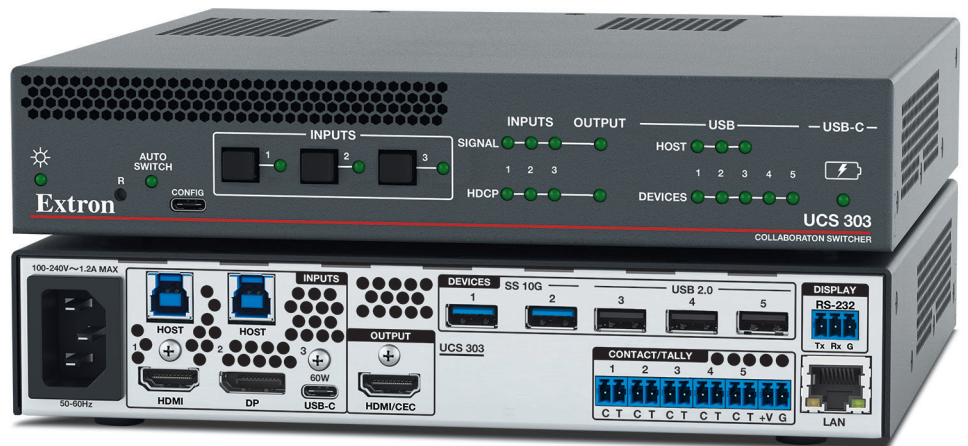


## UCS 303

### Three Input 4K/60 Collaboration and Presentation Switcher





## User Guide

### Collaboration Switchers

## Safety Instructions


### Safety Instructions • English


**WARNING:** This symbol, , when used on the product, 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.

**ATTENTION:** This symbol, , when used on the product, is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the Extron Safety and Regulatory Compliance Guide, part number 68-290-01, on the Extron website, [www.extron.com](http://www.extron.com).


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**تحذير:** هذا الرمز، , عند استخدامه على المنتج، مخصص لتنبيه المستخدم فيما يتعلق بوجود جهد كهربائي غير معزول على الغلاف الخارجي للمنتج وهو ما قد ينطوي على مخاطر حدوث صدمة كهربائية.

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**VORSICHT:** Dieses Symbol , auf dem Produkt soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

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### Instrucciones de seguridad • Español


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**ATENCIÓN:** Este símbolo, , cuando se utiliza en el producto, avisa al usuario de la presencia de importantes instrucciones de uso y mantenimiento estas están incluidas en la documentación proporcionada con el equipo.

Para obtener información sobre directrices de seguridad, cumplimiento de normativas, compatibilidad electromagnética, accesibilidad y temas relacionados, consulte la Guía de cumplimiento de normativas y seguridad de Extron, referencia 68-290-01, en el sitio Web de Extron, [www.extron.com](http://www.extron.com).


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**AVERTISSEMENT :** Ce pictogramme, , lorsqu'il est utilisé sur le produit, signale à l'utilisateur la présence à l'intérieur du boîtier du produit d'une tension électrique dangereuse susceptible de provoquer un choc électrique.

**ATTENTION :** Ce pictogramme, , lorsqu'il est utilisé sur le produit, signale à l'utilisateur des instructions d'utilisation ou de maintenance importantes qui se trouvent dans la documentation fournie avec l'équipement.

Pour en savoir plus sur les règles de sécurité, la conformité à la réglementation, la compatibilité EMI/EMF, l'accessibilité, et autres sujets connexes, lisez les informations de sécurité et de conformité Extron, réf. 68-290-01, sur le site Extron, [www.extron.com](http://www.extron.com).


### Istruzioni di sicurezza • Italiano


**AVVERTENZA:** Il simbolo, , se usato sul prodotto, serve ad avvertire l'utente della presenza di tensione non isolata pericolosa all'interno del contenitore del prodotto che può costituire un rischio di scosse elettriche.

**ATTENZIONE:** Il simbolo, , se usato sul prodotto, serve ad avvertire l'utente della presenza di importanti istruzioni di funzionamento e manutenzione nella documentazione fornita con l'apparecchio.

Per informazioni su parametri di sicurezza, conformità alle normative, compatibilità EMI/EMF, accessibilità e argomenti simili, fare riferimento alla Guida alla conformità normativa e di sicurezza di Extron, cod. articolo 68-290-01, sul sito web di Extron, [www.extron.com](http://www.extron.com).


### Instrukcje bezpieczeństwa • Polska


**OSTRZEŻENIE:** Ten symbol, , gdy używany na produkt, ma na celu poinformować użytkownika o obecności izolowanego i niebezpiecznego napięcia wewnątrz obudowy produktu, który może stanowić zagrożenie porażenia prądem elektrycznym.

**UWAGI:** Ten symbol, , gdy używany na produkt, jest przeznaczony do ostrzegania użytkownika ważne operacyjne oraz instrukcje konserwacji (obsługi) w literaturze, wyposażone w sprzęt.

Informacji na temat wytycznych w sprawie bezpieczeństwa, regulacji wzajemnej zgodności, zgodności EMI/EMF, dostępności i Tematy pokrewne, zobacz Extron bezpieczeństwa i regulacyjnego zgodności przewodnik, część numer 68-290-01, na stronie internetowej Extron, [www.extron.com](http://www.extron.com).

### Инструкция по технике безопасности • Русский

**ПРЕДУПРЕЖДЕНИЕ:** Данный символ, , если указан на продукте, предупреждает пользователя о наличии неизолированного опасного напряжения внутри корпуса продукта, которое может привести к поражению электрическим током.

**ВНИМАНИЕ:** Данный символ, , если указан на продукте, предупреждает пользователя о наличии важных инструкций по эксплуатации и обслуживанию в руководстве, прилагаемом к данному оборудованию.

Для получения информации о правилах техники безопасности, соблюдении нормативных требований, электромагнитной совместимости (ЭМП/ЭДС), возможности доступа и других вопросах см. руководство по безопасности и соблюдению нормативных требований Extron на сайте Extron: [www.extron.com](http://www.extron.com), номер по каталогу - 68-290-01.

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**注意:** 产品上的这个标志意在提示用户, 设备随附的用户手册中有重要的操作和维护(维修)说明。

关于我们产品的安全指南、遵循的规范、EMI/EMF 的兼容性、无障碍使用的特性等相关内容, 敬请访问 Extron 网站, [www.extron.com](http://www.extron.com), 参见 Extron 安全规范指南, 产品编号 68-290-01。

安全記事 • 繁體中文

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有關安全性指導方針、法規遵守、EMI/EMF 相容性、存取範圍和相關主題的詳細資訊, 請瀏覽 Extron 網站 [www.extron.com](http://www.extron.com), 然後參閱《Extron 安全性與法規遵守手冊》, 準則編號 68-290-01。

安全上のご注意 • 日本語

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**注意:** この記号 が製品上に表示されている場合は、本機の取扱説明書に記載されている重要な操作と保守(整備)の指示についてユーザーの注意を喚起するものです。

安全上のご注意、法規遵守、EMI/EMF適合性、その他の関連項目については、エクストロンのウェブサイト [www.extron.com](http://www.extron.com) より『Extron Safety and Regulatory Compliance Guide』(P/N 68-290-01)をご覧ください。

안전 지침 • 한국어

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## 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. The Class A limits 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 interference. This interference must be corrected at the expense of the user.

### NOTES:

- This unit was tested with shielded I/O cables on the peripheral devices. Shielded cables must be used to ensure compliance with FCC emissions limits.
- For more information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics see the [Extron Safety and Regulatory Compliance Guide](#) on the Extron website.

## VCCI-A Notice

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると、電波妨害を引き起こすことがあります。その場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI-A

## Battery Notice

This product contains a battery. **Do not open the unit to replace the battery.** If the battery needs replacing, return the entire unit to Extron (for the correct address, see the Extron Warranty section on the last page of this guide).

**CAUTION:** Risk of explosion. Do not replace the battery with an incorrect type. Dispose of used batteries according to the instructions.

**ATTENTION :** Risque d'explosion. Ne pas remplacer la pile par le mauvais type de pile. Débarrassez-vous des piles usagées selon le mode d'emploi.

## Conventions Used in this Guide

### Notifications

The following notifications are used in this guide:

**CAUTION:** Risk of minor personal injury.

**ATTENTION :** Risque de blessure mineure.

**ATTENTION:**

- Risk of property damage.
- Risque de dommages matériels.

**NOTE:** A note draws attention to important information.

### Software Commands

Commands are written in the fonts shown here:

```
^ARMerge Scene,,0p1 scene 1,1 ^B 51 ^W ^C.0  
[01]R000400300004000080000600 [02]35 [17] [03]  
Esc[X1]*[X17]*[X20]*[X23]*[X21]CE ←
```

**NOTE:** For commands and examples of computer or device responses used in this guide, the character “0” is used for the number zero and “O” is the capital letter “o.”

