 on an SW4 HDMI LC switcher). When auto-input switching is in effect, the green Auto Switch LED on the front panel lights and the front panel input selection buttons are disabled.

To enable auto-input switching,

1. Cut a small piece of wire (stripped) to use as a jumper.
2. Insert the ends of the wire into slots 4 and 5 of the provided 5-pole captive screw plug, connecting pins 4 and 5 together.
3. Use a small screwdriver to tighten the two screws above pin slots 4 and 5 of the plug, so that the jumper wire ends remain securely in place. (See the illustration at right.)
4. Insert the plug into the 5-pole Auto-SW captive screw connector on the rear panel.



**NOTE:** Auto-input switching utilizes the +5 V signal (pin 18) to detect an active source. (See [HDMI Video Input Connectors Pin Assignments](#), earlier in this section.) This +5 V signal should be present only when the input source is powered on. However, some sources may also provide this signal while in standby mode.

The figure below shows an SW4 HDMI LC with a jumper connecting pins 4 and 5 to enable auto-input switching.

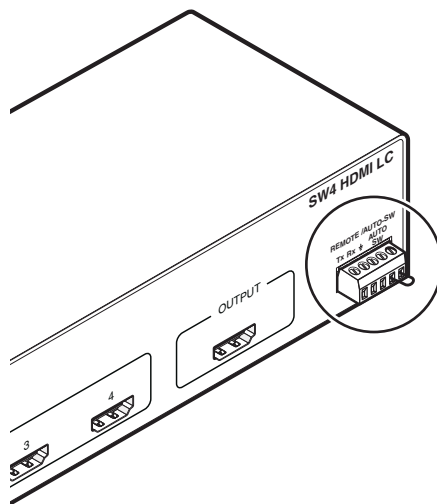


**Figure 7. Remote/Auto-SW Connector with Jumper**

Auto-input switching remains in effect as long as the jumper wire connects the two pins and the 5-pin captive screw plug is attached to the Remote/Auto-SW connector.

# Operation

This section describes the operation of the SW HDMI LC switchers, including:

- **Front Panel Features**
- **Operations**

## Front Panel Features

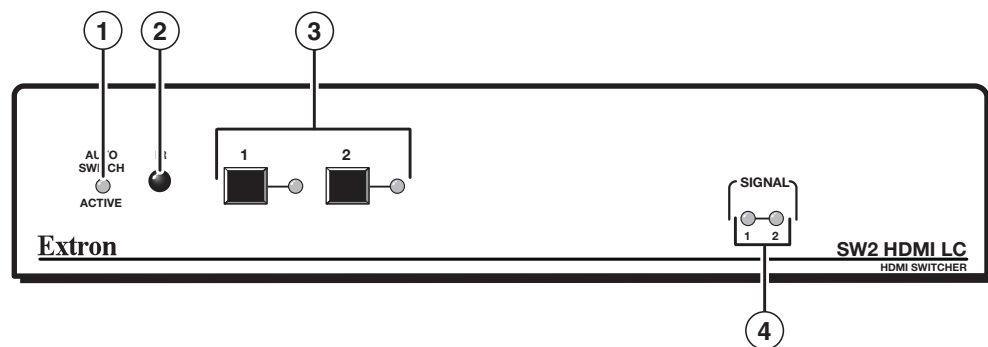


**Figure 8. SW2 HDMI LC Front Panel**

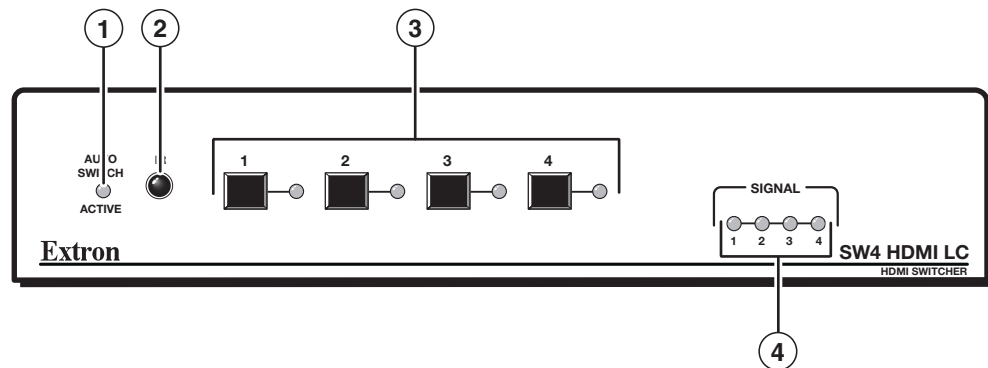


**Figure 9. SW4 HDMI LC Front Panel**

- ① **Auto Switch LED** — This LED lights when auto-input switching is in effect. See [“Enabling Auto-input Switching”](#) in the “Installation” section for the procedure to set up auto-input switching.
- ② **IR receiver port** — This sensor detects IR signals from the optional IR 102 remote control at a distance of up to 30 feet (9.1 m) and within 40 degrees of the axis. (See [“Using the Optional IR 102 Remote Control,”](#) later in this section, for more information.)

- ③ **Input Selection buttons and LEDs** — Press these buttons to select inputs 1 and 2 or 1 through 4, depending on your model. The LED at the right of each button lights when the corresponding input is selected. (These buttons are disabled if auto-input switching is in effect; however, the LEDs continue to light to indicate the input selection.)

These input buttons are also used for enabling front panel lockout (executive mode) and to initiate a system reset (see “[Enabling Front Panel Lockout \(Executive Mode\)](#)” and “[Resetting](#),” later in this section).

- ④ **Signal presence LEDs** — Each SW HDMI LC input has a corresponding numbered bicolored Signal LED, which lights as follows when a source is connected to the input connector:
- **Amber** when a +5 V signal is detected
  - **Green** when TMDS activity is detected

## Operations

### Powering on the Switcher

Follow these steps to power on the SW HDMI LC:

1. Connect all input and output devices to the switcher rear panel connectors. (See “[Rear Panel Features](#)” in the “Installation” section for information on the rear panel connections.)
2. Power on the display.
3. Plug the power supply into the 2-pole captive screw power connector on the rear panel. The unit performs a self-test, during which the front panel Auto Switch and Input LEDs each blink once in sequence from left to right. If the self-test completes with no errors, the LED for the most recently selected input remains lit.
4. Power on the input devices.

### Selecting an Input

To switch (tie) an input to the output, press the front panel button for the desired input (ensure that auto-input switching is **not** enabled). The LED corresponding to the selected input button lights.

