User Guide

HDMI

EDID 101H 4K PLUS

HDMI EDID Emulator

Extron

68-3109-01 Rev. B
06 20

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**.

Sicherheitsanweisungen • Deutsch

WARNUNG: Dieses Symbol ⚠ auf dem Produkt soll den Benutzer darauf aufmerksam machen, dass im Inneren des Gehäuses dieses Produktes gefährliche Spannungen herrschen, die nicht isoliert sind und die einen elektrischen Schlag verursachen können.

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

Weitere Informationen über die Sicherheitsrichtlinien, Produkthandhabung, EMI/EMF-Kompatibilität, Zugänglichkeit und verwandte Themen finden Sie in den Extron-Richtlinien für Sicherheit und Handhabung (Artikelnummer 68-290-01) auf der Extron-Website, **www.extron.com**.

Instrucciones de seguridad • Español

ADVERTENCIA: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de voltaje peligroso sin aislar dentro del producto, lo que puede representar un riesgo de descarga eléctrica.

ATENCIÓN: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de importantes instrucciones de uso y mantenimiento recogidas 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**.

Instructions de sécurité • Français

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 le matériel.

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**.

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.

ATTENTZIONE: 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**.

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, zgodność 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**.

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**, номер по каталогу - 68-290-01.

安全说明 • 简体中文

警告: ⚠产品上的这个标志意在警告用户该产品机壳内有暴露的危险 电压，有触电危险。

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**，参见 Extron 安全规范指南，产品编号 68-290-01。

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警告: ⚠ 若產品上使用此符號，是為了提醒使用者，產品機殼內存在著可能會導致觸電之風險的未絕緣危險電壓。

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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**，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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安全上のご注意、法規厳守、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** より『Extron Safety and Regulatory Compliance Guide』(P/N 68-290-01) をご覧ください。

안전 지침 • 한국어

경고: 이 기호⚠가 제품에 사용될 경우, 제품의 인클로저 내에 있는 접지되지 않은 위험한 전류로 인해 사용자가 감전될 위험이 있음을 경고합니다.

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안전 가이드라인, 규제 준수, EMI/EMF 호환성, 접근성, 그리고 관련 항목에 대한 자세한 내용은 Extron 웹 사이트(**www.extron.com**)의 Extron 안전 및 규제 준수 안내서, 68-290-01 조항을 참조하십시오.

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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.

NOTE: 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

Conventions Used in this Guide

Notifications

The following notifications are used in this guide:

