ATLONA®
a PANDUIT company

OMEGA™
Display Controller

AT-DISP-CTRL

ATLONA®

POWER

OMEGA™   HDMI OUT   HDMI IN   SOURCE

AT-DISP-CTRL

PoE   AT-DISP-CTRL

IP MODE   RX TX ⏚ TX

FW

LAN   RESET   RS-232 IR OUT   DC 5V

Version Information

Version	Release Date	Notes
1	Nov 2019	Initial release
2	Jan 2020	Firmware 1.0.16; refer to the release notes for a full list of features and bug fixes. - Control baud rate has been set to 9600, by default. - "Console" has been renamed to "Display", under the RS-232 page. - Broadcast mode has been set to ON, by default.

Welcome to Atlona!

Thank you for purchasing this Atlona product. We hope you enjoy it and will take a extra few moments to register your new purchase.

Registration only takes a few minutes and protects this product against theft or loss. In addition, you will receive notifications of product updates and firmware. Atlona product registration is voluntary and failure to register will not affect the product warranty.

To register your product, go to https://atlona.com/registration

Sales, Marketing, and Customer Support

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Operating Notes

⚠️ **IMPORTANT:** Visit https://atlona.com/product/AT-DISP-CTRL for the latest firmware updates and User Manual.

Consumer Electronics Control (CEC): Atlona has confirmed proper CEC functionality with several current models of Samsung, Panasonic, and Sony displays. However, it is not guaranteed that CEC will work with all displays. Many manufacturers do not support the CEC "off" command, and older displays use proprietary commands. Atlona only supports displays that use the CEC command structure defined in HDMI 1.2a. It is recommended that dealers request an evaluation product from Atlona, before designing a system using the CEC protocol. If this is not possible, then other control methods will need to be considered, in order to control displays using Atlona products.

Atlona, Inc. ("Atlona") Limited Product Warranty

Coverage

Atlona warrants its products will substantially perform to their published specifications and will be free from defects in materials and workmanship under normal use, conditions and service.

Under its Limited Product Warranty, Atlona, at its sole discretion, will either:

- repair or facilitate the repair of defective products within a reasonable period of time, restore products to their proper operating condition and return defective products free of any charge for necessary parts, labor and shipping.

OR

- replace and return, free of charge, any defective products with direct replacement or with similar products deemed by Atlona to perform substantially the same function as the original products.

OR

- refund the pro-rated value based on the remaining term of the warranty period, not to exceed MSRP, in cases where products are beyond repair and/or no direct or substantially similar replacement products exist.

Repair, replacement or refund of Atlona products is the purchaser's exclusive remedy and Atlona liability does not extend to any other damages, incidental, consequential or otherwise.

This Limited Product Warranty extends to the original end-user purchaser of Atlona products and is non-transferrable to any subsequent purchaser(s) or owner(s) of these products.

Coverage Periods

Atlona Limited Product Warranty Period begins on the date of purchase by the end-purchaser. The date contained on the end-purchaser 's sales or delivery receipt is the proof purchase date.

Limited Product Warranty Terms – New Products

- 10 years from proof of purchase date for hardware/electronics products purchased on or after June 1, 2013.
- 3 years from proof of purchase date for hardware/electronics products purchased before June 1, 2013.
- Lifetime Limited Product Warranty for all cable products.

Limited Product Warranty Terms – Refurbished (B-Stock) Products and Discontinued Products

- 3 years from proof of purchase date for all Refurbished (B-Stock) and Discontinued hardware and electronic products purchased on or after June 1, 2013.

Remedy

Atlona recommends that end-purchasers contact their authorized Atlona dealer or reseller from whom they purchased their products. Atlona can also be contacted directly. Visit atlona.com for Atlona's contact information and hours of operation. Atlona requires that a dated sales or delivery receipt from an authorized dealer, reseller or end-purchaser is provided before Atlona extends its warranty services. Additionally, a return merchandise authorization (RMA) and/or case number, is required to be obtained from Atlona in advance of returns.

Atlona requires that products returned are properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization or case number will be refused. Atlona, at its sole discretion, reserves the right to reject any products received without advanced authorization. Authorizations can be requested by calling 1-877-536-3976 (US toll free) or 1-408- 962-0515 (US/international) or via Atlona's website at atlona.com.

Exclusions

This Limited Product Warranty excludes:
- Damage, deterioration or malfunction caused by any alteration, modification, improper use, neglect, improper packaging or shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature.

- Damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Atlona to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product.

- Equipment enclosures, cables, power supplies, batteries, LCD displays, and any accessories used in conjunction with the product(s).

- Products purchased from unauthorized distributors, dealers, resellers, auction websites and similar unauthorized channels of distribution.

Disclaimers

This Limited Product Warranty does not imply that the electronic components contained within Atlona's products will not become obsolete nor does it imply Atlona products or their electronic components will remain compatible with any other current product, technology or any future products or technologies in which Atlona's products may be used in conjunction with. Atlona, at its sole discretion, reserves the right not to extend its warranty offering in instances arising outside its normal course of business including, but not limited to, damage inflicted to its products from acts of god.

Limitation on Liability

The maximum liability of Atlona under this limited product warranty shall not exceed the original Atlona MSRP for its products. To the maximum extent permitted by law, Atlona is not responsible for the direct, special, incidental or consequential damages resulting from any breach of warranty or condition, or under any other legal theory. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

Exclusive Remedy

To the maximum extent permitted by law, this limited product warranty and the remedies set forth above are exclusive and in lieu of all other warranties, remedies and conditions, whether oral or written, express or implied. To the maximum extent permitted by law, Atlona specifically disclaims all implied warranties, including, without limitation, warranties of merchantability and fitness for a particular purpose. If Atlona cannot lawfully disclaim or exclude implied warranties under applicable law, then all implied warranties covering its products including warranties of merchantability and fitness for a particular purpose, shall provide to its products under applicable law. If any product to which this limited warranty applies is a "Consumer Product" under the Magnuson-Moss Warranty Act (15 U.S.C.A. §2301, ET SEQ.) or other applicable law, the foregoing disclaimer of implied warranties shall not apply, and all implied warranties on its products, including warranties of merchantability and fitness for the particular purpose, shall apply as provided under applicable law.

Other Conditions

Atlona's Limited Product Warranty offering gives legal rights, and other rights may apply and vary from country to country or state to state. This limited warranty is void if (i) the label bearing the serial number of products have been removed or defaced, (ii) products are not purchased from an authorized Atlona dealer or reseller. A comprehensive list of Atlona's authorized distributors, dealers and resellers can be found at atlona.com.

Important Safety Information

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCT THE RISK OF
ELECTRIC SHOCK
DO NOT OPEN ENCLOSURE OR EXPOSE
TO RAIN OR MOISTURE.
NO USER-SERVICEABLE PARTS
INSIDE REFER SERVICING TO
QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the product.
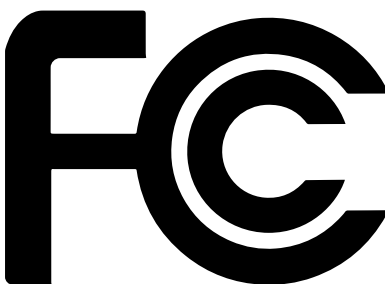
The information bubble is intended to alert the user to helpful or optional operational instructions in the literature accompanying the product.

1. Read these instructions.

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this product near water.

6. Clean only with a dry cloth.

7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8. Do not install or place this product near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of a polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the product.

11. Only use attachments/accessories specified by Atlona.

12. To reduce the risk of electric shock and/or damage to this product, never handle or touch this unit or power cord if your hands are wet or damp. Do not expose this product to rain or moisture.

13. Unplug this product during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the product has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the product, the product has been exposed to rain or moisture, does not operate normally, or has been dropped.

FCC Statement

FCC Compliance and Advisory Statement: This hardware device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received including interference that may cause undesired operation. 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. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed or used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 1) reorient or relocate the receiving antenna; 2) increase the separation between the equipment and the receiver; 3) connect the equipment to an outlet on a circuit different from that to which the receiver is connected; 4) consult the dealer or an experienced radio/TV technician for help. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Where shielded interface cables have been provided with the product or specified additional components or accessories elsewhere defined to be used with the installation of the product, they must be used in order to ensure compliance with FCC regulations.

Table of Contents

Introduction

The Atlona **AT-DISP-CTRL** is a compact display controller, designed for small meeting spaces and huddle rooms. The DISP-CTRL detects connection of a source device with an active signal, and then automatically sends a control command to turn on a display. Similarly, when the device is disconnected, the DISP-CTRL delivers a command to turn off the display. The DISP-CTRL can be configured to deliver pre-stored or user-programmed display control commands through TCP/IP, RS-232, IR, or CEC. Additionally, this controller includes EDID and HDCP management features, and can be powered locally or through standard Power over Ethernet (PoE). The DISP-CTRL is HDCP 2.2 compliant and supports 4K/UHD video @ 60 Hz with 4:4:4 chroma sampling, as well as HDMI data rates up to 18 Gbps.

Features

- Simple, automated display control
- Programmable display control modes
- 4K/UHD capability @ 60 Hz with 4:4:4 chroma sampling, plus support for HDR formats
- HDCP 2.2 compliant
- HDMI input and pass-through ports with locking terminals
- Local or PoE (Power over Ethernet) powering
- Multi-channel audio compliant
- EDID management
- HDCP management
- Intuitive GUI-based configuration using integrated web server
- Dual Ethernet ports and integrated network switch
- Easy to configure and manage with AMS (Atlona Management System)
- Field-updatable firmware
- Front panel power and signal status LEDs
- Low-profile, 1.02 inch (26 mm) high enclosure
- Award-winning 10 year limited product warranty

Package Contents

1 x AT-DISP-CTRL
2 x Mounting brackets
4 x Mounting screws
1 x 4-pin captive screw connector
1 x 5 V DC / 0.5 A power supply
1 x Installation Guide

Panel Description

Front

Rear
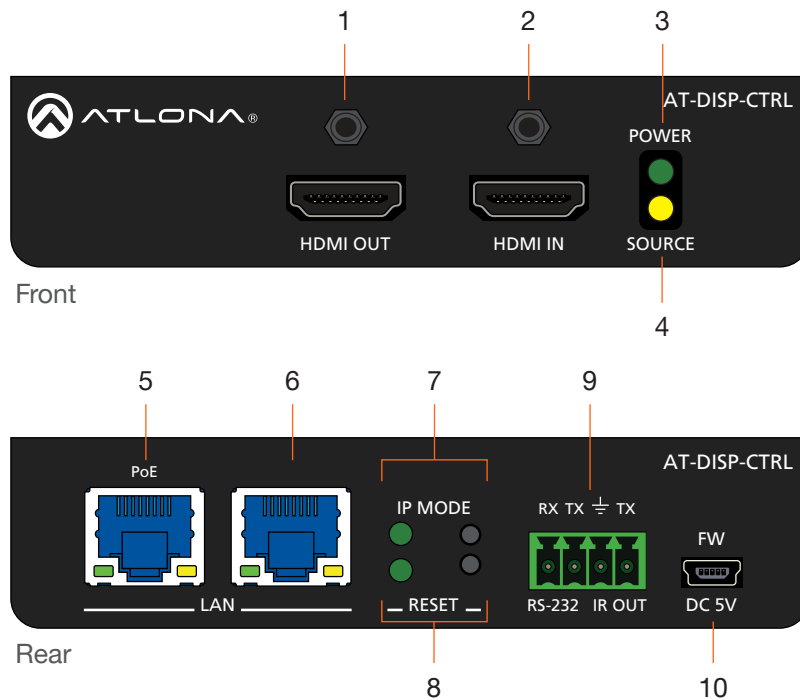
1 HDMI OUT
Connect an HDMI cable from this port to the display.

2 HDMI IN
Connect an HDMI cable from this port to the source device.

3 POWER
This LED indicator glows solid green when the unit is powered.

4 SOURCE
This LED indicator glows solid amber when a source is connected to the **HDMI IN** port.

5 PoE LAN
Connect an Ethernet cable from a PoE-capable network switch to the **PoE LAN** port. If a PoE switch is not available, connect the unit to the included power supply.

6 LAN
Connect an Ethernet cable from the LAN port to the display device, if control will be IP-based.

7 IP MODE
Press and release this button to set the IP mode or display the current IP address. Refer to IP Configuration (page 12) for more information.

8 RESET
Press and release this button to reset the unit to factory-default settings. Refer to Resetting to Factory Defaults (page 25) for more information.

9 RS-232 / IR OUT
Connect a serial cable from the **RS-232** port, using the included 4-pin captive screw connector, to the display device. Connect an IR emitter from the **IR OUT** port, using the included 4-pin captive screw connector, and place the emitter next to the display.
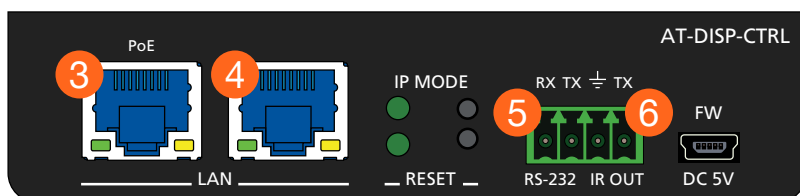
10 FW
If not using PoE to power the unit, then connect the unit to the included power supply. The same USB to mini-USB cable can also used to update the firmware.

Connection Instructions

1. Connect an HDMI cable from the **HDMI OUT** port to the display device.

2. Connect an HDMI cable from the source device to the **HDMI IN** port on the AT-DISP-CTRL. Once the source device is connected and the AT-DISP-CTRL is configured properly, the AT-DISP-CTRL will turn on the connected display device.

3. OPTIONAL: Connect an Ethernet cable, from the **PoE LAN** port, to a PoE-capable network switch.

    By default, the AT-DISP-CTRL will use CEC* commands to send turn-on/turn-off messages to the display device. CEC is delivered over the HDMI cable that is connected to the display device. Commands can also be sent over RS-232, IR, or Ethernet (IP).

4. OPTIONAL: Connect an Ethernet cable from the **LAN** port to the display device.

5. OPTIONAL: Connect a serial cable from the **RS-232** port to the display device. Refer to RS-232 Control (page 37) for wiring information.