- To determine the current configuration, check the front panel input LEDs. The one that is lit indicates the selected input. The LED remains lit until a new input is selected.
- Only one input can be switched to the output at a time.

Other ways to select an input include using SIS commands (see the “[Remote Communication and Control](#)” section) or optional IR remote control (see “[Using the Optional IR 102 Remote Control](#),” on the next page). Front panel input selection is disabled when auto-input switching is in effect.

### Resetting

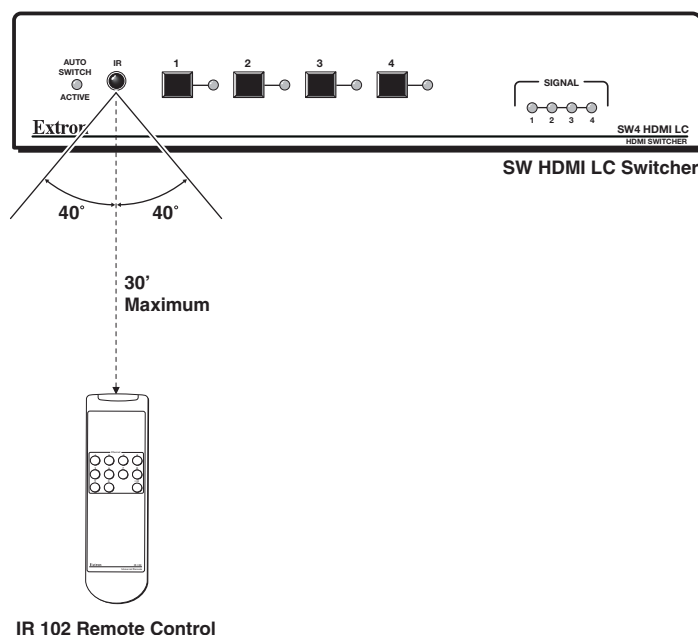
To reset the switcher to its factory default settings, follow these steps:

1. Press and hold the Input 1 button while power is being applied to the unit.
2. Continue holding the Input 1 button until the power-up sequence completes.

## Using the Optional IR 102 Remote Control

The optional hand-held IR 102 Remote Control (part #70-224-10) lets you remotely perform functions that are also available through the front panel buttons and SIS commands.

The IR receiver port on the front panel is located to the right of the Auto Switch LED. It receives signals from the remote control if they are sent from within a 40-degree arc to the right or left of direct line of sight between the remote control and the switcher receiver, and from no more than 30 feet (9 m) away. (See the illustration below.)



IR 102 Remote Control

**Figure 10.** Area for Remote Signal Reception

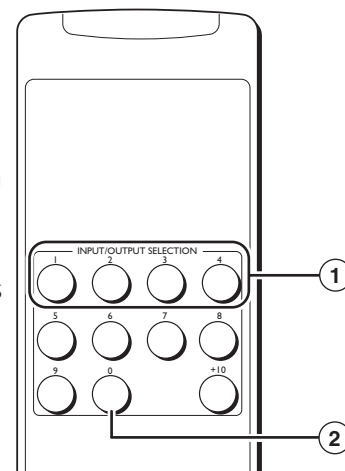
### Remote control buttons

On the IR 102 remote control, buttons 1 and 2 or 1 through 4 (depending on your model) select inputs. Button 0 mutes (deselects) all inputs.

- ① **Input Selection buttons** — Press one of these buttons (1 through 4) to select an input.
- ② **Input Mute button (0)** — Press this button to deselect all inputs, effectively muting the output.

### Locking IR remote access

The SW HDMI LC can be set to lock out users from using the IR 102 Remote Control to control the switcher. Remote access can be enabled and disabled via SIS commands (see “**Front panel IR receiver disable**” in the Command/response table for SIS commands in the “**Remote Communication and Control**” section). When remote access is set to Off, all switcher controls remain available through the SW HDMI LC front panel.



## Enabling Front Panel Lockout (Executive Mode)

Executive mode disables all front panel controls, locking out the user from those functions. Putting the switcher in this mode enhances security by protecting against inappropriate or accidental changes to settings. When the switcher is in executive mode, RS-232 and IR control remain available.

To lock or unlock the front panel:

1. Press and hold Input buttons 1 and 2 simultaneously.
2. When the LEDs blink three times, release the buttons (approximately 3 seconds). (See the illustration below.)

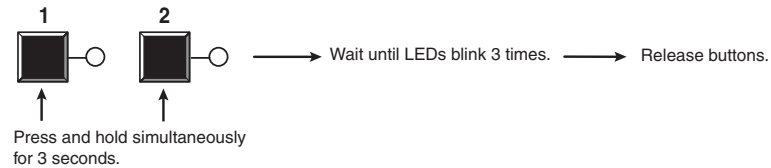


**Figure 11. Enabling or Disabling Executive Mode**

# Remote Communication and Control

This section describes remote control operation of the SW HDMI LC switchers, including:

- [Using Simple Instruction Set \(SIS\) Commands](#)
- [Updating Firmware Using Firmware Loader](#)

## Using Simple Instruction Set (SIS) Commands

The SW HDMI LC can be remotely set up and controlled via a host computer or other device (such as a control system), attached to the rear panel Remote/Auto-SW port, using the Extron Simple Instruction Set (SIS) commands. See “[Enabling Auto Switching](#)” in “Installation” section for information on connecting to this port.

### Host-to-switcher Communications

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. You can enter these commands from your computer using a communication software program such as HyperTerminal. When the switcher determines that a command is valid, it executes the command and sends a response to the host device.

Most responses from the SW HDMI LC to the host computer end with a carriage return and a line feed (CR/LF =  $\leftarrow$ ), which signals the end of the response character string. A string is one or more characters.

### Switcher-initiated Messages

When a local event such as a front panel selection takes place, the switcher responds by sending a message to the host, indicating what selection was entered. No response is required from the host.

The following switcher-initiated message is displayed:

```
(C) Copyright 2010, Extron Electronics HDMI LC Series, Vx.xx,  
60-xxxx-01
```

The switcher sends the copyright message when it first powers on. Vx.xx is the firmware version number; 60-xxxx-01 is the part number.

**NOTE:** This message is displayed only at power-up.

## Error Responses

If the switcher is unable to execute a command it receives because the command is invalid or contains invalid parameters, the switcher returns an error response to the host. Error response codes and their descriptions are as follows:

- E01** – Invalid input channel number (out of range)
- E06** – Invalid input selection during auto-input switching
- E10** – Invalid command
- E13** – Invalid parameter (out of range)

## Using the Command/response Table

The command/response table on the following pages lists valid ASCII and hexadecimal command codes, the responses from the switcher to the host, and a description of the command function or the results of executing the command.