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:

```
^AR Merge Scene,,0p1 scene 1,1 ^B 51 ^W^C.0
[01] R 0004 00300 00400 00800 00600 [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 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**.

Extron Glossary of Terms

A glossary of terms is available at **http://www.extron.com/technology/glossary.aspx**.

Contents

Introduction

This section describes this user guide and the EDID 101H 4K PLUS, including:

About this Guide

This guide contains information about the Extron EDID 101H 4K PLUS with instructions on how to install, configure, and operate the unit. Throughout this guide, the EDID 101H 4K PLUS will be referred to as the "EDID 101" as well as "the product."

About the EDID 101H 4K PLUS

The Extron EDID 101H 4K PLUS is a single input, single output HDCP EDID emulator supporting video rates up to 4K@60 Hz 4:4:4. It supports EDID Minder, HDCP 2.3, and PCS configuration. You can learn about an individual feature on **www.extron.com**:

- **Understanding EDID - Extended Display Identification Data**
- **Introduction to HDCP 2.3**
- **Product Configuration Software (PCS) Page**

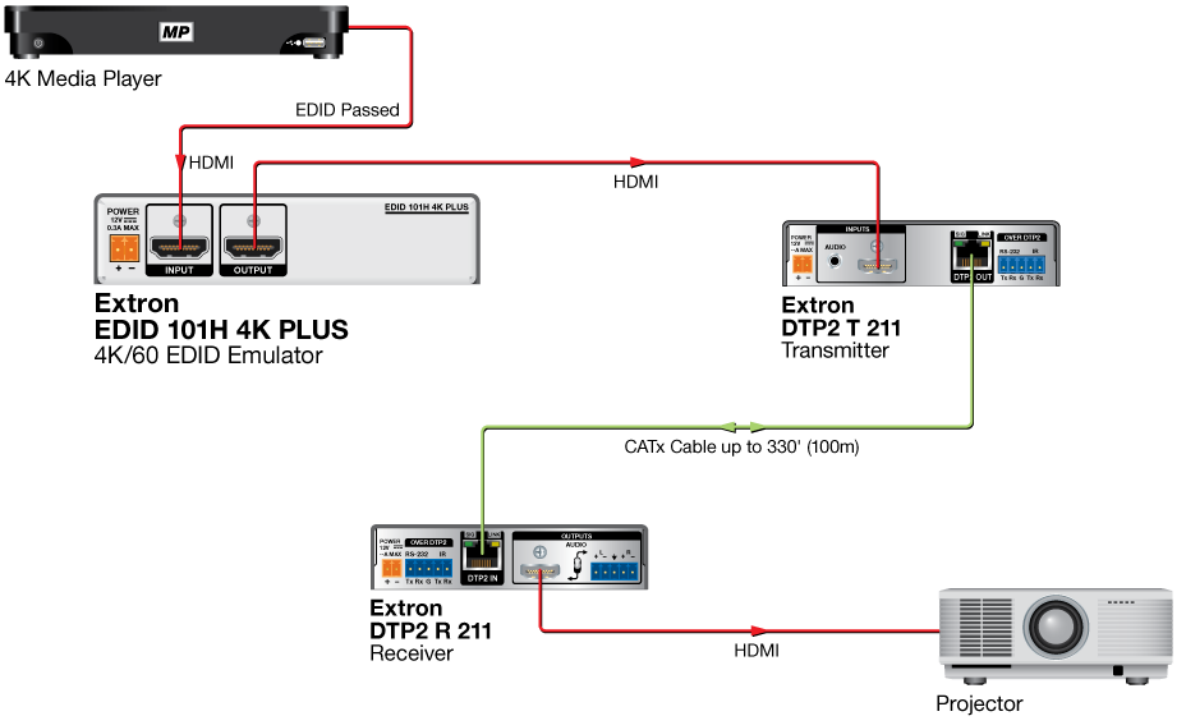
The EDID 101H 4K PLUS is housed in a compact one inch tall, quarter rack wide, six inch deep enclosure for discreet installation (see **Mounting the EDID 101H 4K PLUS** on page 18). An energy-efficient external universal power supply is included.

EDID 101H 4K PLUS Features

- **EDID Minder** — Automatically manages EDID communication between connected devices. EDID Minder ensures all sources power up properly, and reliably output content for display.
- **Selectable resolutions and refresh rates** — Pre-stored EDID is communicated to the source based on a user-selected resolution and refresh rate.
- **EDID capture mode** — When connected to a display, the EDID 101H 4K PLUS offers the option of capturing and then storing EDID information from the display device.
- **Supported HDMI 2.0b specification** — Features include data rates up to 18 Gbps, Deep Color up to 12-bit, 3D, and CEC pass through.
- **Supports multiple embedded audio formats** — The EDID 101H 4K PLUS is compatible with a broad range of multi channel audio signals, providing reliable operation with HDMI sources.
- **Supports computer and video resolutions up to 4K** — Resolutions up to 4096x2160 @ 60Hz, 8-bit, 4:4:4 chroma sampling.
- **HDCP compliant** — Ensures display of content protected media and interoperability with other HDCP-compliant devices.

- **HDCP authentication and signal presence confirmation** — Provides real-time HDCP verification status via front panel LEDs and USB, providing feedback to a system operator or helpdesk support staff.
- **User-selectable HDCP authorization** — Indicates if the display is HDCP compliant or non-HDCP compliant to the connected source, if the source automatically encrypts all content when connected to an HDCP-compliant device.
- **Easy setup and commissioning with Extron PCS** – **Product Configuration Software** – Allows user to configure multiple products using a single software application.
- **HDMI to DVI Interface Format Correction** — Automatically reformats HDMI source signals for output to a connected DVI display.
- **Automatic HDMI input cable equalization** — Actively conditions incoming HDMI signals to compensate for signal loss when using long cables, low quality cables, or source devices with poor signal output.
- **Front panel USB configuration port**
- **Provides 12 VDC, 1 A, 12 watts power on the output for external peripheral devices.**
- **Includes LockIt HDMI cable lacing brackets.**
- **Energy-efficient external universal power supply included** — Provides worldwide compatibility, low power consumption, and reduced operating costs.

Application Diagram



Installation and Configuration

This section describes the installation, and configuration of the EDID 101H 4K PLUS, including:

- **Installation Overview**
- **Front Panel Features**
- **Rear Panel Features and Cabling**
- **Securing the HDMI Connector LockIt Lacing Bracket**
- **EDID Configuration**

Installation Overview

To install the EDID 101H 4K PLUS:

1. Mount the EDID 101H 4K PLUS (see **Mounting the EDID 101H 4K PLUS** on page 18).

   Do not connect power to the source, the display, or the EDID 101H 4K PLUS at this time.

   NOTE: Configure the EDID 101H 4K PLUS prior to the installation if access is restricted after mounting or installation.

2. Configure the EDID 101H 4K PLUS (see **EDID Configuration** on page 7).
3. Connect an HDMI cable from the source to the input connector (see **figure 2**, B on page 5).
4. Connect an HDMI cable from the output connector (C) to the video display or distribution system input.
5. Connect power and turn on the video display or distribution system.
6. Apply power to the EDID 101H 4K PLUS (A). The LED lights turn on.
7. Turn on the video source.

The video source reads the EDID information from the EDID 101H 4K PLUS.

Front Panel Features

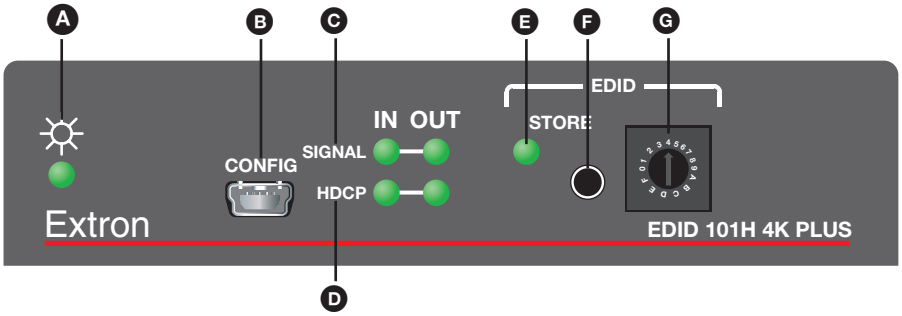


Figure 1. EDID 101H 4K PLUS Front Panel Indicators and Configuration Port

A **Power LED** – Lights when an external power supply is connected and powered.

B **Config port** – Connect a host computer using a mini USB type-B connector for configuration using SIS commands or the PCS configuration software, and for firmware updates (see **Connecting to the USB Port** on page 19).

C **Signal LEDs** – Lights when a HDMI signal is detected on the input and output.