6. OPTIONAL: Connect an IR emitter from the **IR OUT** port and place the emitter within range of the IR window on the display device. Refer to IR Control (page 42) for wiring information.
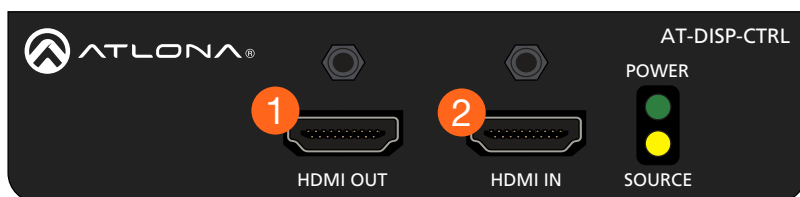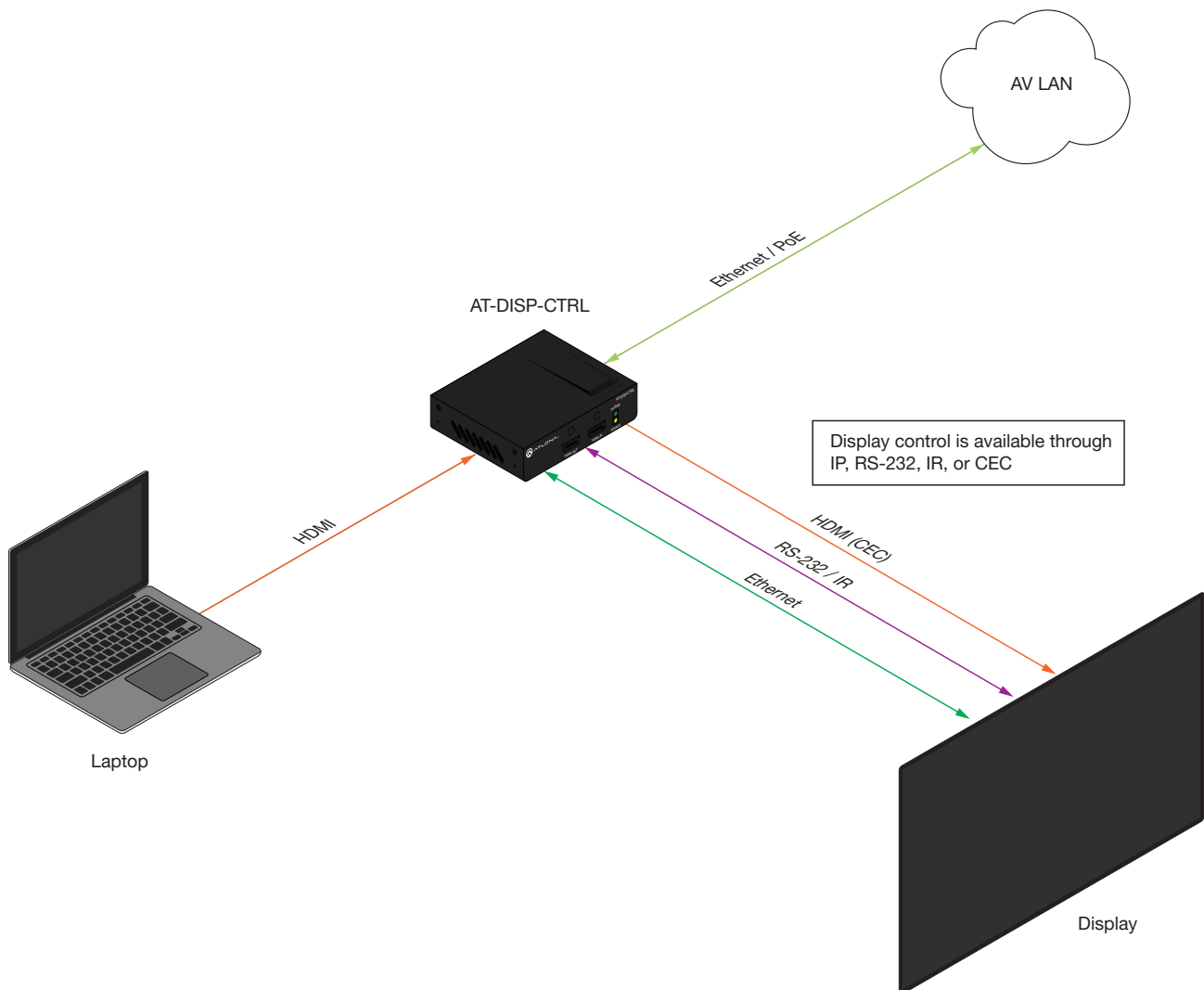
IP Configuration

The AT-DISP-CTRL is shipped with DHCP enabled. Once connected to a network, the DHCP server (if available), will automatically assign an IP address to the unit. If the AT-DISP-CTRL is unable to detect a DHCP server within 15 seconds, then the unit will use a self-assigned IP address within the range of 169.254.xxx.xxx.

Use an IP scanner, along with the MAC address on the bottom of the unit, to identify the unit on the network. If a static IP address is desired, the unit can be switched to static IP mode. The default static IP address is 192.168.1.254.

Switching the IP Mode Using the Front Panel

1. Make sure the AT-DISP-CTRL is powered, by connecting an Ethernet cable between the **PoE LAN** port on the rear panel of the unit and a PoE-compatible network switch, or power the unit locally.

2. Press and hold the **IP MODE** button, on the rear of the unit.

3. Release the button once the LED indicator, next to the **IP MODE** button, begins to flash green. The number of flashes will indicate the currently selected IP mode.

PWR LED flashes	Description
Four	DHCP mode
Two	Factory Static IP mode (IP address set to 192.168.1.254)
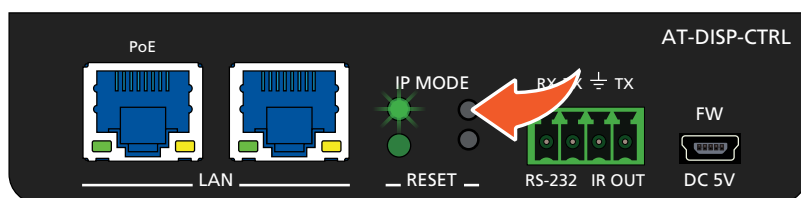
Setting the IP Address using the Web Server

Refer to the Changing the Network IP Mode (page 22) in the built-in web server, to set the AT-DISP-CTRL to either DHCP or static IP mode. In order to access the web server, the IP address of the AT-DISP-CTRL must be known. By default, the AT-DISP-CTRL is set to DHCP mode and will automatically be assigned an IP address by a DHCP server.

Auto IP (APIPA) Mode

If the AT-DISP-CTRL is unable to detect a DHCP server within 15 seconds, then the unit will use a self-assigned IP address within the range of 169.254.xxx.xxx. If this occurs, connect the AT-DISP-CTRL to a computer running Microsoft Windows® and follow the procedure below.

1. Click **Start** > **Settings** > **Control Panel** > **Network and Sharing Center**.

2. Click **Change adapter settings**.

3. Right-click on the adapter that is used to establish a wired connection to the network, and select **Properties** from the context menu.

4. Under the **Ethernet Properties** dialog box, select **Internet Protocol Version 4** and then click the **Properties** button.

5. Click the **Use the following IP address** radio button.

> **IMPORTANT:** Before continuing, write down the current IP settings in order to restore them, later. If **Obtain an IP address automatically** and **Obtain DNS server automatically** are selected, then this step is not required.

6. Enter the desired static IP address or the IP address provided by the network administrator. If the PC does not require Internet access or if a statically-assigned IP address is being used, then an IP address of 169.254.xxx.xxx can be entered.

7. Set the subnet mask to 255.255.0.0.

8. Click the **OK** button then close all **Control Panel** windows.

Device Operation

LED Indicators

The LED indicators on both the front and rear of the unit provide basic information on the current status of the AT-DISP-CTRL.

LED			Description
POWER	Solid green	🟢	• Unit is powered.
	Off	◯	• Unit is not powered.
SOURCE	Solid amber	🟡	• Indicates that a source device is connected to the **HDMI IN** port on the AT-DISP-CTRL.
	Off	◯	• No source is connected or the AT-DISP-CTRL is unable to determine the source. • Verify the integrity of the HDMI cable connected to the HDMI IN port; try another cable if necessary.
IP MODE	Flash green (4x)	✳	• Flashes four times to indicate that the unit is being set to DHCP mode. Refer to IP Configuration (page 12) for more information.
	Flash green (2x)	✳	• Flashes twice to indicate that the unit is being set to static IP mode and will be assigned the IP address of 192.168.1.254.
	Off	◯	• Normal operating mode.
RESET	Flash green (3x)	✳	• Unit is being set to factory-default settings. Refer to Resetting to Factory Defaults (page 25) for more information.
	Off	◯	• Normal operating mode.

EDID Management

Before a source can send picture and sound to a display device, the source reads the EDID (Extended Display Identification Data) structure, which is stored in the display. The EDID contains information about what type of video and audio formats are supported by the display. The AT-DISP-CTRL can use either the downstream EDID (from the display/sink) or use a built-in EDID preset. EDID data can also be stored in any of two EDID presets.
This section will cover the following topics:

- EDID Presets
- Storing EDID Data

EDID Presets

The AT-DISP-CTRL provides the option of selecting a preset EDID. The following presets are available.
For information on **Memory_1** and **Memory_2** settings, refer to Storing EDID Data (page 30).

⚠️ **IMPORTANT:** If problems are encountered when using an EDID preset, try selecting the **Default** settingdrop-down list. The **Default** EDID selection is a generic EDID which has been tested to work with most systems.

EDID Preset	
Default	The default EDID.
ATL 1080p 3D 2CH	1920 x 1080p @ 60 Hz, 3D support, and two-channel audio support.
ATL 1080p 3D DD	1920 x 1080p @ 60 Hz, 3D support, and Dolby® Digital audio support.
ATL 1080p 3D MCH	1920 x 1080p @ 60 Hz, 3D support, and multichannel audio support.
ATL 1080p 2CH	1920 x 1080p @ 60 Hz, 3D support, and multichannel audio support.
ATL 4K60 420 2CH	3840 x 2160 @ 60 Hz, 4:2:0 chroma subsampling, and two-channel audio support.
ATL 4K60 420 MCH	3840 x 2160 @ 60 Hz, 4:2:0 chroma subsampling, and two-channel audio support.
ATL 4K60 420 HDR 2CH	3840 x 2160 @ 60 Hz, 4:2:0 chroma subsampling, HDR support, and two-channel audio support.
ATL 4K60 420 HDR MCH	3840 x 2160 @ 60 Hz, 4:2:0 chroma subsampling, HDR support, and multichannel audio support.
ATL 4K60 444 2CH	3840 x 2160 @ 60 Hz, 4:4:4 chroma subsampling, and two-channel audio support.
ATL 4K60 444 MCH	3840 x 2160 @ 60 Hz, 4:4:4 chroma subsampling, and multichannel audio support.
MEM_1	EDID memory storage 1.
MEM_2	EDID memory storage 2.

1. Login to the web server. Refer to Introduction to the Web Server (page 27).

2. Click **EDID** in the menu bar.

3. Locate the **EDID Settings** section.

4. Click the Input drop-down list and select the desired EDID preset. In the example below, the **4K60 420 MCH** EDID is being selected.

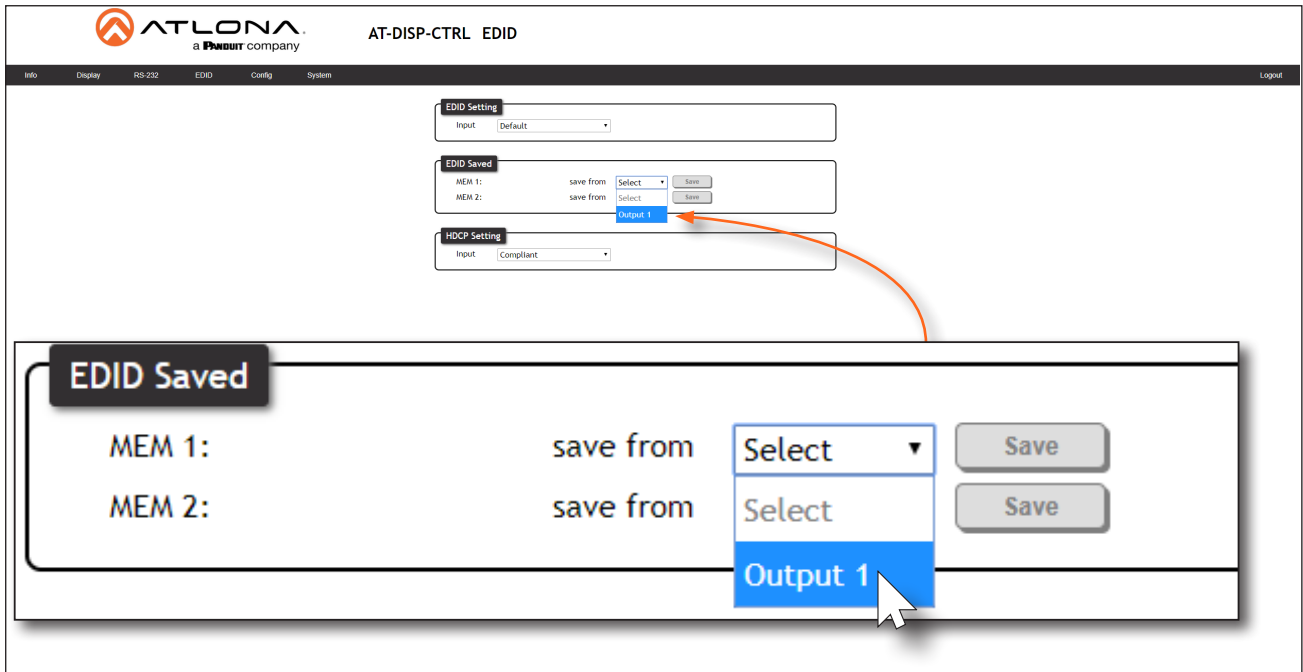5. EDID preset selection is complete.

Storing EDID Data

The AT-DISP-CTRL provide two memory locations which can be used to store EDID data. Any downstream EDID can be captured and stored in these locations. Each memory location is non-volatile and captured EDID data is retained after power is disconnected from the unit.

1. Connect an HDMI cable from the **HDMI OUT** port on the AT-DISP-CTRL to the HDMI input on the display, containing the EDID to be stored.

2. Login to the web server. Refer to Introduction to the Web Server (page 27).

AT-DISP-CTRL

HDMI

Display with EDID data
to be captured
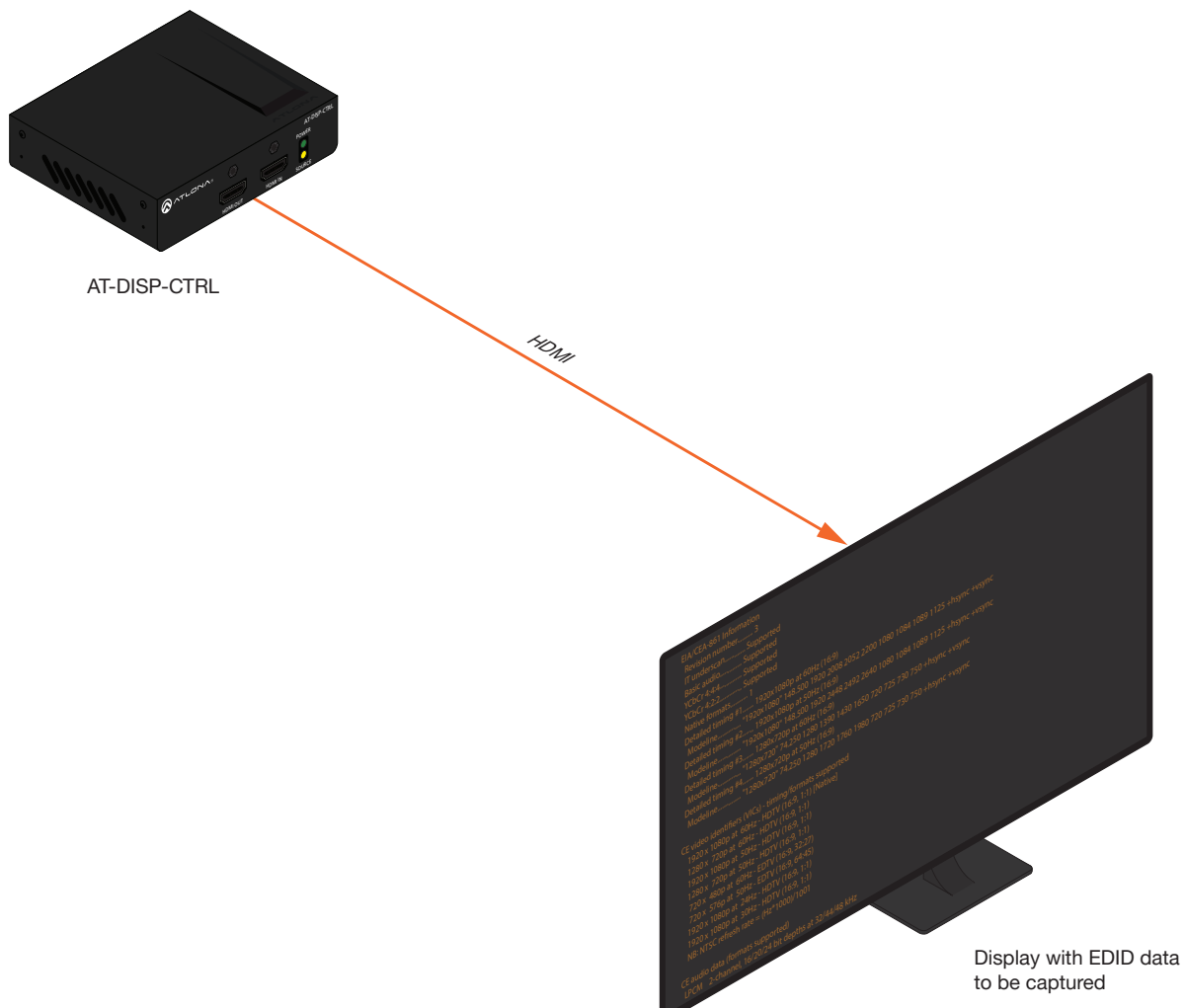
3. Click **EDID** in the menu bar.

4. Locate the **EDID Saved** section.

5. Click the drop-down list, next to the memory location to be used, and select the output which will be used to fetch the EDID. Refer to the next page for more information.

Since the display is connected to the **HDMI OUT** port on the AT-DISP-CTRL, **Output 1** is selected. Here, the EDID will be stored in **MEM 1**.