Computer responses and directory paths that do not have variables are written in the font shown here:

```
Reply from 208.132.180.48: bytes=32 times=2ms TTL=32  
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx -t  
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

From the **File** menu, select **New**.  
Click the **OK** button.

## Specifications Availability

Product specifications are available on the Extron website, [www.extron.com](http://www.extron.com).

## Extron Glossary of Terms

A glossary of terms is available at <https://www.extron.com/technology/glossary.aspx>.

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# Introduction

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## About this Guide

This guide describes the UCS 303 Collaboration switcher and provides instructions for an experienced installer to set up and operate it.

### ATTENTION:

- Installation and service must be performed by authorized personnel only.
- L'installation et l'entretien doivent être effectués uniquement par un électricien qualifié.

In this guide, the terms “UCS,” “UCS 303,” and “switcher” are used interchangeably to refer to the UCS 303.

## About the UCS 303 Switcher

The Unified Communication System (UCS) 303 is a three input, one output multi-format video and USB collaboration switcher with built-in display control that supports HDMI 2.0b, DisplayPort 1.2, USB 3.2 (SuperSpeed 10 Gbps) and HDCP 2.3 specifications. It integrates AV, USB switching and display control in environments such as conference rooms, huddle rooms, and classrooms.

The switcher features one HDMI input, one DisplayPort input, one USB-C input, and one HDMI output with CEC. It also has three USB switched Host inputs and a built-in USB hub to switch and share USB peripherals such as USB web cams, touch displays, and USB microphones. Audio can be extracted from any video input.

Resolutions up to 4K @ 60 Hz are supported, along with EDID Minder, HDCP 2.3, and configuration via Product Configuration Software (PCS). The UCS 303 is housed in a 1U high, half rack width, 8.5 inches deep enclosure.

## Features

- **Integrates DisplayPort, HDMI, and audio sources into collaboration systems** — The UCS 303 provides centralized switching for a wide range of AV sources.
- **Switches HDMI video and embedded multi-channel digital audio.**
- **HDMI, DisplayPort, and USB inputs** — Provides one female DisplayPort, one female HDMI type A, one USB-C, and two USB 3.2 B host input connectors.
- **HDMI output** — Features one female HDMI type A output.
- **Supports resolutions up to 4K @ 60 Hz with 4:4:4 chroma sampling.**
- **Auto-switching between inputs** — Auto-switching allows for intuitive operation in collaboration spaces. Multiple switching priority modes are available, including last-connected input and user-selectable priority.
- **HDCP 2.3 compliant** — Ensures display of content-protected 4K video media and maintains interoperability with earlier versions of HDCP.
- **Supports DisplayPort Single Stream Transport (SST) data rates up to 21.6 Gbps**

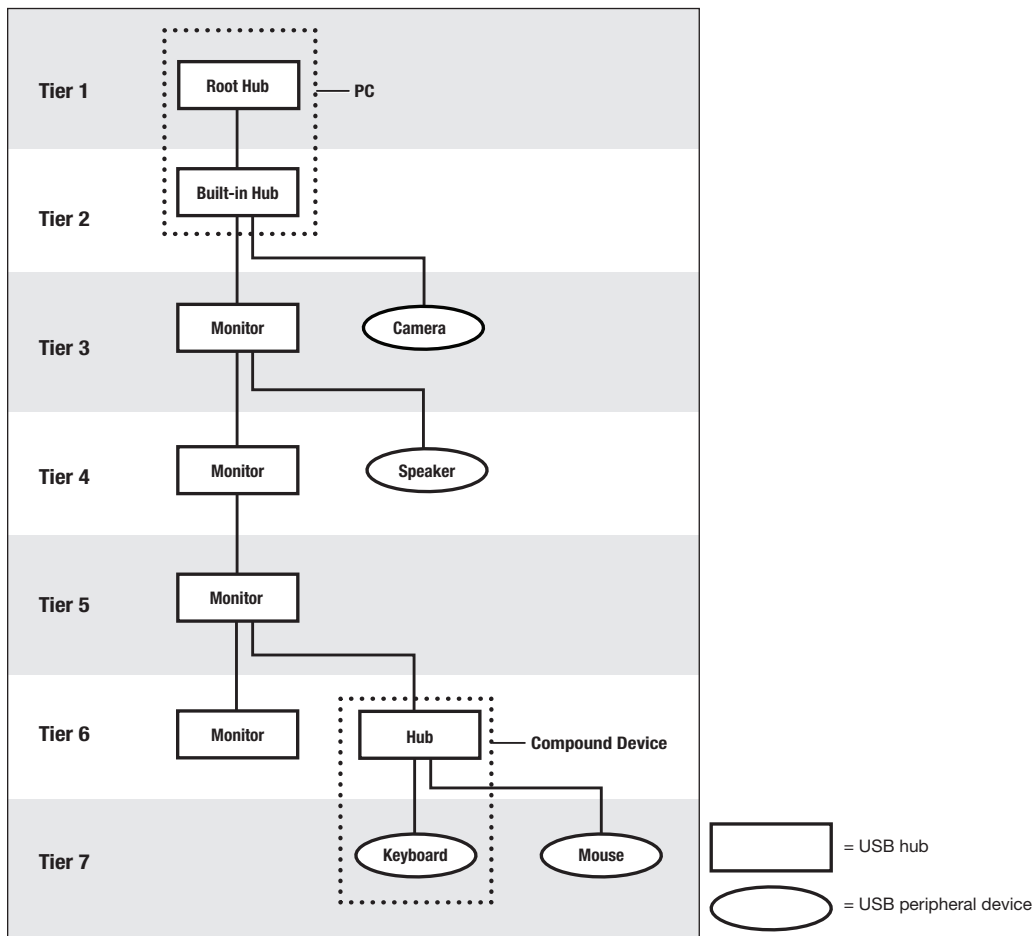
- **Supported HDMI 2.0b specification features include data rates up to 18 Gbps, HDR, Deep Color, and HD lossless audio formats**
- **Stereo audio embedding** — Digital audio signals can be embedded onto the HDMI output.
- **Stereo audio de-embedding** — Embedded HDMI two-channel PCM audio can be extracted to the digital output, or multi-channel bitstream formats can be passed to the output.
- **Ethernet monitoring and control** — Enables control and proactive monitoring over a network.
- **Support for High Dynamic Range (HDR) video** — Enables greater contrast range and wider color gamut by providing the necessary video bandwidth, color depth, and metadata interchange capability for HDR video.
- **CEC insertion** — A control processor can insert CEC commands via SIS to control devices connected at the HDMI output.
- **User-selectable HDCP authorization** — Allows individual inputs to appear HDCP compliant or non-HDCP compliant to the connected source, which is beneficial if the source automatically encrypts all content when connected to an HDCP-compliant device. Protected material is not passed in non-HDCP mode.
- **EDID Minder** — EDID Minder automatically manages EDID communication between connected devices, ensuring that the source powers up properly and reliably outputs content for display.
- **HDCP authentication and signal presence confirmation** — Provides real-time verification of HDCP status for each digital video input and output. This allows for simple, quick, and easy signal and HDCP verification through USB or Ethernet, providing valuable feedback to a system operator or helpdesk support staff.
- **HDCP Visual Confirmation notifies when encrypted content is sent to a non-compliant display** — A full-screen green signal is sent when HDCP-encrypted content is transmitted to a non-HDCP compliant display, providing immediate visual confirmation that protected content cannot be viewed on the display.
- **HDMI to DVI Interface Format Correction** — Automatically enables or disables embedded audio and InfoFrames, and sets the correct color space for proper connection to HDMI and DVI displays.
- **Automatic color bit depth management** — Automatically adjusts color bit depth based on the display EDID, preventing color compatibility conflicts between source and display.
- **Supports multiple embedded audio formats** — The UCS 303 is compatible with a broad range of multi-channel audio signals, providing reliable operation with HDMI sources.
- **Power Save Mode** — Can be placed in a low power standby state to conserve energy when not in use.
- **Front panel security lockout** — This feature locks out all front panel functions; all functions however, are available through Ethernet or USB control.
- **Built-in web pages** — Enable the use of a standard browser for device monitoring and troubleshooting over an intuitive Web interface.
- **RS-232 display control port** — Enables the use of serial commands to control an attached display.
- **Front panel USB-C configuration port** — Enables easy system configuration without having to access the rear panel.
- **Front panel LED indicators for signal presence, HDCP status, and power** — Provides visual indication of system status for real-time feedback and monitoring of key performance parameters.
- **Easy setup and commissioning with the Extron PCS program** — Conveniently configure multiple products using a single software application.
- **Rack-mountable metal enclosure** — The UCS 303 features a 1U, half rack wide metal enclosure with integrated rack mounts.
- **Includes LockIt HDMI cable lacing brackets to secure HDMI connectors in place.**
- **Internal Extron Everlast power supply** — Provides worldwide power compatibility, with high-demonstrated reliability and low power consumption for reduced operating cost. The Everlast Power Supply is covered by a 7-year parts and labor warranty.

## USB System Architecture

A USB system architecture refers to the physical bus topology of USB devices connected to a host device. USB devices include USB hubs, USB peripheral devices, or compound devices (devices with a combination of USB hubs and USB peripheral devices built into it).

The system is organized in a tiered star topology to prevent multiple or circular attachments to the bus (see figure 1). Each tier represents a degree of separation from the host device. Per USB specifications, there are seven supported tiers, starting with the host device (or root hub) occupying the first tier.

**NOTE:** Do not connect more than five daisy-chained hubs to the root hub. The architecture does not support peripheral devices connected to USB hubs occupying the seventh tier.



**Figure 1. Tiered Star Topology Example for a Computer with Four Monitors**

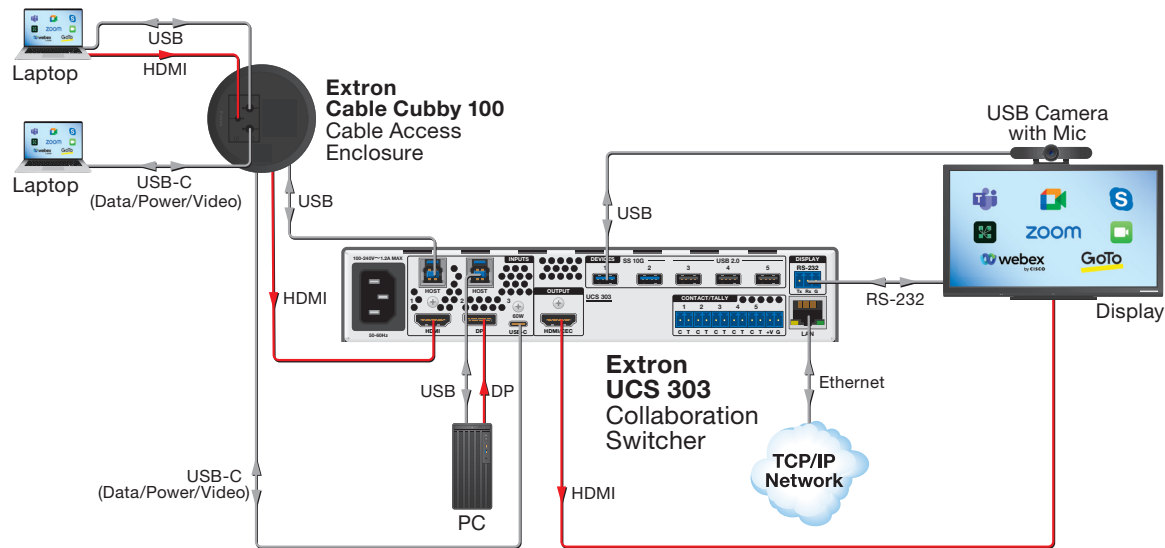
**NOTE:** Some computers include multiple hubs already connected to each other, occupying multiple tiers in the topology. For example, many computers with USB ports on the front and rear panels or computers with a built-in USB hub and a compound USB peripheral device (such as a touch display) occupy two tiers.

To review the USB system architecture, count all the cascading hubs (including USB hubs enclosed in computers and compound devices) between the host device and the last USB peripheral device.

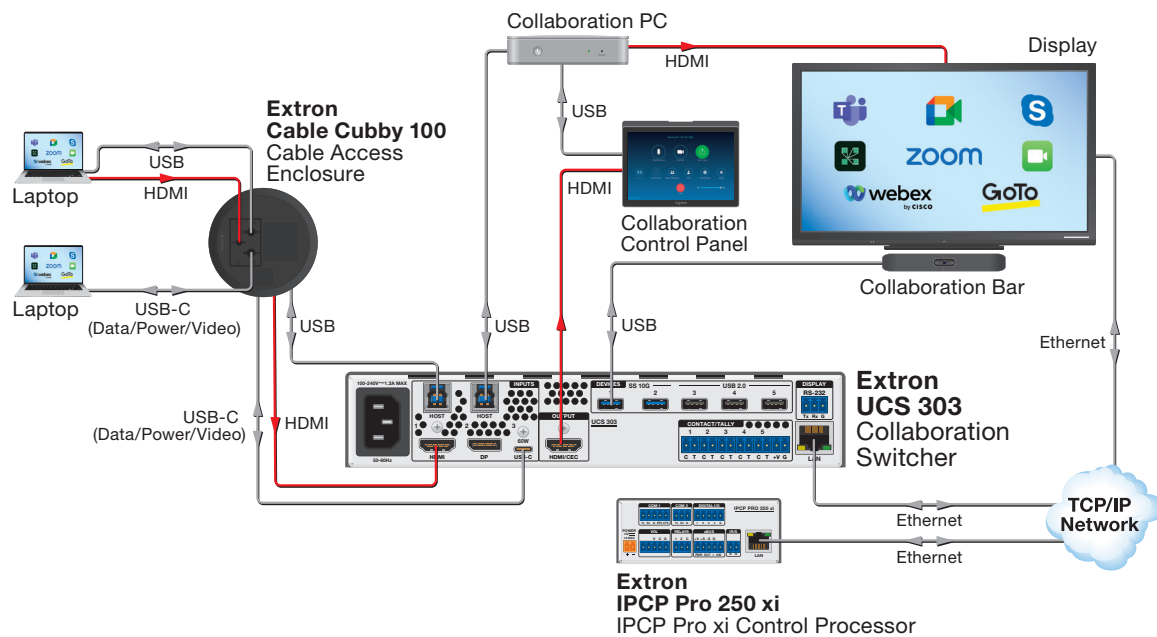
**NOTE:** If the host device runs Windows® or macOS™ operating systems, use the following programs to view the hierarchical relationships between USB devices:

- Windows: Device Manager
- macOS: System Profiler or System Information

## Application Diagrams



**Figure 2. Sample Application for UCS 303**



**Figure 3. Sample Application for UCS 303 — Teams Room with Collaboration PC and Control Panel**

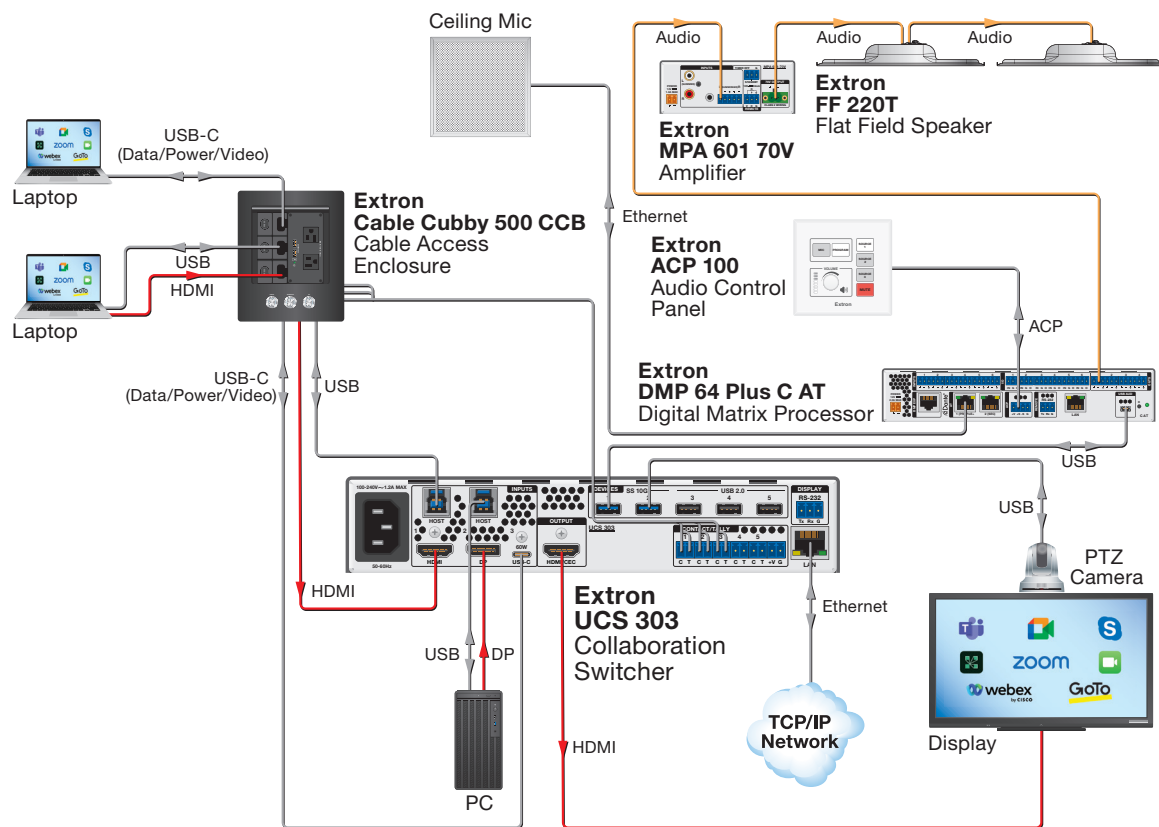


Figure 4. Sample Application for UCS 303 with Audio Amplifier and Processor

# Installation

This section describes the installation and setup of the UCS 303 switcher. Topics include:

- [Installation Overview](#)
- [Rear Panel Connections](#)
- [Wiring the CONTACT/TALLY Connectors](#)
- [LockIt HDMI Cable Lacing Bracket Installation](#)
- [Wiring the LAN Port](#)
- [Connecting Multiple UCS 303 Switchers in a System](#)

## Installation Overview

**CAUTION:** Remove power from the system before wiring.

**ATTENTION :** Coupez l'alimentation avant de faire l'installation électrique.

### ATTENTION:

- Use electrostatic discharge precautions (be electrically grounded) when making connections. Electrostatic discharge (ESD) can damage equipment, although you may not feel, see, or hear it.
- Prenez des précautions contre les décharges électrostatiques (soyez électriquement relié à la terre) lorsque vous effectuez des connexions. Les décharges électrostatiques (ESD) peuvent endommager l'équipement, même si vous ne pouvez pas le sentir, le voir ou l'entendre.

To install and set up a UCS 303 switcher:

1. **Turn off all equipment** and disconnect the unit from the power source.
2. **Mount the switcher** (optional) on a rack shelf or furniture (see [Mounting](#) starting on page 6).
3. **Connect video sources and supporting host devices:**
  - **Input 1** — Connect an HDMI source and a supporting host device such as a PC or a Next Unit of Computing (NUC) to the HDMI and associated host input connector (see [figure 5](#), [K](#) and [B](#) on the next page).
  - **Input 2** — Connect a DisplayPort source and a supporting host device such as a PC or an NUC to the DisplayPort input and associated host connectors ([J](#) and [B](#)).

**NOTE:** LockIt cable lacing brackets are provided to secure the HDMI cables to the ports to reduce stress on the HDMI connectors and prevent signal loss due to loose cable connections (see [LockIt HDMI Cable Lacing Bracket Installation](#) on page 9).

4. **Connect a USB-C source to the rear panel USB-C connector** ([I](#)).
5. **Connect a video output** — Connect an HDMI display to the HDMI output ([C](#)) to display the transmitted digital image.
6. **Connect peripheral devices** — Connect one or more peripheral USB devices (for example, keyboards or mice) to the USB 3.2 and 2.0 output device ports ([D](#) and [E](#)) as desired.
7. (Optional) **For RS-232 control of a display, connect the RS-232 port of the display to the Display port** ([F](#)).

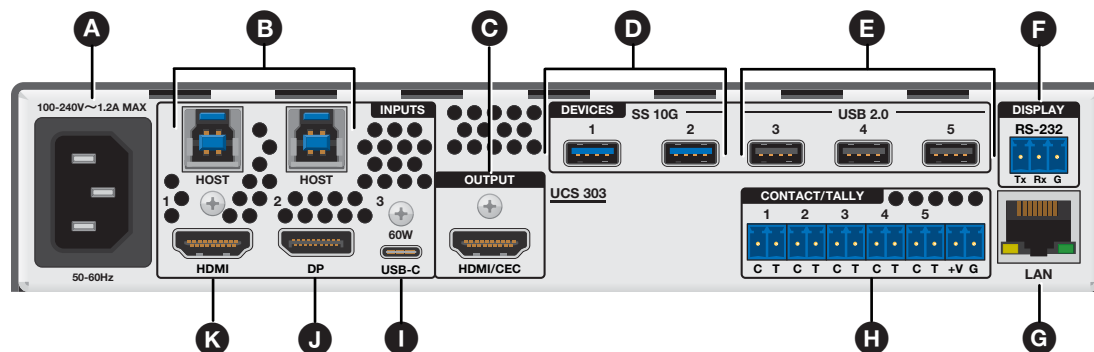
8. **Connect a computer** to one of the following UCS ports to configure and control the switcher via SIS commands or PCS:
  - **USB-C CONFIG port** — Front panel USB-C connector (see [figure 11](#), **D** on page 17).
  - **LAN port** — Connect an Ethernet cable between the computer and the LAN port to control and configure the UCS 303 via Ethernet (see figure 5, **G**).
9. **Enable auto-input switching.** Use SIS commands to configure auto-input switching (see the [Auto-switch Mode commands](#) on page 25 (optional).
10. Power on the connected devices.
11. Connect power (**A**) to the switcher.

**ATTENTION:**

- Do not connect power to the UCS 303 until you have read the [ATTENTION notices](#).
- Ne branchez pas l'alimentation au UCS 303 avant d'avoir lu les [mises en garde « ATTENTION »](#) aux page 9.

12. Power on the source devices.

## Rear Panel Connections



- |                                      |                              |
|--------------------------------------|------------------------------|
| <b>A</b> USB power connector         | <b>G</b> LAN port            |
| <b>B</b> USB host ports              | <b>H</b> Contact/Tally ports |
| <b>C</b> HDMI/CEC output             | <b>I</b> USB-C input         |
| <b>D</b> USB SS 10G device ports     | <b>J</b> DisplayPort input   |
| <b>E</b> USB 2.0 device ports        | <b>K</b> HDMI input          |
| <b>F</b> RS-232 display control port |                              |

Figure 5. UCS 303 Rear Panel

- A** **USB power connector** — Connect a 100-240 VAC IEC power cable to this connector to provide AC power to the switcher.
- B** **USB host ports** — Connect PCs or other USB host devices to one or both of these female USB type B connectors for USB 3.2 input to support HDMI (input 1) or DisplayPort (input 2).
- C** **HDMI/CEC output** — Connect an HDMI (or DVI with an appropriate adapter) output device to this connector for HDMI video with CEC and embedded audio. The output supports resolutions up to 4096 x 2160 @ 60 Hz, 8-bit, with 4:4:4 chroma sampling.

**NOTE:** See the LockIt HDMI Cable Lacing Bracket Installation on page 11 to secure the HDMI connector.

- D USB SS 10G device ports** — Connect USB 3.2, 2.0, or 1.x devices and HIDs (peripherals such as keyboards, mice, or storage drives) to these blue USB ports. USB 3.2 signals from the inputs are routed to these ports. Each port provides up to 5 V, 900 mA of power to the connected devices.

**NOTE:** These ports do not provide power if the connected device is receiving power from a separate power supply.

- E USB 2.0 device ports** — Connect USB 2.0 or 1.x devices to these black USB Type A ports. USB 2.0 and 1.x signals from the inputs are routed to these ports. Each port provides up to 5 V, 500 mA of power.

**NOTE:** These ports do not provide power if the connected device is receiving power from a separate power supply.

- F RS-232 display control port** — Connect this port to the RS-232 connector of a display to control the display. The port can be configured using PCS (see the *UCS 303 Help File*) to control the display in the following modes:

Mode	Function
0	Disabled
1	Built-in internal control of RS-232 capable endpoints such as displays without the need of an external control processor.  Custom RS-232 commands can be sent via PCS out of this port based on events or triggers (such as contact closure or video input signal presence). See the <i>UCS 303 Help File</i> , Control Configuration section, for the procedure.
2	External control of RS-232 capable endpoints such as a display using Ethernet to RS-232 insertion.  This mode enables serial commands to be passed from the Ethernet port to this RS-232 port. It enables control of endpoints such as the display without needing to run additional cabling from the control processor to the endpoint.

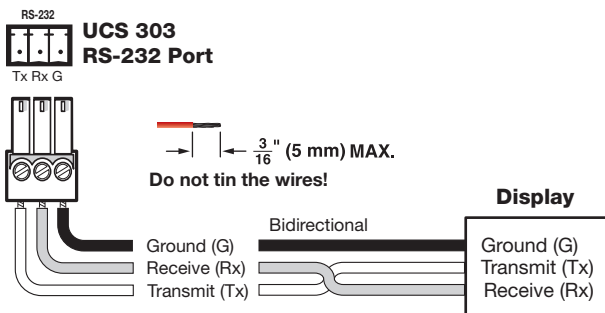


Figure 6. Wiring for RS-232 Display Control

- G LAN port** — Connect the switcher to an active network using an Ethernet cable, terminated with an RJ-45 connector. To wire this port, see Wiring the LAN Port on page 12).

**NOTES:**

- If the UCS is set as a DHCP client and cannot locate a DHCP server, the port is set to a local address link.
- All Ethernet interfaces on the UCS 303 support up to 10/100/1000 Mbps (Gigabit Ethernet).

- H Contact/Tally ports** — (Optional) Wire a push-button switch or other contact closure device to pin C (contact) and to the shared pin G (ground) of any of these 2-pole connectors (see Wiring the CONTACT/TALLY Connectors on page 9 for more information). These ports are configured via PCS or SIS commands.

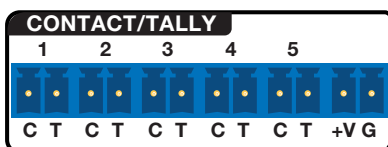


Figure 7. CONTACT/TALLY Ports

Alternatively, wire a Show Me (SM) cable to the C and T pins (see Connecting Using an SM Cable on page 11 for connection instructions).