The ASCII to HEX conversion table below is for use with the command/response table.

| ASCII to Hex Conversion Table |    |    |    |    |    |    |    |    |    |    |    |    |    |    |        |
|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------|
| Space →                       | 20 | !  | 21 | "  | 22 | #  | 23 | \$ | 24 | %  | 25 | &  | 26 | '  | 27     |
|                               | (  | 28 | )  | 29 | *  | 2A | +  | 2B | ,  | 2C | -  | 2D | .  | 2E | /      |
|                               | 0  | 30 | 1  | 31 | 2  | 32 | 3  | 33 | 4  | 34 | 5  | 35 | 6  | 36 | 7      |
|                               | 8  | 38 | 9  | 39 | :  | 3A | ;  | 3B | <  | 3C | =  | 3D | >  | 3E | ?      |
|                               | @  | 40 | A  | 41 | B  | 42 | C  | 43 | D  | 44 | E  | 45 | F  | 46 | G      |
|                               | H  | 48 | I  | 49 | J  | 4A | K  | 4B | L  | 4C | M  | 4D | N  | 4E | O      |
|                               | P  | 50 | Q  | 51 | R  | 52 | S  | 53 | T  | 54 | U  | 55 | V  | 56 | W      |
|                               | X  | 58 | Y  | 59 | Z  | 5A | [  | 5B | \  | 5C | ]  | 5D | ^  | 5E | _      |
|                               | `  | 60 | a  | 61 | b  | 62 | c  | 63 | d  | 64 | e  | 65 | f  | 66 | g      |
|                               | h  | 68 | i  | 69 | j  | 6A | k  | 6B | l  | 6C | m  | 6D | n  | 6E | o      |
|                               | p  | 70 | q  | 71 | r  | 72 | s  | 73 | t  | 74 | u  | 75 | v  | 76 | w      |
|                               | x  | 78 | y  | 79 | z  | 7A | {  | 7B |    | 7C | }  | 7D | ~  | 7E | DEL 7F |

**Figure 12.** ASCII to Hex conversion table

## Symbol Definitions

- ↵ = CR/LF (carriage return/line feed) (hex 0D 0A)
- ↶ = Soft carriage return (no line feed)
- = Space
- Esc** = Escape key
- X1** = Input number  
0 through the maximum number of inputs on the unit  
0 = deselect (mute) all inputs
- X2** = On and Off, High and Low, Enable and Disable  
0 = Off/low EQ level/disable  
1 = On/high EQ level/enable
- X3** = Signal status  
0 = no signal  
1 = source detected (+5 V present)  
2 = signal detected (TMDS clock)
- X4** = Switch mode  
1 = normal switch mode  
2 = auto-input switch mode
- X5** = Firmware version (to the second decimal place)

**NOTE:** Unless otherwise indicated, commands are **not** case sensitive.

## Command/response Table for SIS Commands

| Command                                                       | ASCII Command<br>(host to unit) | Response<br>(unit to host)                        | Additional Description                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------|---------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Input selection</b>                                        |                                 |                                                   |                                                                                                                                                                                                                                                                                                                     |
| Select input                                                  | <b>[X1] !</b>                   | In <b>[X1]</b> • All ↵                            | Select input <b>[X1]</b> .<br><b>[X1]</b> = input number 0 through highest number of inputs on the switcher. For <b>[X1]</b> :<br>0 = deselect all inputs                                                                                                                                                           |
| <b>Input equalization</b>                                     |                                 |                                                   |                                                                                                                                                                                                                                                                                                                     |
| Adjust EQ level for an individual input                       | <b>[Esc] [X1] * [X2] ISEQ</b> ↵ | <b>[X1] ISEQ • [X2]</b> ↵                         | Adjust the equalization level for input <b>[X1]</b> to <b>[X2]</b> .<br>For <b>[X2]</b> :<br>0 = low (6 dB)<br>1 = high (18 dB)                                                                                                                                                                                     |
| Adjust EQ level for all inputs                                | <b>[Esc] [X2] ISEQ</b> ↵        | <b>ISEQ • [X2]</b> ↵                              | Adjust the equalization level for all inputs to <b>[X2]</b> .                                                                                                                                                                                                                                                       |
| View EQ status                                                | <b>[Esc] ISEQ</b> ↵             | <b>ISEQ • [X2] • ... [X2]</b> ↵                   | View the current equalization level <b>[X2]</b> for all inputs.                                                                                                                                                                                                                                                     |
| <b>Video muting</b>                                           |                                 |                                                   |                                                                                                                                                                                                                                                                                                                     |
| Video mute                                                    | <b>[X2] B</b>                   | Vmt <b>[X2]</b> ↵                                 | Mute the video signal. For <b>[X2]</b> :<br>0 = unmute<br>1 = mute                                                                                                                                                                                                                                                  |
| Query video mute                                              | <b>B</b>                        | <b>[X2]</b> ↵                                     | Show video muting status <b>[X2]</b> .                                                                                                                                                                                                                                                                              |
| <b>Signal status</b>                                          |                                 |                                                   |                                                                                                                                                                                                                                                                                                                     |
| Request all signal status                                     | <b>OLS</b>                      | Sig <b>[X3] ... [X3]</b> ↵                        | Show the signal status <b>[X3]</b> for all inputs. For <b>[X3]</b> :<br>0 = no signal detected<br>1 = source signal detected (+5 V)<br>2 = signal detected (TMDS clock)                                                                                                                                             |
| <b>Front panel lockout</b>                                    |                                 |                                                   |                                                                                                                                                                                                                                                                                                                     |
| Enable/disable executive mode                                 | <b>[X2] X</b>                   | Exe <b>[X2]</b> ↵                                 | Lock or unlock the front panel controls. For <b>[X2]</b> :<br>1 = Lock the front panel.<br>0 = Unlock the front panel (default).                                                                                                                                                                                    |
| View lockout status                                           | <b>X</b>                        | <b>[X2]</b> ↵                                     | Show executive mode On or Off status.                                                                                                                                                                                                                                                                               |
| <b>Front panel IR receiver disable</b>                        |                                 |                                                   |                                                                                                                                                                                                                                                                                                                     |
| Enable and disable IR receiver                                | <b>[X2] * 65#</b>               | IRDisable <b>[X2]</b> ↵                           | Enable or disable the IR remote receiver on the front panel from receiving signals from the IR remote control. For <b>[X2]</b> :<br>0 = Set the IR Disable feature to Off (IR is enabled [default].)<br>1 = Set the IR Disable feature to On (IR is disabled).                                                      |
| View IR status                                                | <b>65#</b>                      | <b>[X2]</b> ↵                                     | View the IR receiver lock status.                                                                                                                                                                                                                                                                                   |
| <b>Request information, part number, and firmware version</b> |                                 |                                                   |                                                                                                                                                                                                                                                                                                                     |
| Request information                                           | <b>I</b>                        | V <b>[X1]</b> • F <b>[X4]</b> • Vmt <b>[X2]</b> ↵ | Show the selected input, switch mode, and video muting status.<br><b>[X1]</b> = input number: 1 through highest number of inputs available. 0 = all inputs muted.<br><b>[X2]</b> = muting status:<br>0 = unmuted<br>1 = muted<br><b>[X4]</b> = switch mode:<br>1 = normal switch mode<br>2 = auto-input switch mode |
| <b>Example:</b>                                               | <b>I</b>                        | V4 F2 Vmt0 ↵                                      | On an SW4 HDMI LC, input 4 is selected, auto-input switch mode is enabled, and the video is not muted.                                                                                                                                                                                                              |