D **HDCP LEDs** – The `IN` LED Lights when the source device requires HDCP encryption and the signal has been authenticated, and the `OUT` LED lights when HDCP is authenticated between the HDMI output and the connected sink device. This only occurs when the source device requires HDCP and is authenticated.

If the source does not require HDCP or if the sink device is not HDCP compliant, the LED does not light.

E **EDID Store LED** – Lights steadily when power is connected. It blinks when the unit is reading and storing EDID from a connected output device, returning to steady when recording is complete.

F **EDID Store button** – Press this recessed button to initiate reading and storing an EDID. The EDID is stored to a user slot selected by the rotary switch. Up to four EDID files can be stored.

Reset – To reset the EDID 101H 4K PLUS to its default state, press and hold the **`STORE`** button while applying power. As power is applied, all front panel LEDs blink 3 times indicating a successful reset.

G **EDID selection rotary switch** – One 16-position rotary switch provides a choice of 12 pre-programed EDID files and 4 user stored files (see **EDID Configuration** on page 7), and one EDID read from a connected display.

Rear Panel Features and Cabling

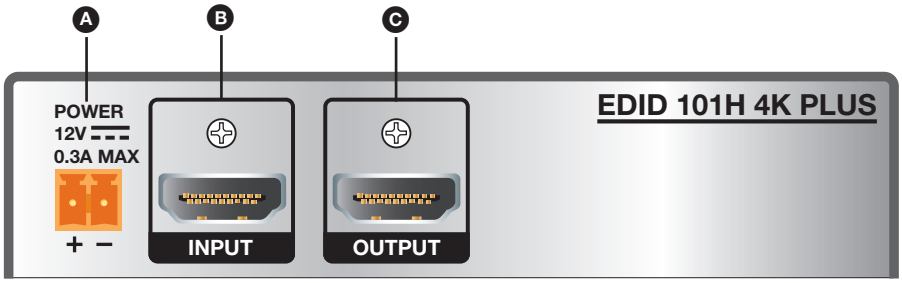


Figure 2. EDID 101H 4K PLUS Rear Panel

A **Power Connector** — Connect the included 12 VDC power supply to this two-pole, 3.5 mm captive screw connector.

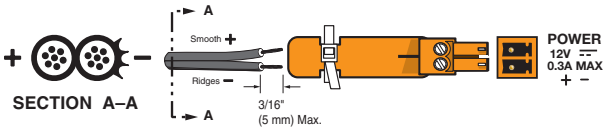


Figure 3. 12 VDC Power Connection to EDID 101H 4K PLUS

B **HDMI input** — Connect an HDMI source to this female HDMI connector.

HDCP 2.3 — When required, the HDMI input negotiates and authenticates HDCP 2.3 with a source device. The authentication process is repeated when a stored EDID is changed (see **Securing the HDMI Connector LockIt Lacing Bracket** on page 6).

C **HDMI output** — Connect a display or other output device to this female HDMI connector. The HDMI output provides 12VDC, (up to 1 A with over-current protection) on pin 16 (see **Securing the HDMI Connector LockIt Lacing Bracket**).

HDCP — If a connected output device requires HDCP encryption, the output negotiates and authenticates HDCP directly.

Video Format Correction — When the current input signal is HDMI and the connected output is DVI, the signal is converted to DVI format. This is based on the capability of the connected output device as listed in its EDID.

The EDID information is read from the connected output device and written to memory whenever the output device is connected to this port and powered on.

NOTE: The EDID information is also read and stored whenever power is recycled to the connected output device or when the output device is replaced.

Securing the HDMI Connector LockIt Lacing Bracket

Follow these instructions to secure the input connectors to the switcher with the LockIt HDMI lacing bracket provided:

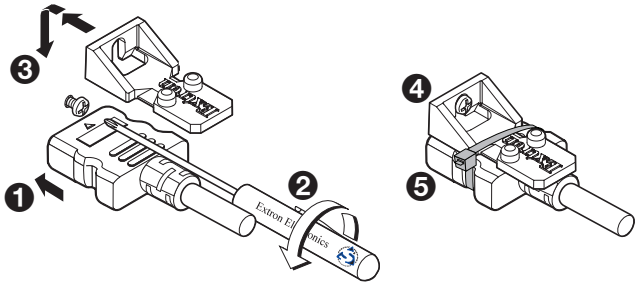


Figure 4. LockIt Lacing Bracket Diagram

1. Plug the HDMI cable into the rear panel connection (see figure 4, ❶).
2. Loosen the HDMI connection mounting screw from the panel enough to allow the LockIt lacing bracket to be placed over it ❷. The screw does not have to be removed.
3. Place the LockIt lacing bracket on the screw and against the HDMI connector ❸, then tighten the screw to secure the bracket.

ATTENTION:

- Do not overtighten the HDMI connector mounting screw. The shield it fastens to 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.

4. Loosely place the included tie wrap around the HDMI connector and the LockIt lacing bracket as shown ❹.
5. While holding the connector securely against the lacing bracket, tighten the tie wrap, then remove any excess length ❺.

ATTENTION:

- Always use a power supply provided by or specified by Extron. Use of an unauthorized power supply voids all regulatory compliance certification and may cause damage to the supply and the end product.
- Utilisez toujours une source d'alimentation fournie ou recommandée par Extron. L'utilisation d'une source d'alimentation non autorisée annule toute conformité réglementaire et peut endommager la source d'alimentation ainsi que le produit final.

- Unless otherwise stated, the AC/DC adapters are not suitable for use in air handling spaces or in wall cavities.
- Sauf mention contraire, les adaptateurs AC/DC ne sont pas appropriés pour une utilisation dans les espaces d'aération ou dans les cavités murales.

- The power supply is to be located within the same vicinity as the Extron AV processing equipment in an ordinary location, Pollution Degree 2, secured to the equipment rack within the dedicated closet, podium, or desk.
- La source d'alimentation doit être située à proximité de l'équipement de traitement audiovisuel dans un endroit ordinaire, avec un degré 2 de pollution, fixé à un équipement de rack à l'intérieur d'un placard, d'une estrade, ou d'un bureau.

ATTENTION:

- The installation must always be in accordance with the applicable provisions of National Electrical Code ANSI/NFPA 70, article 75 and the Canadian Electrical Code part 1, section 16.
- Cette installation doit toujours être en accord avec les mesures qui s'applique au National Electrical Code ANSI/NFPA 70, article 725, et au Canadian Electrical Code, partie 1, section 16.

- The power supply shall not be permanently fixed to building structure or similar structure.