6. Click the **Save** button next to the drop-down list for the memory location.
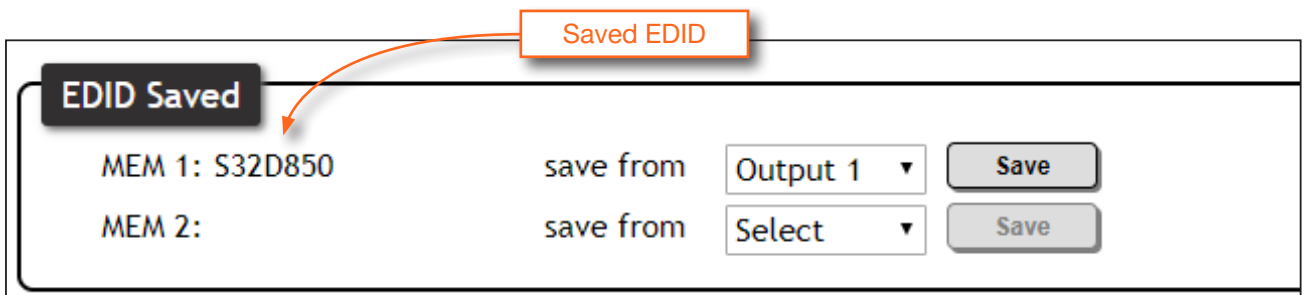
7. The saved EDID will appear next to the memory location, as shown below.

8. Click the Input drop-down list. Note that the stored EDID appears as an available EDID preset.

EDID Setting

Input | Default ▼

- Default
- ATL 1080P 3D 2CH
- ATL 1080P 3D DD
- ATL 1080P 3D MCH
- ATL 1080P 2CH
- ATL 4K60 420 2CH
- ATL 4K60 420 MCH
- ATL 4K60 420 HDR 2CH
- ATL 4K60 420 HDR MCH
- ATL 4K60 444 2CH
- ATL 4K60 444 MCH
- **S32D850**
- MEM_2

EDID Saved

MEM 1:
MEM 2:

Output 1 ▼   Save
Select ▼   Save

HDCP Setting

Input

9. The EDID storing procedure is completed.

> **NOTE:** Once an EDID is written to a memory location, it can be overwritten with a different EDID, when desired. To overwrite an EDID with a different EDID, repeat steps 5 through 7, above.

HDCP Content

Normally, if a source is transmitting HDCP content to a display that is not HDCP-compatible, then the resulting image on the display can be "snow", image flickering, or no picture. For example, in the illustration below, both a laptop and a non-compliant HDCP display are connected to the AT-DISP-CTRL. By default, the laptop may transmit HDCP content. However, when connected to a display that does not support HDCP, the laptop must be instructed to send non-HDCP content, in order for the content to be displayed.

IMPORTANT: Not all source devices are capable of transmitting non-HDCP content. For example, Sony PlayStation® gaming consoles and Mac® computers always transmit HDCP-encrypted content.
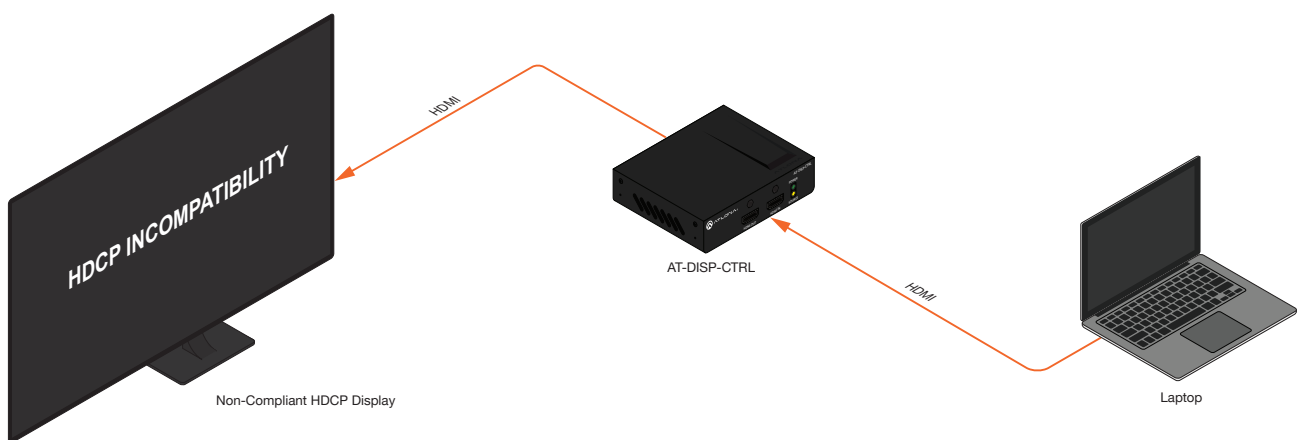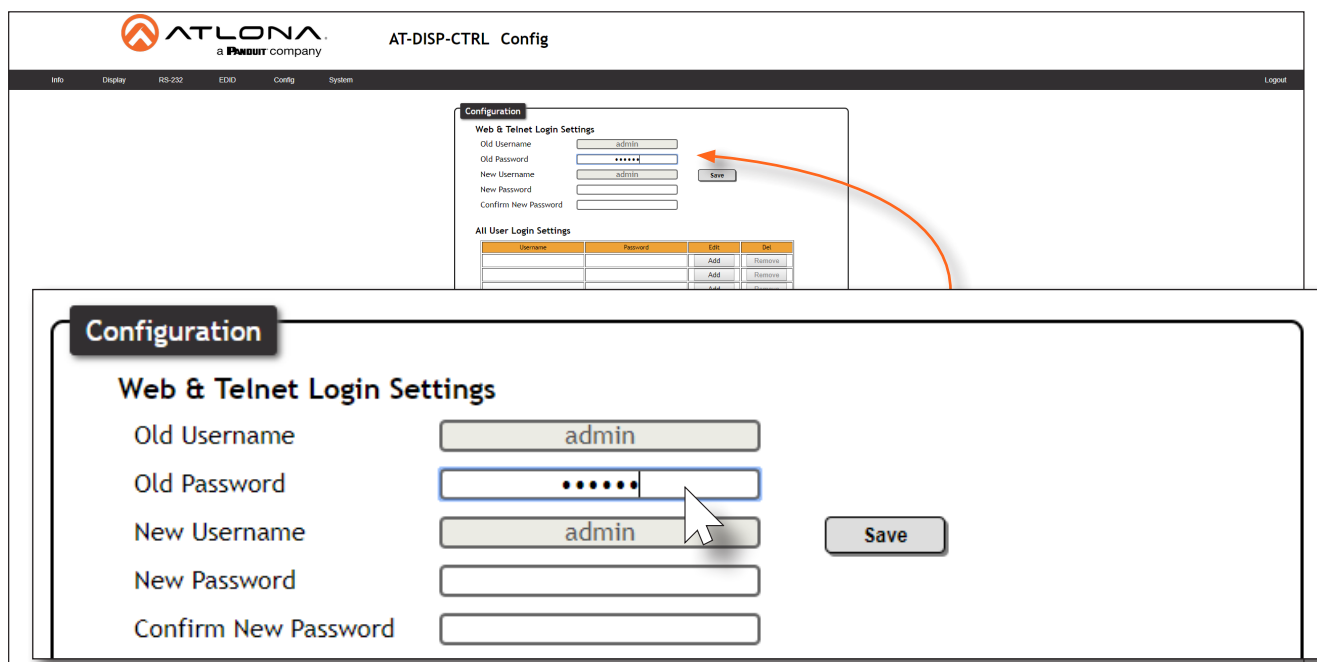

1.   Login to the web server. Refer to Introduction to the Web Server (page 51).

2.   Click **EDID** in the menu bar.

3.   Locate the **HDCP Setting** section.

4.   Click the drop-down list and select the desired setting. In this example, selecting **Noncompliant** will instruct the source device to send non-HDCP content, if possible.
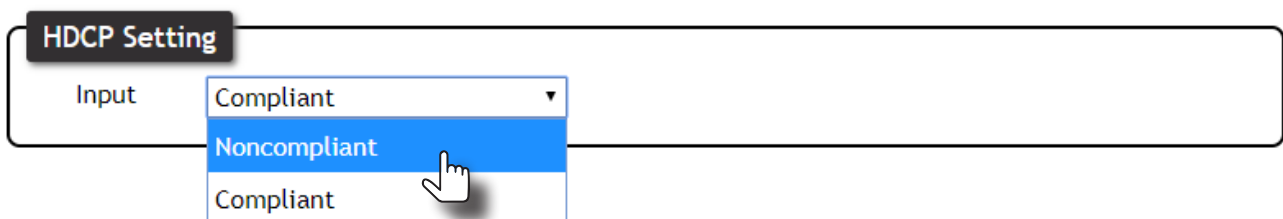
Password Management

The AT-DISP-CTRL allows the administrator password to be changed. The password applies to both the web server and Telnet sessions. Note that the Username cannot be changed.

1. Login to the web server. Refer to Introduction to the Web Server (page 27).

2. Click **Config** in the menu bar.

3. Click the **Old Password** field and enter the current password.
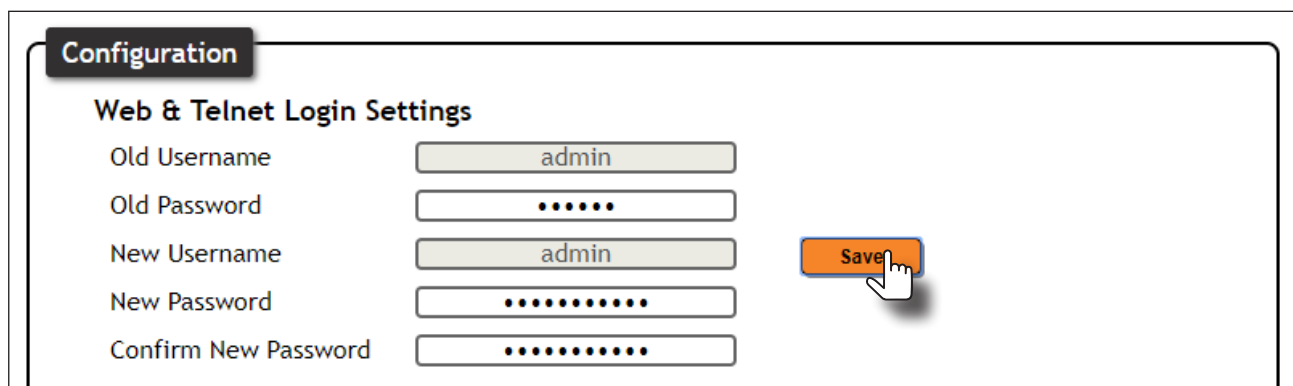

4. Enter the new password in the **New Password** field.

5. Retype the new password in the **Confirm New Password** field.

6. Click the **Save** button to commit changes. To login with the new username, click **Logout** in the upper-right corner of the screen, then enter the new password on the **Login** page.

NOTE: Password fields will always be masked for security purposes.

System Configuration

The AT-DISP-CTRL provides easy access to system configuration through the built-in web server, and is the recommended method to adjust network settings.
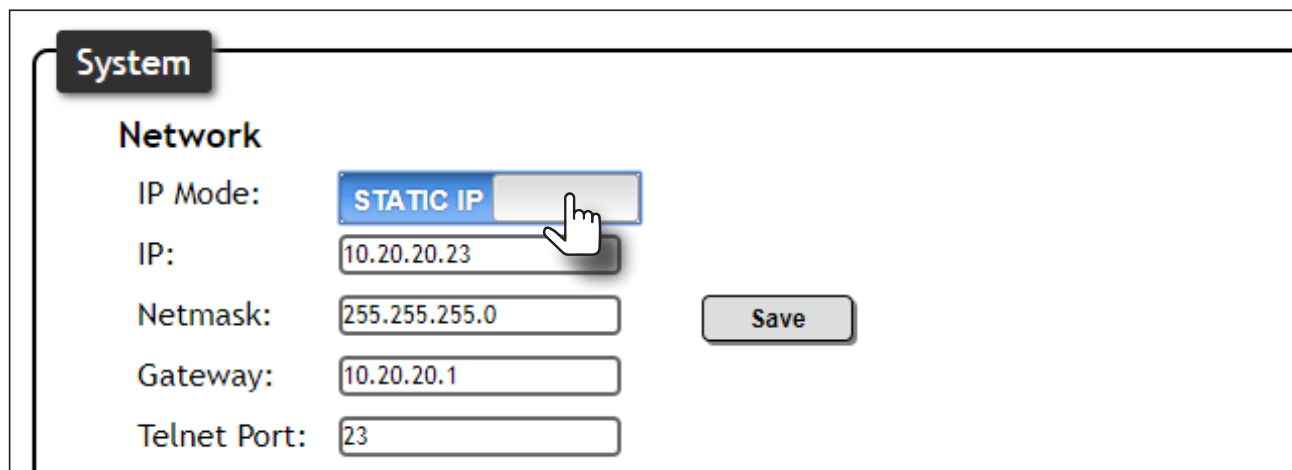
Changing the Network IP Mode

By default, the AT-DISP-CTRL is set to DHCP mode. Once connected to a network, and if a DHCP server is found (or available), the AT-DISP-CTRL will be assigned an IP address on the network, and no further network configuration is required. However, if the AT-DISP-CTRL is unable to detect a DHCP server within 15 seconds, then the unit will use a self-assigned IP address within the range of 169.254.xxx.xxx. The instructions below will focus on setting the AT-DISP-CTRL to static IP mode.

⚠️ **IMPORTANT:** Before assigning a static IP address to the AT-DISP-CTRL, it is recommended to consult with the network or system administrator and obtain a available IP address. If the AT-DISP-CTRL is assigned an IP address which is already in use by another device, it may cause either network issues and/or the AT-DISP-CTRL will be not accessible.

1. Login to the web server. Refer to .

2. Click **System** in the menu bar.

3. Locate the **IP Mode** toggle switch. The default setting of this toggle switch is **DHCP**.

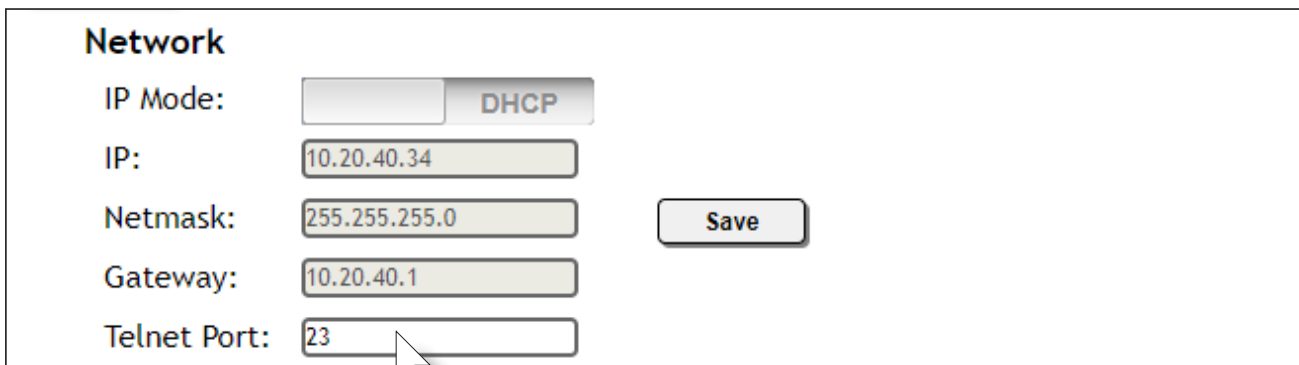4. Click this toggle switch to set it to **STATIC IP**.

5. Enter the desired IP address for the AT-DISP-CTRL in the **IP** field.

6. Enter the subnet mask and gateway address in the **Network** and **Gateway** fields, respectively.

7. Click the **Save** button to commit changes.

Changing the Telnet Port

Typically, the Telnet service is assigned to TCP port 23. This is the default setting for the AT-DISP-CTRL. However, depending upon the network environment, the default Telnet port can be changed.