## Command/response Table for SIS commands, Continued

| Command                                                                   | ASCII Command<br>(host to unit) | Response<br>(unit to host) | Additional Description                                                                             |
|---------------------------------------------------------------------------|---------------------------------|----------------------------|----------------------------------------------------------------------------------------------------|
| <b>Request information, part number, and firmware version (continued)</b> |                                 |                            |                                                                                                    |
| Request part number                                                       | N                               | 60-xxxx-01 ↵               | Show the switcher part number:<br><b>SW2 HDMI LC:</b> 60-1159-01<br><b>SW4 HDMI LC:</b> 60-1160-01 |
| Query firmware version                                                    | Q                               | [X5] ↵                     | Show the current firmware build number [X5],<br>expressed to the second decimal place.             |
| <b>Example:</b>                                                           | Q                               | 1.01 ↵                     |                                                                                                    |
| Query auto-input switch status                                            | 72#                             | Asw [X2] ↵                 | Show On or Off status of auto-input switching.<br>For [X2]:<br>0 = disabled<br>1 = enabled         |
| <b>Reset</b>                                                              |                                 |                            |                                                                                                    |
| Reset                                                                     | [Esc] ZXXX ←                    | Zpx ↵                      | Reset the switcher to its factory default values.                                                  |
| <b>Upload firmware</b>                                                    |                                 |                            |                                                                                                    |
| Upload firmware                                                           | [Esc] Upload ←                  | ...go<br>Upl ↵             | Upload a new firmware version from the<br>computer. "Upl" appears after the upload is<br>complete. |

## Updating Firmware Using Firmware Loader

Updates to the SW HDMI LC firmware are made available periodically via the Extron Web site. You can find out what version of firmware is currently loaded on your switcher by entering the SIS "Q" command via the RS-232 interface. See "[Using Simple Instruction Set \(SIS\) Commands](#)," earlier in this section, for the procedure for entering SIS commands.

### Downloading and installing the Firmware Loader

Extron recommends using the Firmware Loader software to update the firmware on the SW HDMI LC. If you do not already have the Firmware Loader software installed on your computer, download it as follows:

1. Go to the Extron Web site at [www.extron.com](http://www.extron.com) and click the **Download** tab.
2. On the Download Center screen, click the **Software** link on the left sidebar menu.
3. On the next Download Center screen, locate and click the **Download** link for the Firmware Loader.

| Description                                                                                                                                                                                                                                                                                                                                                        | Part Number | Version | Date        | Size    |                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------|-------------|---------|--------------------------|
| <b>Firmware Loader</b> <span>UPDATED</span><br>Extron Firmware Loader is a computer software application that allows you to update Extron products with field-upgradable firmware. The software supports firmware updates to Extron products connected via USB, serial (RS-232), or addressable on your local area network (LAN).<br><a href="#">Release Notes</a> | 79-508-01   | 5.0.1   | Apr 1, 2010 | 11.9 MB | <a href="#">Download</a> |

**Figure 13. Firmware Loader Download Link**

4. On the next screen, enter the requested information, then click the **Download fw\_loader $n$ x $n$ .exe** button (where  $n$  is the Firmware Loader version number).
5. Follow the instructions on the rest of the download screens to save the executable Firmware Loader installer file to your computer. Note the folder to which you saved the file.
6. In Windows Explorer or another file browser, locate the downloaded executable installer file, and double-click it to open it.
7. Follow the instructions on the Installation Wizard screens to install the Firmware Loader on your computer. Unless you specify otherwise, the installer program places the Firmware Loader file, "FWLoader.exe", at c:\Program Files\Extron\FWLoader.

### Downloading the SW HDMI LC Firmware

To obtain the latest version of firmware for your SW HDMI LC, follow these steps:

1. Visit the Extron Web site ([www.extron.com](http://www.extron.com)), click the **Download** tab, then click the **Firmware** link on the left sidebar menu.



**Figure 14. Firmware Link on the Download Tab**

2. On the next Download Center screen, click the SW HDMI LC **Download** link.
3. On the next screen that appears, enter the requested user information, then click the **Download** button.
4. Follow the instructions on the rest of the download screens to save the executable firmware file to your computer. Note the folder to which you saved the file.
5. In Windows Explorer or another file browser, locate the downloaded executable file, and double-click it to open it.
6. Follow the instructions on the Installation Wizard screens to install the new firmware on your computer. A Release Notes file, giving information on what has changed in the new firmware version, and a set of instructions for updating the firmware are also loaded.

## Loading the Firmware to the Switcher

To load a new version of firmware to the switcher using the Firmware Loader software, connect your computer's serial port to the first three pins of the switcher's Remote/ Auto-SW serial port. See "[Wiring for RS-232 Control](#)" in the "Installation" section for information on connecting to the serial port.

1. If you have not already done so, download and install the Firmware Loader executable installer file to your computer (see "[Downloading and Installing the Firmware Loader](#)," earlier in this section).
2. If necessary, download the latest SW HDMI LC firmware version and install it on your computer (see "[Downloading the SW HDMI LC Firmware](#)," in the previous section).
3. Open the Firmware Loader via your desktop Start menu by making the following selections:

**Start > All Programs > Extron Electronics > Firmware Loader > Firmware Loader**

The Firmware Loader window opens with the Add Device window displayed in front of it.