- La source d'alimentation ne devra pas être fixée de façon permanente à une structure de bâtiment ou à une structure similaire.

- If not provided with a power supply, this product is intended to be supplied by a power source marked "Class 2" or "LPS" and rated at 12 VDC and a minimum of 0.3 A.
- Si ce produit ne dispose pas de sa propre source d'alimentation électrique, il doit être alimenté par une source d'alimentation de classe 2 ou LPS et paramétré à 12 V et 0.3 A minimum.

EDID Configuration

EDID Minder ensures that a connected source has access to the EDID of a display even if the display is not connected. Depending on the EDID mode selected, the EDID of a connected display or custom EDID can be stored in one of four user slots, or the user can manually select an EDID from the table of Extron factory EDID (see **figure 5** on page 8).

TIP: If access to the EDID 101H 4K PLUS is restricted after mounting and connection, configure it prior to the installation.

Assign Extron Factory EDID

Rotary switch positions 0 through B are Extron factory EDID. Select a switch position corresponding to the desired resolution (see **figure 5**).

Additionally, four user slots C through F are available to save the EDID of connected displays (see Store an EDID in a User Store Slot) and to import EDID files from an external source with PCS (see **Using the Software and Device Menus** on page 13). EDID saved to these slots are retained after a power cycle. Upon a factory reset, these EDID slots revert to the default (1080p @ 60 Hz, 2-Ch audio). EDID can only be stored via the rotary switch.

Store an EDID in a User Store Slot

To store EDID from a connected display or other sink device:

1. Turn the rotary switch (see figure 5) to the desired user slot location (C through F).
2. Connect the display device to the output connector of the EDID 101H 4K PLUS (see **figure 2**, **C** on page 5).
3. Connect a power source and apply power to the EDID 101H 4K PLUS (see **figure 2**). The power LED lights steady when power is available.
4. Power on the display device.

5. Press **STORE** once to store the display EDID to the memory slot selected in step 1. The LED blinks. When the LED returns to solid, the EDID is stored (see figure 5).

NOTE: EDID stored in user slots C through F are saved until a new EDID is stored to that slot or the device is reset.

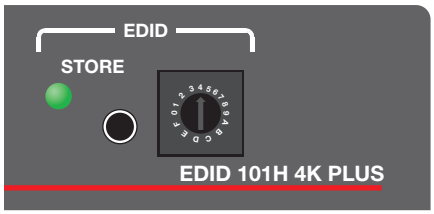


Figure 5. Store LED, Button and Rotary Switch (in Position E)

X6 Rotary Switch Position	Native Resolution	Refresh	Rate Type	Video Format	Audio Format
1	0	1280 x 800	60 Hz	IT	HDMI 1.3	2-Ch
2	1	1600 x 900	60 Hz	IT	HDMI 1.3	2-Ch
3	2	1920 x 1200	60 Hz	IT	HDMI 1.3	2-Ch
4	3	2560 x 1440	60 Hz	IT	HDMI 1.4	2-Ch
5	4	2560 x 1600	60 Hz	IT	HDMI 1.4	2-Ch
6	5	720p	50 Hz	CE	HDMI 1.3	2-Ch
7	6	720p	60 Hz	CE	HDMI 1.3	2-Ch
8	7	1080p	50 Hz	CE	HDMI 1.3	2-Ch
9	8	1080p	60 Hz	CE	HDMI 1.3	2-Ch
10	9	4K / UHD	30 Hz	CE	HDMI 1.4	2-Ch
11	A	4K / UHD 4:2:0	60 Hz	CE	HDMI 1.4	2-Ch
12	B	4K / UHD 4:4:4	60 Hz	CE	HDMI 2.0	2-Ch
13	C	Store Slot 1			
14	D	Store Slot 2			
15	E	Store Slot 3			
16	F	Store Slot 4			

Table 1. Rotary Switch Position EDID Selection

LED	Rotary Switch	Store Button	Description
Off	0-B	Non-functional	EDID storing is not possible on the selected rotary position.
Green (flashing)	C-F	Button has been pressed and released	The **Store** button has been pressed and the EDID is currently being stored to the selected user store slot.
Green (solid)	C-F	N/A	EDID storing is possible on the selected rotary position, or the storing process is complete (if following the flashing state).

Table 2. EDID Store LED

NOTE: PCS can be used to import or export EDID from User Store Slots.

Configuration Software

The Extron Product Configuration Software (PCS) offers another way to configure the EDID 101H 4K PLUS via USB in addition to the SIS commands.

This section describes the software installation and communication. Topics in this section include:

- **Downloading Software from the Extron Website**
- **Installing the Software**
- **Starting the Software**
- **Using the Software and Device Menus**

The graphical interface includes the same functions as those on the device front panel with additional features that are available only using the software.

The control software is compatible with Microsoft Windows operating systems. The software program is available on the **Extron website**.

Downloading Software from the Extron Website

Visit **www.extron.com** to find the latest versions of software and firmware for your product. If necessary, before updating firmware, download and install Firmware Loader.

Download and install the PCS software for configuring the EDID 101H 4K PLUS.

1. Click the **DOWNLOAD** tab (see figure 6, ❶).

   The Download page opens.

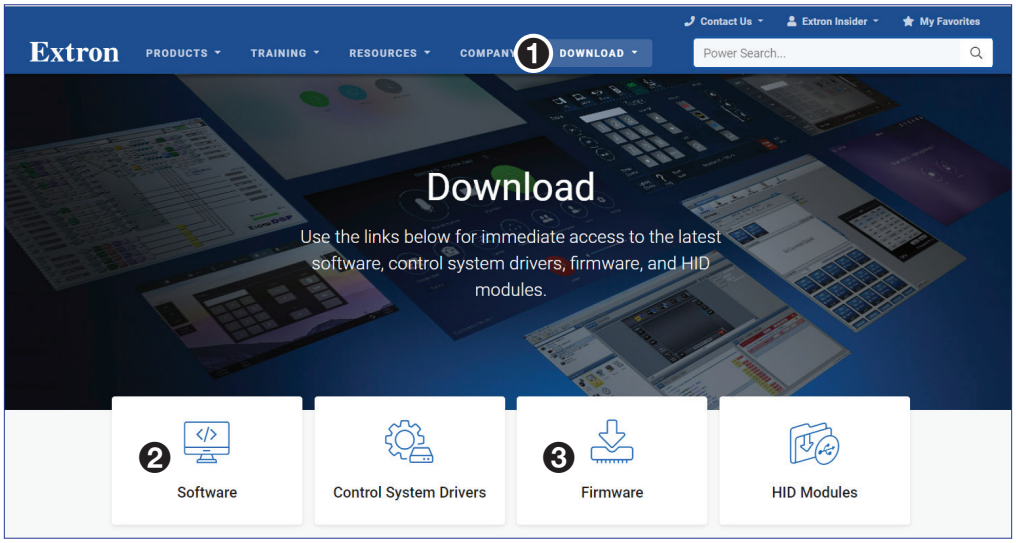


Figure 6. Software and Firmware Links on the Download Tab

2. On the **Download** page:
   - Scroll to the bottom of the page to view **Recent Updates**. If the software is listed, click directly on that link.
   - If the software is not in **Recent Updates**, click the **Software** link (see **figure 6**, ❷ on the previous page) or the **View All Software** link at the bottom of the page to open the **Download Center**, **Software** page.
   - If there is no direct link to your software, an alphabetic navigation bar is provided (see figure 7). Click the appropriate letter to locate the software or firmware.

Figure 7. Alphabetic Navigation Bar

3. Look at the **Release Notes** to see the issues that have been addressed by the latest update.