1. Login to the web server. Refer to Introduction to the Web Server (page 27).

2. Click **System** in the menu bar.

3. Locate the **Telnet Port** field and enter the desired port in the field.

4. Click **Save** to commit changes.

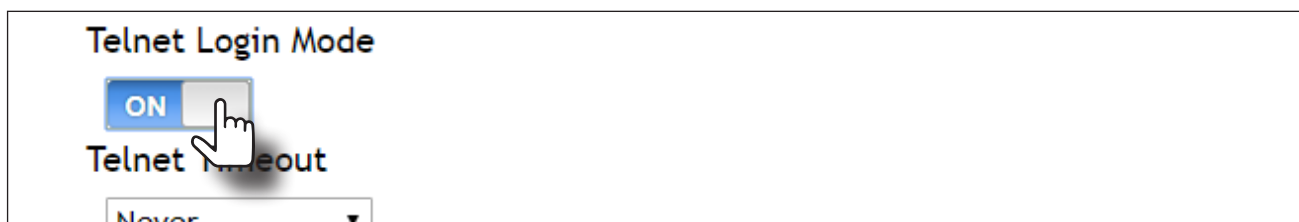## Telnet Login Mode

When a Telnet session is requested, the AT-DISP-CTRL provides the option to prompt for user credentials or bypass authentication before the Telnet session begins. This credentials prompt option can enabled or disabled. When prompting for user credentials, use the same login information required by the built-in web server.

1. Login to the web server. Refer to Introduction to the Web Server (page 27).

2. Click **System** in the menu bar.

3. Click the **Telnet Login Mode** toggle switch.

    • Set this toggle switch to **ON** to prompt for user credentials.

    • Set this toggle switch to **OFF** to bypass user credentials request.
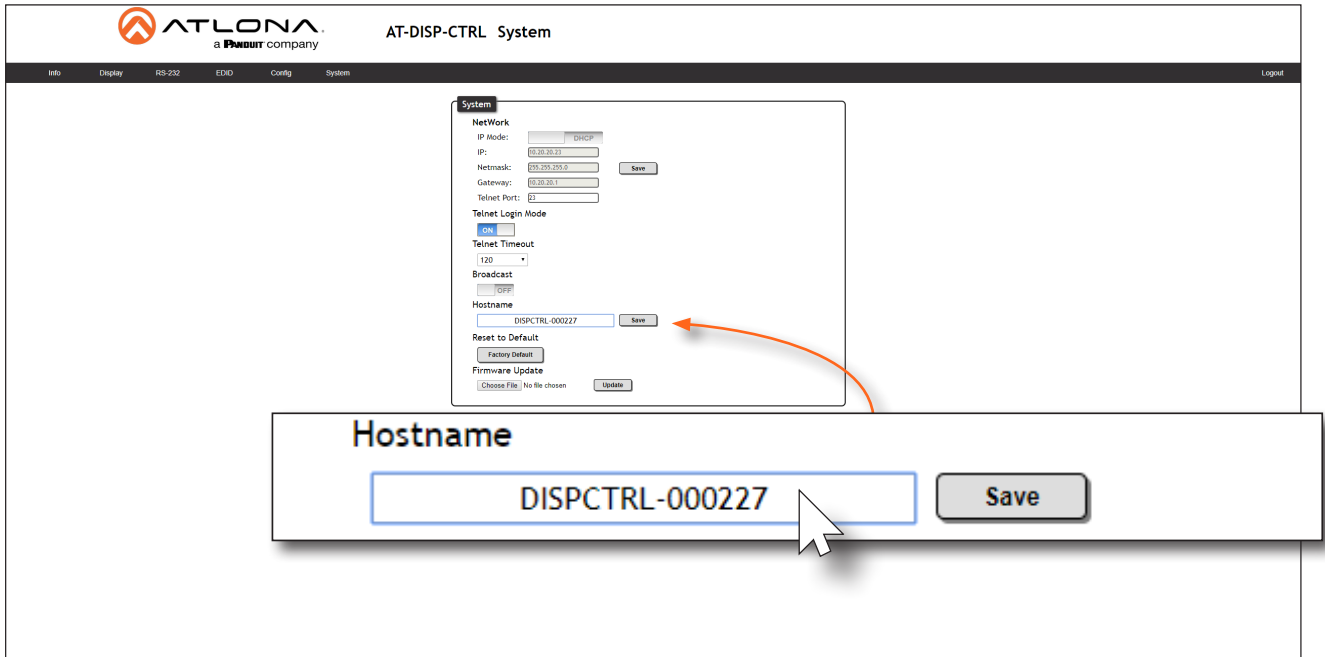
4. Click **Save** to commit changes.

Setting the Host Name

By default, the AT-DISP-CTRL is assgned a hostname, which is constructed as follows:

DISPCTRL-[last six digits of MAC address]

For example, a default hostname might look like this: DISPCTRL-000227. However, the hostname can be changed to any string value, for easy identification within the Atlona Management System (AMS) or a network. If using a custom hostname, it must meet the hostname standards, defined here: https://tools.ietf.org/html/rfc1123

1. Login to the web server. Refer to Introduction to the Web Server (page 27).

2. Click **System** in the menu bar.

3. Click the **Hostname** field and enter the desired name.

4. Click **Save** to commit changes.

Resetting to Factory Defaults

If necessary, the AT-DISP-CTRL can be reset to factory-default settings. Note that the AT-DISP-CTRL will be placed in DHCP mode, as part of the reset procedure. The AT-DISP-CTRL can also be reset through the web server. Both procedures will be covered in this section.

Using the Rear Panel

1. Press and hold the **RESET** button on the rear panel for approximately 10 seconds.

2. Release the **RESET** button once the LED indicator begins to flash. The LED indicator will flash three times to indicate that the reset procedure has completed.

Reset button
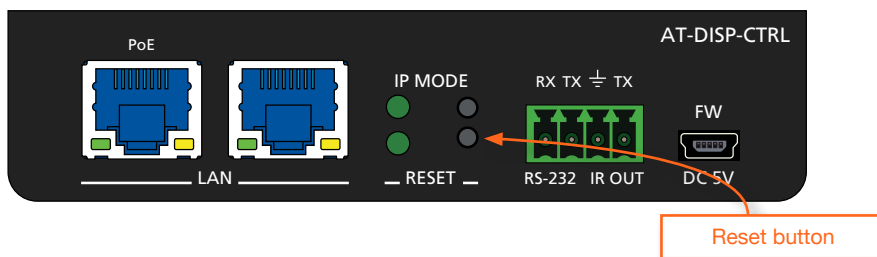
Using the Web Server

1. Login to the web server. Refer to .

2. Click **System** in the menu bar.

3. Click the **Factory Default** button.
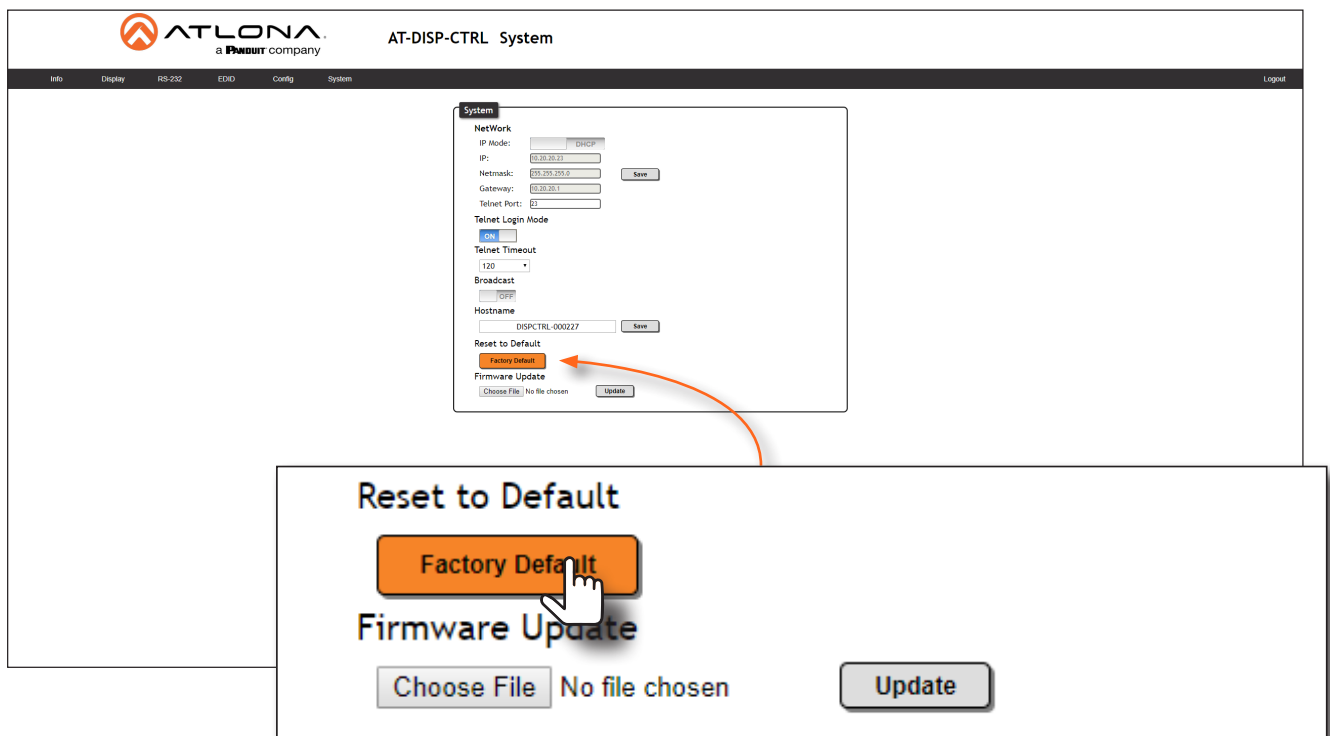
4. The following message will be displayed at the top of the screen. Click **OK** to continue with the factory-default reset procedure. Click **Cancel** to abort the process.
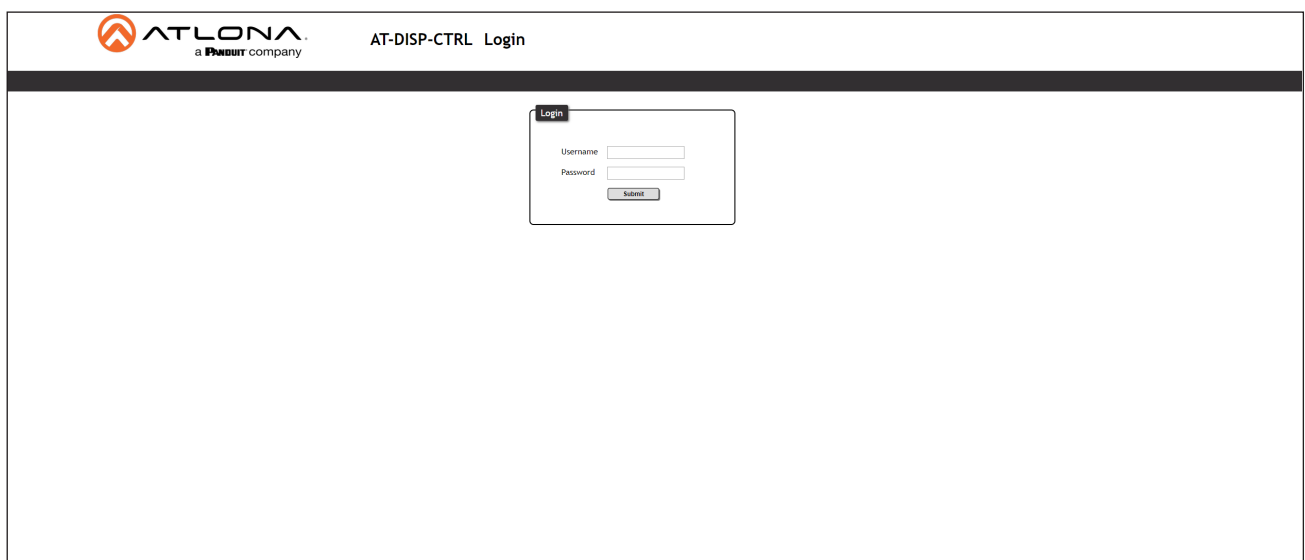
10.20.20.70 says

Are you Sure want to Reset Device to manufacture default?

OK   Cancel

5. Once the factory-default process is complete, the web server **Login** screen will be displayed.

6. The reset process is complete.

Configuration and Management Interfaces

Introduction to the Web Server

The AT-DISP-CTRL includes a built-in web server. Atlona recommends that the web server be used to set up the AT-DISP-CTRL, as it provides intuitive management of all features. Follow the instructions below to access the webGUI.

1. Make sure that an Ethernet cable is connected between the LAN port on the AT-DISP-CTRL and the network.

2. Launch a web browser and enter the IP address of the unit. If the default static IP address is being used, enter 192.168.1.254.

3. The AT-DISP-CTRL **Login** page will be displayed.
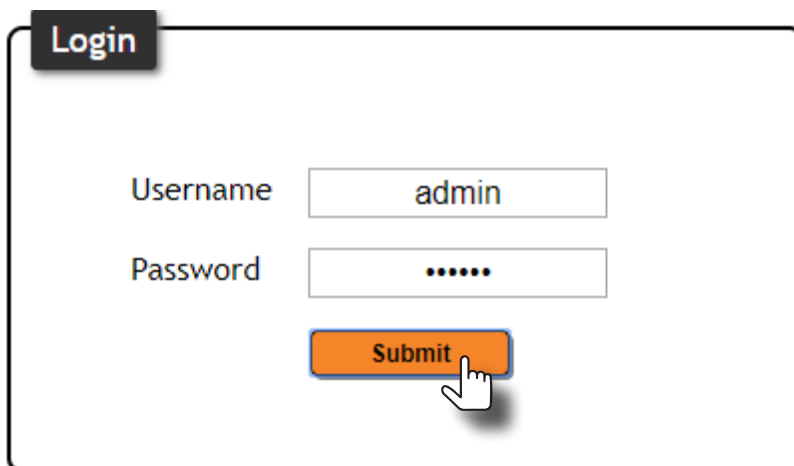

4. Type admin, using lower-case characters, in the **User** field.

5. Type Atlona in the **Password** field. This is the default password. The password field is case-sensitive. When the password is entered, it will be masked.

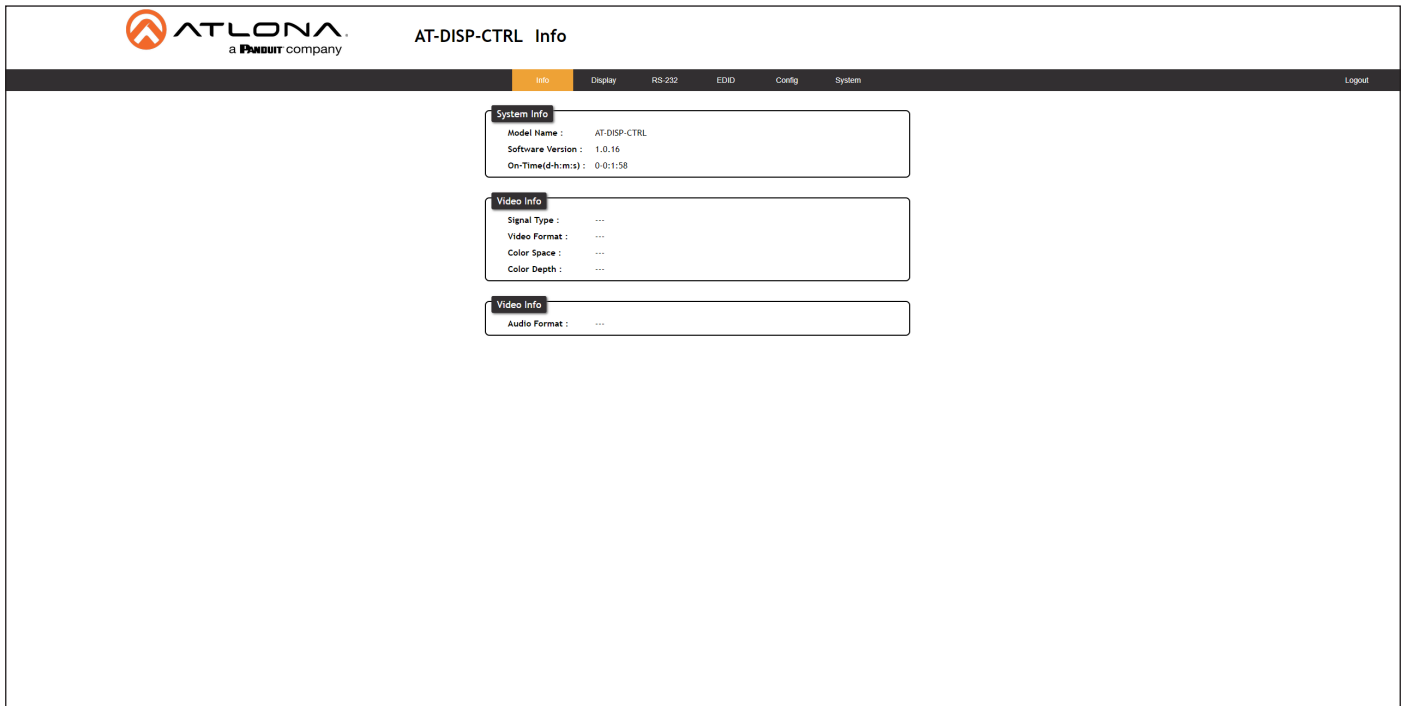6. Click the **Submit** button or press the ENTER key on the keyboard.