4. On the Add Device window, select the following from the drop-down menus (see the illustration on the next page):
  - **Device Name:** your switcher model (**SW2 HDMI LC** or **SW4 HDMI LC**)
  - **Connection Method:** **RS-232**
  - **Com Port:** the name of the Com port to which your SW HDMI LC is connected
  - **Baud Rate:** 9600.

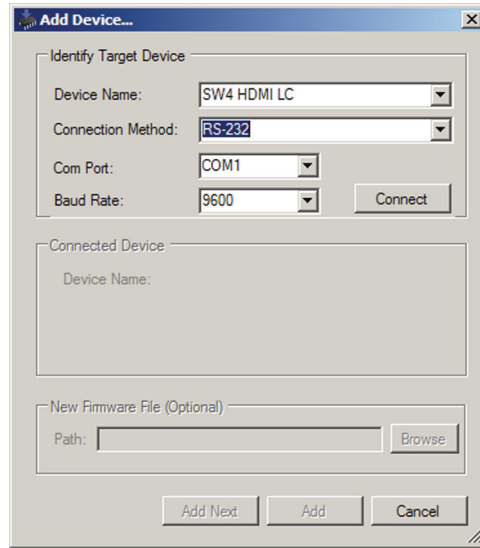


**Figure 15. Add Device Window**

**NOTE:** Although the screen also has a TCP/IP tab, the SW HDMI LC does not have a LAN port. Do not select the TCP/IP tab.

5. Click **Connect**. Your switcher name is added to the Connected Devices field in Firmware Loader window.
6. In the New Firmware File (Optional) section, click **Browse**.
7. In the Open window, locate the firmware file to be uploaded to your switcher and double-click on its name. **The file extension must be .S19.**

**CAUTION:** Uploading a file with an incorrect extension may cause the unit to stop functioning.

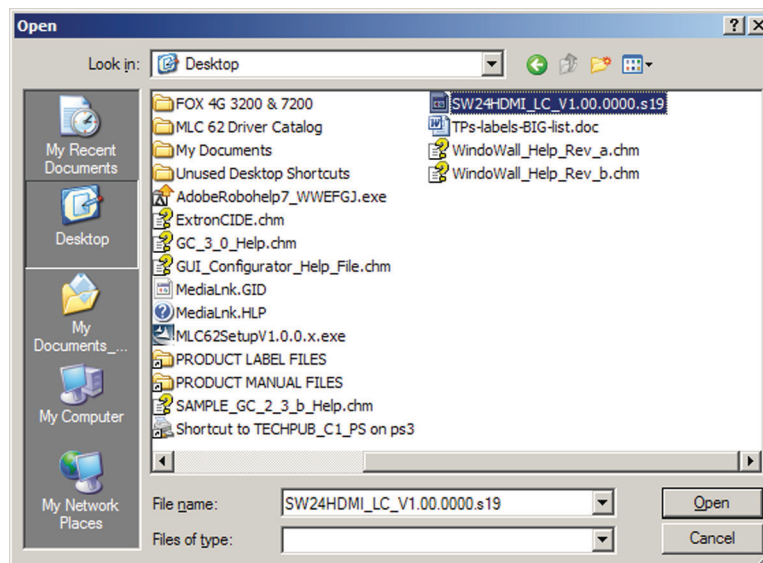


**Figure 16. Selecting the Firmware File**

The path to the selected firmware file appears in the Path field on the Add Device screen.

8. Click **Add** to add your switcher name to the Firmware Loader screen. The Add Device window closes, leaving the Firmware Loader window open with your SW HDMI LC name highlighted and selected in the Devices field.

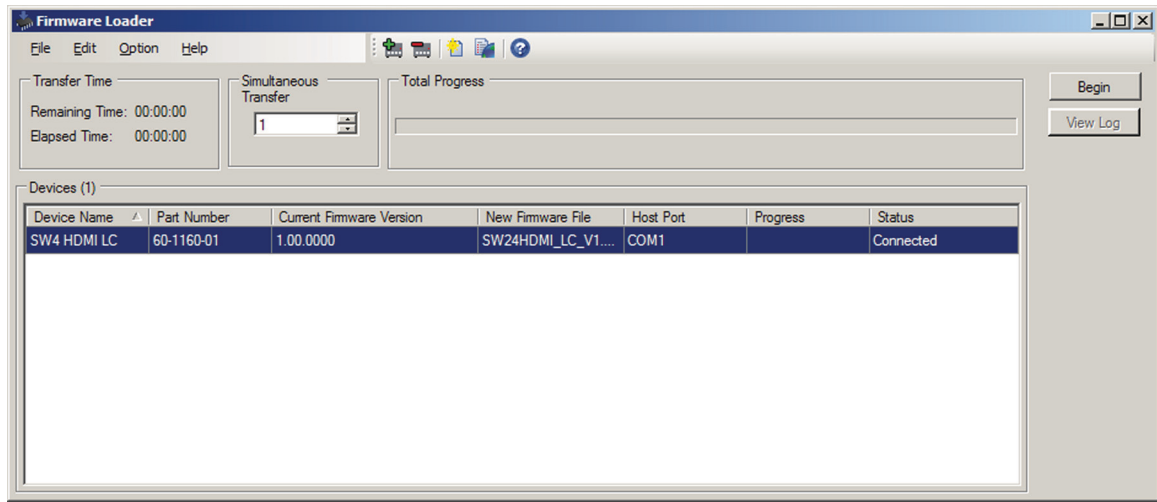


**Figure 17. Firmware Loader Screen with an SW HDMI LC Added**

or

Click **Add Next** if you want to upload firmware to multiple Extron devices at the same time (they do not all have to be SW HDMI LC switchers). Your switcher is added to the Firmware Loader screen and the Add Device window remains open. Continue with the following procedure:

- a. Select or enter the information for your next device in the Identify Target Device field, and click **Connect**.
  - b. Browse to locate and select the firmware file to be uploaded to the new device.
  - c. If you intend to add more devices to the Firmware Loader, click **Add Next**. If finished adding devices, skip to step e.
  - d. Repeat steps a through c for each device that you want to add to the Firmware Loader.
  - e. When finished adding devices, click **Add** for your last device, or click **Cancel** to close the Add Device window.
9. Click **Begin** to start the uploading process.

While the firmware is being updated, a progress bar in the Total Progress field shows the status of the upload, while the Transfer Time field displays the time elapsed and the time remaining in the process. In addition, the percent of the file that has been uploaded is displayed highlighted in the Progress column until the entire firmware file is uploaded.