- I USB-C input** — Connect a USB-C source device, such as a laptop or PC, to this USB-C connector. This port can be configured in DP Alt Mode via SIS commands to convert USB-C signals from the connected PC to DisplayPort. Once USB-C has been converted to DP, four DisplayPort lanes are available. The DisplayPort signal is then converted to TMDS, to be output on the HDMI output port.

The USB-C input port provides up to 60 watts of power to the connected source. If the source requires more than 60 watts, this port keeps the device functioning but does not charge it. If the source is connected to an external power supply, the UCS 303 does not send power to it.

- J DisplayPort input** — Connect a DisplayPort source device to this DP connector. This port supports up to 4K @ 60 Hz, 8-bit color with 4:4:4 chroma sampling.
- K HDMI input** — Connect an HDMI (or DVI with appropriate adapters) video input source to this female HDMI port for HDMI video with embedded audio.

**NOTE:** LockIt cable lacing brackets are provided to secure the HDMI cables to the ports to reduce stress on the HDMI connectors and prevent signal loss due to loose cable connections (see LockIt HDMI Cable Lacing Bracket Installation on page 11).

## Wiring the CONTACT/TALLY Connectors

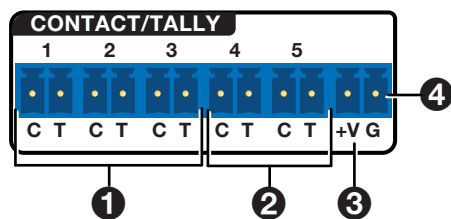
To make input selections via contact closure, short the C pin of each port momentarily to the ground pin G. Input switching occurs immediately on contact, and **not** on the release.

To enable input switching via contact closure, connect a push-button contact closure device to a CONTACT/TALLY connector (see [figure 5](#), **H**, on page 7).

To identify the currently selected input when the front panel buttons are not visible, connect a device such as an LED to the CONTACT/TALLY connector and to the +V connector (see [figure 8](#), **3** on the next page). When the input being used is selected, the corresponding Tally Out pin shorts to ground, activating the connected indicator.

### ATTENTION:

- The length of the exposed wires in the stripping process is critical. The ideal length is 3/16 inch (5 mm). If the exposed portion is longer, the wires may touch, causing a short circuit between them. If the exposed wires are shorter, they can be easily pulled out, even if tightly fastened by the captive screws.
- La longueur des câbles exposés est primordiale lorsque l'on entreprend de les dénuder. La longueur idéale est de 5 mm (3/16 inches). S'ils sont un peu plus longs, les câbles exposés pourraient se toucher et provoquer un court circuit. S'ils sont un peu plus courts, ils pourraient sortir, même s'ils sont attachés par les vis captives.
- Do not tin the wires. Tinned wires are not as secure in the captive screw terminals <connector> and could pull out.
- Ne pas étamer les câbles. Les câbles étamés ne sont pas aussi bien fixés dans les terminaisons des <connecteurs> à vis captives et pourraient sortir.
- The installation must always be in accordance with the applicable provisions of National Electrical Code ANSI/NFPA 70, article 725 and the Canadian Electrical Code part 1, section 16.
- Cette installation doit toujours être conforme aux dispositions applicables du Code américain de l'électricité (National Electrical Code) ANSI/NFPA 70, article 725, et du Code canadien de l'électricité, partie 1, section 16.



**Figure 8. CONTACT/TALLY Ports**

The contact closure ports have the following functions:

Contact Closure Pin Number	Function
1	Input 1
2	Input 2
3	Input 3
4	AUX
5	AUX
G	Ground

- **Ports 1-3** (see figure 8, ❶) — These can be configured as a mutually exclusive input group to allow for input switching via Show Me (SM) cables. The selected input tally illuminates steadily when displayed, or blinks when muted.  
 Optionally, successive contact closures of the current input can be configured to toggle A/V mute or output sync mute.  
 If **None** is selected, contact events broadcast unsolicited SIS responses for action via external control system. Tally ports are configured via an external control system.
  - **Ports 4 and 5** (❷) — These contact ports can be configured as follows via PCS:
    - **None** — contact events broadcast unsolicited SIS responses for action via an external control system. Tally ports are configured via external control system.
    - **Single switch** — Individual contact input triggers user-defined events (such as Volume Up), along with an optional repeat rate for press and hold actions (such as ramping volume up several steps). The Tally illuminates when the contact port is closed.
    - **Toggle switch** — Individual contact input toggles between two sets of user-defined events (such as mute and unmute). The Tally illuminates when the contact port is closed.
    - **Group switch** — pairs two contact inputs to act as a mutually exclusive pair, which trigger events such as system on vs. system off. Tally on the last activated contact remains illuminated.
  - **+V connector** — The +V pin constantly outputs +5 VDC power with 200 mA total (shared between pins). Use this pin when power is needed for external Tally LEDs, such as those on the Extron CCB 30 contact closure remote.
1. Wire and connect provided 2-pole plugs to the CONTACT/TALLY connectors 1 through 5 as desired (❶ and ❷).
  2. Connect contact input and tally output devices to the pin pair for each input:
    - To enable input switching via contact closure, connect a push-button contact closure input device to pin C of the desired contact port, and to the G (ground) pin (❹).
    - To identify the currently selected input when the front panel buttons are not visible, connect an indicator device, such as an LED, to tally output pin T of the same pair of pins.

When the input being used is selected, the corresponding Tally pin shorts to ground, which activates the connected indicator.

3. Insert the power wires for the contact indicator devices into the +V connector (see [figure 8](#), ③ on the previous page).
4. Press the button on the contact closure device to switch the connected input to the output.

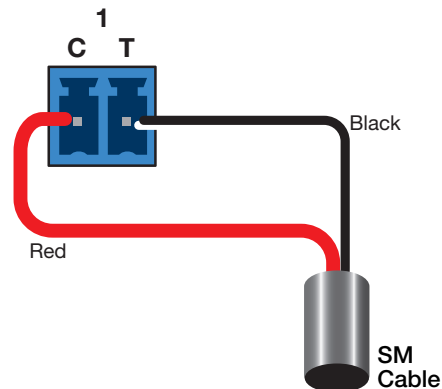
## Connecting Using an SM Cable

The CONTACT/TALLY connectors can also be used with Extron SM cables. Figure 9 shows how to wire an SM cable to a contact/tally input.

For each SM cable:

- Connect the **red** (contact) pigtail to the C pin corresponding to the input being used.
- Connect the **black** (tally out) pigtail to the T pin.

**NOTE:** For an SM cable, the ground source needed to trigger the contact and the voltage to drive the tally indicator are supplied by HDMI source device. Therefore, it is not necessary to connect the cable to a G (ground) pin.



**Figure 9. SM Cable Connecting Contact and Tally Ports**

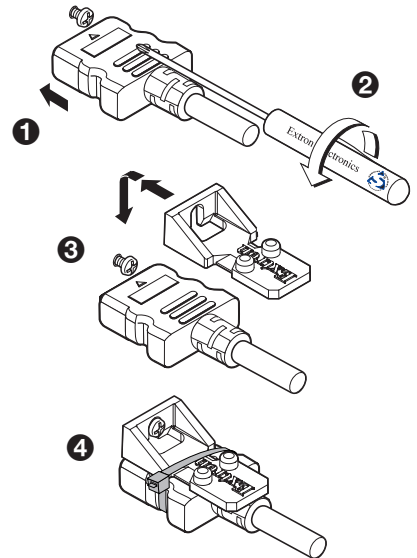
## LockIt HDMI Cable Lacing Bracket Installation

The Extron LockIt lacing bracket secures a standard HDMI cable to most HDMI devices. Follow these instructions to secure the HDMI connectors to the switcher with the provided LockIt HDMI lacing bracket.

**NOTE:** The Extron HDMI device must have an HDMI connection mounting screw for this bracket to be used.

To securely fasten an HDMI cable to a device:

1. Plug the HDMI cable into the panel connection (see ① in the image at right).
2. Loosen the HDMI connection mounting screw from the panel enough to allow the LockIt bracket to be placed over it (②). The screw does not have to be removed.
3. Place the LockIt lacing bracket on the screw and against the HDMI connector (③), then tighten the screw to secure the bracket.
4. Loosely place the included tie wrap around the HDMI connector and the LockIt lacing bracket as shown at right (④).



While holding the connector securely against the lacing bracket, tighten the tie wrap, then remove any excess length.

### ATTENTION:

- Do not overtighten the HDMI connection mounting screw. The shield to which it is fastened is very thin and can easily be stripped.
- Ne serrez pas trop la vis de montage du connecteur HDMI. Le blindage auquel elle est attachée est très fin et peut facilement être dénudé.

## Wiring the LAN Port

Ethernet control enables configuration and control of the UCS 303 from a remote location using SIS commands (see [Command and Response Table for SIS Commands](#) starting on page 25), PCS (see the *UCS 303 Help File*), or the embedded web pages (see [Internal Web Page](#) starting on page 47).

### Default LAN settings:

- **Rear panel LAN IP Address** — 192.168.254.254
- **Front panel USB-C port IP address** — 203.0.113.22 @ port 22023
- **Subnet mask** — 255.255.255.0
- **Gateway** — 0.0.0.0
- **DNS** — 127.0.0.1
- **User name** — admin
- **Password** — The UCS 303 unit serial number
- **DHCP** — Off

**NOTE:** The initial factory configured passwords for all accounts on this device have been set to the device serial number. Passwords are case sensitive. In the event of an absolute system reset, the passwords are reset to extron.

### Protocols:

The following protocols are supported:

HTTP (not secure)	DHCP
HTTPS	DNS
SSH	ICMP
SFTP	IPv4
SMTP	SNMP
NTP	UDP
Discovery Service	Extron Global Messaging

### ATTENTION:

- Do not connect this device to a telecommunications network.
- Ne connectez pas ces appareils à un réseau de télécommunications.

### To wire the LAN connector:

- Use a straight-through cable for connection to a switch, hub, or router.
- Use a crossover cable or a straight-through cable for connection directly to a PC. Wire the connector as shown in [figure 10](#) on the next page.

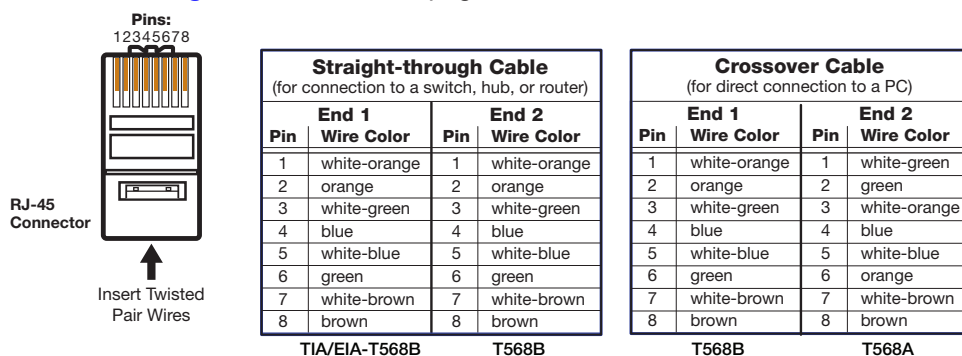


Figure 10. Wiring for Ethernet Control

## Connecting Multiple UCS 303 Switchers in a System

The USB specification states that a maximum of five hubs (or five UCS 303 switchers) can be connected in a series.

**NOTE:** Do not exceed five cascaded hubs and a total of 127 peripheral devices in the entire system.

# Operation

This section describes the operation of the UCS 303. Topics include:

- [Front Panel Features](#)
- [Powering on the Switcher](#)
- [Selecting an Input](#)
- [Auto-switching](#)
- [Resetting](#)
- [Front Panel Lock Mode \(Executive Mode\)](#)
- [EDID Minder](#)
- [HDCP](#)
- [Color Bit Depth](#)
- [USB-C Input](#)
- [RS-232 Signal Insertion](#)

## Front Panel Features

Figure 11 shows the front panel LEDs and controls of the UCS 303.

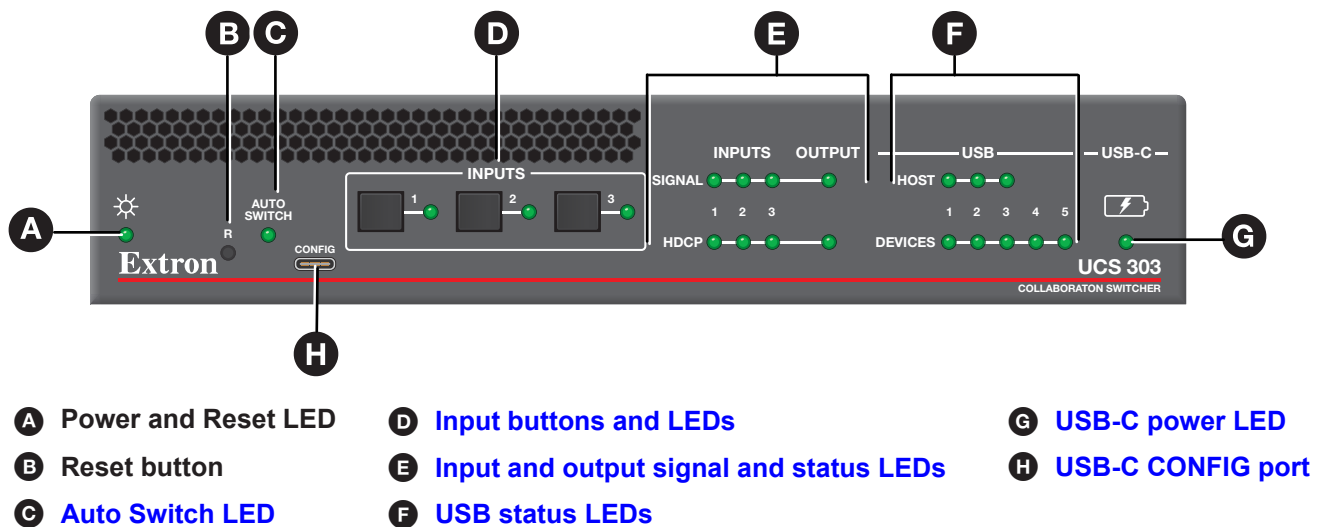


Figure 11. UCS 303 Front Panel

- A** **Power and reset LED** — Lights when the unit has power.

While the R (reset) button (see figure 11, **B**) is pressed and held, this LED blinks every 3 seconds to indicate the level of reset initiated if the button is released and momentarily pressed again at that point (see [Resetting](#) on page 16 for more information).

- B** **Reset button** — Using an Extron Tweezer (provided) or other small screwdriver or stylus, press the R button to reset the unit. There are three available reset modes:
- Press and hold the **Reset** button for 3 seconds to return all settings to the factory default, excluding IP settings.
  - Press and hold the **Reset** button for 6 seconds to return all settings to default, including IP settings.
  - Press and hold the **Reset** button while applying power to return all settings to default, and revert the firmware to the factory installed version.

**NOTE:** You can also reset the switcher to its factory default settings using SIS commands (see [Resets](#) on page 34) or PCS (see the *UCS 303 Help File*).

**C Auto Switch LED** — Lights when auto-input switching is in effect (see [Auto-switching](#) on page 16). The switcher can be configured via SIS commands or PCS to automatically select the lowest to highest numbered input with an active signal (see [Auto-switch Modes](#) on page 25).

**D Input buttons and LEDs** — Press these buttons to select an input to switch to the output. When an input is selected, the LED at the right of the input button lights. If auto-input switching is in effect, the input buttons are disabled, but the LEDs continue to light to indicate the selected input (see [Auto-switching](#)).

**E Input and output signal and status LEDs** — These stacked green LEDs light as follows:

- **SIGNAL LEDs** — Light when active video content is detected on the corresponding input or the output.
- **HDCP LEDs** — Light when the corresponding input or the output signal is HDCP encrypted.

**NOTES:**

- HDCP is authenticated on each input regardless of the currently selected source.
- If the source device connected to the selected input is HDCP encrypted (requires HDCP authentication), the corresponding signal LED may not light unless HDCP has been authenticated.

**F USB status LEDs** — These stacked green LEDs light as follows:

- **HOST LEDs** — Light to indicate the USB host status for the corresponding input.
- **DEVICES LEDs** — Light to indicate the status for the corresponding USB device port.

**G USB-C power LED** — Lights to indicate switcher power delivery to the connected USB-C source.

**H USB-C CONFIG port** — Connect the computer to this USB-C connector for product configuration using Extron SIS commands or PCS.

## Powering on the Switcher

To power on the UCS 303:

1. Connect all input and output devices to the rear panel ports on the switcher (see [figure 7](#) on page 8).
2. Power on the HDMI output device.
3. Connect the power to the IEC power connector port on the rear panel.

After approximately 4 seconds, the following happens:

- The unit performs a self-test, during which the front panel LEDs each blink once in sequence from left to right. When the self-test completes, the LED for the most recently selected input remains lit.
- The switcher reads the available EDID information from the connected output device and writes it to memory on each input. When power is removed, these settings remain in memory and are in effect when power is reapplied.

4. Power on the input devices.

## Selecting an Input

Switching an input to the output can be done by the following methods:

- **Front panel buttons** — Press the desired input button on the front panel (ensure that auto switching is not enabled). The LED corresponding to the selected input button lights.
- **Remote control** — Inputs can be selected using SIS commands or PCS (see [Input Selection commands](#) starting on page 25 or the *UCS 303 Help File*).

**NOTE:** While the UCS 303 is in any auto-switch mode, you can still manually select inputs via front panel buttons or SIS. This allows you to switch to any input during usage and not rely on auto switching. Making a manual switch when the unit is in auto-switch mode does not disengage auto-switch.

## Auto-switching

Auto-switching allows the UCS 303 to automatically select the active, connected input based on detection of an active video signal (TMDS clock activity). If two or more inputs are active, the highest-numbered input port with an active signal is selected (for example, input 3 on a UCS 303 switcher).

When auto-input switching is in effect, the green Auto Switch LED on the front panel lights and the front panel input buttons are disabled.

### Auto-switch Modes

The UCS 303 switchers provide three auto switch modes, which can be selected via SIS commands (see the [Auto-switch Mode commands](#) on page 25) and PCS (see the *UCS 303 PCS Help File*).

- **Mode 0 (disabled mode)** — Auto-input switching is disabled. Inputs must be selected via front panel buttons, SIS, or PCS.
- **Mode 1 (user-assigned mode)** — The switcher selects the input to which you assign priority (via SIS commands or PCS). If no priority is assigned, the switcher selects the active input with the highest number (default user selection).
- **Mode 2 (input memory priority mode)** — The switcher selects the most recently applied input, and retains a history of the order in which active inputs are connected to the unit. If an active input is removed, the switcher switches to the most recently selected input.
- **Mode 2 timeout** — Using SIS commands or PCS, you can set the number of seconds the switcher delays between when the current input is removed and the unit switches to the most recent previous input. The timeout duration range is 0-500 seconds in 1-second increments. The default is 3 seconds.