4. Click **Download** and follow the **Installation Wizard** instructions to install the software on your computer (Login Required).

Installing the Software

The Extron PCS (Product Configuration Software) must be downloaded from the Extron website to configure the EDID 101H 4K PLUS. To download PCS:

1. On the **PCS** page, click **Download** (see figure 8, ❶).
2. Submit the required information to start the download. Note where the file is saved.
3. Open the executable (**.exe) file from the save location.**
4. Follow the onscreen instructions. By default, the installation creates a directory in the **Program Files** or **Program Files (x86)** folder.

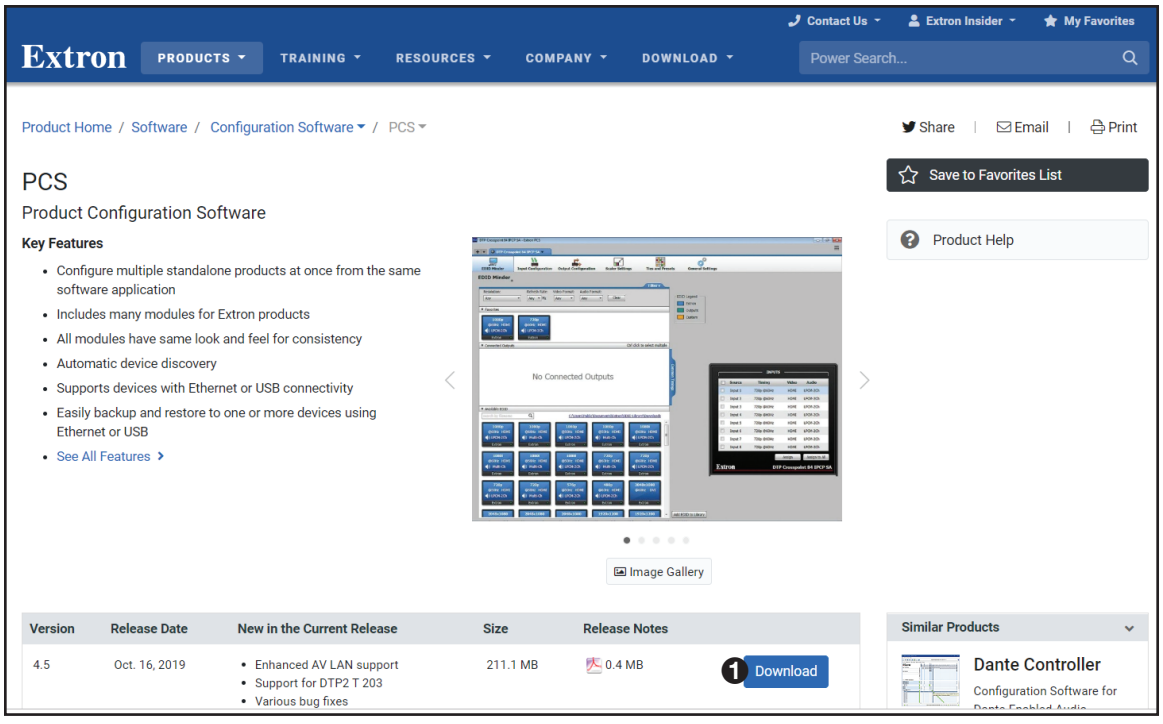


Figure 8. PCS Download from the Extron Website

Starting the Software

Open the **Extron Product Configuration** software program from the **Start** menu or desktop shortcut. PCS opens to the **Device Discovery** page.

NOTES:

- PCS versions prior to 2.0 do not have the **Device Discovery** feature. Download the latest version of PCS (see **Installing the Software** on page 10).
- The EDID 101H 4K PLUS supports USB connection only. However, all devices located and supported by PCS are listed in the **Device Discovery** panel (see figure 9).

Device Discovery Panel

When the PC running PCS is connected to Extron devices via USB and is also connected to a LAN or WAN, the **Device Discovery** panel lists all PCS compatible devices. Devices can be identified and sorted by Model, IP address, Device Name, or Connection method.

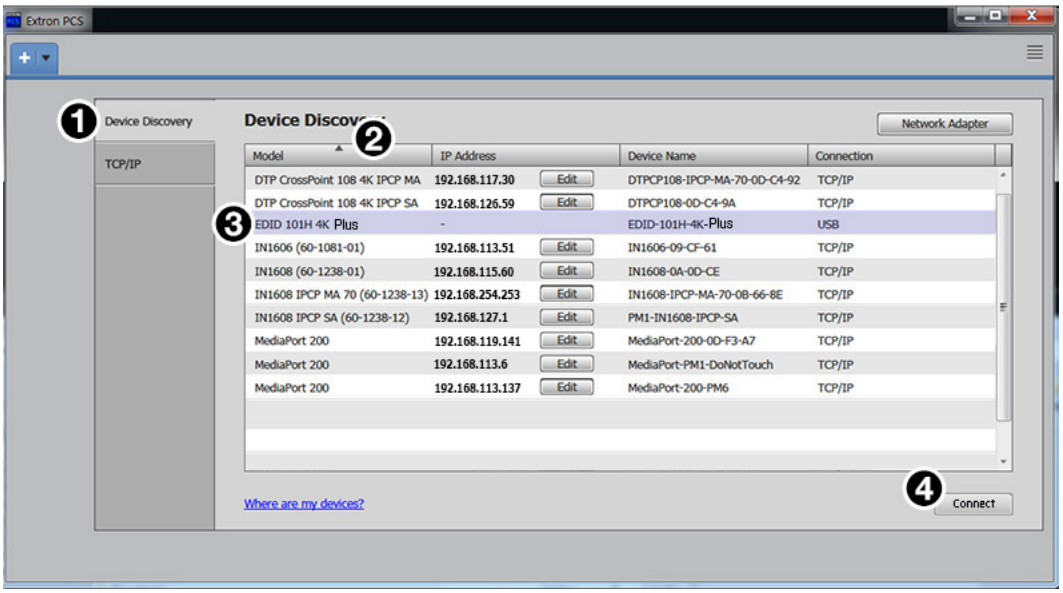


Figure 9. Device Discovery Panel

To sort the list of available devices:

1. Click the **Device Discovery** tab (see figure 9, ❶).
2. Click the desired column heading (❷) to sort the desired category (**Model**, **IP Address**, **Device Name** and **Connection**) in ascending or descending order.

To connect to a device:

1. Click the **Device Discovery** tab (❶).
2. Double-click the EDID 101H 4K PLUS row (❸).

   A new device configuration tab opens (see **figure 10** on page 12).

or

1. Click the **Device Discovery** tab (❶).
2. Single-click the row (❸) to highlight it.
3. Click **Connect** (❹). A new device configuration tab opens (see **figure 10**).

Help Files

When the device page opens, two help files are available; one for the PCS program (see figure 10, ❷), and another for the EDID 101H 4K PLUS (❹).

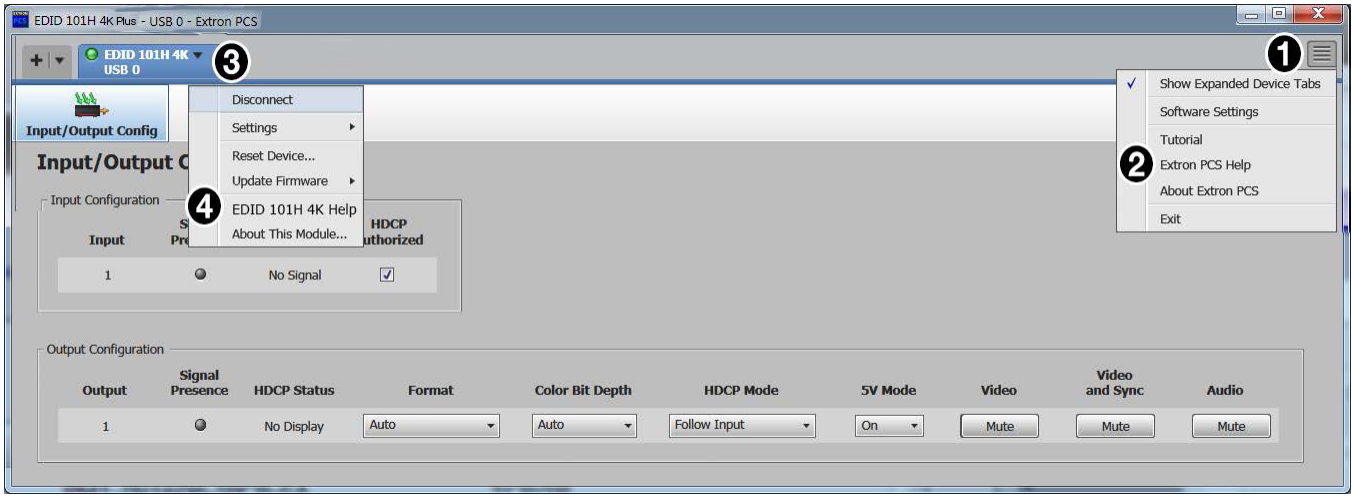


Figure 10. PCS and Device Specific Help Files

1. Click the hidden menu icon ( ) to access a drop-down list (see figure 11, ❶).
2. Click **Extron PCS Help** to open the help file (❷).

   The PCS Help file assists with PCS software operation.
3. Click the **Device** tab (❸)
4. Click **EDID 101H 4K PLUS Help** (❹) to access the EDID 101H 4K PLUS help file for assistance with the device user interface.

Offline Device Preview

The EDID 101H 4K PLUS configuration options can be viewed without connecting to a device, but settings cannot be changed or saved.

To open a device tab:

1. In the **Start-up** tab drop-down list, select **New Configuration File** (see figure 11).

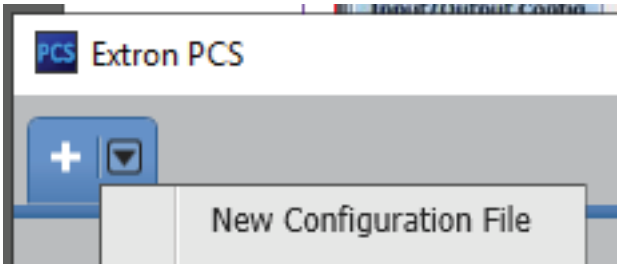


Figure 11. Configuration Drop-down List

The **New Configuration File** dialog box opens (see **figure 12** on the next page).

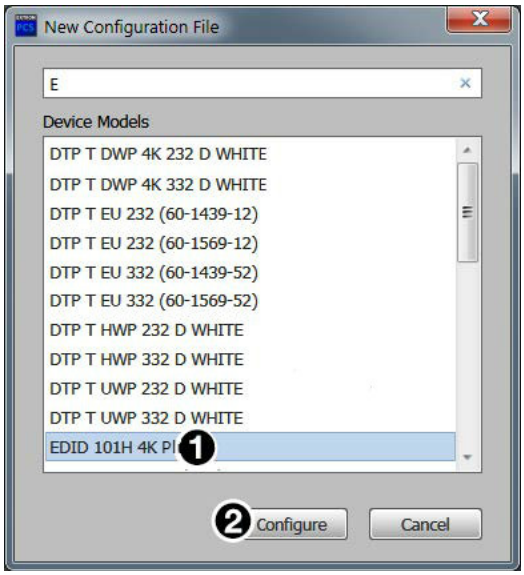


Figure 12. New Configuration File (EDID 101H 4K PLUS Selected)

1. Select the desired device model from the **`Device Models`** list (figure 12, ❶).
2. Click **`Configure`** (❷). A new offline device configuration tab opens.

See **Help Files** on page 12 for descriptions of the configuration options.

Using the Software and Device Menus

The PCS software provides configuration and operation of the connected device from a control device. Access the *PCS Software Help* file or the *EDID 101H 4K PLUS Help* file for further information.

Remote Communication and Control

This section describes remote operation of the EDID 101H 4K PLUS. Topics include:

- **Using Simple Instruction Set (SIS) Commands**
- **Using the Command and Response Table**

Using Simple Instruction Set (SIS) Commands

The EDID 101H 4K PLUS is remotely set up and controlled using Extron SIS commands issued from a host computer or other device, such as a control system. SIS commands are issued from the connected computer to the front panel **Config** port (see **Connecting to the USB Port** on page 19) to connect to this port).

Host-to-device Communications

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

Most responses from the EDID 101H 4K PLUS 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.

Device-initiated Messages

When a local event such as a change in input signal or HDCP status, or a change in the EDID assignment (changing the front panel rotary switch) takes place, the device responds by sending a message to the host, indicating the change. No response is required from the host.

Error Responses

If the device is unable to execute a command it receives because the command is invalid or contains invalid parameters, the device returns an error response to the host. The following error response codes can be sent:

E10 – Invalid command
E13 – Invalid value (out of range)
E14 – Not valid for this configuration

E17– Invalid command for signal type

Using the Command and Response Table