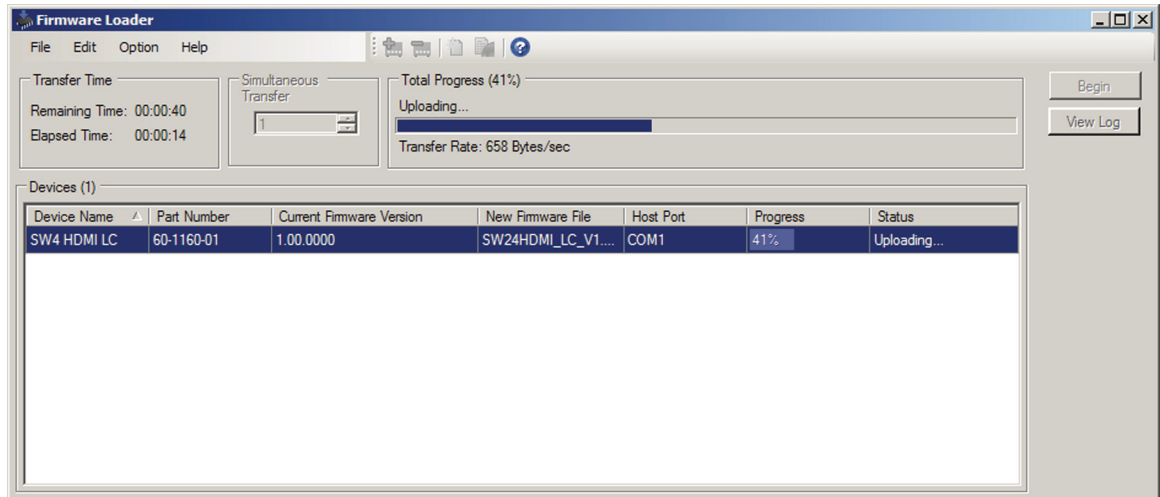


**Figure 18. Firmware Upload in Progress**

10. When the firmware update is finished, "Completed" appears above the progress bar, the Progress field displays "100%," and the Status field displays "Completed." Close the Firmware Loader window.

### Removing a device from the Firmware Loader

To delete a device from the Devices section of the Firmware Loader window without uploading firmware to it:

1. In the Devices field, click on the name of each device to be deleted, to highlight it. (To select multiple devices, hold down the Ctrl or Shift key on your computer keyboard while clicking on each device name.)
2. Select **Remove Selected Device(s)** from the Edit menu or the pop-up menu (displayed by right-clicking within the Devices field).
3. On the Remove Device(s) window, select or deselect any devices on the list as desired, then click **Remove**.

To remove all devices from the Devices field, select **Remove All Devices** from the Edit or pop-up menu.

### Changing the firmware file

To change the firmware file that will be uploaded to a device:

1. In the Devices field, select the device for which the firmware file will be changed.
2. Double-click on the firmware file name in the selected device row, or right-click on the firmware file name and select **New Firmware for Selected Devices** from the pop-up menu.
3. On the Choose Firmware File window, browse to locate and select the firmware file that you want to upload to the selected device.

# Reference Information

This section reference information for the SW HDMI LC switchers. Topics that are covered include:

- **Specifications**
- **Part Numbers**
- **Mounting the SW HDMI LC**

## Specifications

**NOTE:** \*Appropriate HDMI to DVI-D cables or adapters are required for DVI signal input/output.

### Video

|                           |                                                          |
|---------------------------|----------------------------------------------------------|
| Maximum data rate .....   | 6.75 Gbps (2.25 Gbps per color)                          |
| Maximum pixel clock ..... | 225 MHz                                                  |
| Resolution .....          | Up to 1080p @ 60 Hz or 720p/1080i @ 120 Hz, 12-bit color |
| Formats .....             | RGB, YCbCr, and xvYCC digital video                      |
| Standards .....           | DVI 1.0, HDMI 1.3, HDCP, CEA-861E                        |

### Video input

|                         |                                            |
|-------------------------|--------------------------------------------|
| Number/signal type..... | 2 or 4 single link HDMI (or DVI-D*)        |
| Connectors.....         | 2 or 4 female HDMI type A                  |
| Input equalization..... | +6 dB or +18 dB, selectable for each input |

### Video output

|                         |                                |
|-------------------------|--------------------------------|
| Number/signal type..... | 1 single link HDMI (or DVI-D*) |
| Connectors.....         | 1 female HDMI type A           |

### Control/remote — switcher

|                                    |                                                                                               |
|------------------------------------|-----------------------------------------------------------------------------------------------|
| Serial control port.....           | (1) RS-232, 3.5 mm captive screw connector, 5 pole (shared with auto-input switching control) |
| Baud rate and protocol .....       | 9600 baud, 8 data bits, 1 stop bit, no parity                                                 |
| Serial control pin configurations  | 1 = Tx, 2 = Rx, 3 = GND                                                                       |
| Contact closure .....              | (1) 3.5 mm captive screw connector, 5 pole (shared with RS-232)                               |
| Contact closure pin configurations | Pins 4 and 5 shorted together turn auto-input switch mode on.                                 |
| IR controller module .....         | IR 102 remote control (optional)<br>30' maximum, 40 degrees off axis                          |
| Program control.....               | Extron Simple Instruction Set™ (SIS™)                                                         |

## General

|                               |                                                                                                                                            |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| External power supply .....   | 100 VAC to 240 VAC, 50-60 Hz, external; to 12 VDC, 1 A, regulated                                                                          |
| Power input requirements..... | 12 VDC, 0.5 A                                                                                                                              |
| Temperature/humidity.....     | Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing<br>Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing |
| Cooling .....                 | Convection, no vents                                                                                                                       |
| Thermal dissipation           |                                                                                                                                            |
| 115 VAC, 60 Hz.....           | 4.6 BTU/hr                                                                                                                                 |
| 240 VAC, 50 Hz.....           | 5.5 BTU/hr                                                                                                                                 |
| Mounting                      |                                                                                                                                            |
| Rack mount .....              | Yes, with optional 1U rack shelf                                                                                                           |
| Furniture mount .....         | Yes, with optional under-desk mounting kit or through-desk mounting kit                                                                    |
| Enclosure type .....          | Metal                                                                                                                                      |
| Enclosure dimensions.....     | 1.75" H x 8.75" W x 3.0" D (1U high, half rack wide)<br>(4.4 cm H x 22.2 cm W x 7.6 cm D)<br>(Depth excludes connectors.)                  |
| Product weight .....          | 0.5 lbs (0.3 kg)                                                                                                                           |
| Shipping weight .....         | 2 lbs (1 kg)                                                                                                                               |
| Vibration .....               | ISTA 1A in carton (International Safe Transit Association)                                                                                 |
| Regulatory compliance         |                                                                                                                                            |
| Safety .....                  | CE, c-UL, UL                                                                                                                               |
| EMI/EMC .....                 | CE, C-tick, FCC Class A, ICES, VCCI                                                                                                        |
| MTBF .....                    | 30,000 hours                                                                                                                               |
| Warranty .....                | 3 years parts and labor                                                                                                                    |

**NOTE:** All nominal levels are at  $\pm 10\%$ .

Specifications are subject to change without notice.