Info Page

After logging in, the **Info** page will be displayed. The **Info** page provides various information about the AT-DISP-CTRL, including software version and video information.

Model Name
The model SKU of this product.

Software Version
The version of firmware that the AT-DISP-CTRL is running. Always make sure to check the AT-DISP-CTRL product page, on the Atlona web site, for the latest version of firmware.

On-Time(d-h:m:s)
Displays how long the system has been powered since the last reboot/reset.

Signal Type
The type of input signal.

Video Format
The input resolution of the source device.

Color Space
Displays the color space and chroma sub-sampling of the input signal.

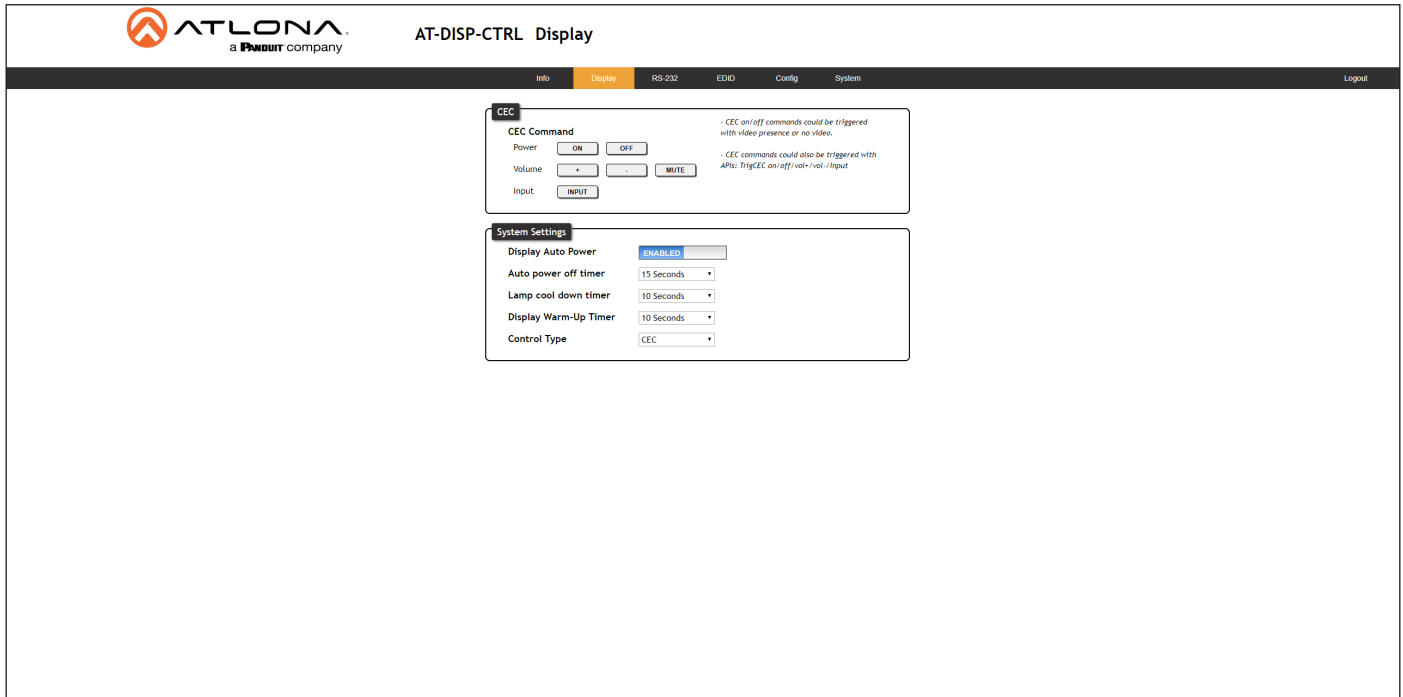**Color Depth**
The color depth of the input signal.

Aspect
Aspect ratio of the input signal.

Display Page

This page provides controls for CEC, device timers, and configuration for controlling external devices.

CEC Command
Click the **ON** button to test sending the power-on command to the display device. Click the **OFF** button to toggle the power state to off. Click the **+**, **-**, and **MUTE** to increase, decrease, or mute the audio output, respectively.

Display Auto Power
Set this toggle to **ENABLED** to allow the AT-DISP-CTRL to send the power-on command to the display when an A/V signal is detected. When the AV signal is no longer present, the AT-DISP-CTRL will send the power-off command to the display. If this feature is not desired, then set to **DISABLED**. This feature is enabled by default.

Auto power off timer
Sets the time interval before the command to power-off the display is sent, when an A/V signal is no longer present. The default value is 15 seconds. Available values are 15 seconds to 1 hour.

Lamp cool down timer
Sets the projector lamp cool-down timer, in seconds. This value specifies the time interval that must elapse, after the display control "off" command is sent, before the display "power on" command can be sent. This feature is used to prevent the projector from missing a "power on" command while the lamps are cooling. Available values are 10 to 300 seconds. The default setting is 10 seconds.

Display Warm-Up Timer
Sets the time between when the projector lamp has been turned on to when it can receive new commands. Click this drop-down list to select the display warm-up time interval. Available values are 10 seconds to 300 seconds. The default value is 10 seconds.
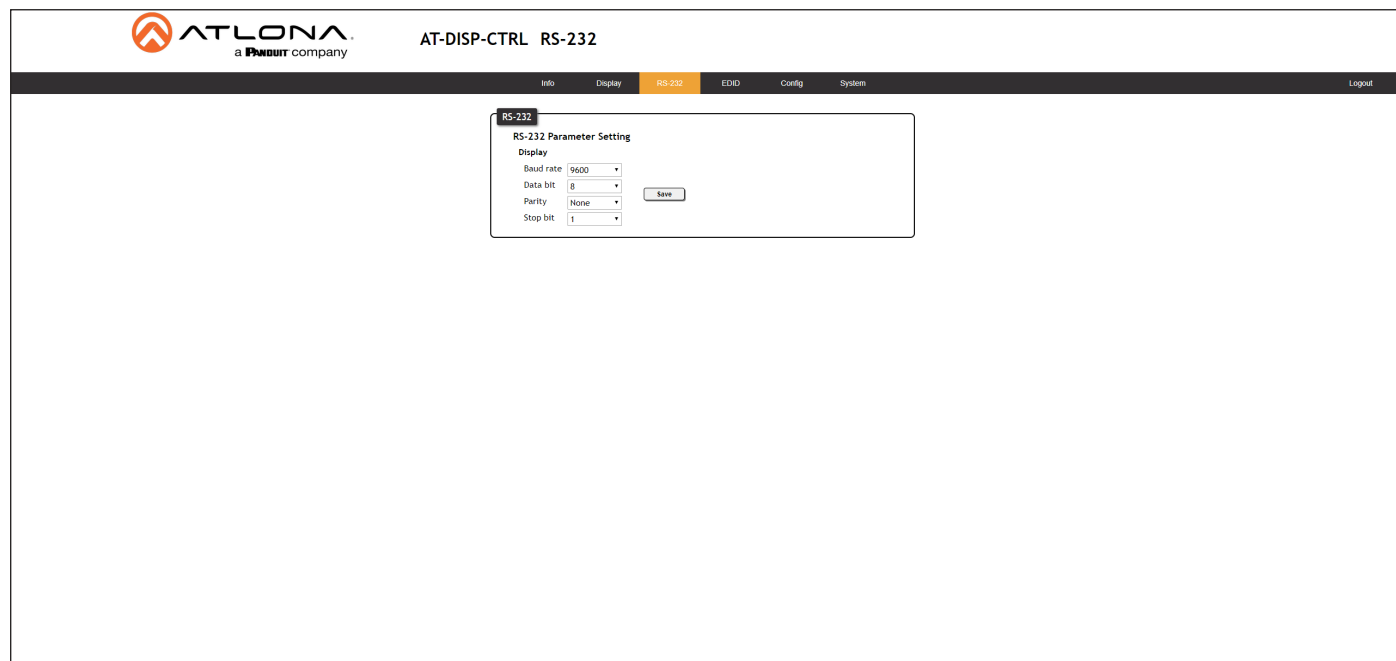
Control Type
Click this drop-down to select the control type. Available settings are **CEC**, **IP**, **RS-232**, and **IR Remote**.

RS-232 Page

This page provides settings for the local RS-232 control.

RS-232 Parameter Setting
RS-232 settings for local control. Refer to the user manual for the display device to obtain the proper RS-232 settings.

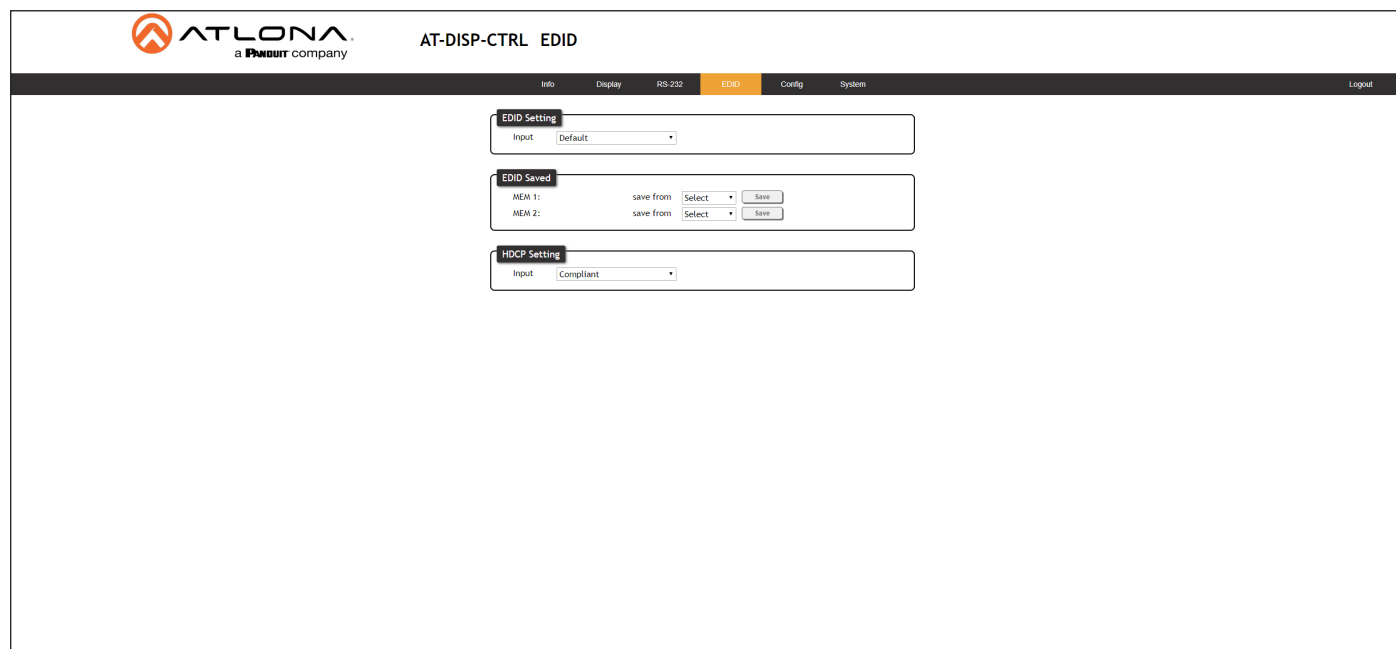| Setting	Description
Baud rate	Sets the baud rate. The following options are available: 2400, 9600, 19200, 38400, 56000, 57600, 115200, 128000, 230400. 9600 is the default setting.
Data bit	Sets the number of data bits used to represent each character of data. The following options are available: 7 or 8.
Parity	Sets the parity bit, which can be included with each character to detect errors during the transmission of data. The following options are available: None, Odd, or Even.
Stop bit	Sets the stop bit. Stop bits are sent at the end of each character, allowing the client to detect the end of a character stream. The following options are available: 1 or 2.

Save
Click this button to commit all changes.

EDID Page

This page provides controls for selecting and storing EDID data. Refer to EDID Management (page 15) for more information.

EDID Settings

Click the Input drop-down list to select the desired EDID. When selecting an EDID, make sure that the display/sink device is capable of supporting the resolution/timing. If the sink device is not able to support a feature, then the source will not be displayed. Selecting the **Default** EDID will provide the most compatible settings for most displays. In addition, two memory locations are available for storing captured EDID data. If an EDID is stored in a memory location, it will also be added to the list available EDID selections. The following EDID presets are available.

EDID listing	
Default	ATL 4K60 420 HDR 2CH
ATL 1080p 3D 2CH	ATL 4K60 420 HDR MCH
ATL 1080p 3D DD	ATL 4K60 444 2CH
ATL 1080p 3D MCH	ATL 4K60 444 MCH
ATL 1080p 2CH	MEM_1
ATL 4K60 420 2CH	MEM_2
ATL 4K60 420 MCH	

EDID Saved

The AT-DISP-CTRL provides two memory locations used for storing captured EDID data. Click these drop-down lists to select and store the external EDID.

Save

Click the **Save** button, next to the **MEM 1** and **MEM 2** fields, to save the EDID in the selected memory location.

HDCP Setting

Click this drop-down list to select either Compliant or Noncompliant. Refer to HDCP Content (page 20) for more information.

Config Page

The **Config** page provides management of the administrator password. The administrator username ("admin") cannot be changed. Refer to Password Management (page 21) for more information.

Old Username
This field cannot be changed. "admin" is the administrator user.

Old Password
Enter the current password for the "admin" username in this field. The default password is "Atlona".

New Password
Enter the new password for the "admin" username in this field.

Confirm New Password
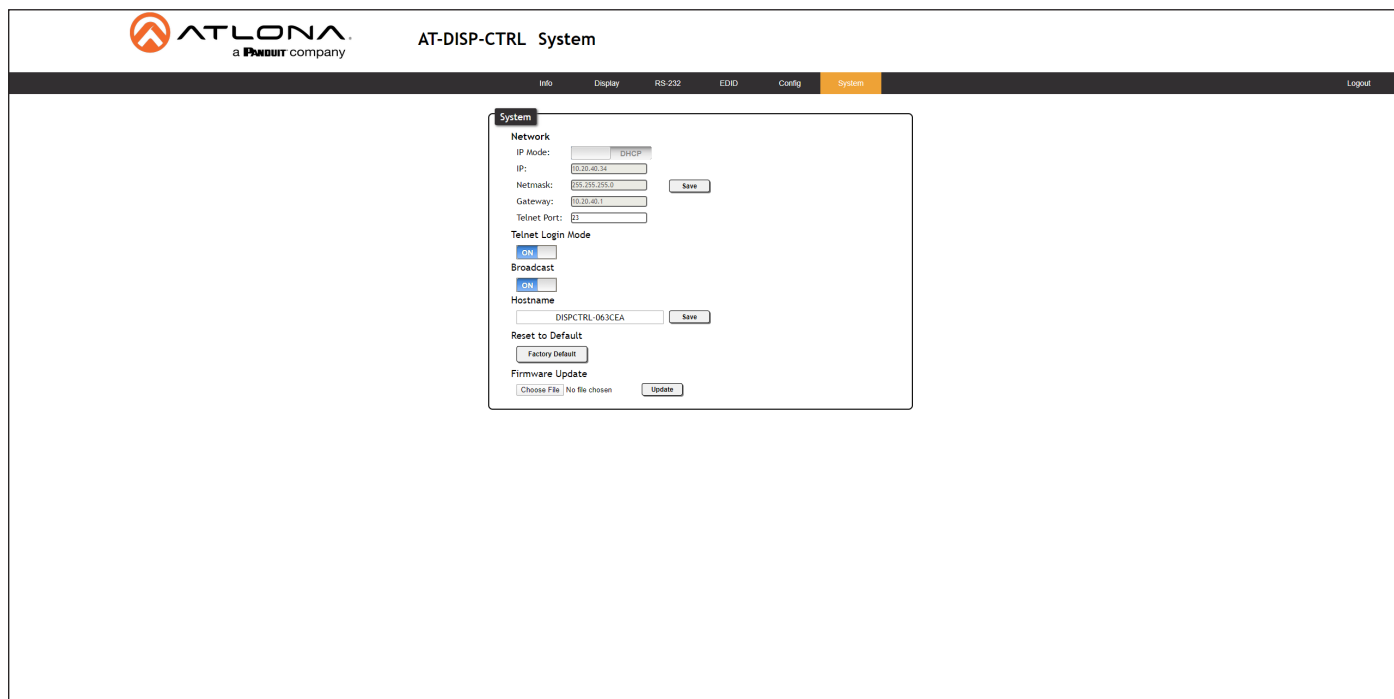Verify the new password by retyping it in this field.