### Auto-switch Type

The Auto-switch type feature allows you to select which signal is automatically switched. If front panel input buttons are pressed while Auto-switch is enabled, switched signal follows the type that is set. Front panel button presses override the current selected input and switch all signals. However, they do not disable the Auto-switch mode and type.

- **Audio, video, and USB** — When Auto-switch is enabled, audio, video, and USB signals all switch together. This type monitors the active TMDS clock (HDMI input) or AUX channel (USB-C inputs) signal.
- **Audio and video only** — When Auto-switch is enabled, only audio and video signals switch. USB stays enumerated with the user-selected host. This type monitors the active TMDS clock (HDMI input) or AUX channel (USB-C inputs) signal.

## Resetting

Resetting the unit using the recessed **Reset** button on the front panel can initiate three types of reset:

- **Press and hold Reset button for 3 seconds.** This resets all settings to the factory defaults except for IP settings. The Power LED blinks twice after 3 seconds.
- **Press and hold Reset button for 6 seconds.** This resets all settings, including IP settings, to the factory defaults. The Power LED blinks twice after 3 seconds, then twice again after 6 seconds.
- **Press and hold the Reset button while applying power.** This resets all settings to the factory default, and reverts the firmware to the factory installed version.

#### ATTENTION:

- Review the reset types carefully. Using the wrong reset may result in unintended loss of flash memory programming, port reassignment, or unit reboot.
- Étudier de près les différents modes de réinitialisation. Appliquer le mauvais mode de réinitialisation peut causer une perte inattendue de la programmation de la mémoire flash, une reconfiguration des ports ou une réinitialisation du processeur.

## Front Panel Lock Mode (Executive Mode)

Front panel lock mode (executive mode) locks and disables all front panel controls (Ethernet and USB control remain available). Putting the switchers in lock mode enhances security by protecting against inappropriate or accidental changes to settings. If a front panel button is pressed during lock mode, all front panel LEDs blink once.

Lock mode can be configured only via SIS commands (see [Set front panel lock mode commands](#) on page 30). The following lock mode options are available:

- Lock entire front panel
- Disable lock mode (default). All front panel controls are accessible.

### To lock or unlock the front panel:

1. The switchers can be locked or unlocked via SIS commands, connecting through the front panel USB port or rear panel LAN port.
2. Executive mode is retained after a power cycle. Any reset mode unlocks the unit.

## EDID Minder

The UCS 303 uses EDID Minder to ensure that a source device connected to the switcher input continuously sees the EDID of a sink device, even when the input is not selected or the sink is not physically connected. As a result, the video source powers up properly and outputs content when selected.

Each input has a dedicated store slot to which it is permanently assigned. Each slot contains a default factory EDID appropriate to its supported video format. Via PCS, EDIDs can be imported to these slots, overwriting the defaults. EDIDs in these slots are stored in non-volatile memory.

EDIDs can be set to match the output rate or a factory setting. A variety of EDIDs are available to be loaded via PCS and assigned to the inputs (see the *UCS 303 PCS Help File* to assign EDID).

The following table lists the available EDID store slots. The default EDID is 1080p @ 60 Hz with 2-channel (2Ch) audio.

Slot	Slot	Default EDID File	Details
1	Input 1 (store) slot	EXN_HDMI_1080p60_2Ch.bin	Manually populated via PCS
2	Input 2 (store) slot	EXN_DP_1920x1080_60_2Ch.bin	Manually populated via PCS
3	Input 3 (store) slot	EXN_DP_1920x1080_60_2Ch.bin	Manually populated via PCS
4	Output	N/A	Automatically populated with the sink EDID from output A

- **Hot Plug Detect (HPD)** — Hot plug detect (HPD) means that power is detected on a connected sink. HPD remains high on all inputs while the unit is powered on. The HPD drops low only while EDID is being updated.
- **Output slot** — The output slot is automatically populated by the EDID from the connected sink device. When HPD is detected, the EDID of the sink is automatically stored in the output slot. The output slot exist solely for the purpose of exporting to PCS.
- **EDID Memory Retention** — The assigned EDID is stored to an EEPROM, which is located at the HDMI input. The stored EDID is retained until a reset is initiated, when it reverts back to the default EDID.
- **Reset** — The input slots revert to their default EDID after a reset.
- **Updating** — The switcher monitors HPD on the HDMI output to determine if a new sink has been connected. If necessary, the signal for that output is modified in response to the EDID of the connected device.

# HDCP

## Inputs

The HDMI input negotiates and authenticates HDCP with the source device if the source requires HDCP encryption. The authentication process is repeated whenever the stored EDID is changed or updated, which is indicated by pulling HPD low.

HDCP support can be disabled using SIS commands (see [Input HDCP Authorization](#) on page 26). When the HDCP support is disabled, the input appears as a non-HDCP compliant device to a connected source.

## Output

The output is pre-authenticated and encrypted, if required by the connect source. If the output requires encryption but the connected sink device cannot be authenticated, the output displays a green screen.

The following output encryption modes can be selected via SIS commands or PCS:

- **Follow input** — Output is always authenticated but only encrypted when required by input. HDMI authentication is continuous. DVI authentication occurs for a maximum of 10 seconds, then fails.
- **Always encrypt output** — Output is always authenticated and encrypted regardless of whether the input video is encrypted or not. HDMI authentication is continuous. DVI authentication occurs for a maximum of 10 seconds, then fails.

## HDCP Authorized Setting

The HDCP Authorized setting, configurable via SIS commands, is for devices such as Mac computers, iPhones, iPads, and some Windows sources that always encrypt their output, if the downstream sink is HDCP compliant.

- **HDCP Authorized On** — The HDMI inputs indicate to the sources that they are capable of handling HDCP content.

When an encrypted or unencrypted source is connected, the video is passed through the system.

- **HDCP Authorized Off** — The HDMI inputs indicate to the sources that they are not capable of handling HDCP content.

When a Macbook, or any of the other devices listed above, is connected, the output video is unencrypted.

When a source playing content that requires video encryption (for example, Blu-ray) is connected, the source does not output video.

## HDCP Encryption

The HDCP Encryption status can be viewed via SIS command and the front panel HDCP LED Indicators.

- **Inputs** — All inputs support content encrypted using HDCP 1.x or HDCP 2.2
- **Output** — The output supports encrypting content using HDCP 1.x or HDCP 2.2.

## HDCP Notification

HDCP notification provides an indication that encrypted content is trying to be displayed on a non-HDCP compliant sink device. The requirements for the notification can be configured for each output via SIS command (N HDCP).

- **HDCP Notification Enabled** — A green screen is displayed on the output when the input signal is encrypted and the display is not HDCP compliant.
- **HDCP Notification Disabled** — A black screen is displayed when the input signal is encrypted and the display is not HDCP compliant.

## Color Bit Depth

There are two options for color depth and deep color support. Color bit depth is configurable for each output via SIS commands:

- **Automatic** — By monitoring the EDID of the sink, the UCS 303 switcher determines the best color depth that is supported by the sink. If the color bit depth of the signal is supported, the signal passes unaltered. If the color bit depth is not supported, then the signal is truncated to the maximum supported by the sink.
- **Force 8-bit** — When output is set to force 8-bit color bit depth, the unit always outputs 8-bit color bit depth. This can also be disabled via SIS commands (see the [Output Color Bit Depth commands](#) on page 27) or PCS (see the *UCS 303 Help File*).

## USB-C Input

The USB-C input supports USB data, audio, video, and USB power delivery. This input is a USB 3.2 port, supporting up to 10 Gbps and backwards compatible with USB 2.0, 1.1, and 1.0.

### DisplayPort Alt Mode

The DP Alt Mode is required for signal conversion to DisplayPort. After USB-C has been converted to DP via DP Alt Mode, four DisplayPort lanes are available. The DisplayPort signal is then converted to TMDS.

The USB-C input host controller can be configured to operate in one of two modes to support a combination of high resolution video and USB via SIS. The four data lanes used and shared by USB 3.x data and DP Alt Mode can be configured to operate in one of the two modes:

- **USB 3.x + USB 2.0 + 4k/30 video — mode 1 (default)**  
The USB-C input host controller is configured so that two high speed data Lanes operate in HBR2 mode (5.4 Gbps x 2 lanes = 10.8 Gbps). The two other high speed data lanes are used for USB 3.2 (5 to 10 Gbps) operation.
- **4k/60 video + USB 2.0 only — mode 2**  
If the system requires just video and USB 2.0 (no USB 3.x data), then 4k @ 60 Hz can be supported on the USB-C input by configuring it to operate in a mode so that all four high speed lanes for DisplayPort Alt Mode support HBR2 (5.4 Gbps x 4 lanes = 21.6 Gbps).

### USB-C Power Delivery

The USB-C port provides up to 60 watts of power to connected source. For sources that require greater than 60 watts of power, it is able to keep the source active, but cannot charge it. If the source is already connected to an external power supply, the UCS 303 does not send power to the source.

#### Power profile:

The unit supplies all identified output voltages of 5 VDC, 9 VDC, 15 VDC, and 20 VDC per the *USB Power Delivery Specifications*.

## RS-232 Signal Insertion

To control a display connected to the rear panel Display RS-232 port, the UCS 303 allows insertion of RS-232 control signals onto the cable that connects the display to the port. Commands can then be sent via contact closure to control the display (for example, turn the volume up and down).

PCS provides controls to set the serial port parameters and the insertion port starting point. After the display is connected, set up RS-232 insertion as described in the *UCS 303 Help File*, provided with PCS program.

The control signals can be inserted in the following ways:

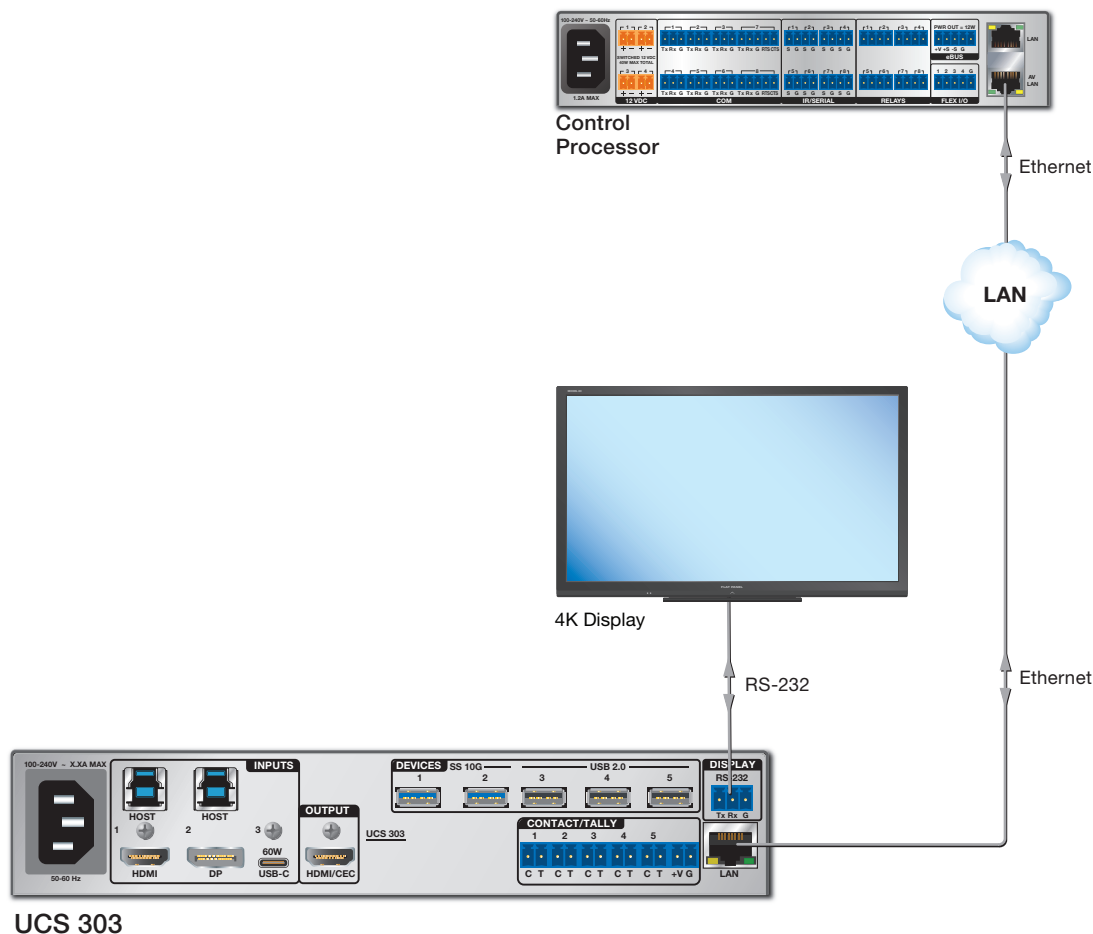
- **Ethernet to RS-232 insertion** (see Ethernet to RS-232 Insertion) — A control signal conveying commands from a control device such as an IPCP 250 is applied to the UCS 303 LAN port, then routed to the Display RS-232 port. The RS-232 commands are inserted onto the cable connecting the Display RS-232 port to a display. The RS-232 port can support up to a 115,200 baud rate (the default is 9600 baud).
- **Captive screw insertion** (see [Captive Screw Signal Insertion](#) on page 21) — SIS commands are entered via PCS (see the *UCS 303 Help File*) and sent to the UCS 303 LAN port. The commands are then inserted onto the cable connected to the Display RS-232 port and applied to the connected display.

## Ethernet to RS-232 Insertion

Figure 12 shows an example of an Ethernet to RS-232 insertion, in which an Extron controller provides control of a display via the UCS 303.

Configure this type of insertion as follows:

1. Connect a cable from the control system to the LAN port of the UCS 303, directly or via a network.
2. If necessary to match the device to be controlled, configure the port RS-232 protocol (baud rate, parity, data bits, and stop bits) using PCS (see the *UCS 303 Help File*).



**Figure 12. Typical Ethernet to RS-232 Insertion to a Display**

3. Connect a serial cable from the display to the UCS 303 RS-232 Display port.

## Port number

For Ethernet to RS-232 insertion, the insertion port number must be stated from a specific UART start point. This number is entered as the port number when communication is established with the insertion port.

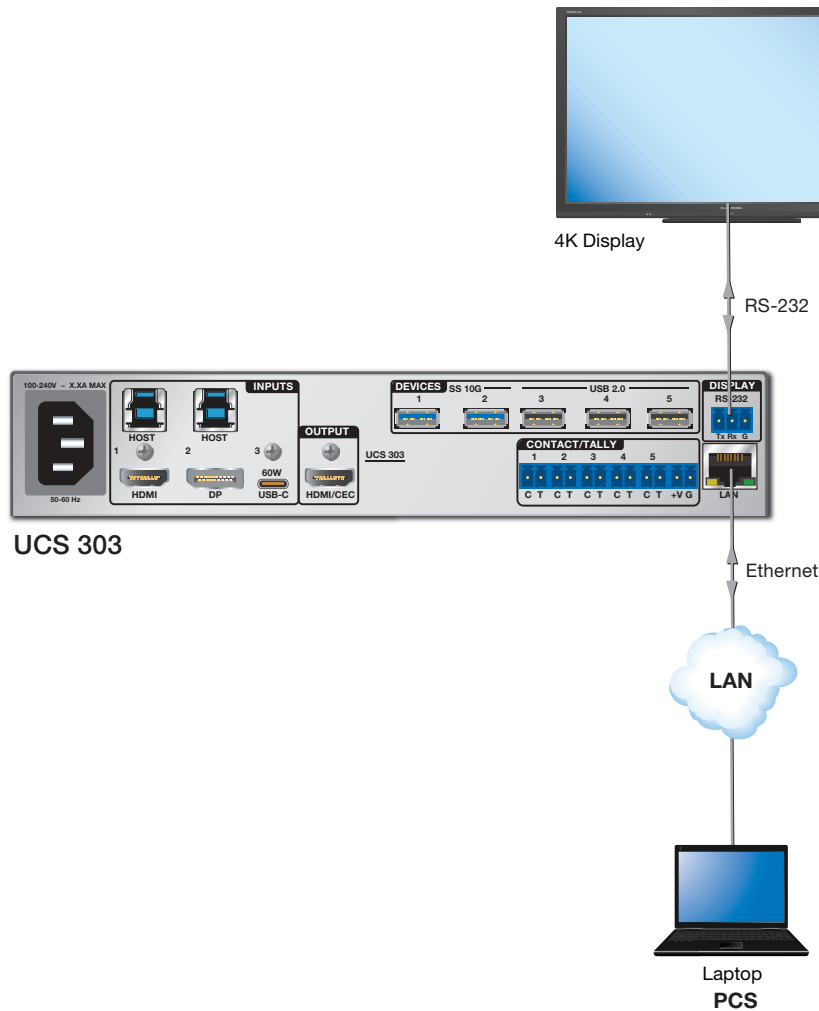
**Example:** In the UCS 303 example below, 2069 was assigned as the output port number, which appears in the **Insertion Port** column.

Output Port	Output Name	Insertion Port	Method for RS-232	Baud Rate
1	Output 1	2069	Captive Screw	9000

The insertion port number can be changed using PCS (see the *UCS 303 Help File* for the procedure).

## Captive Screw Signal Insertion

Figure 13 shows an example of a typical captive screw Ethernet insertion, in which a computer running PCS provides control of a display via the UCS 303. Configure this type of insertion as follows:



**Figure 13. Typical Captive Screw Insertion to a Display**

1. Connect the computer to the LAN port of the UCS 303.
2. Connect the RS-232 cable from the UCS 303 Display RS-232 connector to the RS-232 port of the display to be controlled.


# SIS Communication and Control

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This section describes remote operation of the UCS 303. Topics include:

- [Using the Simple Instruction Set Commands](#)
- [Enabling and Disabling Telnet](#)
- [Using the Command and Response Table](#)
- [Command and Response Table for SIS Commands](#)
- [Command and Response Table for CEC Communications SIS Commands](#)

## Using the Simple Instruction Set Commands

The UCS 303 can be remotely set up and controlled via Extron SIS commands issued from a computer or control system via the rear panel LAN port (see [figure 5](#),  on page 7) or the front panel USB-C CONFIG port (see [figure 11](#) on page 14).

### 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. When the switcher determines that a command is valid, it executes the command and sends a response to the host device. Responses from the UCS 303 to the host computer end with a carriage return and a line feed (CR/LF = ) , which signals the end of the response character string. A string is one or more characters.

Use one of the following methods to establish communication between the host and the UCS:

- **Ethernet** — Ensure the unit is connected to the host via the rear panel LAN port. To enter SIS commands, use a secure communication utility that supports Secure Shell (SSH). Enter the UCS 303 IP address where requested, and use 22023 as the port number.
- **IP over USB** — Connect the host to the front panel USB-C CONFIG port. To enter SIS commands, use a secure communication utility that supports Secure Shell (SSH). Enter 203.0.113.22 for the IP address where requested and 22023 as the port number.

### Switcher-initiated Messages

When a local event such as a front panel selection or change in signal status takes place, the switcher responds by sending a message to the host, indicating what change has occurred. No response is required from the host. The switcher sends the following message when it is first powered on:

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- Vx.xx is the firmware version number
- 60-1797-01 is the model part number.

### Error Responses

If the switcher is unable to execute a command it receives, it returns an error response to the host. The following error response codes can be sent:

- E06 – Invalid channel change (in auto-switch mode)
- E10 – Invalid command
- E13 – Invalid parameter
- E28 – Bad Filename/File not found

# Enabling and Disabling Telnet

By default, Telnet on port 23 is disabled. If it becomes necessary to enable Telnet communication, remap the Telnet port as described below. (The ↵ symbol shown here represents a carriage return with a line feed, in other words, pressing the <Enter> key.)

## To enable Telnet:

- 1. Use a SecureShell (SSH) client (such as PuTTY) to connect to the switcher over port 22023.
- 2. Enter the following SIS command to remap the Telnet port to 00023:

```
[Esc]Z23PMAP↵
```

## To disable Telnet:

To disable Telnet communication in order to require the SSH secure communication protocol to transmit SIS commands, remap the Telnet port as follows:

- 1. Use an SSH client (such as PuTTY) to connect to the switcher using SSH over port 22023, or  
Use a Telnet client (such Extron DataViewer) to connect to the switcher over port 23.
- 2. Enter the following SIS command to remap the Telnet port to 00000.

```
[Esc]Z0PMAP↵
```

This disables Telnet at port 23.

See Ethernet Port Configuration on page 31 for the port remapping SIS commands.

# Using the Command and Response Table

The Command and Response Table for SIS Commands starting on page 25 lists valid ASCII and hexadecimal command codes, the switcher responses to the host, and a description of the command function or the results of executing the command.

The conversion table below is for use with the command and response table.

ASCII to Hex Conversion Table																Esc	1B	CR	0D	LF	0A
Space	20	!	21	"	22	#	23	\$	24	%	25	&	26	'	27						
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F						
0	30	1	31	2	32	3	33	4	34	5	35	6	36	7	37						
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F						
@	40	A	41	B	42	C	43	D	44	E	45	F	46	G	47						
H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O	4F						
P	50	Q	51	R	52	S	53	T	54	U	55	V	56	W	57						
X	58	Y	59	Z	5A	[	5B	\	5C	]	5D	^	5E	_	5F						
`	60	a	61	b	62	c	63	d	64	e	65	f	66	g	67						
h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F						
p	70	q	71	r	72	s	73	t	74	u	75	v	76	w	77						
x	78	y	79	z	7A	{	7B		7C	}	7D	~	7E	DEL	7F						

Figure 14. ASCII to Hex Conversion Table

# Unsolicited Responses

- Sig[X3]•[X3]•[X3]•\*[X3]↵ Broadcast when signal status changes on any input or the output
- Hdcp1[X12]•[X12]•[X12]↵ Broadcast when HDCP status changes on any input
- Hdcp0[X13]↵ Broadcast when HDCP status changes on the output
- In[X1]•A11↵ Broadcast when input selection changes via the front panel or auto-switch

## Symbol Definitions

↵ = CR/LF (carriage return with line feed) (hex 0D 0A)

← or | = Soft carriage return (no line feed)

• = Space

Esc or W = Escape

<b>NOTE:</b> Commands are <b>not</b> case-sensitive.
--

For symbol definitions for specific commands, see the command listing in the [Command and Response Table for SIS Commands](#) starting on the next page.

# Command and Response Table for SIS Commands

Command	ASCII Command Host to Switcher	Response Switcher to Host	Additional Description
<b>Signal Status (corresponding to front panel LEDs)</b>			
Input and output signal status	<b>[Esc]</b> 0LS ←	<b>[X3]</b> • <b>[X3]</b> • <b>[X3]</b> * <b>[X3]</b> ← Sig <b>[X3]</b> • <b>[X3]</b> • <b>[X3]</b> * <b>[X3]</b> ←	View signal status <b>[X3]</b> of the inputs and the output. <i>Inputs * output</i>
Input HDCP status	<b>[Esc]</b> I HDCP ←	<b>[X12]</b> • <b>[X12]</b> • <b>[X12]</b> ← <i>In verbose modes 2 and 3:</i> HdcpI <b>[X12]</b> • <b>[X12]</b> • <b>[X12]</b> ←	View HDCP status <b>[X12]</b> of the inputs.
Output HDCP Status	<b>[Esc]</b> O HDCP ←	<b>[X13]</b> ← <i>In verbose modes 2 and 3:</i> HdcpO <b>[X13]</b> ←	View HDCP status <b>[X13]</b> of the output.
<b>Input Selection</b>			
Select all inputs	<b>[X1]</b> !	In <b>[X1]</b> •All ←	Select all inputs, video, audio, and USB.
Select an input — video and audio only	<b>[X1]</b> %	In <b>[X1]</b> •Vid ←	Select input <b>[X1]</b> , audio and video only.
View selected input — audio and video only	%	<b>[X1]</b> ←	View the selected input, audio and video only
Select input — USB only	<b>[X1]</b> ^	In <b>[X1]</b> •USB ←	Select input <b>[X1]</b> , USB only
View selected input — USB only	^	<b>[X1]</b> ←	View the selected input (USB only).
<b>Auto-switch Mode</b>			
Set auto-switch mode	<b>[Esc]</b> <b>[X16]</b> AUSW ←	Ausw <b>[X16]</b> ←	Set the auto-switch mode to <b>[X16]</b> .
View mode setting	<b>[Esc]</b> AUSW ←	<b>[X16]</b> ←	View the auto-switch mode.
Set user priority order for mode 1	<b>[Esc]</b> P <b>[X17]</b> • <b>[X17]</b> •... <b>[X17]</b> AUSW ←	AuswP <b>[X17]</b> • <b>[X17]</b> •... <b>[X17]</b> ←	Set the user-defined priority number for mode 1.
View user priority order for mode 1	<b>[Esc]</b> PAUSW ←	<b>[X17]</b> • <b>[X17]</b> •... <b>[X17]</b> ← <i>In verbose modes 2 and 3:</i> AuswP <b>[X17]</b> • <b>[X17]</b> •... <b>[X17]</b> ←	View the user-defined priority order.
View machine priority order for mode 2	<b>[Esc]</b> O AUSW ←	<b>[X17]</b> • <b>[X17]</b> •... <b>[X17]</b> ← AuswO <b>[X17]</b> • <b>[X17]</b> •... <b>[X17]</b> ←	View the priority order set by the UCS 303.
<b>KEY:</b> <div> <div> <b>[X1]</b> = Input number           <b>[X3]</b> = On or off, detected or not detected           <b>[X12]</b> = HDCP status           <b>[X16]</b> = Auto-switch mode           <b>[X17]</b> = Auto-switch priority         </div> <div>           0 - 3            0 = Break tie            0 = Off or not detected            1 = On or detected            0 = No source detected            1 = Source detected with HDCP            2 = Source detected without HDCP            0 = Off or disabled (default)            1 = User-defined priority            2 = Input memory priority            1 = Input 1, 2 = input 2, 3 = input 3         </div> </div>			

Command	ASCII Command Host to Switcher	Response Switcher to Host	Additional Description
<b>Input (continued)</b>			
<b>Auto-switch Mode (continued)</b>			
Set auto-switch timeout for mode 2	<b>[Esc]T[X18]AUSW</b> ←	AuswT[X18] ←	Set the number of seconds after which auto-switch times out.
View auto-switch timeout	<b>[Esc]TAUSW</b> ←	[X18] ← AuswT[X18] ←	View the auto-switch time-out setting.
<b>Mute Video and Audio Output</b>			
Mute the output	<b>[X2] B</b>	Vmt[X2] ←	Mute the output.
Video output mute status	<b>B</b>	[X2] ←	View mute status [X2] for the output.
<b>Input HDCP Authorization</b>			
Set HDCP authorization per input	<b>[Esc]E[X1]*[X3]HDCP</b> ←	HdcpE[X1]*[X3] ←	Set HDCP authorization for input [X1] to [X3].
Set HDCP authorization all inputs	<b>[Esc]E[X3]HDCP</b> ←	HdcpE[X3] ←	Set HDCP authorization for all inputs to [X3].
HDCP authorization status	<b>[Esc]EHDCP</b> ←	[X3]•[X3]•[X3] ← <i>In verbose modes 2 and 3:</i> HdcpE[X3]•[X3]•[X3] ←	View HDCP authorization status of all inputs.
<b>Output</b>			
<b>Output HDCP Mode</b>			
Set output HDCP mode	<b>[Esc]S[X4]HDCP</b> ←	HdcpS[X4] ←	Set HDCP authorization for the output to [X4].
Output HDCP Mode Status	<b>[Esc]SHDCP</b> ←	[X4] ← HdcpS[X4] ←	View HDCP authorization status of the output.
<b>Output Format</b>			
Set TMDS format for the output	<b>[Esc][X5]VTPO</b> ←	Vtpo[X5] ←	Set output format [X5] for the output.
Output TMDS format status	<b>[Esc]VTPO</b> ←	[X5] ←	View the TMDS output format.
<b>KEY:</b> <div> <div> [X1] = Input number  [X2] = Muted or unmuted  [X3] = On or off, detected or not detected  [X4] = Output HDCP mode  [X5] = Output TMDS format  [X18] = Auto-switch timeout (mode 2) </div> <div> 0 - 3, 0 = Break tie  0 = Mute off (default), 1 = Mute on, 2 = mute video and sync  0 = Off or disabled, 1 = On or disabled  1 = Encrypt as required by input. Continuous trials for HDMI sinks. Trials for 10 seconds on DVI sinks, then fail (default).  2 = Always encrypt. Continuous trials for HDMI sinks. Trials for 10 seconds on DVI sinks, then fail.  1 = Auto. HDMI RGB Full if the sink is HDMI, force DVI format if the sink is DVI (default).  2 = DVI RGB 444 Full  3 = HDMI RGB 444 Full  4 = HDMI RGB 444 Limited  5 = HDMI YUV 444 Limited  6 = HDMI YUV 422 Limited  0-500 seconds in 1-second intervals. Default is 3 seconds. </div> </div>			

Command	ASCII Command Host to Switcher	Response Switcher to Host	Additional Description
<b>Output (continued)</b>			
<b>Output Color Bit Depth</b>			
Set color bit depth for the output	<b>[Esc]V[X9]BITD←</b>	BitdV[X9]↵	Set the color bit depth to [X9] for the output.
Output color bit depth Status	<b>[Esc]V BITD←</b>	[X9]↵	View the color bit depth for the output.
<b>Output 5 V Mode</b>			
Set output 5 V mode for the output	<b>[Esc]M[X14]HPLG←</b>	Hp1gM [X14]↵	Set the output 5 V mode to [X14].
View output 5 V mode	<b>[Esc]MHPLG←</b>	[X14]↵ <i>In verbose modes 2 and 3:</i> Hp1gM [X14]↵	View the 5 V output mode setting.
<b>HDCP Notification</b>			
Set HDCP notification for the output	<b>[Esc]N[X3]HDCP←</b>	HdcpN[X3]↵	Enable or disable HDCP notification for the output.
HDCP notification status	<b>[Esc]NHDCP←</b>	[X3]↵ <i>In verbose modes 2 and 3:</i> HdcpN[X3]↵	View HDCP notification status [X3].
<b>KEY:</b> <div> <div>[X3] = HDCP notification status</div> <div>[X9] = Output color bit depth</div> <div>[X14] = Output 5 V mode</div> <div> 0 = Off or disabled  1 = On or enabled  1 = Auto, based on sink EDID (default)  2 = Force 8-bit/color  1 = Auto (5 V is enabled when a source with 5 V is present, disabled when 5 V source is not detected.)  2 = 5 V always enabled (default). </div> </div>			
<b>EDID Minder</b>			
<b>EDID Transfer</b>			
Import EDID (.bin) to input (store) slot	<b>[Esc]I[X6],&lt;filename&gt;EDID←</b>	EdidI[X6]↵	Import a 128 or 256-byte binary EDID file to input slot [X6].
Export EDID (.bin) to PC	<b>[Esc]E[X6],&lt;filename&gt;EDID←</b>	EdidE[X6]↵	Export a 128 or 256-byte binary EDID file from any position in the EDID lookup table ([X6]).
<b>EDID Other</b>			
View input EDID in HEX Format	<b>[Esc]R[X1]EDID←</b>	[X7]↵	HEX data from EDID assigned to input [X1].
View input EDID Native Rate	<b>[Esc]N[X1]EDID←</b>	[X8]↵	Native rate of EDID assigned to input [X1]
<b>KEY:</b> <div> <div>[X6] = Slot number on EDID lookup table</div> <div>[X7] = 128 or 256 byte EDID raw HEX (text form) from currently assigned EDID</div> <div>[X8] = Native resolution and refresh rate from currently assigned EDID</div> <div> See the <a href="#">EDID Lookup Table</a> on page 17.  <i>Example: 1920x1080 @ 60 Hz.</i> </div> </div>			

Command	ASCII Command Host to Switcher	Response Switcher to Host	Additional Description
<b>USB Signal Status</b>			
View input host status	<b>[Esc]I</b> USBC ←	<b>[X3]•[X3]•[X3]↵</b> <i>In verbose modes 2 and 3:</i> UsbcI <b>[X3]•[X3]•[X3]↵</b>	View signal presence <b>[X3]</b> on the two USB 3.2 type B host inputs and the USB-C input. <b>Response format:</b> <i>Host input 1 • host input 2 • USB-C input</i>
View USB output device status	<b>[Esc]O</b> USBC ←	<b>[X3]•[X3]•[X3]•[X3]•[X3]↵</b> <i>In verbose modes 2 and 3:</i> UsbcO <b>[X3]•[X3]•[X3]•[X3]•[X3]↵</b>	View signal presence <b>[X3]</b> on the five USB type A device ports. <b>Response format:</b> <i>Port1 • port2 • port3 • port4 • port5</i>
<b>DisplayPort Alt Mode Lane Configuration</b>			
Set USB 2.0/3.x mode	<b>[Esc]F3*</b> <b>[X22]</b> USBC ←	UsbcF 3* <b>[X22]↵</b>	Set operating mode <b>[X22]</b> (internal or external control) of the DisplayPort input.
View USB 2.0/3.x mode	<b>[Esc]F3</b> USBC ←	<b>[X22]↵</b>	View the current Display port mode.
<b>USB Device Port Status</b>			
Enable or disable device port	<b>[Esc] X</b> <b>[X23]*[X3]</b> USBC ←	UsbcX <b>[X23]*[X3]↵</b>	Set state of device port <b>[X23]</b> to <b>[X3]</b> .
Enable or disable all device ports	<b>[Esc] X</b> <b>[X3]</b> USBC ←	UsbcX <b>[X3]↵</b>	Set state of all device ports to <b>[X3]</b> .
View all device ports status	<b>[Esc] X</b> USBC ←	<b>[X3]•[X3]•[X3]•[X3]•[X3]↵</b> <i>In verbose modes 2 and 3:</i> UsbcX <b>[X3]•[X3]•[X3]•[X3]•[X3]↵</b>	View status <b>[X3]</b> of all USB device ports.
<b>IP Configuration</b>			
Set DHCP mode	<b>[Esc][X3]</b> DH ←	Idh <b>[X3]↵</b>	Set Dynamic Host Configuration Protocol (DHCP) to <b>[X3]</b> to enable or disable automatic assigning of IP addresses.
View DHCP mode	<b>[Esc]</b> DH ←	<b>[X3]↵</b>	View DHCP status <b>[X3]</b> .
Set IP address	<b>[Esc][X30]</b> CI ←	Ipi• <b>[X30]↵</b>	Set unit IP address to <b>[X30]</b> .
View IP Address	<b>[Esc]</b> CI ←	<b>[X30]↵</b>	View IP address <b>[X30]</b> .
Set subnet mask	<b>[Esc][X31]</b> CS ←	Ips• <b>[X31]↵</b>	Set subnet mask <b>[X31]</b> for the unit.
View subnet mask	<b>[Esc]</b> CS ←	<b>[X31]↵</b>	View subnet mask <b>[X31]</b> .
<b>KEY:</b> <div> <div> <b>[X3]</b> = On or Off setting  <b>[X22]</b> = DP Alt mode setting  <b>[X23]</b> = Device port number  <b>[X30]</b> = IP address  <b>[X31]</b> = Subnet mask </div> <div> 0 = Off or disabled (default), 1 = On or enabled  1 = USB 3.x + 2.0 + 4K/30 video (default), 2 = 2.0 + 4K/60 video  0 to 5  Format <i>nnn.nnn.nnn.nnn</i> (Default is 192.168.254.254)  Format <i>nnn.nnn.nnn.nnn</i> (Default is 255.255.255.0) </div> </div>			

Command	ASCII Command Host to Switcher	Response Switcher to Host	Additional Description
<b>IP Configuration (continued)</b>			
Set gateway address	<b>[Esc]</b> <b>[X32]</b> <b>CS</b> ←	Ips• <b>[X32]</b> ←	Set subnet mask <b>[X32]</b> for the unit.
View gateway address	<b>[Esc]</b> <b>CS</b> ←	<b>[X32]</b> ←	View subnet mask <b>[X32]</b> .
Set DNS server IP address	<b>[Esc]</b> <b>[X33]</b> <b>DI</b> ←	Ipd• <b>[X33]</b> ←	Set DNS server address <b>[X33]</b> for the unit.
View DNS server IP address	<b>[Esc]</b> <b>DI</b> ←	<b>[X33]</b> ←	View DNS server address <b>[X33]</b> .
Set date and time	<b>[Esc]</b> <b>[X36]</b> <b>CT</b> ←	Ipt• <b>[X36]</b> ←	Set local date and time, format <i>MM/DD/YY-HH:MM:SS</i> .
View date and time	<b>[Esc]</b> <b>CT</b> ←	<b>[X36]</b> ←	View local date and time, format <i>www</i> (day of week), <i>dd</i> , <i>Mmm</i> , <i>YYYY</i> , <i>HH:MM:SS</i> .
Get connection listing	<b>[Esc]</b> <b>CC</b> ←	{Number of connections} ← In verbose modes 2 and 3: Icc {Number of connections} ←	View the number of devices connected to the unit.
View hardware (MAC) address	<b>[Esc]</b> <b>CH</b> ←	<b>[X34]</b> ← In verbose modes 2 and 3: Iph• <b>[X34]</b> ←	View media access code (MAC) hardware address <b>[X34]</b> for the unit.
<b>CISG Commands</b>			
<b>NOTE:</b> Setting any values with the CISG command changes DHCP from On to Off, and the Cisd response is followed by a Boot2 response (in verbose mode).			
Set IP address	<b>[Esc]</b> <b>[X37]</b> * <b>[X30]</b> <b>CISG</b> ←	Cisg• <b>[X37]</b> * <b>[X30]</b> / <b>[X35]</b> ←	Set the product IP address to <b>[X30]</b> and the subnet mask prefix to <b>[X35]</b> on network server <b>[X37]</b> .
Set IP address and subnet mask	<b>[Esc]</b> <b>[X37]</b> * <b>[X30]</b> * <b>[X35]</b> <b>CISG</b> ←	Cisg• <b>[X37]</b> * <b>[X30]</b> / <b>[X35]</b> * <b>[X30]</b> ←	Set the product IP address to <b>[X30]</b> , and the subnet mask prefix to <b>[X35]</b> .
Set IP, subnet, and gateway addresses	<b>[Esc]</b> <b>[X37]</b> * <b>[X30]</b> / <b>[X35]</b> * <b>[X30]</b> <b>CISG</b> ←	Cisg• <b>[X37]</b> * <b>[X30]</b> / <b>[X35]</b> * <b>[X30]</b> ←	Set the IP address to <b>[X30]</b> , the subnet mask prefix to <b>[X35]</b> , and gateway address to <b>[X32]</b> at one time.
View IP, subnet, and gateway addresses	<b>[Esc]</b> <b>[X37]</b> <b>CISG</b> ←	<b>[X30]</b> / <b>[X35]</b> * <b>[X30]</b> ← In verbose modes 2 and 3: Cisg• <b>[X30]</b> / <b>[X35]</b> * <b>[X30]</b> ←	View IP address, subnet mask prefix, and gateway address at one time.
<b>KEY:</b> <div> <div> <b>[X30]</b> = IP address  <b>[X32]</b> = Gateway address  <b>[X33]</b> = DNS server address  <b>[X34]</b> = MAC address  <b>[X35]</b> = Subnet mask prefix (CISG commands)  <b>[X36]</b> = Date and time  <b>[X37]</b> = Network interface card (NIC) number </div> <div> Format <i>nnn.nnn.nnn.nnn</i> (Default is 192.168.254.254)  Format <i>nnn.nnn.nnn.nnn</i> (Default is 0.0.0.0)  Format <i>nnn.nnn.nnn.nnn</i> (Default is 127.0.0.1)  Format 00-05-A6-XX-XX-XX  Subnet mask prefix (subnet mask bits). In CISG commands, the default subnet mask 255.255.255.0 is represented as prefix value /24.  <b>Set format:</b> <i>MM/DD/YY-HH:MM:SS</i> Example: 08/17/21-13:51:30  <b>View format:</b> <i>Day of week, day•month•year•hour:minutes:seconds</i> (<i>www, DD•Mmm•YYYY•HH:MM:SS</i>) Example: Fri, 21 Jun 2002 10:54:00  1-3 (If the NIC number is not applicable to the UCS 303, an E13 error message is returned.) </div> </div>			

Command	ASCII Command Host to Switcher	Response Switcher to Host	Additional Description
<b>IP Configuration, continued</b>			
Set front panel lock mode	<b>[X21]</b> X	Exe <b>[X21]</b> ↵	Enable or disable front panel lockout (executive mode).
View front panel lock mode	X	<b>[X21]</b> ↵	View front panel lock status <b>[X21]</b> .
Set power save mode	<b>[Esc]</b> <b>[X3]</b> PSAV↵	Psav <b>[X3]</b> ↵	Enable or disable power save.
View power save mode status	<b>[Esc]</b> PSAV↵	<b>[X3]</b> ↵	View power save mode On or Off status.
Set verbose mode	<b>[Esc]</b> <b>[X10]</b> CV↵	Vrb <b>[X10]</b> ↵	
View verbose mode status	<b>[Esc]</b> CV↵	<b>[X10]</b> ↵	View current verbose mode <b>[X10]</b> .