## Part Numbers

### Included Parts

These items are included with SW HDMI LC switcher:

| Included Parts                                                 | Replacement Part Numbers |
|----------------------------------------------------------------|--------------------------|
| SW2 HDMI LC<br>SW4 HDMI LC                                     | 60-1159-01<br>60-1160-01 |
| 12 VDC, 1 A external power supply with captive screw connector | 70-775-01                |
| IEC power cord                                                 |                          |
| 3.5 mm 5-pole captive screw connector                          | 100-460-01               |
| <i>SW HDMI LC Setup Guide</i>                                  |                          |
| Extron Software Products Disk                                  |                          |
| Rubber feet, self-adhesive (4, not attached)                   |                          |

### Accessories

These items are optional and may be ordered separately:

| Accessories                                   | Part numbers |
|-----------------------------------------------|--------------|
| IR 102 Remote Control                         | 70-224-10    |
| RSU 129 9.5" deep 1U Universal Rack Shelf Kit | 60-190-01    |
| RSB 129 9.5" deep 1U Basic Rack Shelf         | 60-604-01    |
| RSU 126 6" deep 1U Universal Rack Shelf Kit   | 60-190-10    |
| RSB 126 6" deep Basic 1U Basic Rack Shelf     | 60-604-10    |
| RSF 123 3.5" deep 1U Rack Shelf Kit           | 60-190-20    |
| RSB 123 3.5" deep 1U Basic Rack Shelf         | 60-604-20    |
| MBU 123 Mini Under-desk kit                   | 70-212-01    |
| MBB 100 Back of the Rack Kit                  | 70-367-01    |

### Cables and Adapters

The following table lists cables and adapters that are available for the SW HDMI LC. For a complete listing of cables, visit the Extron Web site at [www.extron.com](http://www.extron.com).

| Cables                                       | Part numbers |
|----------------------------------------------|--------------|
| HDMI M-M Pro HDMI Male-to-male Cables        | 26-650-xx    |
| HDMI M-DVI-DM HDMI Male-to-DVI-D Male Cables | 26-614-xx    |

## Mounting the SW HDMI LC

The SW HDMI LC switcher can be set on a table, mounted on a rack shelf, or mounted under a desk, podium, or table.

### Tabletop Use

Four self-adhesive rubber feet are included with the SW HDMI LC. For tabletop use, attach one foot at each corner on the bottom of the unit and place the switcher where desired.

### Rack Mounting

#### UL rack mounting guidelines

The following Underwriters Laboratories (UL) guidelines pertain to the safe installation of the equipment in a rack.

- 1. Elevated operating ambient temperature** — If the equipment is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, install the equipment in an environment compatible with the maximum ambient temperature ( $T_{ma} = +122\text{ }^{\circ}\text{F}$ ,  $+50\text{ }^{\circ}\text{C}$ ) specified by Extron.
- 2. Reduced air flow** — Install the equipment in a rack so that the amount of air flow required for safe operation of the equipment is not compromised.
- 3. Mechanical loading** — When mounting the equipment in the rack, ensure that uneven mechanical loading does not cause a hazardous condition.
- 4. Circuit overloading** — When connecting the equipment to the supply circuit, consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings when addressing this concern.
- 5. Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).

#### Rack mounting procedures

The SW HDMI LC switcher can be mounted on a rack shelf or on one of the supports at the back of the rack.

#### *Mounting on a rack shelf*

For optional rack mounting of the SW HDMI LC, the following rack shelves are available:

- **RSB 123** — 1U, 3.5" Deep Basic Rack Shelf (part #60-604-20)
- **RSF 123** — 1U, 3.5" Deep Rack Shelf Kit (part #60-190-20)
- **RSB 126** — 1U, 6" Deep Basic Rack Shelf (part #60-604-10)
- **RSU 126** — 1U, 6" Deep Universal Rack Shelf Kit (part #60-190-10)
- **RSB 129** — 1U, 9.5" Deep Basic Rack Shelf (part #60-604-01)
- **RSU 129** — 1U, 9.5" Deep Universal Rack Shelf Kit (part #60-190-01)

To mount the switcher on a rack shelf:

- 1.** If feet were previously attached to the bottom of the unit, remove them.
- 2.** Mount the switcher on the rack shelf, using two 4-40 x 3/16 inch screws in opposite (diagonal) corners to secure the unit to the shelf (see the figure below).
- 3.** Install blank panel(s) or other unit(s) on the rack shelf as desired.

4. Install the shelf in the rack.

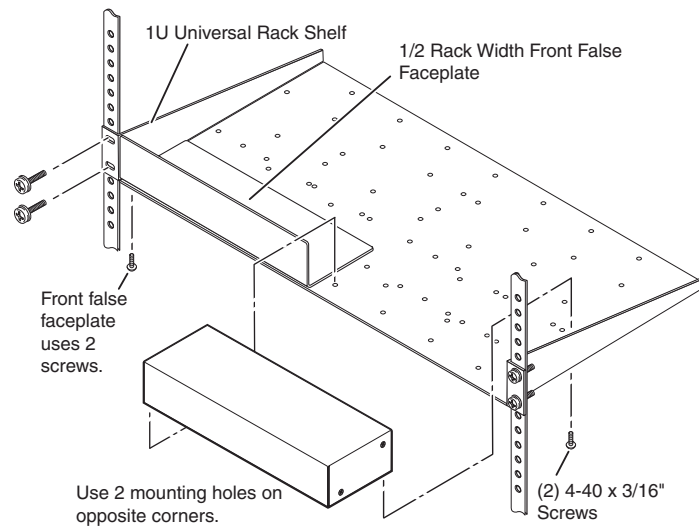


**Figure 19. Mounting an SW HDMI LC Switcher on a Standard 9.5-inch Deep Rack Shelf**

### ***Mounting to the back of the rack***

The SW HDMI LC can also be mounted vertically to the front or rear rack supports, using the optional MBB 100 Back of the Rack Mounting Kit (part #70-367-01) as follows:

1. If rubber feet were previously attached to the bottom of the unit, remove them.
2. Remove the two screws from each side of the switcher. Retain the screws for possible later reassembly.
3. Attach the brackets to the sides of the unit, using the longer screws included in the mounting kit (see the illustration below).