Save
Click this button to commit all changes.

System Page

The **System** page is divided into two sections: **Network** and **System**. The **Network** section allows configuration of the IP settings of the AT-DISP-CTRL. The **System** section provides controls for resetting the AT-DISP-CTRL to factory-default settings and updating the firmware.

IP Mode

Click this toggle switch to set the AT-DISP-CTRL to **DHCP** or **STATIC IP** mode. The default setting is **DHCP** mode. Refer to Changing the Network IP Mode (page 22) for more information.

- **IP**

  Enter the IP address of the AT-DISP-CTRL in this field. This field will only be available when **IP Mode** is set to **STATIC IP**. The default static IP address of the AT-DISP-CTRL is 192.168.1.254.

- **Netmask**

  Enter the subnet mask of the AT-DISP-CTRL in this field. This field will only be available when **IP Mode** is set to **STATIC IP**. The default static netmask is 255.255.0.0.

- **Gateway**

  Enter the gateway (router) IP address in this field. This field will only be available when **IP Mode** is set to **STATIC IP**. The default static gateway is 192.168.1.1.

Telnet Port

Enter the desired Telnet port (for Telnet sessions) in this field. The default port is 23. Refer to Changing the Telnet Port (page 23) for more information.

Telnet Login Mode

Click this toggle switch to set the Telnet Login Mode to **ON** or **OFF**. If set to **ON**, then login credentials (same as web server) will be required when starting a Telnet session. The default setting is **ON**.

Broadcast
Enables or disables broadcast mode. When set to ON, any state change to the AT-DISP-CTRL will be reflected through RS-232, Telnet, and TCP port 9000. State changes can be caused by modifications within the web server, physical connection/disconnection of source/sink, and additional Telnet/TCP clients making changes.
ON = broadcast enabled; OFF = broadcast disabled. The default setting is ON.

Hostname
Displays the hostname of the AT-DISP-CTRL, as it would appear on a network. To change the hostname, type the new hostname in this field and click the **Save** button. Refer to Setting the Host Name (page 24) for more information.

Reset to Default
Click the **Factory Default** button to reset the AT-DISP-CTRL to factory-default settings. Refer to Resetting to Factory Defaults (page 25) for more information.

Firmware Update
Click the **Choose File** button to begin the firmware update procedure. Refer to Updating the Firmware (page 44) for more information.

Solution Setup and Configuration Guide

The following sections provide step-by-step instructions for setting up display control using the AT-DISP-CTRL. The following control types, and how to configure them, will be covered:

- CEC control
- RS-232 control
- IP control
- IR control

Display Control

The AT-DISP-CTRL provides various methods for display control: CEC, IP, RS-232, and IR Remote. No external control system is required. Each of these methods will be covered in this section.

CEC Control

Consumer Electronics Control (CEC) is the simplest method when working with a consumer display. CEC is the default control method for the AT-DISP-CTRL. The display must have CEC enabled to receive CEC messages. Refer to the User Manual for the display for information on enabling CEC.

1. Connect an HDMI cable from the **HDMI OUT** port on the AT-DISP-CTRL to an HDMI input on the display device.

to display

AT-DISP-CTRL
POWER

HDMI OUT   HDMI IN   SOURCE
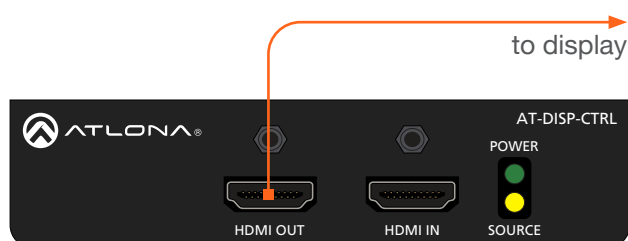
2. Enable CEC on the display device. Refer to the documentation for the display device. It should be noted that different manufacturers will identify CEC with their own brand name. Refer to the table below.

Manufacturer	CEC Designation
Hitachi	HDMI-CEC
LG	SIMPLINK
Philips	EasyLink
Samsung	AnyNet+
Sony	BRAVIA Sync
Toshiba	CE Link / REGZA Link
Visio	HDMI-CEC

3. Login to the web server. Refer to Introduction to the Web Server (page 27).

4. Click **Display** in the menu bar.

5. Under **System Settings**, click the **Control Type** drop-down list and select **CEC**. This is the default control method. **Display Auto Power** is always set to **ENABLED**, by default.
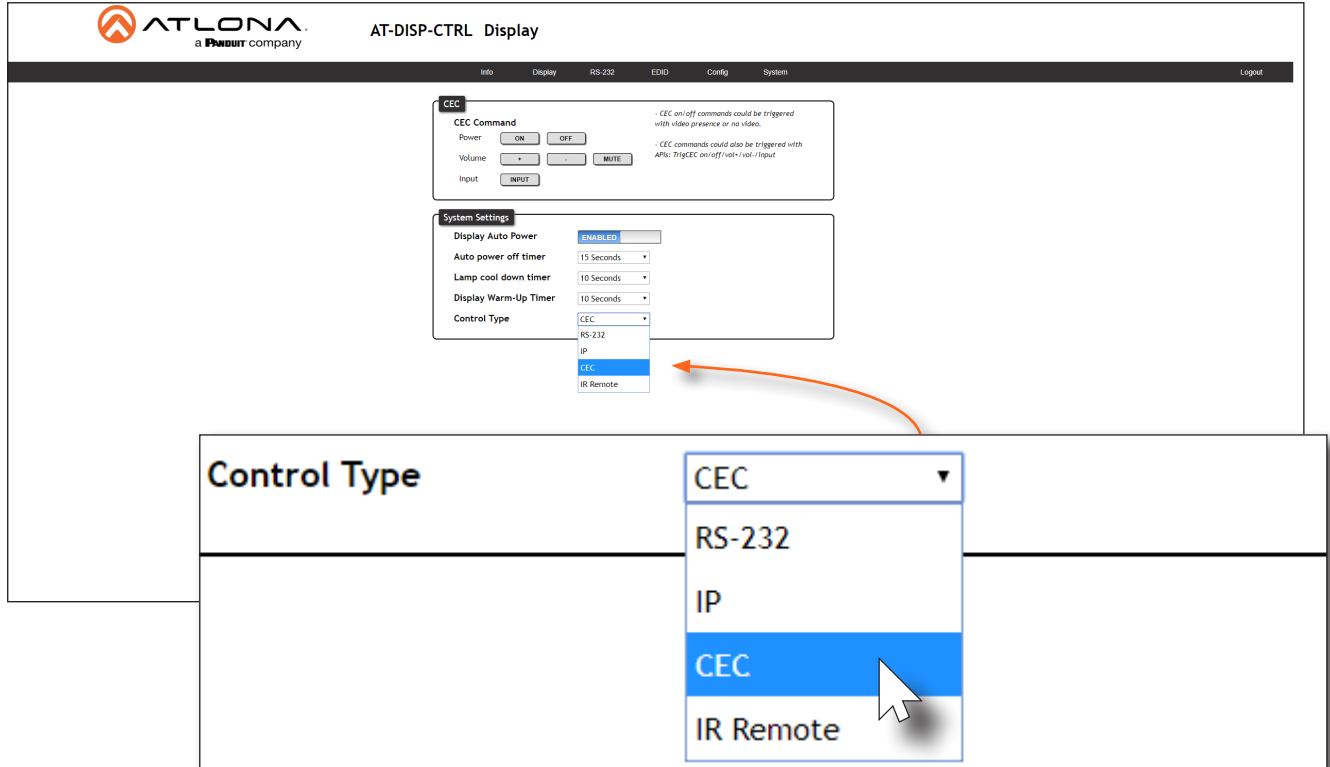
6. Under the **CEC** section, near the top of the page, test each of the command for **Power** and **Volume**.

> **NOTE:** CEC volume control is used for external control systems.
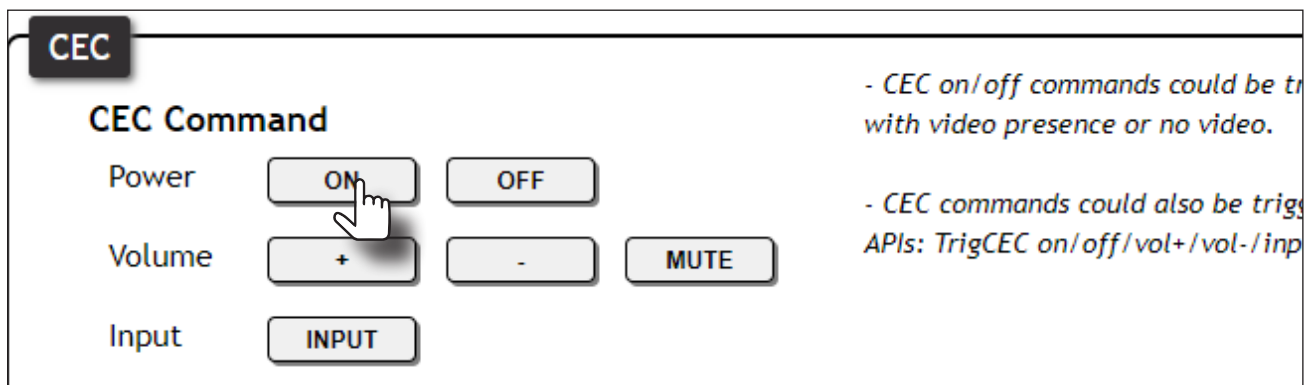
If the display does not respond, check the following:
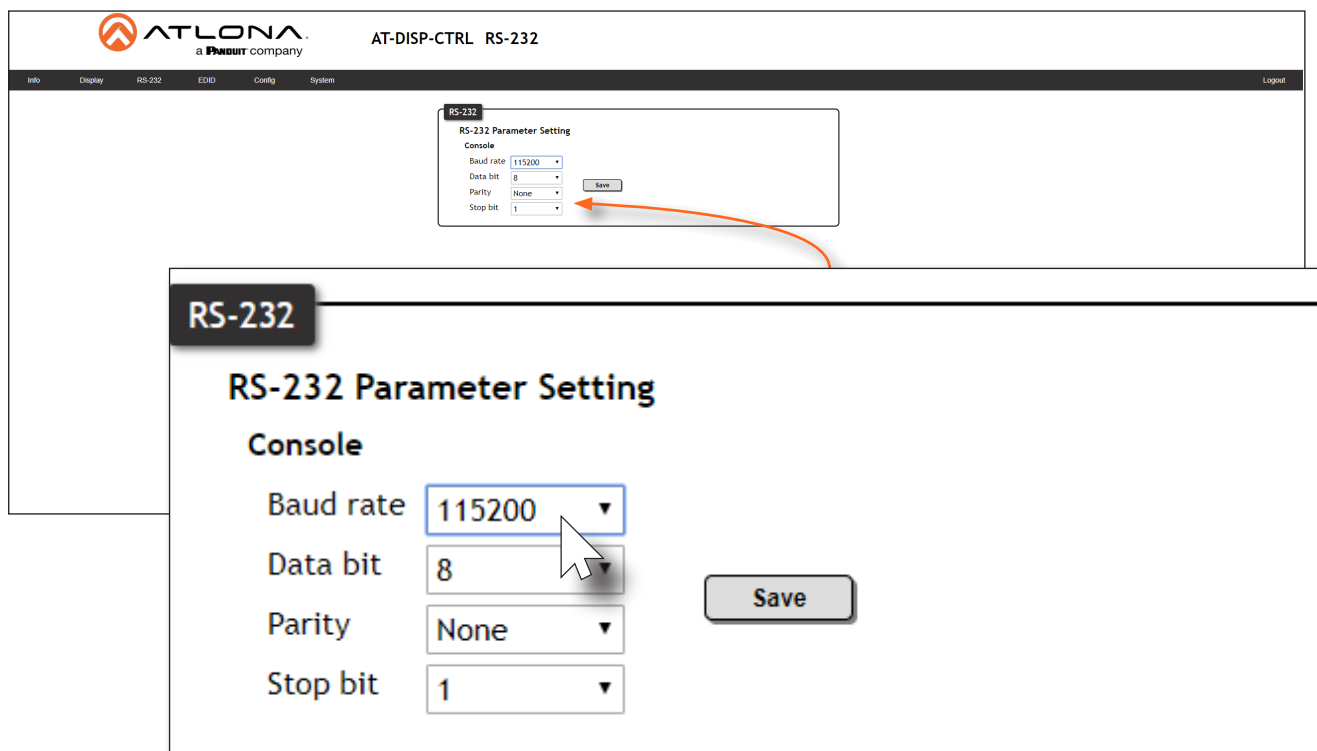
-   Verify that CEC is enabled on the display device.

-   Verify the integrity of the HDMI cable. Try connecting a different HDMI cable between the AT-DISP-CTRL and the display device.

-   Try connecting the HDMI cable to a different HDMI input on the display device.

RS-232 Control
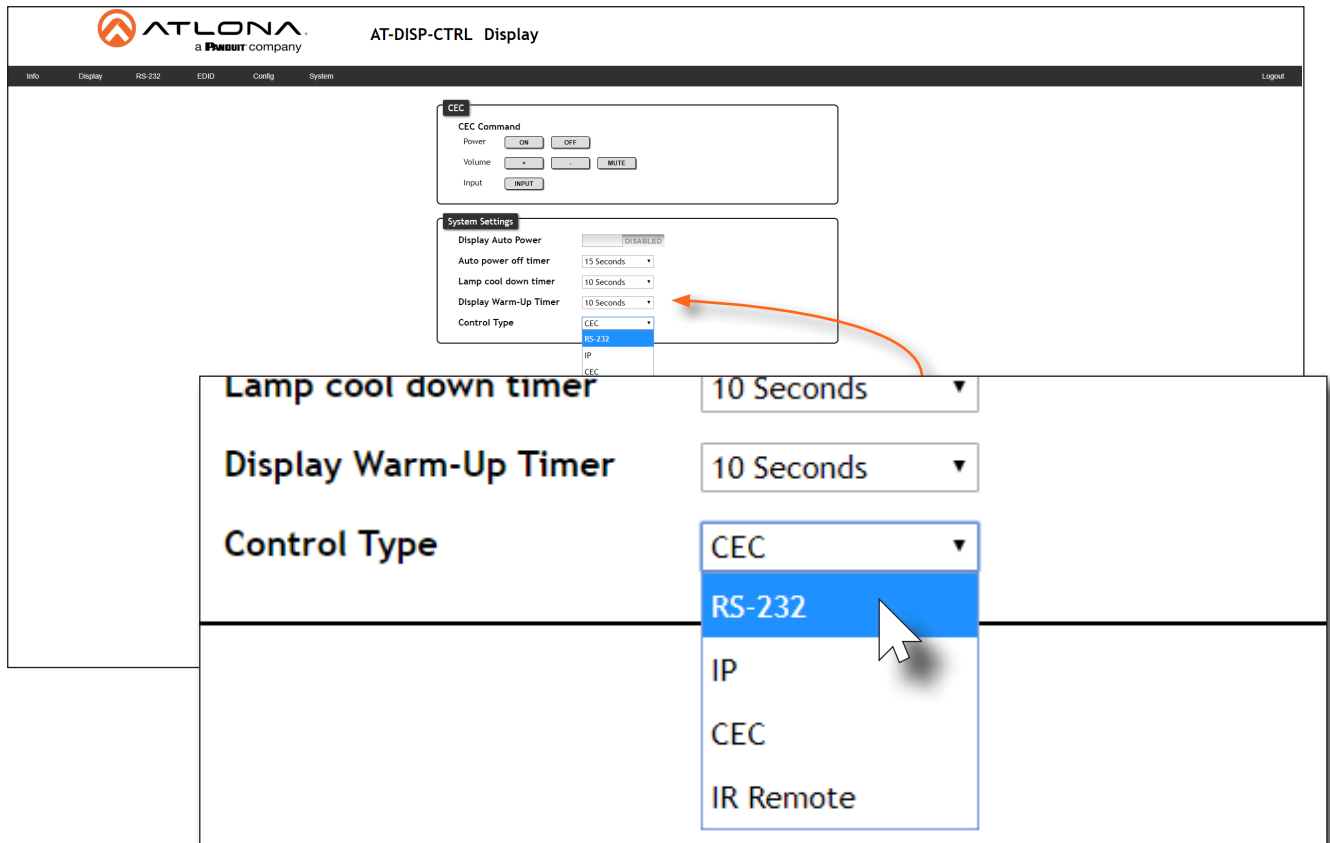
1. Connect a serial cable from the **RS-232** port on the AT-DISP-CTRL, to the RS-232 port on the display. The included 4-pin captive screw connector should be wired as shown.

to display

2. Login to the web server. Refer to Introduction to the Web Server (page 27).
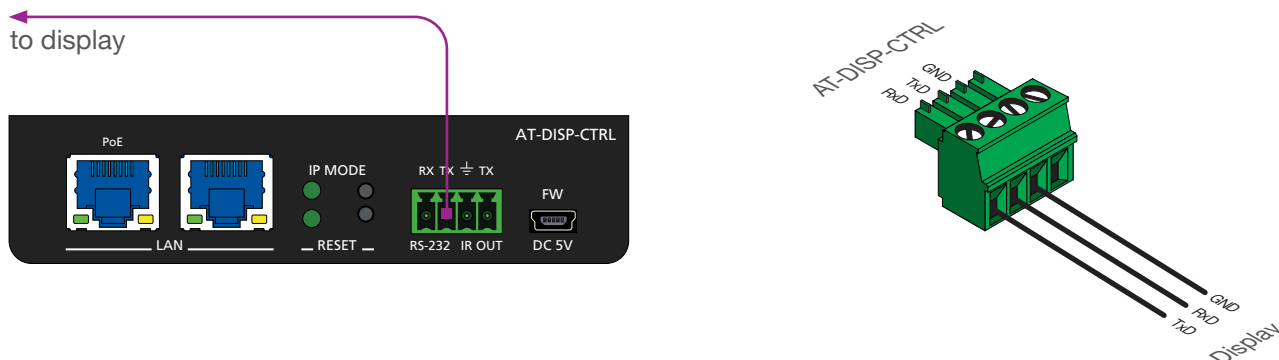
3. Click **RS-232** in the menu bar.