#### NOTES:

- In **verbose response** mode, the switcher responds with unsolicited responses for value and setting changes that may result from a signal change, or a setting adjustment made via another interface.  
For example, the switcher can send out a notice of a change in some setting without receiving a query via a PC or a control system. That change could have been a result of an internal process, a selection made from the front panel, or a selection made via PCS. This is an example of a verbose relationship between the controller and a connected device.
- If **tagged responses** are enabled, all View type commands return the command string plus the data, the same as in responses for setting a value. For example:  
**Command:** **[Esc]**CN↵ (View unit name)  
**Response:** Ipn • **[X11]**↵ (tagged response) or **[X11]**↵ (untagged response)

	Verbose Responses	Tagged Responses
<b>[X10] Value</b>	Receive unsolicited responses (messages) for all actions initiated via any source (touchpanel, port input, internal web page changes, or commands) instead of only for SIS commands.	Receive tagged responses to read or view commands. (Responses to SIS commands are always tagged. Turning tagged responses on adds tags to the responses to SIS read requests.)
0		
1	✓	
2		✓
3	✓	✓

Set unit name	<b>[Esc]</b> <b>[X11]</b> CN↵	Ipn• <b>[X11]</b> ↵	Assign name <b>[X11]</b> for the unit.
Set unit name to default	<b>[Esc]</b> •CN↵	Ipn• <b>[X15]</b> ↵	Set the UCS 303 device name to default <b>[X15]</b> .
View unit name	<b>[Esc]</b> CN↵	<b>[X11]</b> ↵	

#### KEY:

**[X3]** = Power save mode setting

**[X10]** = Verbose mode

**[X11]** = Unit name

**[X15]** = Default unit name

**[X21]** = Front panel lock (executive) mode

0 = Off or disabled (default), 1 = On or enabled

0 = None (default for IP connection)

1 = Verbose mode

2 = Tagged responses for queries

3 = Verbose mode and tagged responses for queries

Text string of up to 24 characters. Permitted characters include letters (A-Z), digits (0-9), and the hyphen or minus sign (-). Blank and space characters are not allowed. The first character must be a letter, and the last character **cannot** be a hyphen.

Model name followed by the last three character pairs of the MAC address. *Example:* UCS-303-00-02-3D

0 = Off or disabled (default), 1 = Front panel lockout

#### NOTES:

- Changes made to any TCP/IP settings do not take effect until the reboot network command (**[Esc]**2B00T↵) is issued.
- IP address setup commands that are followed by <sup>24</sup> require Administrator permission to enter. Attempts to issue them without Administrator status result in an E24 (privilege violation) error message.

Command	ASCII Command Host to Switcher	Response Switcher to Host	Additional Description
<b>IP Configuration, continued</b>			
<b>Ethernet Port Configuration</b>			
Set web port map	<b>[Esc]</b> W { <i>port number</i> }PMAP←	Pmap W{ <i>port number</i> }↵	Set the web port number.
Reset web port map	<b>[Esc]</b> W 80 PMAP←	Pmap W 00080↵	Set the web port number to 80 (default).
Disable web port	<b>[Esc]</b> W 0 PMAP←	Pmap W 00000↵	Disable the web port.
View web port mapping	<b>[Esc]</b> W PMAP←	{ <i>port number</i> }↵	View the currently set web port.
Set Telnet port map	<b>[Esc]</b> Z { <i>port number</i> }PMAP←	Pmap Z{ <i>port number</i> }↵	Set the Telnet port number.
<b>NOTE:</b> Telnet port 23 is disabled by default.			
Reset Telnet port map	<b>[Esc]</b> Z 23 PMAP←	Pmap Z 00023↵	Set the Telnet port number to 23 (default).
Disable Telnet port	<b>[Esc]</b> Z 0 PMAP←	Pmap Z 00000↵	Disable the Telnet port.
View Telnet port mapping	<b>[Esc]</b> Z PMAP←	{ <i>port number</i> }↵	View the current Telnet port.
<b>SIS-over-SSH</b>			
<b>NOTES:</b> <ul style="list-style-type: none"> <li>The echo setting must match the type of SSH client used. With echo <b>enabled</b> (default), characters that are typed into the client window are echoed in the window along with the SIS response, and are also sent to the server.</li> <li>With echo <b>disabled</b>, the characters are not echoed but are simply sent to the server.</li> <li>The echo setting applies only to current (not global) connection.</li> <li>Control systems should turn echo off after connecting.</li> </ul>			
Enable echo (default)	<b>[Esc]</b> 1ECHO←	Echo 1↵	Echo on: All data sent is echoed back to the sender, followed by the response. Extra carriage returns may also be received when echo is on.
Disable echo	<b>[Esc]</b> 0ECHO←	Echo 0↵	Echo off: only the response is sent to the sender.
View echo status	<b>[Esc]</b> ECHO←	<b>[X3]</b> ↵	View the echo setting
Set SIS-over-SSH port map	<b>[Esc]</b> B <b>[X37]</b> *{ <i>port number</i> } PMAP←	PmapB• <b>[X37]</b> *{ <i>port number</i> }↵	Set the SIS-over-SSH port
Reset SIS-over-SSH port map	<b>[Esc]</b> B <b>[X37]</b> *22023 PMAP←	PmapB• <b>[X37]</b> *22023↵	Reset the SSH port to the default 22023.
Disable SIS-over-SSH port	<b>[Esc]</b> B <b>[X37]</b> *0 PMAP←	PmapB• <b>[X37]</b> *00000↵	Disable the SIS-over-SSH port.
View the SIS-over-SSH port mapping	<b>[Esc]</b> B <b>[X37]</b> PMAP←	{ <i>port number</i> }↵	View the current SIS-over-SSH port mapping.
<b>KEY:</b> <div> <b>[X3]</b> = Echo status <div>0 = Off or disabled, 1 = On or enabled (default)</div> </div> <div> <b>[X37]</b> = Network interface card (NIC) number <div>1-3</div> </div>			

Command	ASCII Command Host to Switcher	Response Switcher to Host	Additional Description
<b>IP Configuration, continued</b>			
<b>Passwords</b>			
<b>NOTE:</b> The initial passwords set at the factory are the serial number of the unit. However, if the unit is reset (via the ZQQQ SIS command or the front panel Reset button), this password reverts to extron.			
Set administrator password	<b>[Esc]</b> <b>[X27]</b> <b>CA</b> ←	Ipa• <b>[X27]</b> ↵	Set the administrator password to <b>[X27]</b> .
View administrator password	<b>[Esc]</b> <b>CA</b> ←	**** ↵ or ↵ <i>In verbose modes 2 and 3:</i> Ipa•**** ↵ or Ipa ↵	View the administrator password.
Reset (clear) administrator password	<b>[Esc]</b> • <b>CA</b> ←	Ipa• ↵	Reset or clear the administrator password.
Set user password	<b>[Esc]</b> <b>[X27]</b> <b>CA</b> ←	Ipu• <b>[X27]</b> ↵	Set the user password.
View user password	<b>[Esc]</b> <b>CA</b> ←	**** ↵ or ↵ <i>In verbose modes 2 and 3:</i> Ipu•**** ↵ or Ipu ↵	View the user password. If there is a valid password, the response is **** ↵. If there is no password, the response is ↵.
Reset (clear) user password	<b>[Esc]</b> • <b>CA</b> ←	Ipu• ↵	Reset or clear the user password.
<b>KEY:</b> <div> <b>[X27]</b> = Password           <ul style="list-style-type: none"> <li>Length is 1-128 characters.</li> <li>All human-readable characters are permitted except  .</li> <li>The password cannot be a single space.</li> <li>Passwords are case-sensitive.</li> <li>A user password cannot be assigned if no administrative password exists. An E14 error code is returned.</li> <li>If the admin password is cleared, the user password is cleared also.</li> </ul> </div> <div> <b>NOTE:</b> If there is a valid password, the response is **** ↵. If there is no password, the response is ↵.         </div>			
<b>Contact/Tally Port Status</b>			
<b>Contact Port Status</b>			
View individual contact port status	<b>[Esc]</b> <b>[X28]</b> <b>CNTC</b> ←	<b>[X29]</b> ↵	View the contact status <b>[X29]</b> of contact port <b>[X28]</b> .
View status of all contact ports	<b>[Esc]</b> <b>CNTC</b> ←	<b>[X29]</b> •... <b>[X29]</b> ↵	View status <b>[X29]</b> of all ports.
<b>Tally Port Status</b>			
Set individual port state	<b>[Esc]</b> <b>[X28]</b> • <b>[X29]</b> <b>TALY</b> ←	Taly <b>[X28]</b> • <b>[X29]</b> ↵	Set the tally output state for port <b>[X28]</b> to <b>[X29]</b> .
Set states of all ports	<b>[Esc]</b> <b>[X29]</b> •... <b>[X29]</b> <b>TALY</b> ←	Taly <b>[X29]</b> •... <b>[X29]</b> ↵	Set all tally ports at once to port state <b>[X29]</b> .
View individual tally port status	<b>[Esc]</b> <b>[X28]</b> <b>TALY</b> ←	<b>[X29]</b> ↵	View the tally status <b>[X29]</b> of tally port <b>[X28]</b> .
View status of all tally ports	<b>[Esc]</b> <b>TALY</b> ←	<b>[X29]</b> •... <b>[X29]</b> ↵	View status <b>[X29]</b> of all tally ports.
<b>KEY:</b> <div> <b>[X28]</b> = Contact/Tally port number           <div>1 through 5</div> </div> <div> <b>[X29]</b> = Contact/Tally port state           <div>0 = Open, 1 = Closed</div> </div>			

Command	ASCII Command Host to Switcher	Response Switcher to Host	Additional Description
<b>Information Requests</b>			
Information	I	In $\boxed{x1}$ •Afmt $\boxed{x19}$ •Ausw $\boxed{x16}$ ↵	View input number $\boxed{x1}$ , input audio format $\boxed{x19}$ , and auto-switch mode $\boxed{x16}$ for the selected input.
Query part number	N	$\boxed{x20}$ ↵ <i>In verbose modes 2 and 3:</i> Pno• $\boxed{x20}$ ↵	View the UCS 303 unit part number.
Query model name	1I	UCS-303↵ <i>In verbose modes 2 and 3:</i> Inf01*UCS-303↵	View the UCS 303 model name.
Query firmware version	Q	$\boxed{x24}$ ↵	View current firmware version $\boxed{x24}$ .
Query firmware version with build	*Q	$\boxed{x25}$ ↵	Show full firmware version $\boxed{x25}$ .
Query detailed firmware versions	0Q	$\boxed{x26}$ ↵	Show the full firmware version plus build number and any special text ( $\boxed{x26}$ ).
<b>NOTE:</b> For $\boxed{x24}$ , the following symbols may appear after the version number (see the example below): <ul style="list-style-type: none"> <li>* = The firmware version is the current or active version.</li> <li>? . ? ? = Only the factory firmware version is loaded. This replaces the updated firmware version.</li> <li>^ = The default factory firmware version is loaded instead of the listed version due to a firmware reset to factory defaults.</li> <li>! = The current firmware version is corrupted.</li> </ul>			
<b>Example response:</b> <div> <div>Cmd.</div> <div>Version number</div> <div>Kernel version</div> <div>Upload date and time</div> <div>Indicator</div> <div>Model description</div> </div> <pre> 001.00-1.00.0000-b115(2.07LX-SW USB PRO -Fri, 16 Jul 2023 15.42 UTC)-1.00.0000-b004*(2.07LX-UCS 303 -Tue, 03 Aug 2023 17:56 UTC)↵ </pre> <div> <div>Boot loader version</div> <div>Factory base firmware version</div> <div>Updated firmware version</div> </div>			
<b>KEY:</b> <div> <div><math>\boxed{x1}</math> = Input number</div> <div><math>\boxed{x16}</math> = Auto-switch timeout (mode 2)</div> <div><math>\boxed{x19}</math> = Input audio format</div> <div><math>\boxed{x20}</math> = Unit part number</div> <div><math>\boxed{x24}</math> = Firmware boot loader version</div> <div><math>\boxed{x25}</math> = Full firmware version</div> <div><math>\boxed{x26}</math> = Full firmware version — advanced</div> </div> <div> <div>Number of the currently selected input.</div> <div>0-500 seconds in 1-second intervals. Default is 3 seconds.</div> <div>0 = None (muted), 1 = Digital (default)</div> <div>60-1797-01</div> <div>Shown to second decimal place (<i>n.nn</i>)</div> <div><i>n.nn.nnnn</i></div> <div>Full firmware version with build and any special text (<i>n.nn.nnnn-bnnn</i>)</div> </div>			

Command	ASCII Command Host to Switcher	Response Switcher to Host	Additional Description
<b>Resets</b>			
Reset to factory defaults	<b>[Esc]</b> ZXXX ←	Zpx↵	Reset the switcher to factory default values.
Reset all IP settings	<b>[Esc]</b> 1ZQQQ ←	Zpq1↵	Reset only IP settings to factory values.
<b>NOTE:</b> This command includes the 2BOOT ← command (reboot the system and discard network settings) so a separate 2BOOT ← command is not required. The Zpq1↵ response is followed by Reconfig↵ and Boot2↵ responses.			
Reset all settings except IP settings	<b>[Esc]</b> ZY ←	Zpy↵	Reset all device settings to factory defaults except IP settings (communication is preserved). This command is recommended for after a firmware update.
Absolute system reset	<b>[Esc]</b> ZQQQ ←	Zpq↵	Reset all device settings to factory defaults except the firmware version.
<b>NOTE:</b> Entering this command or performing an absolute system reset via the front panel Reset button (see <a href="#">Resetting</a> on page 16) changes the current passwords (whether user-set or the factory-set serial number) to extron.			

## Symbol Definitions for CEC Communications Commands

- X40** = CEC mode  
 0 = Disable CEC operations for this IO port (default)  
 2 = Enable insertion (unidirectional)  
 4 = Enable insertion and publish received CEC messages (bidirectional) (recommended mode)
- X41** = CEC status  
 0 = CEC mode 0 disabled  
 2 = CEC mode 2 enabled but no device detected (unidirectional)  
 3 = CEC mode 2 enabled and device detected (unidirectional)  
 4 = CEC mode 4 enabled but no device detected (bidirectional)  
 5 = CEC mode 4 enabled and device detected (bidirectional)
- X42** = Source logical address (our pseudo): 0 through 15 (-1 = not found or port not enabled)
- X43** = Destination logical address (theirs): 0 through 15 (-1 = not found or port not enabled)

CEC Logical Addresses	
Address	Device
0	TV
1	Recording Device 1
2	Recording Device 2
3	Tuner 1
4	Playback Device 1
5	Audio System
6	Tuner 2
7	Tuner 3
8	Playback Device 2
9	Recording Device 3
10	Tuner 4
11	Playback Device 3
12	Reserved
13	Reserved
14	Free Use
15	Unregistered (as initiator address) Broadcast (as destination address)

- X44** = CEC command: Predefined actions as strings within double quotes: “PwrOn”, “PwrOff”, or “ShowMe”
- X45** = Send result  
 0 = Failed (NAK)  
 1 = Success (ACK) of entire message  
 2 = Unable to send
- X46** = CEC physical address: four hexadecimal digits  
 Example: %10%00 for 1000
- X48** = CEC data: User selected elements (0 to 15) in the form of percent sign followed by two hex digits  
 (Example: %2A%07%FF)
- X49** = CEC address byte: In the form of percent sign followed by two hex digits  
 Example: %E0 = Extron output (14) to TV (0)

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

## Command and Response Table for CEC Communications SIS Commands

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
<b>CEC Enable/Disable</b>			
Enable or disable the output CEC	<code>[Esc]01*[X40]CCEC ←</code>	<code>Ccec01*[X40] ←</code>	
View output CEC status	<code>[Esc]01CCEC ←</code> Verbose mode 2/3	<code>[X41]*[X42]*[X43] ←</code> <code>Ccec01*[X41]*[X42]*[X43] ←</code>	
<b>Send CEC Commands</b>			
<b>Default Discovered Target Logical Address</b>			
Send CEC data to Output (downstream sink)	<code>[Esc]01*[X44]DCEC ←</code> or <code>[Esc]01*[X43]DCEC ←</code>	<code>Dcec01*[X49][X44]*[X45] ←</code>	The response is always in a hex representation ( <code>[X48]</code> ), for example: %2A%07%FF.
<b>Broadcast to All Devices</b>			
Send CEC data to Output (downstream sink)	<code>[Esc]01*15*[X44]DCEC ←</code> or <code>[Esc]01*15*[X48]DCEC ←</code>	<code>Dcec01*[X49][X48]*[X45] ←</code>	
<b>NOTE:</b> Attempting to send a CEC command to an input or output that is disabled returns an E14 error.			
<b>KEY:</b> <div> <div> <div><code>[X40]</code> = CEC mode</div> <div> <div>0 = Disable CEC operation for this IO port (default)</div> <div>2 = Enable insertion and break CEC connection input to output (unidirectional)</div> <div>4 = Enable insertion and publish received CEC messages (bidirectional)</div> </div> </div> <div> <div><code>[X41]</code> = CEC status</div> <div> <div>0 = CEC mode 0 disabled</div> <div>2 = CEC mode 2 enabled but no device detected (unidirectional)</div> <div>3 = CEC mode 2 enabled and device detected (unidirectional)</div> <div>4 = CEC mode 4 enabled but no device detected (bidirectional)</div> <div>5 = CEC mode 4 enabled and device detected (bidirectional)</div> </div> </div> <div> <div><code>[X42]</code> = Source logical address (our pseudo)</div> <div> <div>0 through 15 (-1 = not found or port not enabled)</div> <div>s = Destination logical address (theirs): 0 through 15 (-1 = not found or port not enabled) (See <a href="#">CEC Logical Addresses</a> on page 35.)</div> </div> </div> <div> <div><code>[X44]</code> = CEC command</div> <div>Predefined actions as strings within double quotes: "PwrOn", "PwrOff", or "ShowMe".</div> </div> <div> <div><code>[X45]</code> = Send result</div> <div> <div>0 = Failed (NAK) device not detected, 1 = Success (ACK) device detected,</div> <div>2 = Unable to send</div> </div> </div> <div> <div><code>[X48]</code> = CEC data</div> <div>User selected elements (0 to 15) in the form of percent sign followed by two hex digits (Example: %2A%07%FF)</div> </div> <div> <div><code>[X49]</code> = CEC address byte</div> <div>In the form of a percent sign (%) followed by two hex digits <i>Example:</i> %E0 = Extron output (14) to TV (0)</div> </div> </div>			

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
<b>CEC Usage Examples</b>			
<b>Unidirectional Mode — No CEC received data messages (including answers to queries) desired</b>			