The command and response table is shown on the following pages. Symbols are used throughout the table to represent variables in the command and response fields. Symbol definitions and an ASCII-to-hexadecimal (HEX) conversion table are shown below. Command and response examples are shown throughout the command and response table.

NOTE: Upper and lower case text can be used interchangeably unless otherwise stated.

Space →

ASCII to Hex Conversion Table										Esc	1B	CR	ØD	LF	ØA
	2Ø	!	21	"	22	#	23	$	24	%	25	&	26	'	27
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
Ø	3Ø	1	31	2	32	3	33	4	34	5	35	6	36	7	37
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F
@	4Ø	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	5Ø	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
`	6Ø	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	7Ø	q	71	r	72	s	73	t	74	u	75	v	76	w	77
x	78	y	79	z	7A	{	7B	l	7C	}	7D	~	7E	DEL	7F

Figure 13. ASCII to Hex Conversion Table

Unsolicited Responses	
Sig[X3]*[X3]•HdcpI[X12]•HdcpO[X13]↵	Broadcast when signal or HDCP status changes on any input or output
EdidA[X6]↵	Broadcast when the front panel rotary switch changes position

Common Symbol Definitions		
↵	=	CR/LF carriage return with line feed (hex 0D 0A)
← or ¦	=	Carriage return or pipe symbol (no line feed, hex 0D)
←	=	Carriage return with no line feed (no line feed, hex 0D) (for URL-encoded commands, use the pipe character, |, instead)
Esc	=	Escape key, or hex 1B (use W instead of Esc for web browsers, or at any time)
|	=	Pipe (vertical bar) character (URL equivalent to carriage return)
•	=	Space
*	=	Asterisk character (which is a command character, not a variable)

Command and Response Table for SIS Commands

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

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Signal Status (corresponds to the front panel LED indicators)			
Input/Output Signal Status	Esc 0LS ↵	X3 * X3 ↵ Sig X3 * X3 ↵	Input * Output Verbose Mode 2/3
Input HDCP Status	Esc I HDCP ↵	X12 ↵ HdcpI X12 ↵	 Verbose Mode 2/3
Output HDCP Status	Esc O HDCP ↵	X13 ↵ HdcpO X13 ↵	 Verbose Mode 2/3
Video			
Video Mute	X2 B	Vmt X2 ↵	
View Video Mute Status	B	X2 ↵ Vmt X2 ↵	 Verbose Mode 2/3
Input HDCP Authorization	Esc E X3 HDCP ↵	HdcpE X3 ↵	X3=1 (enable), default Verbose Mode 2/3
HDCP Authorization Status	Esc E HDCP ↵	X3 ↵ HdcpE X3 ↵	 Verbose Mode 2/3
Output HDCP Mode	Esc S X4 HDCP ↵	HdcpS X4 ↵	
Output HDCP Mode Status	Esc S HDCP ↵	X4 ↵ HdcpS X4 ↵	 Verbose Mode 2/3
Output TMDS Format	Esc X5 VTPO ↵	Vtpo X5 ↵	
Output TMDS Format Status	Esc VTPO ↵	X5 ↵ Vtpo X5 ↵	 Verbose Mode 2/3
Output Color Bit Depth	Esc V X9 BITD ↵	BitdV X9 ↵	
Output Color Bit Depth Status	Esc V BITD ↵	X9 ↵ BitdV X9 ↵	 Verbose Mode 2/3
Set Output 5V Mode	Esc M X14 HPLG ↵	HplgM X14 ↵	
Output 5V Mode status	Esc M HPLG ↵	X14 ↵ HplgM X14 ↵	 Verbose Mode 2/3
Audio			
Disable TMDS Audio Output	Esc 00AFMT ↵	AfmtO0 ↵	
Enabled TMDS Audio Output	Esc 01AFMT ↵	AfmtO1 ↵	Default
TMDS Audio Output Status	Esc OAFMT ↵	X3 ↵ AfmtO X3 ↵	 Verbose Mode 2/3

KEY:

X2 = Video mute: 0 = Off (default) 1 = On, video only 2 = Video and Sync

X3 = Status 0 = Off, disabled, or undetected 1 = On, enabled, or detected

X4 = Output HDCP Mode:
- 1 = Encrypt as required by input. Continuous trials for HDMI sinks, attempt for 10s on DVI sinks (then fail) (Default)
- 2 = Always encrypt. Continuous trials for HDMI sinks, attempt for 10s on DVI sinks (then fail).

X5 = Output TMDS Format:
- 1 = Auto (default),HDMI RGB Full if HDMI sink, force DVI format if DVI sink.
- 2 = DVI RGB 444 Full
- 3 = HDMI RGB 444 Full
- 5 = HDMI YUV 444 Limited
- 6 = HDMI YUV 422 Limited

X9 = Input HDCP status:
- 0 = No video detected
- 1= Video detected without HDCP (not encrypted)
- 2 = Video detected with HDCP (encrypted)
- 4 = HDMI RGB 444 Limited

X12 = Input HDCP status:
- 0 = No video detected
- 1= Video detected without HDCP (not encrypted)
- 2 = Video detected with HDCP (encrypted)

X13 = Output HDCP status:
- 0 = No active sink detected
- 1 = Non-HDCP sink detected
- 2 = HDCP sink detected not encrypted

X14 = Output 5V Mode:
- 1 = Auto (5V enabled when source with 5V present, else off)
- 2 = 5V always enabled (default)

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
EDID Minder			
View EDID assignment	Esc A EDID ←	X6 ↵ Edid X6 ↵	Verbose Mode 2/3
Info/Other			
Information	I	Sig X3 * X3 • HdcpI X12 • HdcpO X13 ↵	Signal, input HDCP and output HDCP status
Set Verbose Mode	Esc X10 CV ←	Vrb X10 ↵	
Verbose Mode Status	Esc CV ←	X10 ↵ Vrb X10 ↵	Verbose Mode 2/3
Set Unit Name	Esc X11 CN ←	Ipn • X11 ↵	
Set Unit Name to Default	Esc • CN ←	Ipn • EDID-101H-4K-PLUS ↵	
View Unit Name	Esc CN ←	X11 ↵	

KEY:
X3 = Status — 0 = Off, disabled, or undetected — 1 = On, enabled, or detected
X6 = Slot # on EDID lookup table (1-17) default = 9, (see **table 1** on page 8) Only 1-16 are addressable by user
X10 = Verbose mode: 0 = clear/none — 2 = tagged responses for queries; 1 = verbose mode (default) — 3 = verbose mode and tagged responses for queries
X11 = Device name The name is a text string up to 24 alphanumeric characters including hyphens (-), with no spaces. The first character must be a letter, and the last character cannot be a hyphen. The default is "EDID-101H-4K"
X13 = Output HDCP status: 0 = No active sink detected — 2 = HDCP sink detected not encrypted; 1 = Non-HDCP sink detected

Query Part Number	N	60-1680-01 ↵ Pno • 60-1680-01 ↵	Verbose Mode 2/3
Query Model Name	1I	EDID-101-4K-PLUS ↵ Inf01*HDMI-101H-4K-PLUS ↵	Verbose Mode 2/3
Query Model Description	2I	EDID-101H-4K-PLUS ↵ Inf02*EDID-101H Emulator ↵	Verbose Mode 2/3