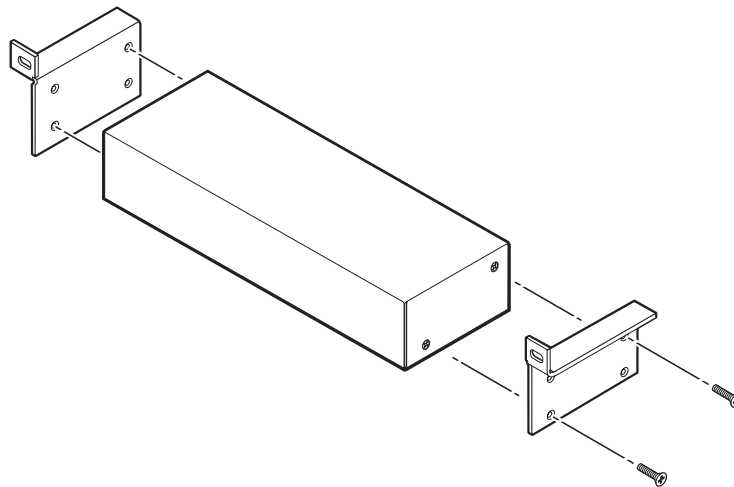


**Figure 20. Attaching the Back of the Rack Mounting Brackets to an SW HDMI LC Switcher**

4. Mount the switcher to the rack support, using the two included rack screws.

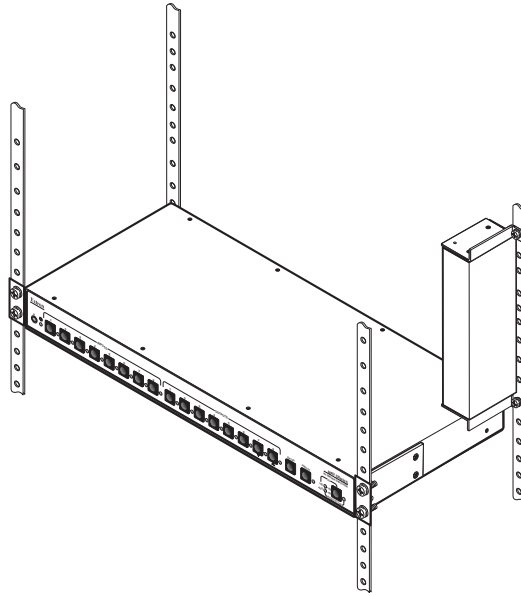


**Figure 21.** Mounting an SW HDMI LC Switcher to a Back of the Rack Support

## Furniture Mounting

To mount an SW HDMI LC switcher under a desk, table, or podium, use the optional MBU 123 Mini Under-Desk Mounting Kit (part #70-212-01) as follows:

1. If rubber feet were previously attached to the bottom of the unit, remove them.
2. Remove the two screws from each side of the switcher. Retain the screws for possible later reassembly.
3. Attach the brackets to the sides of the unit, using the provided machine screws.

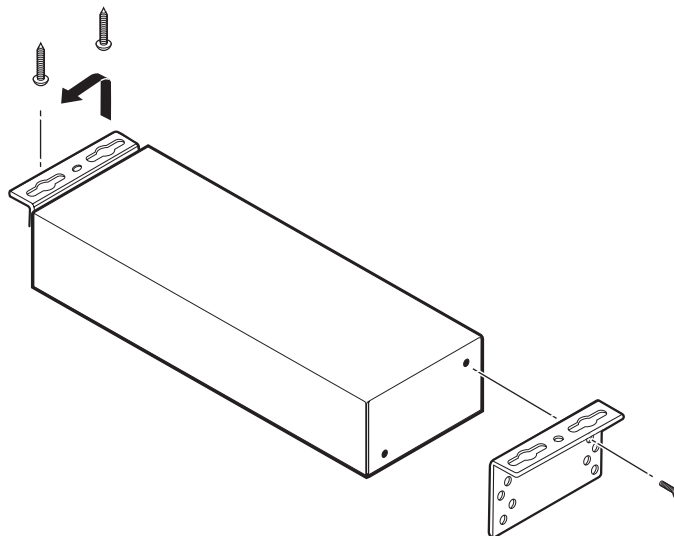


**Figure 22.** Preparing the SW HDMI LC Switcher for Under-desk Mounting

4. Hold the unit with the attached brackets against the underside of the table or other furniture. On the mounting surface, mark the location of the bracket screw holes.
5. Drill 3/32 inch (2 mm) diameter pilot holes, 1/4 inch (6.3 mm) deep, into the mounting surface at the marked screw locations.

6. Insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until slightly less than 1/4 inch of the screw head protrudes.
7. Align the centers of the slots in the brackets with the mounting screws and place the unit against the surface, with the screw heads through the bracket slots.
8. Slide the unit slightly forward or back, then tighten all four screws to secure it in place.

# Extron Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

**USA, Canada, South America,  
and Central America:**

Extron Electronics  
1001 East Ball Road  
Anaheim, CA 92805  
U.S.A.

**Japan:**

Extron Electronics, Japan  
Kyodo Building, 16 Ichibancho  
Chiyoda-ku, Tokyo 102-0082  
Japan

**Europe, Africa, and the Middle East:**

Extron Europe  
Hanzeboulevard 10  
3825 PH Amersfoort  
The Netherlands

**China:**

Extron China  
686 Ronghua Road, Songjiang  
District  
Shanghai 201611  
China

**Asia:**

Extron Asia  
135 Joo Seng Road, #04-01  
PM Industrial Bldg.  
Singapore 368363  
Singapore

**Middle East:**

Extron Middle East  
Dubai Airport Free Zone  
F12, PO Box 293666  
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

**NOTE:** If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

**USA:** (714) 491-1500  
**Asia:** 65.6383.4400

**Europe:** 31.33.453.4040  
**Japan:** 381.3.3511.7655

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

|                                                                                                                                                      |                                                                                                                                      |                                                                                                                             |                                                                                                                     |                                                                             |                                                                                                                            |                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
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