Set mode	<code>[Esc]00*2CCEC←</code>	<code>Ccec00*2↵</code>	Power on TV on output 1.
Send data	<code>[Esc]00*"PwrOn"DCEC←</code> or <code>[Esc]00*%04DCEC←</code>	<code>Dcec00*%E0%04*1↵</code>	
<b>Bidirectional Mode — CEC received data messages desired</b>			
Set mode	<code>[Esc]00*4CCEC←</code>	<code>Ccec00*4↵</code>	Switch TV on output 1 to our signal (HDMI 2 on TV).
Send data	<code>[Esc]00*"ShowMe"DCEC←</code> or <code>[Esc]00*15*%82%20%00DCEC←</code>	<code>Dcec00*%EF%82%20%00*1↵</code>	
Examples of possible unsolicited messages		<code>Ceco0*%0F%32%65%6E%67*1↵</code>  <code>Ceco0*%0E*1↵</code>	TV broadcast command to set the menu language to English ("eng"). TV pings us to confirm we are still there.
<b>NOTE:</b> Asynchronous received data messages from CEC in bidirectional mode (4) format:			<code>Ceci[X1]*[X49][X46]*[X45]↵</code> <code>Ceco1*[X49][X46]*[X45]↵</code>
<b>Other CEC Commands</b>			
Rediscover device on output	<code>[Esc]01QCEC←</code>	<code>Qcec01*1↵</code> <code>Qcec01*0*[X45]↵</code> ... <code>Qcec01*13*[X45]↵</code>	
Report physical address of output port	<code>[Esc]01PCEC←</code> Verbose mode 2/3 <i>Example</i>	<code>[X46]↵</code> <code>Pcec01*[X46]↵</code> <code>%10%00</code>	For 1000 (usually first HDMI input on TV).
<b>KEY:</b> <div> <div>[X1] = Input number</div> <div>1 to 3</div> </div> <div> <div>[X45] = Send result</div> <div>0 = Failed (NAK) device not detected 1 = Success (ACK) devices detected 2 = Unable to send</div> </div> <div> <div>[X46] = CEC physical address</div> <div>Four hexadecimal digits in the form of %xx%xx (<i>Example:</i> %32%00)</div> </div> <div> <div>[X49] = CEC address byte</div> <div>In the form of percent sign followed by two hex digits <i>Example:</i> %E0 = Extron output (14) to TV (0)</div> </div>			

# Product Configuration Software

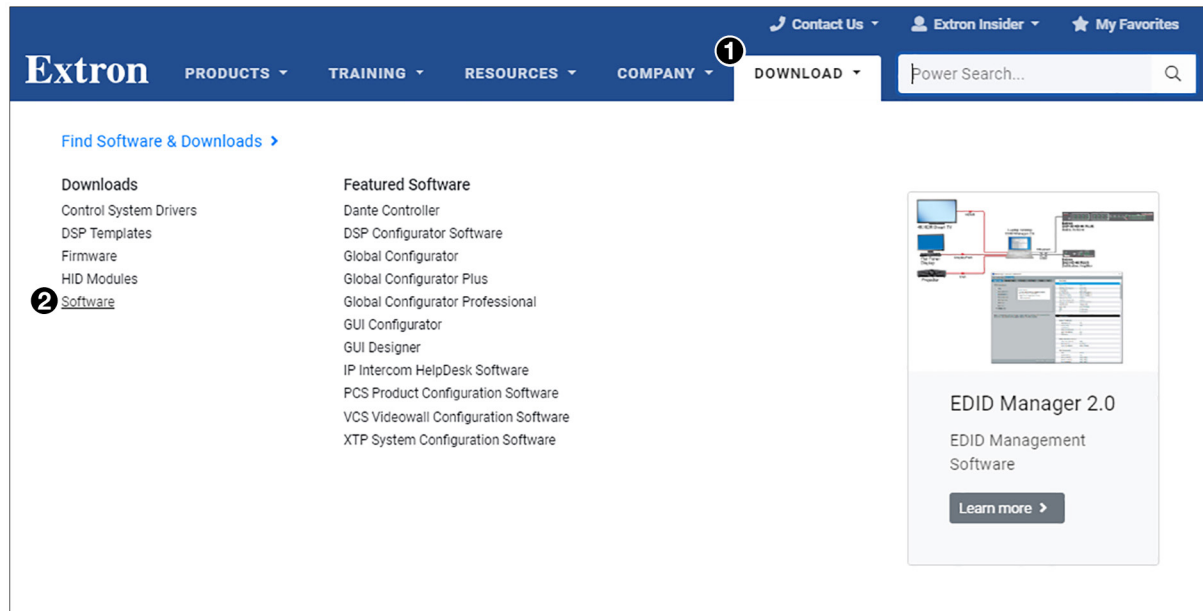
The Extron Product Configuration Software (PCS) offers another way to configure the UCS 303 Collaboration switchers via a USB-C connector in addition to the SIS commands. This section describes software installation and communication, along with updating firmware. Topics in this section include:

- [Downloading PCS from the Website](#)
- [Starting PCS](#)
- [Updating Firmware](#)
- [Firmware Loader](#)

The Extron PCS software program is a Windows-based program for the UCS that provides a convenient way to configure the input and output, audio, and image settings. It lets you perform nearly all the other functions that can be accomplished via the front panel controls or SIS commands.

## Downloading PCS from the Website

To use the Product Configuration Software, download the latest version of the program from the Extron web page and install it on the PC that will be connected to the UCS, as described in the following sections. You can also download updates to the UCS software as they become available. To access the software:



**Figure 15. Download Center Page on the Extron Website**

1. On the Extron website, select the **Download** tab (see figure 15, ①).
2. Move the pointer to the **Software** link (②) in the Downloads column and click it.

- On the Download Center page, click the **P** link (see figure 16, **1**).

**Download Center**  
Software (84 files)

**NEW**

VCS

Dante Controller

Global Configurator

Global Configurator Plus and Global Configurator Professional

GUI Configurator

1

ALL # A B C D E F G H I J K L M N O **P** Q R S T U V W X Y Z

► Archives

Please consult Release Notes for important compatibility information and history.

Description	Part Number	Version	Date	Size	
<b>PCS</b> <span style="background-color: red; color: white; padding: 2px;">Updated</span> Product Configuration Software for a variety of standalone products. ► <a href="#">Learn more</a> <a href="#">Release Notes</a>	79-562-01	4.3.1	Aug. 15, 2018	170.4 MB	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">2</span> <a href="#">Download</a>
<b>PIP 422 &amp; 444</b> Control Software for PIP 422 & 444. <a href="#">Release Notes</a>	79-522-01	1.0	Jan. 12, 2007	8.9 MB	<a href="#">Download</a>

**Figure 16. PCS Download Link**

- If necessary, scroll to locate PCS from the list of available software programs and click the **Download** link to the right of the name (**2**).
- On the login page that appears next, fill in the required information to log in to [www.extron.com](http://www.extron.com) (if you need an Extron Insider ID number, see your Extron representative).
- Follow the instructions on the subsequent screens to complete the software program installation. By default, the configuration program files are stored on your computer at: C:\Program Files (x86)\Extron\Extron PCS.

If there is not already an Extron folder in your Program Files (x86) folder, the installation program creates it.

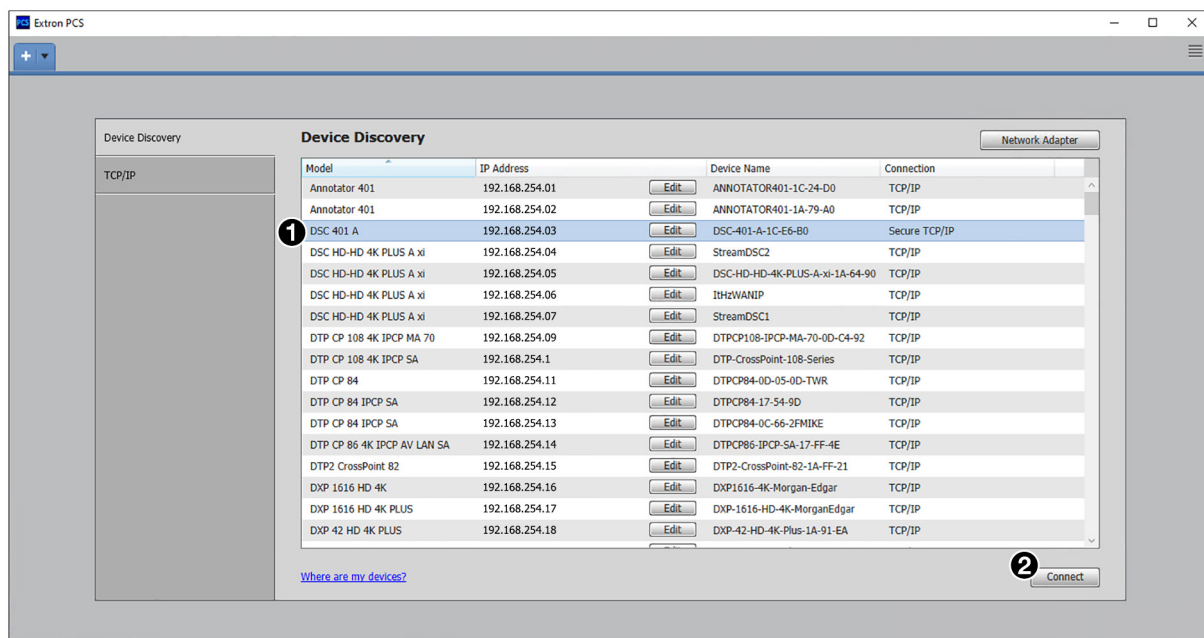
**NOTE:** If you are installing a PCS version that is 4.8.n or higher, you are required to enter an Extron Insider ID number again. See your Extron representative if you require assistance.

## Starting PCS

In order to use the PCS software, the UCS must be connected to your computer via the front panel USB-C port or the rear panel LAN port.

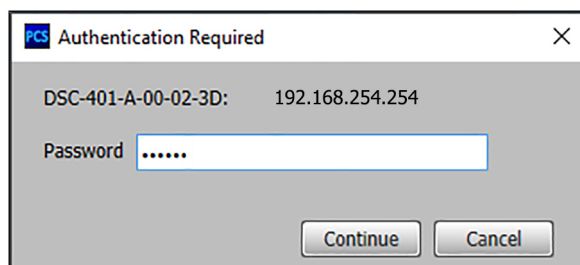
- To start the configuration program, do either of the following:
  - From the desktop Start menu, select **Extron/Extron Product Configuration Software**.  
The Extron Product Configuration Software window opens.
  - Double-click on the EAF.exe file, located on your computer at  
c:\Program Files(x86)]\Extron\Extron PCS.
- In the Device Discovery panel of the PCS window, click on the name of your UCS 303 (see figure 17, ①). (You may need to scroll to locate it, depending on the number of devices listed.) The **Connect** button (②) becomes available.

**NOTE:** If the UCS is connected via the LAN port (UCS 303 only), its IP address is displayed in the IP Address column. If it has a USB connection, the generic address for devices connected via IP over USB (203.0.113.22) is displayed.



**Figure 17. Device Discovery Panel on PCS Connection Screen**

- Click **Connect** (②), or double-click on the UCS name in the Device Discovery list.
- If the unit has a password defined, the following prompt opens:



**Figure 18. Password Prompt**

Enter the password for the unit and click **Continue**.

**NOTE:** The factory configured passwords for all accounts on this device have been set to the device serial number. Passwords are case sensitive. In the event of an absolute system reset, the passwords are set to extron.

5. If this is the first time you have opened the current version of PCS, the Tutorial screen appears, identifying items on the toolbar at the top of the PCS screen. When finished viewing the tutorial, click **OK** to close the screen. The Extron PCS device configuration window opens.

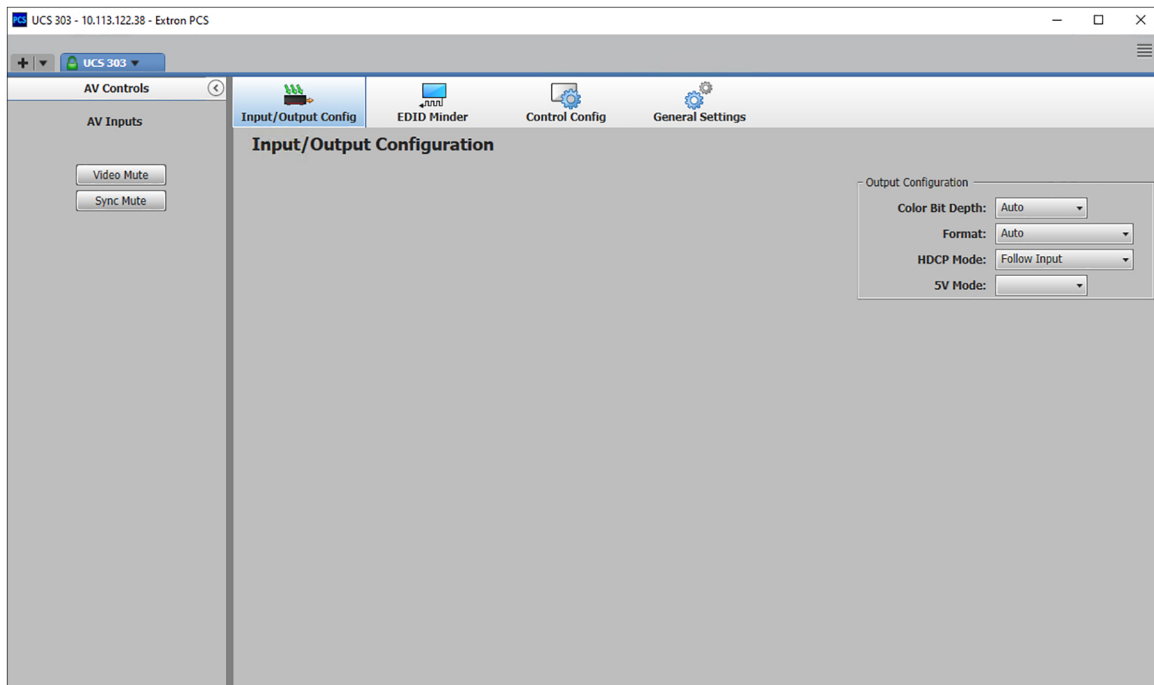


Figure 19. UCS 303 Device Configuration Window

## Connecting Using the TCP/IP Panel

The TCP/IP panel connects PCS to a specific device through Ethernet. To access this panel, click the **TCP/IP** tab to the left of the Device Discovery panel (see figure 20, ①).

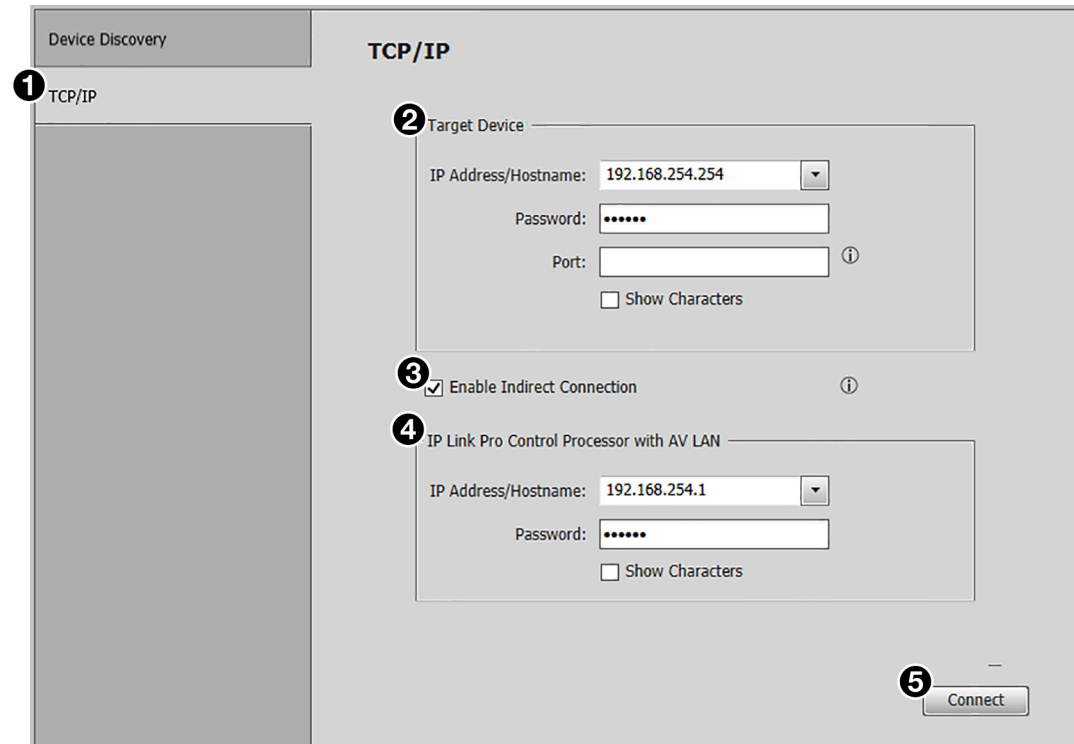


Figure 20. TCP/IP Panel

### To connect directly to a connected device with a known IP address:

1. In the **IP Address/Hostname** field of the Target Device panel (see [figure 20](#), ② on the previous page), enter the IP address of the desired device.
2. Enter the device password in the **Password** field.

#### NOTES:

- The factory configured passwords for all accounts on this device have been set to the device serial number. Passwords are case sensitive. In the event of an absolute system reset, the administrator passwords are set to extron and the user passwords are set to no password (blank).
- If desired, select the **Show Characters** checkbox (below the **Port** field) to display the password characters.

3. In the **Port** field of the Target Device panel (②), enter the port number of the desired device (the default is 4523).

**NOTE:** If the TCP/IP port number is not known, leave this field blank. PCS scans for the port and fills it in.

4. Click the **Connect** button (⑤). A new device tab opens.

### To connect indirectly to a device through a control processor via an AV LAN:

If your UCS 303 is connected to an AV LAN, you can connect to it through a control processor such as an Extron IPCP, as follows:

1. In the **IP Address/Hostname** field of the Target Device panel (②), enter the IP address of the UCS 303 on the AV LAN, as well as the port number (the default is 4523) and the password.
2. Select the **Enable Indirect Connection** checkbox (③).
3. In the **IP Address/Hostname** field of the IP Link Control Processor with AV LAN panel (④), enter the IP address of the control processor connected to the AV LAN.
4. Enter the password.
5. Click **Connect** (⑤). The TCP/IP window closes and the UCS device configuration window opens.

See the *UCS 303 Help File*, included with PCS, for instructions on using this software to configure the UCS.

## Updating Firmware

Extron periodically updates product firmware. Before updating any Extron product to the latest revision level, be sure to read the supplied release notes or contact Extron Technical Support to determine if your product requires a firmware update.

You can update firmware using PCS (see the *UCS 303 Help File*) the UCS 303 web page (see [Firmware Panel](#) on page 54), or Toolbelt (see the *Toolbelt Help File*).

## Firmware Loader

The Firmware Loader program enables you to upload new versions of firmware to your UCS 303. The program also provides a means of uploading firmware files to multiple devices simultaneously. When you are notified that new firmware is available for your switcher, download the firmware file from the Extron website and install it on your computer (see *Downloading Firmware Loader*). You can then upload the new version of firmware to the switcher.

Before updating any Extron product to the latest revision level, be sure to read the supplied release notes or contact Extron Technical Support to determine if your product requires a firmware update.

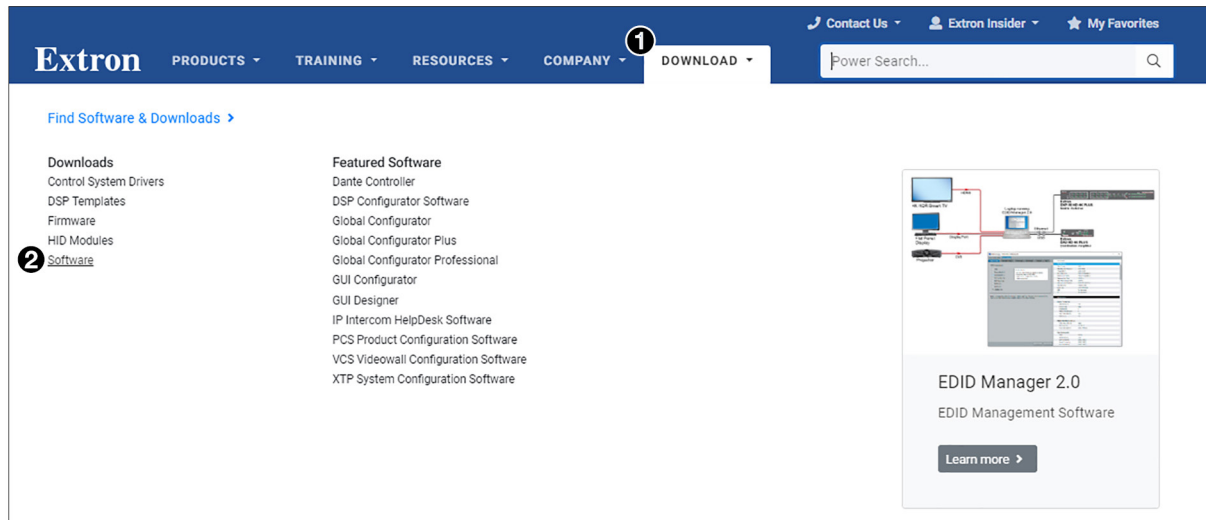
## Downloading Firmware Loader

### ATTENTION:

- Valid firmware files must have the file extension .eff. A file with any other extension is not a firmware upgrade for this product and could cause the device to stop functioning.
- Les fichiers firmware valides doivent contenir l'extension fichier .S19. Un fichier avec n'importe quelle autre extension n'est pas une mise à jour de firmware pour cet appareil et l'appareil pourrait arrêter de fonctionner.

To obtain Firmware Loader from the Extron website:

1. On the Extron website, select the **Download** tab (see figure 21, ①).



**Figure 21. Software Link on the Download Page**

2. Click the **Software** link (②) in the Downloads column.

- On the Download Center page, click the F link (see figure 22, ①).

**Download Center**  
Software (85 files)

NEW

VCS

Dante Controller

Global Configurator

Global Configurator Plus and Global Configurator Professional

GUI Configurator

①

ALL # A B C D E **F** G H I J K L M N O P Q R S T U V W X Y Z

► Archives

Please consult Release Notes for important compatibility information and history.

Description	Part Number	Version	Date	Size	
<b>Firmware Loader</b> 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). ► <a href="#">Learn more</a> ► <a href="#">Release Notes</a>	79-508-01	5.3.0	Mar. 20, 2018	14.9 MB	② <a href="#">Download</a>
<b>FlexOS App - Digital I/O Configurator</b> Configure SMP 300 Series digital I/O ports to automate system operation ► <a href="#">Release Notes</a>	49-254-50	2.07	Jun. 12, 2018	1.0 MB	<a href="#">Download</a>

**Figure 22. Firmware Loader Link on Download Center Page**

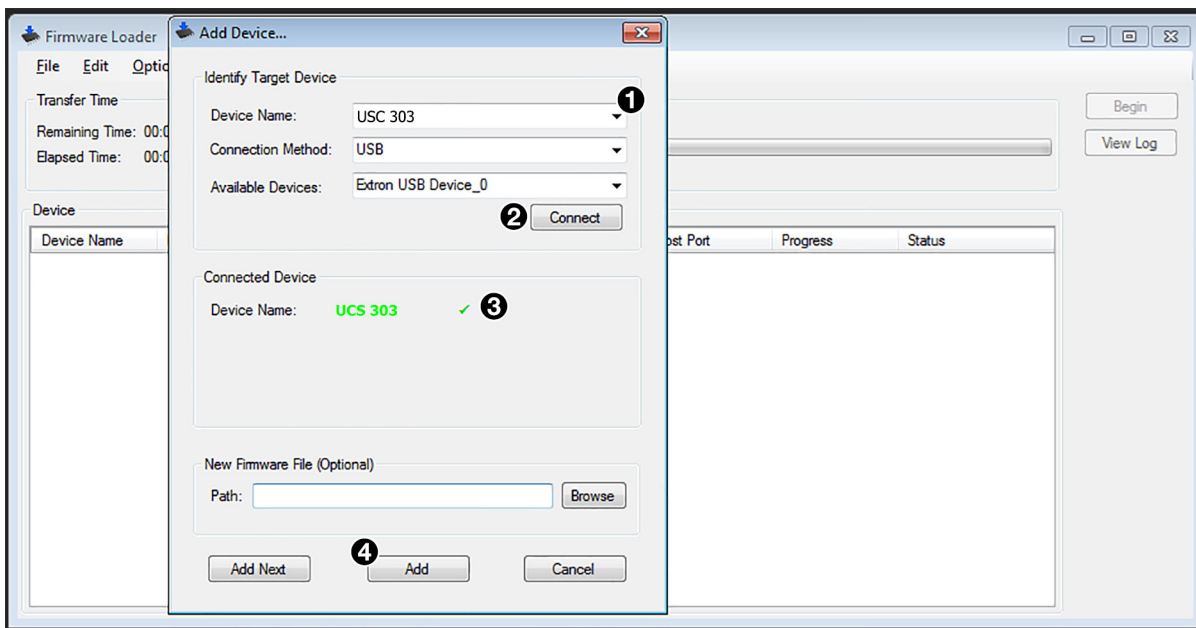
- Locate Firmware Loader on the software products list, and click the **Download** link (②).
- If a login page opens, fill in the required information to log into [www.extron.com](http://www.extron.com) (if you need an Extron Insider ID number, see your Extron representative).  
If you have previously logged in to this website and entered your ID, the login screen does not appear. The executable **Firmware Loader** installer icon appears at the bottom of the screen.
- Click the installer icon and follow the instructions on the subsequent screens to install Firmware Loader on your PC.

**NOTE:** When downloaded from the Extron website, by default the Firmware Loader files are placed at C:\Program Files (x86)\Extron\FWLoader.

## Updating Firmware Using Firmware Loader

To use Firmware Loader to upload a new firmware file to your unit:

1. Open the Firmware Loader via your desktop Start menu. The Firmware Loader window opens with the Add Device dialog box displayed in front of it.
2. From the Device Name drop-down list (see figure 23, ❶), select **UCS 303**.
3. Click **Connect** (❷). If the connection is successful, **UCS 303 ✓** is displayed in green in the Connected Device panel (❸).



**Figure 23. Successful Connection to the Switcher via Firmware Loader**

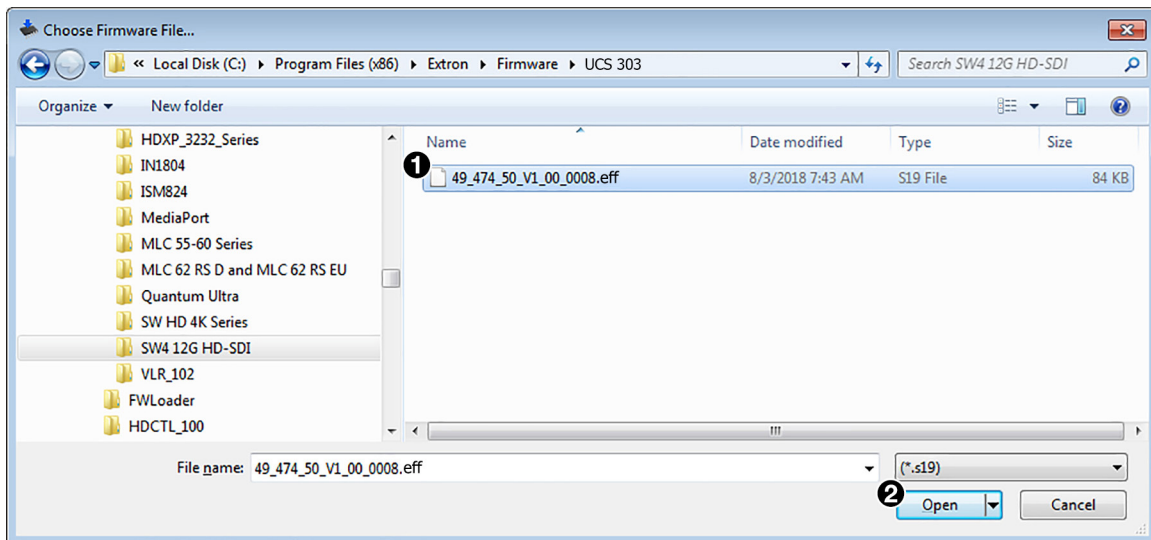
4. Click **Add** (❹) at the bottom of the dialog box. The Add Device window closes, and the UCS 303 information is added to the Device panel of the Firmware Loader dialog box.
5. Double click on <double click to set> in the New Firmware File column.
6. In the Choose Firmware File window, browse to locate the new firmware file, select it (see figure 24, ❶ on the next page) and click **Open** (❷).

### ATTENTION:

- Valid firmware files must have the file extension .S19. A file with any other extension is not a firmware upgrade for this product and could cause the device to stop functioning.
- Les fichiers firmware valides doivent contenir l'extension fichier .S19. Un fichier avec n'importe quelle autre extension n'est pas une mise à jour de firmware pour cet appareil et l'appareil pourrait arrêter de fonctionner.

### NOTES:

- When downloaded from the Extron website, by default the firmware is placed at C:\Program Files (x86)\Extron\Firmware\UCS 303.
- To get the part number for your unit, see [Query part number](#) on page 33.

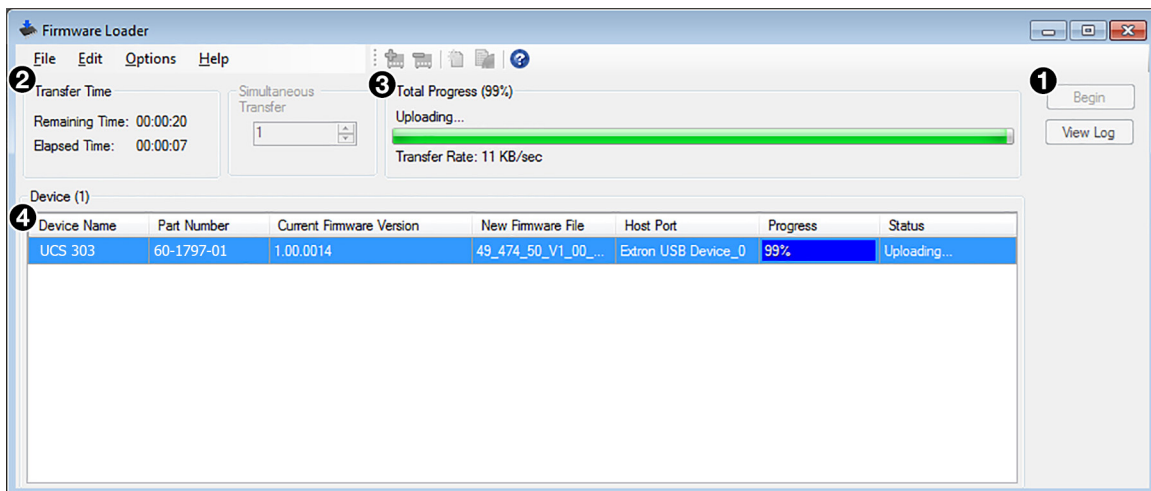


**Figure 24. Choose Firmware File Window**

**ATTENTION:**

- Valid firmware files must have the file extension .eff. A file with any other extension is not a firmware upgrade for this product and could cause the device to stop functioning.
- Les fichiers firmware valides doivent contenir l'extension fichier .eff. Un fichier avec n'importe quelle autre extension n'est pas une mise à jour de firmware pour cet appareil et l'appareil pourrait arrêter de fonctionner.

7. In the Firmware Loader dialog box, click **Begin** (see figure 25, ①).



**Figure 25. Firmware Upload in Progress**

The following indicators show the progress of the update:

- The Transfer Time panel shows the amounts of remaining and elapsed time for the update (②).
  - The Total Progress panel (③) displays a progress bar with Uploading above it.
  - In the Devices panel (④), the Progress column displays an incrementing percentage and another progress bar. The Status column displays Uploading.
8. The upload is complete when the Remaining Time panel shows 00.00.00, the Progress column shows 100%, and Completed is displayed above the progress bar and in the Status column. Close the Firmware Loader dialog box.

**NOTE:** The original factory-installed firmware is permanently available on the UCS 303. If the attempted firmware upload fails for any reason, the switcher reverts to the factory version.

# Internal Web Page

The embedded UCS 303 web page enables you to monitor and adjust certain settings of the UCS through its Ethernet port, connected via a LAN, WAN, or IP over USB, and using a web browser such as Microsoft® Internet Explorer®, Microsoft Edge®, Google® Chrome®, or Firefox®. This factory-installed web page is always available and cannot be erased or overwritten.

- [Accessing the Web Page](#)
- [Web Page Components](#)

## Accessing the Web Page

To access the web page:

1. In the Address field of your web browser, enter either of the following:
  - The IP address of your unit.

**NOTE:** If the local system administrators have not changed the IP address, use the factory-specified default **192.168.254.254** in this field.

- The IP over USB address: **203.0.113.22**
2. Press the <Enter> key. The sign-in screen of the internal web page opens.
3. On the sign-in screen, enter your user name in the **Username** field (see figure 26, ❶). The default name is **Admin**.
4. If a password has been defined, enter it in the **Password** field (❷).