Query Active Signal Information	33 I	H Active*V Active*V Freq*Pixel Clock ↵ Inf33*H Active*V Active*V Freq*Pixel Clock ↵	
Query Firmware Version	Q	n.nn.nnnn ↵ Verbose modes 2 and 3: Ver01*n.nn ↵	
Query Firmware Version with Build	*Q	n.nn.nnnn Verbose modes 2 and 3: Bldn.nn.nnnn ↵	
Reset Setting to Default	Esc ZXXX ←	Zpx ↵	

Reference Information

Mounting the EDID 101H 4K PLUS

The one inch high, quarter-rack width, six inch deep enclosure can be

- Set on a table,
- Mounted on a rack shelf,
- Mounted under a desk or table-top.

Desktop Placement

Attach the four provided rubber feet to the bottom of the EDID 101H 4K PLUS, and place it in any convenient location.

Rack Mounting

UL Guidelines for Rack Mounting

The following Underwriters Laboratories (UL) guidelines are relevant to the safe installation of these products in a rack:

Elevated operating ambient temperature — If the units are installed in a closed or multiunit 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 the rack so that the equipment gets adequate air flow for safe operation.

Mechanical loading — Mount the equipment in the rack so that uneven mechanical loading does not create a hazardous condition.

Circuit overloading — Connect the equipment to the supply circuit and consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Consider the 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 (such as the use of power strips).

Rack Mounting Procedure

To mount the unit on a rack shelf, follow the instructions provided with the shelf accessories.

Connecting to the USB Port

A female mini type-B USB Config port located on the front panel (see **Front Panel Features** on page 4) is used to connect to a host computer for configuration using SIS commands with Extron DataViewer, for updating firmware with the Extron Firmware Loader utility and for using PCS.

DataViewer and Firmware Loader are available at **www.extron.com**. The programs are also necessary to install the USB driver to the connected computer.

To connect the EDID 101H 4K PLUS to a host computer:

NOTES:

- If an Extron USB device has never been connected to the host computer, prior to connecting the Config (USB) port for the first time, you must install and activate the USB driver. The simplest way to do this is to install either Dataviewer (see **DataViewer** on page 20) or the Firmware Loader utility (see **Updating the Firmware** on page 20).
- The wizard opens only on the first occasion you connect the EDID 101H 4K PLUS to that USB port. The wizard reopens if you connect the EDID 101H 4K PLUS to a different USB port or if you connect a different piece of equipment, requiring a different driver, to the same USB port.

Connect a USB A to mini B cable between the **Config** port on the front panel of the EDID 101H 4K PLUS and a USB port of the PC (see figure 14).

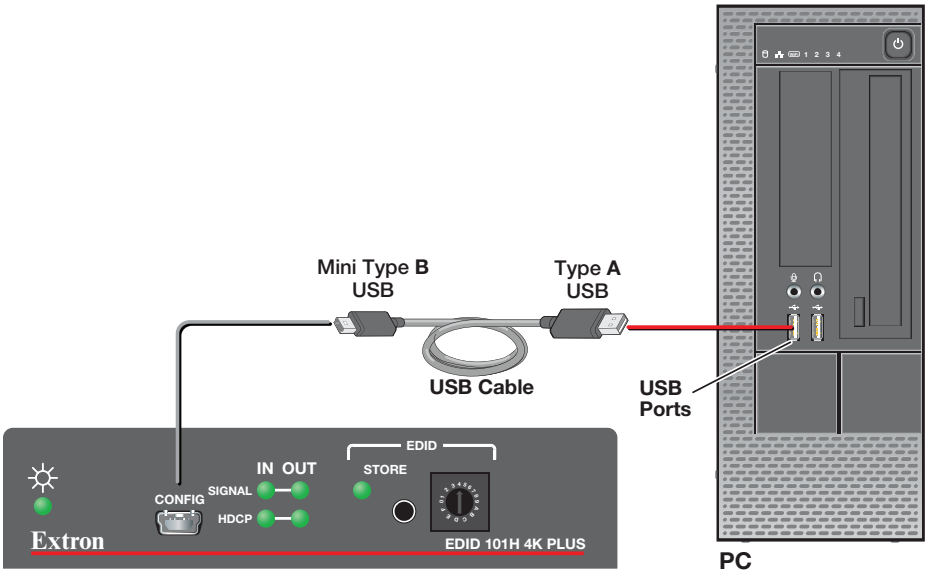


Figure 14. Connecting a PC to the Front Panel USB Port

DataViewer

DataViewer is an enhanced terminal emulation program that facilitates analysis of RS-232, USB, and TCP/IP communication with Extron devices. The software allows users to send commands to a device and view the responses in ASCII or hexadecimal format. Command and response logs can be saved in text or HTML format.

DataViewer is available at **www.extron.com**. Enter **DataViewer** in the search engine to locate the program.

Download the installation file and load the program on the PC connected to the EDID 101H 4K PLUS.

NOTES:

- Only the USB tab is available for the EDID 101H 4K PLUS.
- If an Extron USB device has never been connected to the host computer, after installing DataViewer, you must then install and activate the USB driver **Connecting to the USB Port** on page 19.

To run DataViewer:

1. Click the DataViewer desktop icon.
2. The **Communications Setup** dialog box opens (see the image below).
3. Select the **USB** tab (❶).
4. From the **USB Port** drop-down list, select **Extron USB Device 0** (❷).
5. Select the startup option.
6. To automatically connect to the EDID 101H 4K PLUS, click **Connect on Startup** (❸).
7. Click **OK** (❹) to start using the program.
8. You are now ready to begin entering commands.

Use the DataViewer help file for more information on the program.

Updating the Firmware

Firmware updates are released periodically on the Extron website. You can find the version currently loaded on your device using SIS commands (see **Using the Command and Response Table** on page 15). Compare this with the latest release for the EDID 101H 4K PLUS on the Extron website and decide whether to update your firmware.

TIP: Read the Release Notes provided on the website with the latest firmware to determine whether you need the latest version.

This section describes how to update firmware for the EDID 101H 4K PLUS including:

- **Download and Install Firmware Loader**
- **Downloading EDID 101H 4K PLUS Firmware**
- **Loading EDID 101H 4K PLUS Firmware**

Download and Install Firmware Loader

Use the Extron Firmware Loader utility to update the firmware on Extron products. If you do not already have Firmware Loader installed on your computer, download it as follows:

1. Go to the Extron website at **www.extron.com**.
2. In the **Search** field, enter **Firmware Loader** and press <**Enter**> (see figure 15, ❶)

   The **Firmware Loader** page opens.

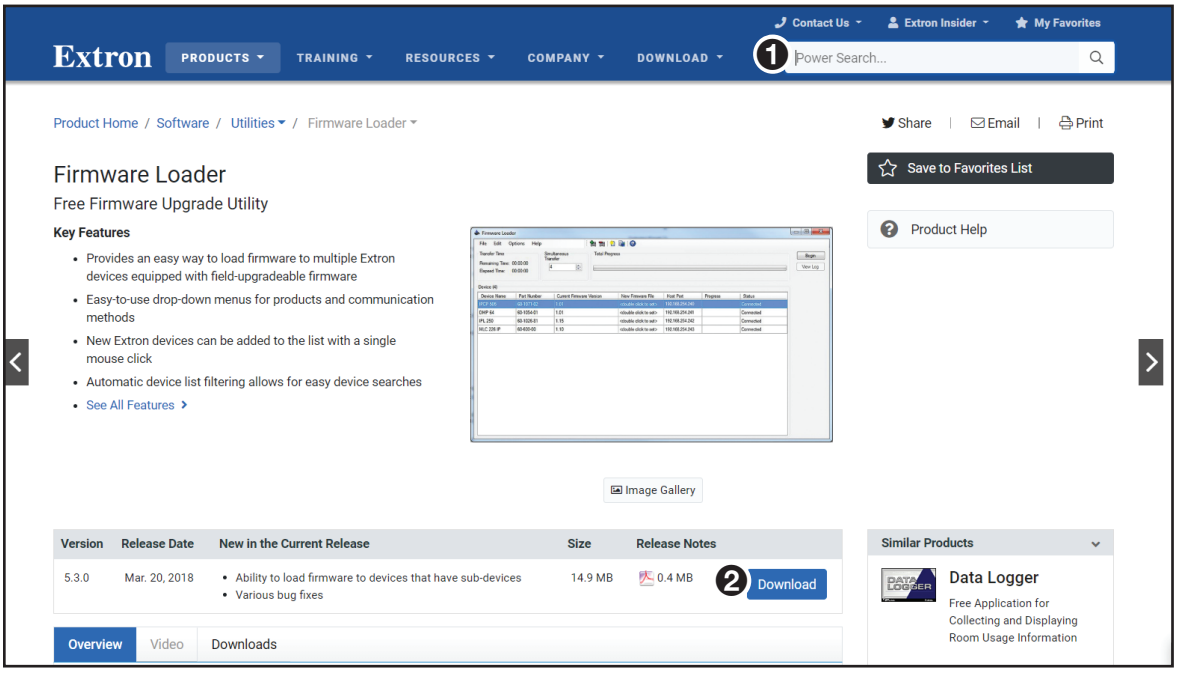


Figure 15. Firmware Loader Download Link

3. Click **Download** (❷).