4. Set the RS-232 settings for the display (sink) device, under the **RS232 Console** section. These settings must match the device settings for the display. Refer to the User Manual of the display device for more information.

5. Click **Display** in the menu bar.

6. Under **System Settings**, click the **Control Type** drop-down list and select **RS-232**.
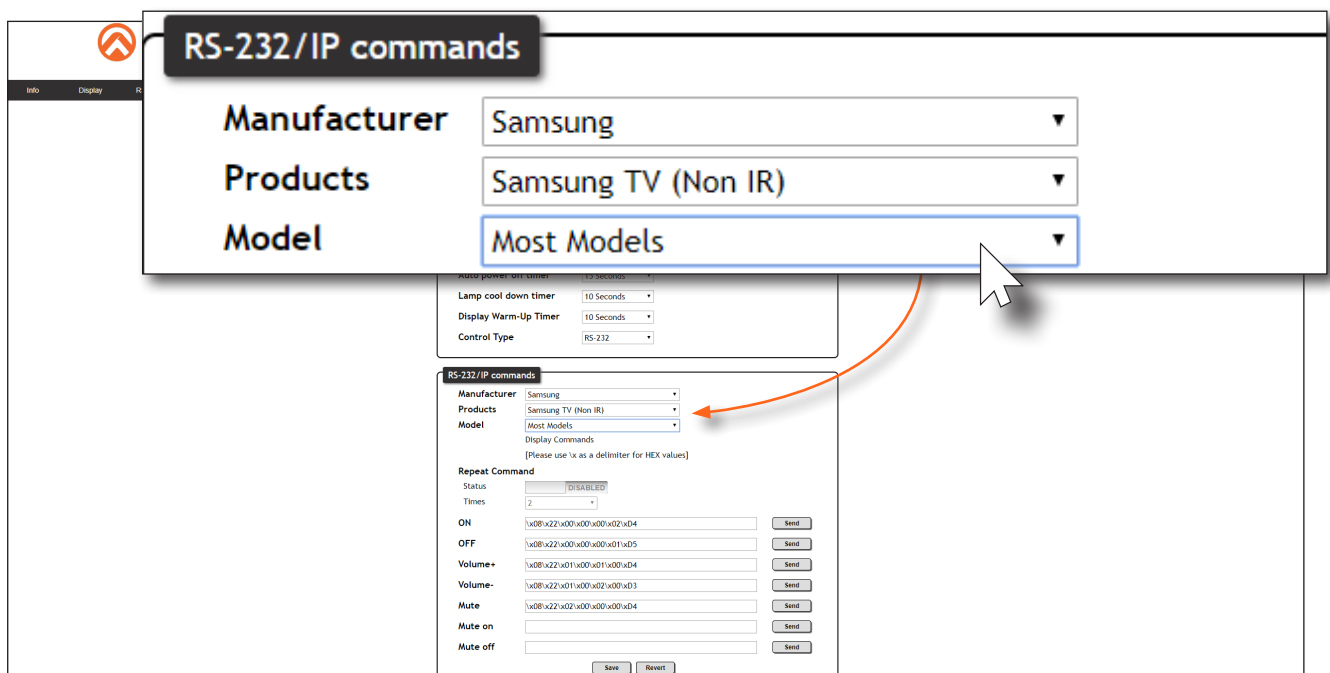
7. Scroll down to the bottom of the page and locate the **RS-232 / IP commands** section.

8. Click the **Manufacturer** drop-down list and select the manufacturer of the device that is being controlled. In the example below, **Samsung** is selected.
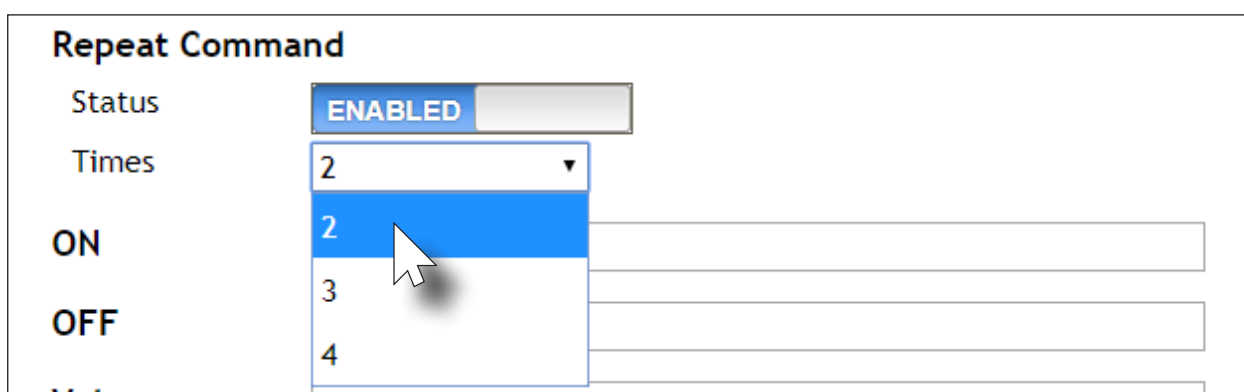
9. Continue fine-tuning the device selection by clicking the **Products** and **Model** drop-down lists. Once all fields have been set to the proper values, the AT-DISP-CTRL will populate the command fields with the proper values, based on the selected device.

NOTE: If the manufacturer is not listed in the drop-down list, then select **Generic**. When Generic is selected, the **Products** and **Model** drop-down lists will only list **Generic**.

10. Some devices may require that commands be sent multiple times before an acknowledge message is sent back to the AT-DISP-CTRL. Refer to the User Manual for the display device for more information. If the command must be repeated, continue with the following steps. Otherwise, skip to step 11.

a. Under **Repeat Command**, click the **Status** toggle switch to the **ENABLE** position.

b. Click the **Times** drop-down list and select the number of times which the command must be sent to the device and will be sent the specified number of times, whether or not an acknowledgement message is received. The available values are 2, 3, and 4.

11. If **Generic** was selected as the manufacturer, in step 8, then manually enter the required strings for each operation. Refer to the following for information on formatting command strings. Consult the documentation for the display for the correct command strings.

Example Power-On Command

a. Enter the command string is the ON field. An example command for a display might be:

```
POWR\x20ON\x0D
```

b. Make sure the command string is terminated correctly. In most cases, a CR (carriage return) should be specified. In the example above, "\x0D" is the hexadecimal value for a carriage return.
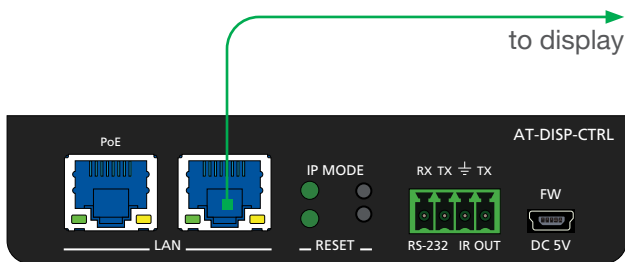
12. Click the **Send** button to verify that each command works properly. If not, check the values entered for each command.

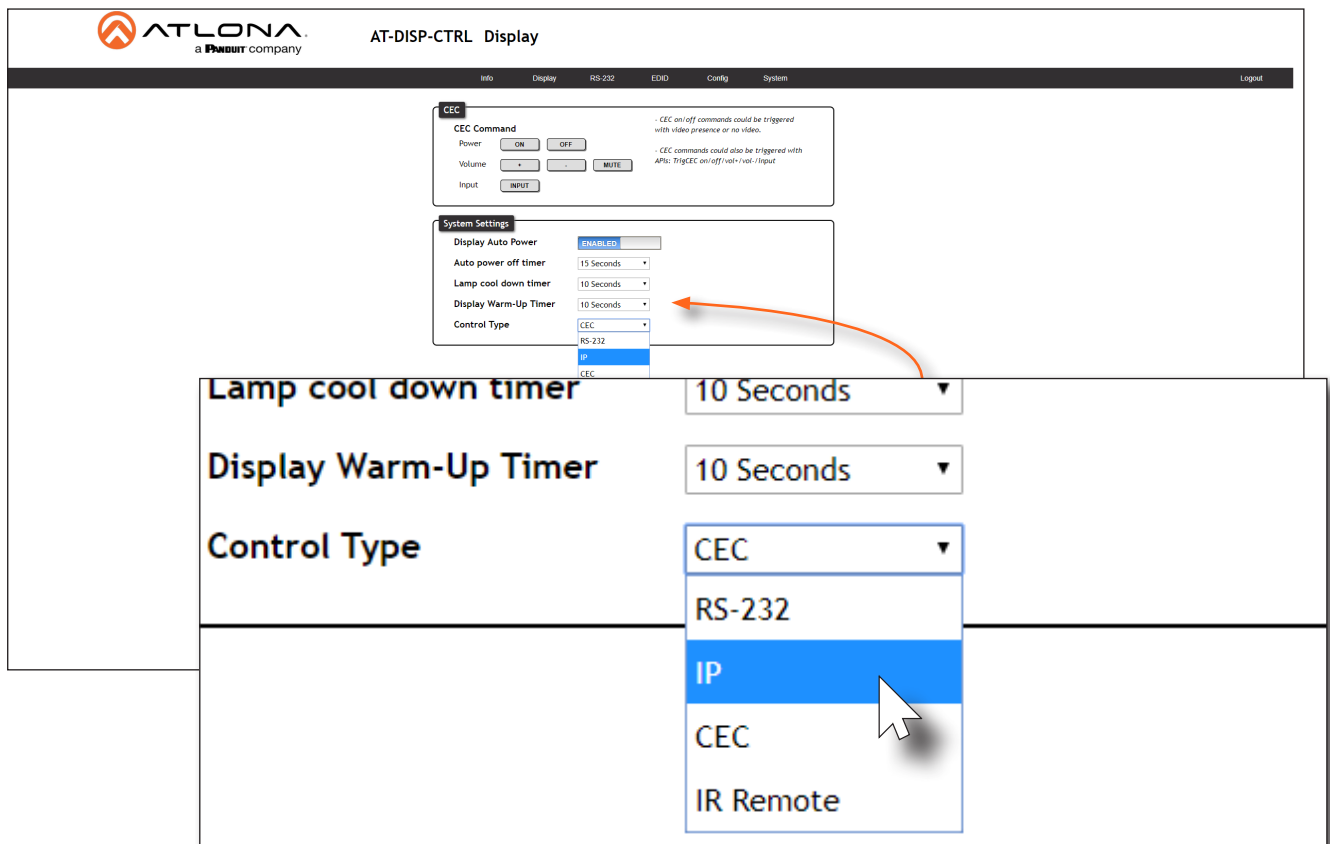13. Click the **Save** button to commit all changes.

IP Control

Instead of using a serial cable to send commands, this method uses an Ethernet cable to send commands from the AT-DISP-CTRL to the display device.

1.   Connect an Ethernet cable from the **LAN** port on the AT-DISP-CTRL, to the LAN port on the display.
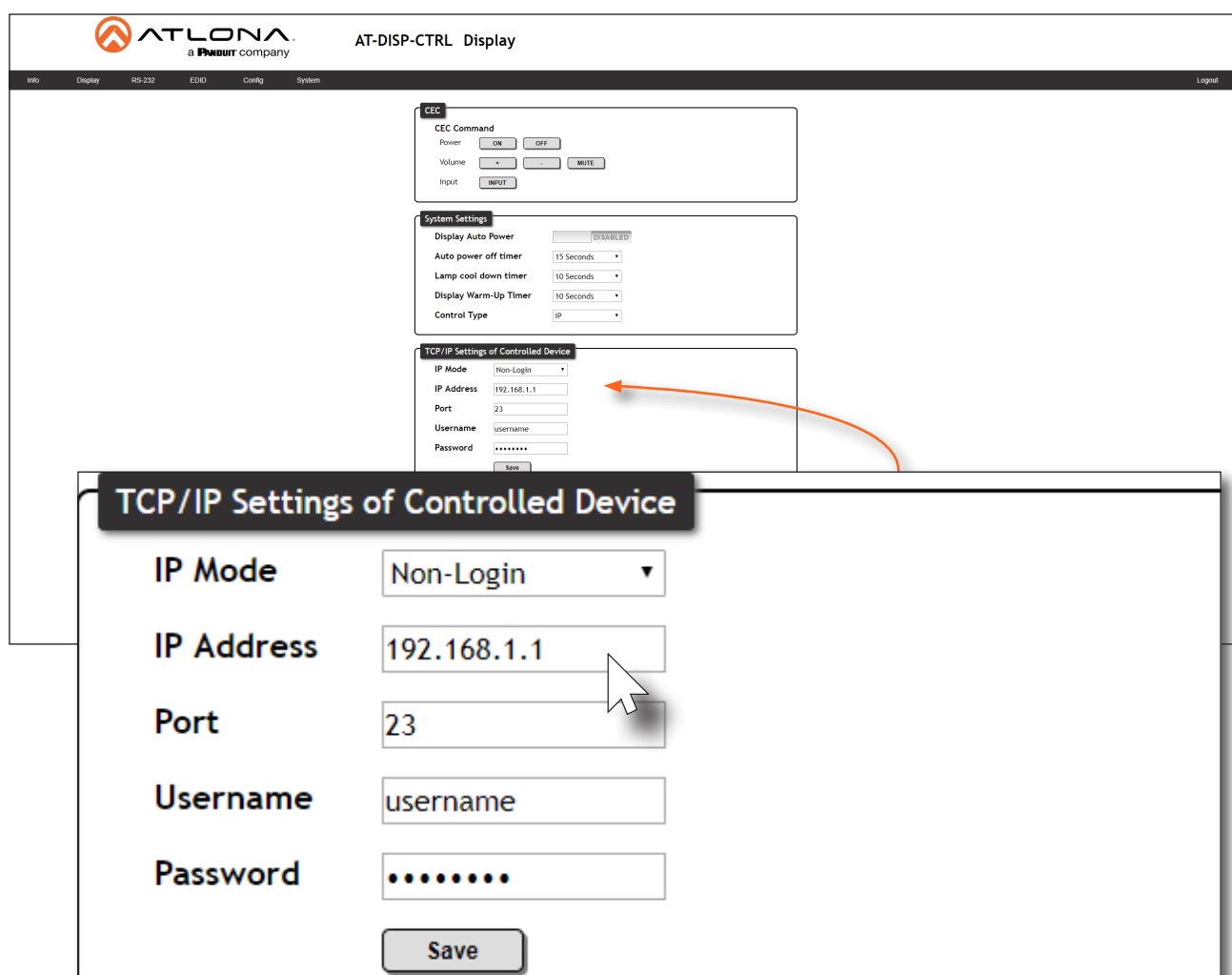
to display

PoE   AT-DISP-CTRL
                        IP MODE   RX TX ⇌ TX
                                                    FW

        LAN   _ RESET _   RS-232 IR OUT   DC 5V

2.   Login to the web server. Refer to Introduction to the Web Server (page 27).

3.   Click **Display** in the menu bar.

4.   Under **System Settings**, click the **Control Type** drop-down list and select **IP**.

AT-DISP-CTRL   Display

Info   Display   RS-232   EDID   Config   System   Logout

CEC

CEC Command   - CEC on/off commands could be triggered
  Power   ON   OFF   with video presence or no video.