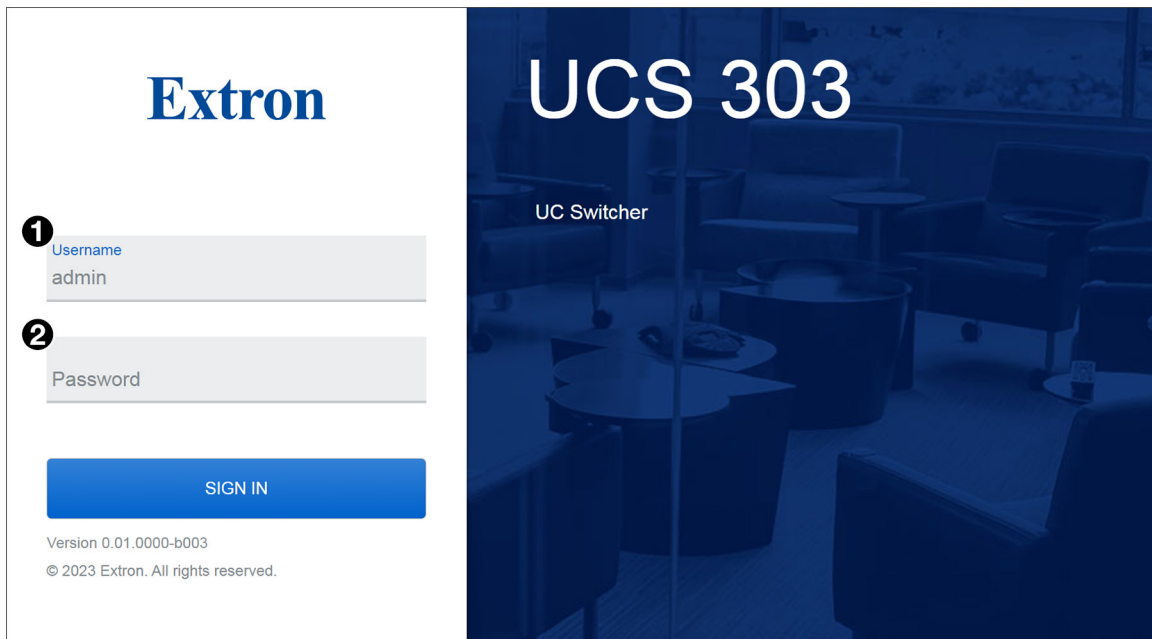
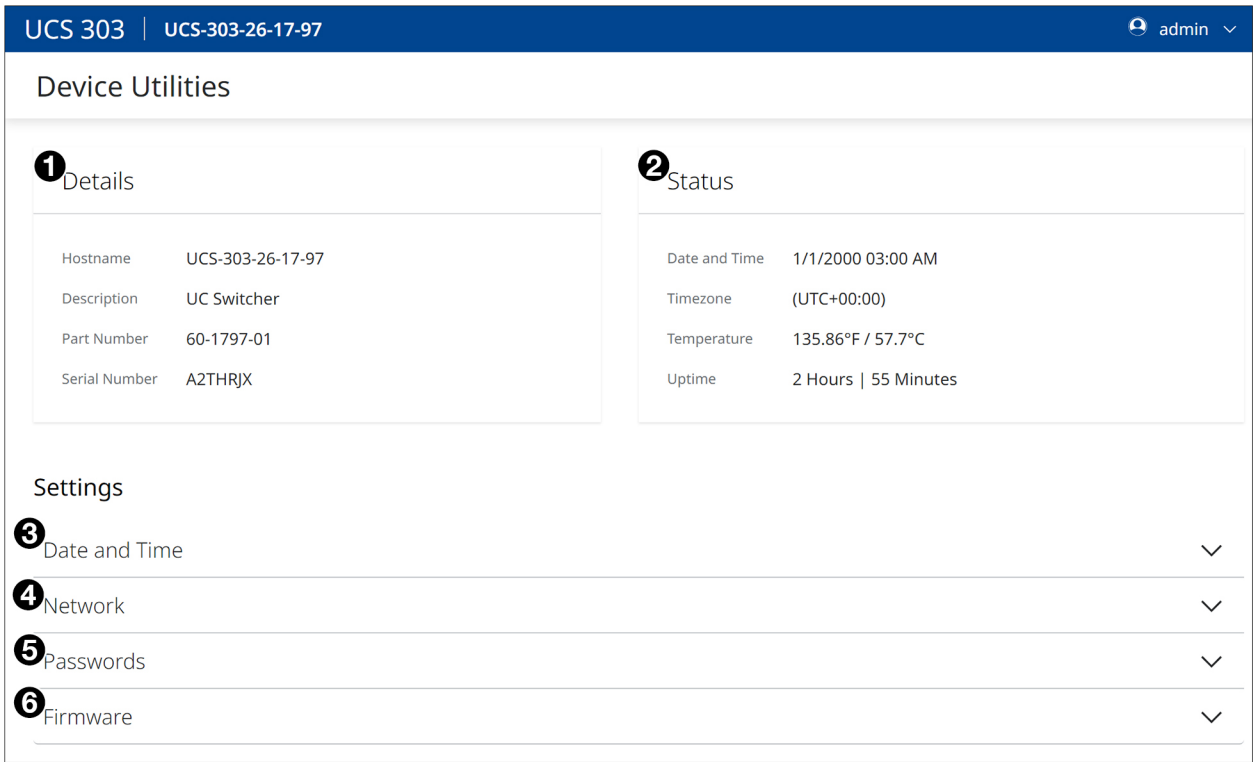


Figure 26. Web Page Sign-in Screen

# Web Page Components

The Device Utilities screen contains the following items. To access any of the five Settings drop-down panels, click the down arrow to the right of its name to expand it. To collapse a settings panel when finished editing it, click the up arrow to the right of its name.



- 1** Details Panel
- 2** Status Panel
- 3** Date and Time Panel
- 4** Network Panel
- 5** Passwords Panel
- 6** Firmware Panel

Figure 27. Internal Web Page

## Details Panel

This view-only panel contains the following information about the unit (see figure 27, **1**):

- The unit name (Hostname)
- Product description (Multi Graphic Processor)
- Part number (60-1797-01)
- Unit serial number

## Status Panel

This view-only panel contains the following unit status information (figure 27, **2** on the previous page):

- The current date and time (These settings can be configured via the Date and Time panel, see Date and Time settings.)
- The time zone in which the unit is operating (This setting can be configured via the Date and Time panel, see Date and Time settings.)
- The unit internal temperature in Fahrenheit and Celsius
- Uptime — The amount of days and hours the unit has been running

## Date and Time Panel

The following settings are available via the Date and Time panel:

### Syncing the date and time on the UCS to the PC

To set the unit date and time to match that of the computer:

Click the **SYNC TO PC** button (see figure 28, **1**). (Clicking the **EDIT** button first is optional.)

When the sync is completed, the current date and time appear in the **Date | Time** field, followed by a green check mark (**2**).

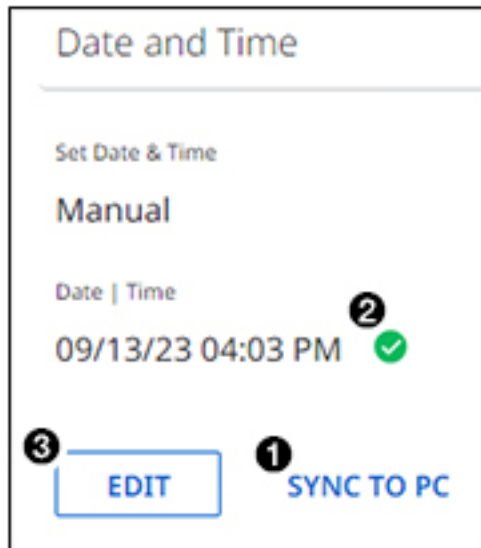


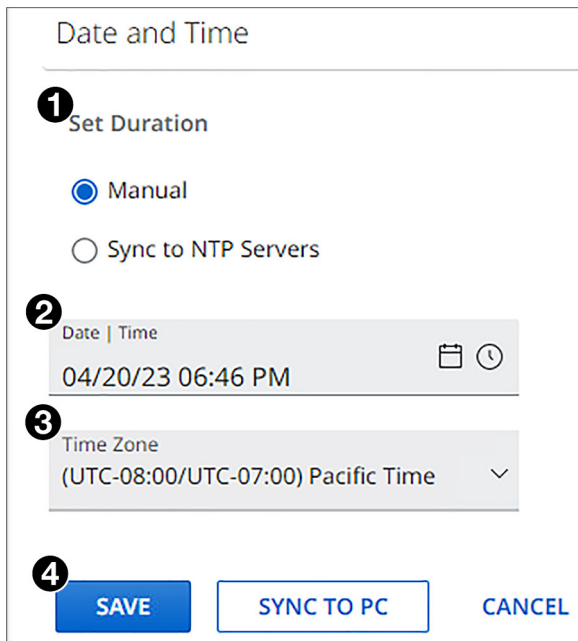
Figure 28. Syncing UCS Date and Time to the PC

**NOTE:** The Set Date & Time field must be set to Manual. If it is set to Sync to NTP Servers, the **SYNC to PC** button is unavailable. Click **EDIT**, then select the **Manual** radio button and click **SAVE** (see [Syncing to NTP servers](#) on page 51).

## Editing the date, time, and time zone manually

To set the date, time, or time zone manually:

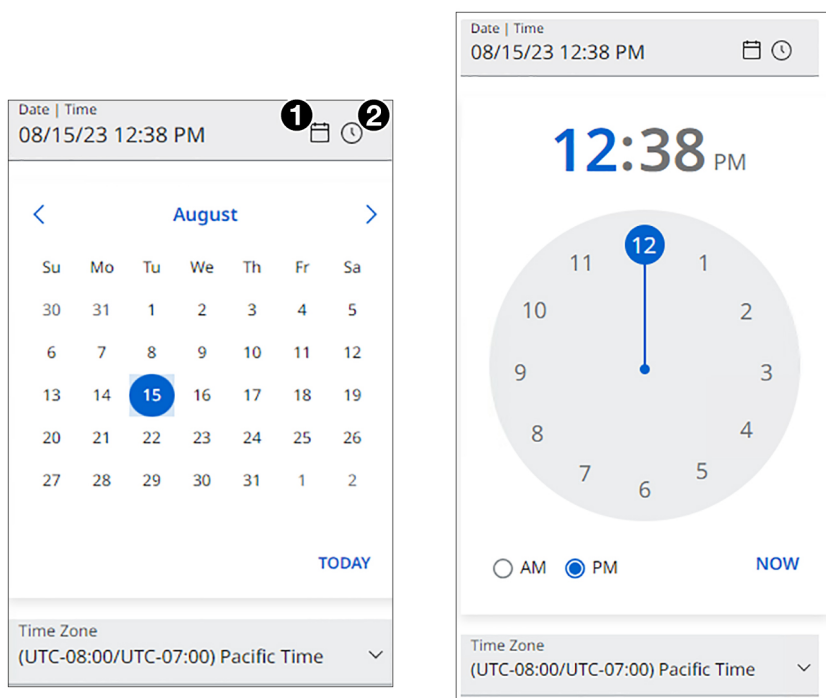
1. In the Date and Time panel, click the **EDIT** button (see [figure 28](#), ③ on the previous page).



The image shows the 'Date and Time' editing panel. At the top, it says 'Date and Time'. Below that, under 'Set Duration', there are two radio buttons: 'Manual' (selected) and 'Sync to NTP Servers'. Below this is a 'Date | Time' field showing '04/20/23 06:46 PM' with a calendar icon and a clock icon. Below that is a 'Time Zone' dropdown menu showing '(UTC-08:00/UTC-07:00) Pacific Time'. At the bottom, there are three buttons: 'SAVE' (blue), 'SYNC TO PC' (white with blue border), and 'CANCEL' (blue).

**Figure 29. Date and Time Editing Panel**

2. Under Set Duration, select **Manual**.
3. On the Date and Time editing panel, set the time, date, and time zone as desired:
  - **Date and Time** — In the **Date | Time** field (see [figure 29](#), ①), either click on the hour and minute text fields and type in the time, or click the **Datepicker** (see [figure 30](#), ①) or the **Timepicker** (②) icon to display the following panels:



The image shows two panels. The left panel is the 'Datepicker' and the right panel is the 'Timepicker'. Both panels have a header 'Date | Time' and a current date/time '08/15/23 12:38 PM'. The left panel shows a calendar for August with the 15th selected. The right panel shows a clock face with the time 12:38 PM. Both panels have a 'Time Zone' dropdown menu at the bottom showing '(UTC-08:00/UTC-07:00) Pacific Time'.

**Figure 30. Datepicker and Timepicker Screens**

- **Date** — On the Datepicker screen, either select the desired date from the calendar (current month only) or click **TODAY** to display the current date in the **Date | Time** field. To select a different month, click the right and left arrows at the top of the screen to display the desired month and year.
  - **Time** — On the Timepicker screen, click on the hour or minutes above the clock, then click on the desired number on the clock. To display the current time in the **Date | Time** field, click **NOW**. Select the **AM** or **PM** radio button.
  - **Time Zone** — In the **Timezone** field, select the desired time zone for the UCS from the drop-down menu (see [figure 29](#), [3](#) on the previous page).
4. When finished entering settings, click **SAVE** ([4](#)) to confirm them, or **CANCEL** to close the dialog box without implementing the settings.

## Syncing to NTP servers

To set the date, time, and time zone by syncing the UCS 303 with a network server:

The screenshot shows a 'Date and Time' configuration window. At the top, it says 'Set Duration' with two radio buttons: 'Manual' and 'Sync to NTP Servers'. Below this is a 'Time Zone' dropdown menu showing '(UTC-08:00/UTC-07:00) Pacific Time'. There are three text input fields for 'NTP Server #1', 'NTP Server #2', and 'NTP Server #3', each containing an IP address. At the bottom, it shows 'Current Date & Time' as 'Apr 28, 2023, 4:01:04 PM'. At the very bottom are three buttons: 'SAVE', 'SYNC TO PC', and 'CANCEL'.

**Figure 31. Syncing the UCS 303 to Network Servers**

1. Select the **Sync to NTP Servers** radio button.
2. If desired, select the time zone for the UCS from the **Time Zone** drop-down list (see [figure 31](#), [2](#)).
3. Enter the IP addresses of up to three network servers from which the UCS can obtain the date and time ([3](#)).
4. Click **SAVE** ([4](#)).

When syncing to NTP servers is enabled, the UCS syncs to the server at the address entered in the **NTP Server #1** space. If it fails to connect to server #1, it tries server #2, then server #3.

## Network Panel

In the Network panel you can set the hostname, IP address, subnet mask, and gateway address for your UCS 303, and turn DHCP on and off. You can also view the MAC address of the unit. To set the IP addresses:

1. Click the down arrow at the right of the **Network** field to view the network settings.

The screenshot shows the 'Network' settings window. It contains the following fields and controls:

- 1**: Device Name / Hostname field with the value 'UCS-303-26-17-97'.
- 2**: DHCP toggle switch, currently in the 'Off' position.
- 3**: IP Address field with the value '192.168.254.254'.
- 4**: Subnet Mask field with the value '255.255.240.0'.
- 5**: Default Gateway field with the value '0.0.0.0'.
- 6**: DNS Server field with the value '0.0.0.0'.
- MAC Address**: Field showing '00-05-A6-26-17-97'.
- 7**: 'SAVE' and 'CANCEL' buttons at the bottom.

**Figure 32. Edit Network Settings Screen**

2. Edit the network settings as desired:
  - **Device Name / Hostname**— Enter a name for the unit (see figure 32, **1**).
  - **DHCP** — Click the **DHCP** button (**2**) to toggle DHCP on and off. When DHCP is enabled (**On**), the unit configures its IP address and other network settings from the DHCP server. The default is **Off**.
  - **IP Address** (**3**), **Subnet Mask** (**4**), **Default Gateway address** (**5**), **DNS Server** (**6**) — To set any of these addresses, click in the desired field and enter the address.
3. When finished editing, click **SAVE** (**7**) to confirm your changes or **CANCEL** to close the window without making changes. You can also close the window by clicking the **X** in the upper-right corner of the screen.

**NOTE:** If DHCP is being enabled, the web page attempts to redirect and connect to the unit via the unit name (TCP/IP hostname). If a static IP address is being set, the web page attempts to connect to the new IP address.

## Passwords Panel

**NOTE:** The factory configured passwords for all accounts on this device have been set to the device serial number. Passwords are case sensitive. In the event of an absolute system reset, these passwords are reset to the default password, which is extron.

To set admin and optional user passwords on the UCS, click the down arrow to the right of Passwords to display the settings.

**NOTE:** The following rules apply to passwords:

- Length is 1-128 characters.
- All human-readable characters are permitted except |.
- A default administrator password (admin) is preassigned.
- The administrator password can be changed, but it cannot be removed. A user password can be deleted by entering a single space as the password.

## Assigning an administrator password

1. In the Passwords panel, click **EDIT**. The password settings are displayed.

The screenshot shows a web interface titled "Passwords". On the left, there are two password fields: "Admin Password" (marked with a circled 1) and "Confirm Admin Password" (marked with a circled 2). Below these is a blue "CREATE" button (marked with a circled 3) and a blue "CANCEL" button. At the bottom left is a checkbox labeled "Show Password". On the right, there is a "User P..." field with the text "Not Set" below it, and a grey "EDIT" button (marked with a circled 4).

**Figure 33. Passwords Panel**

2. In the Admin Password field (see figure 33, ①), enter the new administrator password. The password appears as masked characters. To see the actual characters, select the **Show Password** checkbox.
3. In the Confirm Admin Password field (②), reenter the password from the Admin Password field.
4. Click the blue **CREATE** button (③). (You may need to click this button again to make it available.) The UCS 303 web page closes and the login page is displayed.
5. Enter the username (the default is **Admin**) and the new password to access the UCS 303 web page.

## Assigning a user password (optional)

1. To assign a user password, click **EDIT** (④) in the User Password panel.
2. Repeat steps 2 through 4 in the User panel.

## Resetting an assigned admin password to default

1. In the Admin Password field, enter a single space.
2. Enter a single space in the Confirm Admin Password field.
3. Click **Create**. The password is reset to the default password, which is **extron**.

## Removing a user password

The screenshot shows a web interface titled "User Password". It has two password fields: "User Password" and "Confirm User Password", both containing a single space character. Below these fields are a blue "CREATE" button and a blue "CANCEL" button. At the bottom is a checkbox labeled "Show Password".

**Figure 34. Removing a User Password**

1. In the User Password field, enter a single space.
2. Enter a single space in the Confirm User Password field.
3. Click **SAVE**. The password is deleted.

# Firmware Panel

The Firmware panel displays the current firmware version and the date it was last updated. You can update the firmware on your UCS from this panel (firmware files can be downloaded from [www.extron.com](http://www.extron.com)).

To update firmware:

1. In the Firmware panel, click the **Select File** button (see figure 35, ❶).

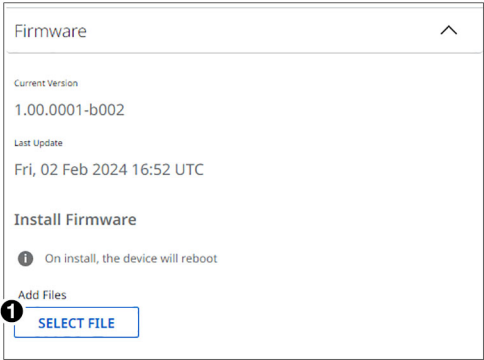


Figure 35. SELECT FILE Button on the Firmware Panel

2. In the Open dialog box, browse to locate the new firmware file on your computer (by default the file is stored at C:\Program Files (x86)\Extron\Firmware).

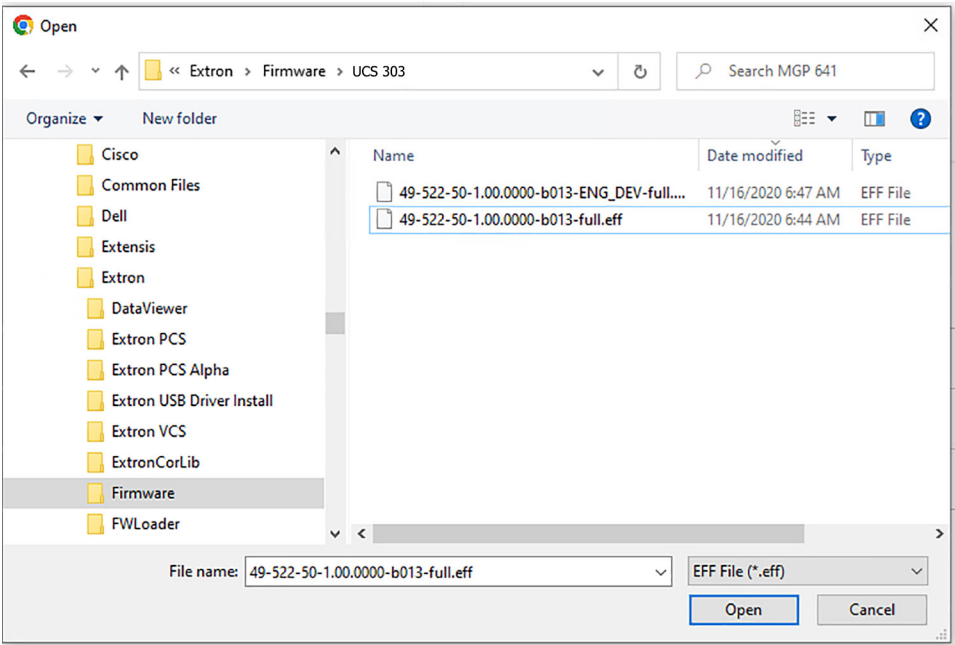
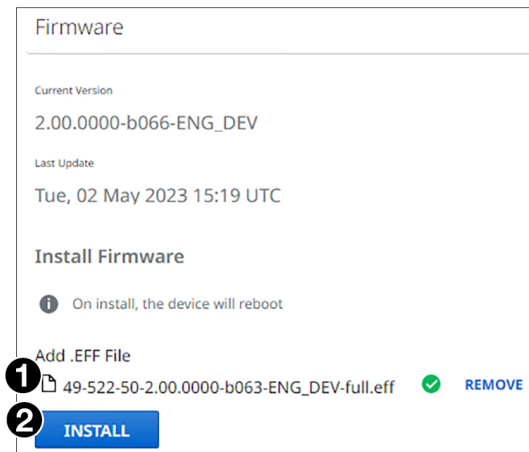


Figure 36. Open Window for UCS 303 Firmware

## ATTENTION:

- Valid firmware files must have an .eff file extension. A file with any other extension is not a firmware upgrade for this device and could cause the unit to stop functioning.
- Les fichiers firmware valides doivent contenir l'extension fichier .eff. Un fichier avec n'importe quelle autre extension n'est pas une mise à jour de firmware pour cet appareil et l'appareil pourrait arrêter de fonctionner.

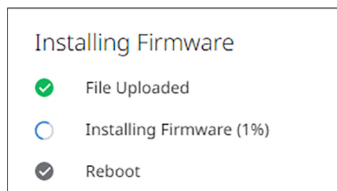
3. Double-click the firmware file name. The Open window closes, and the firmware file name appears in the Update Firmware panel on the web page (see figure 37, ❶).



**Figure 37. Firmware Update Dialog Box with a Firmware File Selected**

4. Click **Install** (see figure 37, ❷) to begin uploading the firmware. (If you want to cancel the update, click the X button in the upper-right corner of the Update Firmware panel.)

The Installing Firmware window opens, containing three indicators that show the progress of the update: File Uploading, Installing Firmware, and Rebooting (see figure 38).



**Figure 38. Firmware Update Progress Window**

**NOTE:** While the firmware is uploading and rebooting, do not press any front panel buttons or make any selections on the web pages.

When the update is complete, the unit restarts, and the login web page is displayed. After you log in, the new firmware filename appears under Current Version in the Firmware panel of the web page.

# Mounting

- [Tabletop Use](#)
- [Rack Mounting](#)

The UCS 303 can be set on a table or mounted on a rack shelf.

## ATTENTION:

- Installation and service must be performed by authorized personnel only.
- L'installation et l'entretien doivent être effectués uniquement par un technicien qualifié.

## Tabletop Use

Attach the provided four self-adhesive rubber feet to the UCS 303 for tabletop use. Place the switcher where desired.

## Rack Mounting

The UCS 303 switcher can be mounted on a full- or half-rack shelf, or through or under furniture. Mounting kits are available at [www.extron.com](http://www.extron.com). For mounting procedures, see the instructions provided with the mounting option.

## UL Guidelines for Rack Mounting

The following Underwriters Laboratories (UL) guidelines pertain to the safe installation of the UCS 303 in a rack.

## CAUTION:

- **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 (TMA = +122 °F, +50 °C) specified by Extron.
- **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.
- **Mechanical loading** — When mounting the equipment in the rack, ensure that uneven mechanical loading does not cause a hazardous condition.
- **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.
- **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).

## Consignes UL pour le Montage en Rack

Les consignes UL (« Underwriters Laboratories ») suivantes concernent l'installation en rack d'un boîtier UCS 303 :

### ATTENTION :

- **Température ambiante élevée** — En cas d'installation de l'équipement dans un rack fermé ou composé de plusieurs unités, la température du rack peut être supérieure à la température ambiante. Par conséquent, il est préférable d'installer l'équipement dans un environnement qui respecte la température ambiante maximale (T<sub>ma</sub>) spécifiée par Extron.
- **Réduction du flux d'air** — Si l'équipement est installé dans un rack, veillez à ce que le flux d'air nécessaire pour un fonctionnement sécurisé de l'équipement soit respecté.
- **Charge mécanique** — Installez l'équipement en rack de manière à éviter toute situation dangereuse causée par le déséquilibre de la charge mécanique.
- **Surcharge électrique** — Lorsque vous connectez l'équipement au circuit d'alimentation, observez la connexion de l'équipement et étudiez les effets possibles d'une surcharge du circuit sur les protections contre les surintensités et les conducteurs d'alimentation. Consultez à cet égard les indications de la plaque d'identification de l'équipement.
- **Mise à la terre** — Assurez-vous que l'équipement est correctement mis à la terre. Accordez une attention particulière aux connexions électriques autres que les connexions directes au circuit de dérivation (ex. : les multiprises).

# Extron Warranty

Extron 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 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:

<b>USA, Canada, South America, and Central America:</b> Extron 1230 South Lewis Street Anaheim, CA 92805 U.S.A.	<b>Asia:</b> Extron Asia Pte Ltd 135 Joo Seng Road, #04-01 PM Industrial Bldg. Singapore 368363 Singapore	<b>Japan:</b> Extron Japan Kyodo Building, 16 Ichibancho Chiyoda-ku, Tokyo 102-0082 Japan
<b>Europe:</b> Extron Europe Hanzeboulevard 10 3825 PH Amersfoort The Netherlands	<b>China:</b> Extron China 686 Ronghua Road Songjiang District Shanghai 201611 China	<b>Africa and Middle East:</b> Extron Middle East Dubai Airport Free Zone F13, 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 if modifications were made to the product that were not authorized by Extron.

**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 or 800.633.9876      **Asia:** 65.6383.4400  
**Europe:** 31.33.453.4040 or 800.3987.6673      **Japan:** 81.3.3511.7655  
**Africa and Middle East:** 971.4.299.1800

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.