4. Follow the instructions on the remainder of the download screens to save the executable **Firmware Loader installer** file to your computer. Note the folder to which the file was saved. By default this is C:\\users\<user name>\Downloads.
5. In your file browser, locate the downloaded executable installer file and double-click it to launch the installer.
6. Follow the instructions on the **Installation Wizard** dialog boxes to install Firmware Loader on your computer. Unless you specify otherwise, the installer program places the Firmware Loader File, **FWLoader.exe**, at `c:\Program Files\Extron\FWLoader`.

Downloading EDID 101H 4K PLUS Firmware

To obtain the latest version of firmware for your device:

1. Go to the Extron website at **www.extron.com.**
2. Click the **DOWNLOAD** tab (see **figure 6**, ❶ on page 9).
3. On the **Download** page, click the **Firmware** (❷) link.

   On the **Download Center** page, the firmware files are arranged in alphabetical order.
4. In the alphabetical list, click "**E**."
5. Locate the EDID 101H 4K PLUS firmware file row and click **Download**.

   NOTE: Click **Release Notes**. These notes show the issues addressed by the latest update. You may decide not to upgrade the firmware.

   The **Download Center** page opens.
6. Enter the requested user information, then click **Download**.
7. Follow the instructions on the remainder of the download screens to save the executable firmware file to your computer. Note the folder to which the file was saved.
8. In your file browser, locate the downloaded executable file, and double-click it.
9. Follow the instructions on the **Installation Wizard** dialogs to install the new firmware on your computer. A Release Notes file and a set of instructions for updating the firmware are also loaded.

Loading EDID 101H 4K PLUS Firmware

To load a new version of firmware to the device using Firmware Loader, connect your computer to the front panel USB Configuration port **Connecting to the USB Port** on page 19.

To access the firmware loader:

To load a new version of firmware to the distribution amplifier using PCS, follow these instructions.

1. If not already installed, download and install the PCS executable installer file to the computer (see **Downloading EDID 101H 4K PLUS Firmware** on the previous page).
2. If necessary, download the latest version of firmware for the desired product (see **Updating the Firmware** on page 20).
3. Connect the distribution amplifier to the computer using the front panel USB connector (see **Front Panel Features** on page 4).
4. Open Firmware Loader. If there is no desktop icon, open the program from the Start menu by selecting:

   Start > **All Programs** > **Extron Electronics** > **Extron Product Configuration Software**> **Product Configuration Software**

   The **PCS** dialog box opens with the **Add Device...** dialog box in front of it (see figure 16).

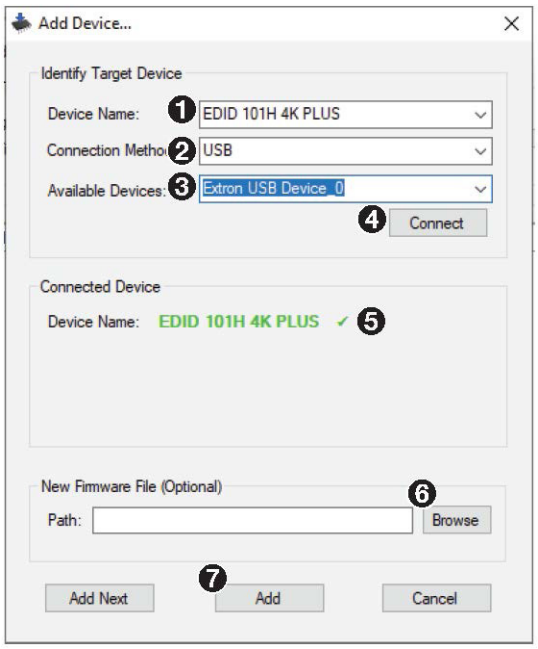


Figure 16. Add Device Dialog Box

5. From the **Device Name:** drop-down list, select **EDID 101H 4K PLUS** (see **figure 16, ❶** on the previous page).
6. From the **Connection Method:** drop-down list, select **USB** (❷).
7. From the **Available Devices:** drop-down list, select **Extron USB Device_0** (❸).

NOTES: Only the Extron USB Device_0 option is available on the Available Devices menu. Make sure that it is selected.

8. Click **Connect** (❹).

   The **Connected Device** panel (❺) now displays the device name.
9. Click **Browse** (❻), then locate and open the previously downloaded firmware update file.
10. Click **Add** (❼).

The main screen opens with the EDID 101H 4K PLUS high-lighted (see figure 19 on the following page).

ATTENTION:

- Valid firmware files must have the file extension S19. A file with any other extension is not a firmware upgrade for this device 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.

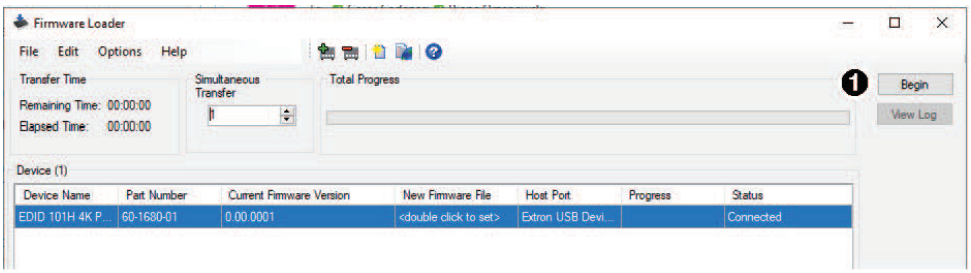


Figure 17. Firmware Loader Main Screen

1. Select **EDID 101H 4K Plus** in the device list and click **Begin** (see figure 17, ❶).

   The following indicators show the progress of the update:

   - The **Transfer Time** section shows the amounts of remaining and elapsed time for the update (❷).
   - The **Total Progress** section displays a progress bar with **Uploading...** above it.
   - In the Devices section (❸):
     - **Progress** column displays an incrementing percentage and another progress bar.
     - Status column displays Uploading.

2. The upload is complete when:
   - Remaining Time field shows 00.00.00
   - Progress column shows 100%
   - Completed is displayed above the progress bar and in the Status field.
3. Close the Firmware Loader software.
4. After uploading the firmware file, the program verifies the file upload was successful.

   When the verification is finished, the update is completed.

Extron Warranty

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

USA, Canada, South America, and Central America:
Extron Electronics
1230 South Lewis Street
Anaheim, CA 92805
U.S.A.

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

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

Europe:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Middle East:
Extron Middle East
Dubai Airport Free Zone
F13, PO Box 293666
United Arab Emirates, Dubai

Africa:
Extron South Africa
3rd Floor, South Tower
160 Jan Smuts Avenue
Rosebank 2196, South Africa

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:	27.11.447.6162	**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.