  Volume   +   -   MUTE   - CEC commands could also be triggered with
                                        APIs: TrigCEC on/off/vol+/vol-/input
  Input   INPUT

System Settings
  Display Auto Power   ENABLED
  Auto power off timer   15 Seconds ▼
  Lamp cool down timer   10 Seconds ▼
  Display Warm-Up Timer   10 Seconds ▼
  Control Type   CEC   ▼
                              RS-232
                              IP
                              CEC

Lamp cool down timer   10 Seconds   ▼

Display Warm-Up Timer   10 Seconds   ▼

Control Type   CEC   ▼

                              RS-232

                              IP

                              CEC

                              IR Remote

5. Locate the **TCP/IP Settings of Controlled Device** section and enter the following information:

a. **IP Mode**
   If the display does not require a login, then set this drop-down value to **Non-Login**. If the display requires login credentials, select **Login** from the drop-down list. Note that if **Login** is selected, then the **Username** and **Password** fields will need to be populated with the required login credentials.

b. **IP Address**
   Enter the IP address of the display to be controlled.

c. **Port**
   Enter the port in this field.

d. **Username**
   This field is only required if **IP Mode** is set to **Login**. Enter the username in this field.

e. **Password**
   This field is only required if **IP Mode** is set to **Login**. Enter the required password in this field.

6. Click the **Save** button, under the **TCP/IP Settings of Controlled Devices** window group.

7. Follow the instructions, beginning at under , to complete the process.
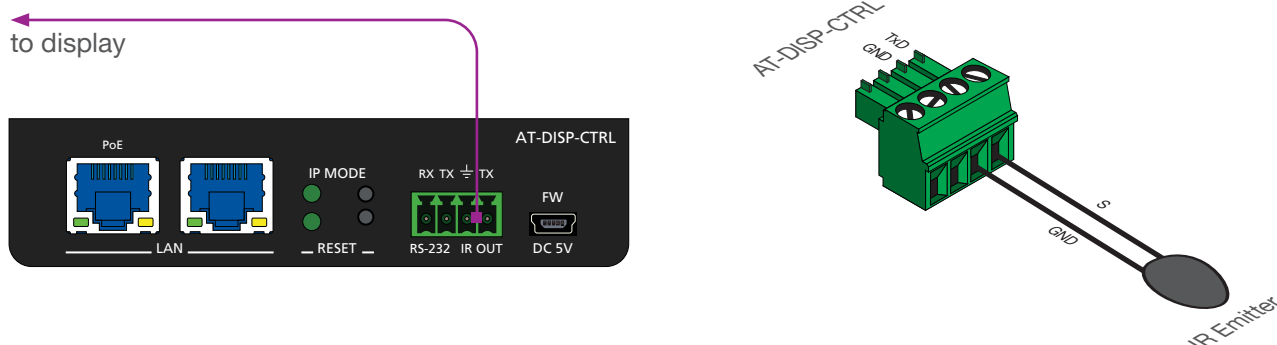
IR Control

1. Connect an IR emitter to the **IR OUT** port on the AT-DISP-CTRL, placing the IR emitter eye near the IR window on the display. The included 4-pin captive screw connector should be wired as shown, below.
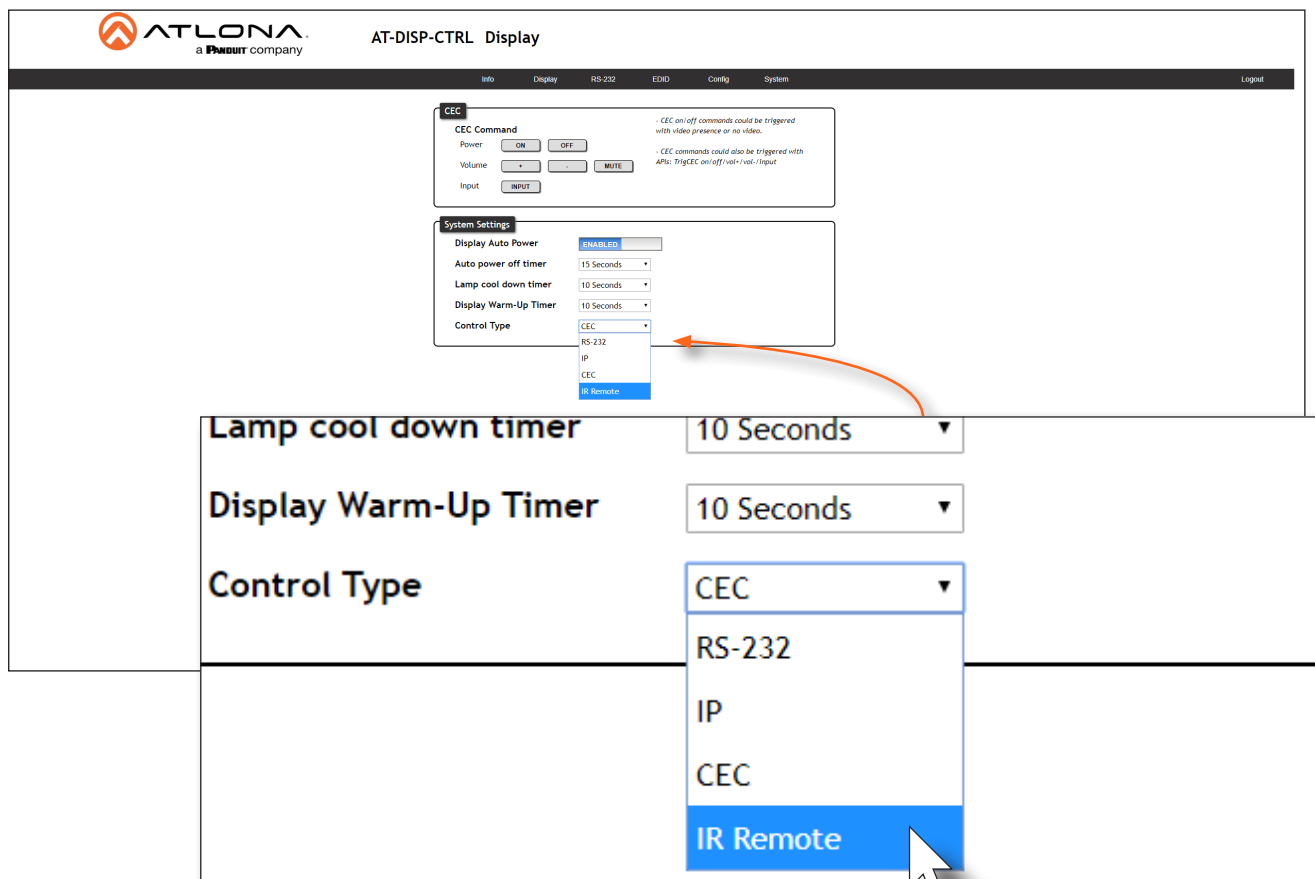
   ℹ️ **NOTE:** Some IR emitters include a light adhesive backing which can be affixed to the IR window of the display device. If the IR emitter does not come with an adhesive backing, then the IR emitter should be placed no more than 1" from the IR window.

to display

2. Login to the web server. Refer to Introduction to the Web Server (page 27).

3. Click **Display** in the menu bar.

4. Under **System Settings**, click the **Control Type** drop-down list and select **IR Remote**.

   ℹ️ **NOTE:** When selecting the IR Remote option, it may take a few seconds for the IR codes to be loaded from memory.

5. Under **IR Remote commands**, click the **Manufacturer** drop-down list and select the manufacturer of the device that is being controlled. In the example below, **Sony** is selected.

6. Continue fine-tuning the device selection by clicking the **Products** and **Model** drop-down lists. Once all fields have been set to the proper values, the AT-DISP-CTRL will populate the command fields with the proper values, based on the selected device.

7. Test IR functionality by clicking the **Send** buttons for each command.

8. Click the **Save** button to commit changes.

    If the display does not respond, check the following:

    •   Verify that IR emitter is wired correctly; check the terminals of the captive screw connector to make sure all connections are secure.

    •   Try selecting a different model and/or product within the same manufacturer.

Appendix

Updating the Firmware

Updating the firmware can be completed using either the USB interface or the web server. Atlona recommends using the web server for updating the firmware. However, if a network connection is not available, the AT-DISP-CTRL firmware can be updated using a USB-A to USB mini-B cable.

Using the Web Server

Requirements:

* AT-DISP-CTRL
* Firmware file
* Computer on the same network as the AT-DISP-CTRL

1. Download the firmware file from atlona.com and extract the contents of the .zip file to a folder on the computer desktop.

2. Connect an Ethernet cable from the computer, containing the firmware, to the same network where the AT-DISP-CTRL is connected.

3. Login to the web server. Refer to Introduction to the Web Server (page 27).

4. Click **System** in the menu bar and click the **Choose File** button, under the **Firmware Update** section.
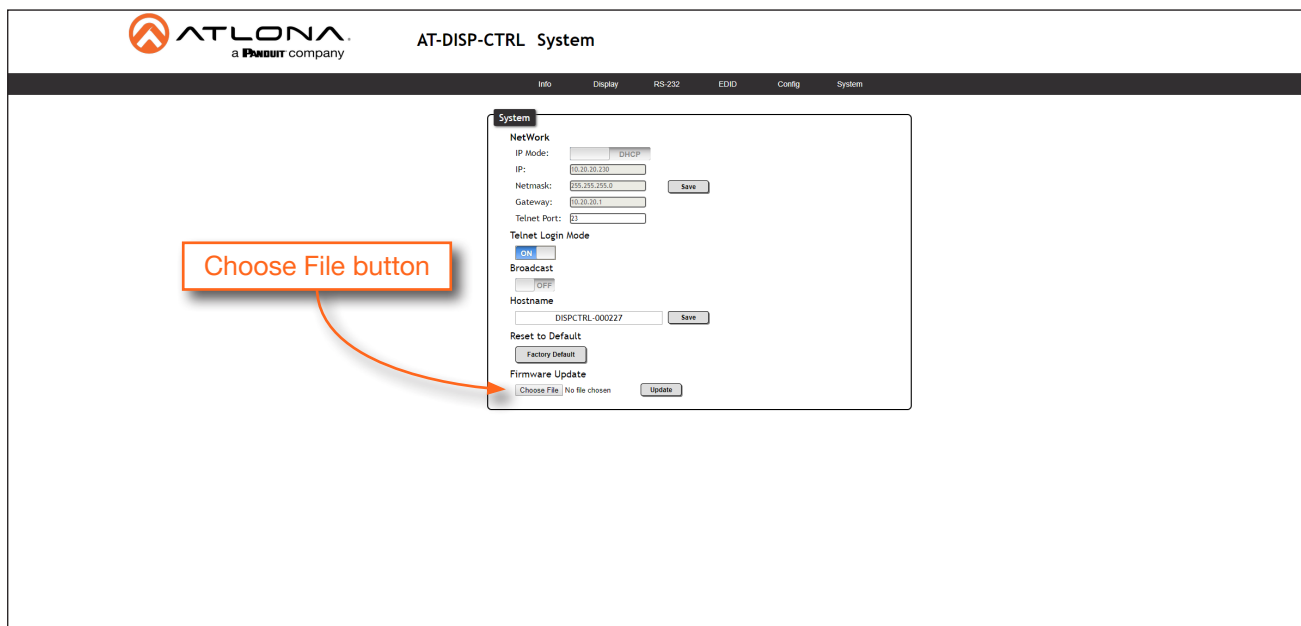
5. Browse to the location of the firmware file, select it, and click the **Open** button.

6. Click the **Update** button, under the **Firmware Update** section. The following message box will be displayed.
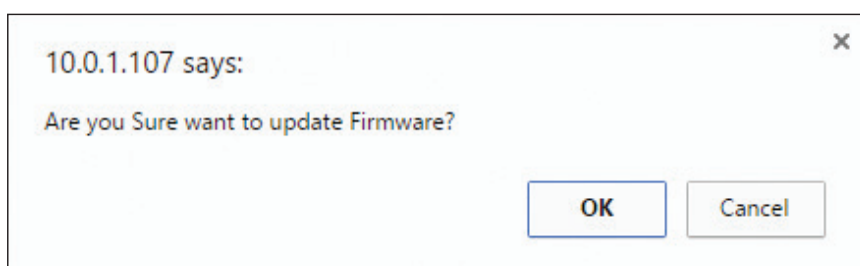
7. Click the **OK** button to begin the firmware update process. Click the **Cancel** button to cancel the process.

8. After the firmware update process is complete, the **Login** screen will be displayed.
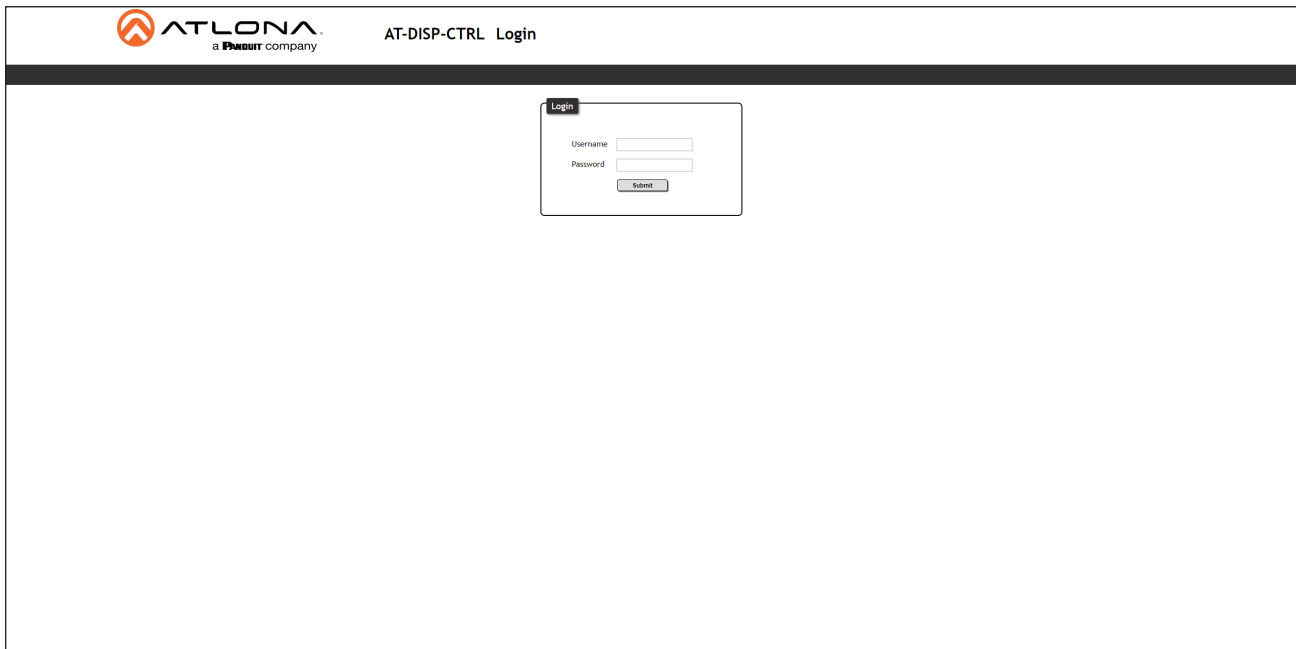
Using USB

Requirements:

*   AT-DISP-CTRL
*   Firmware file
*   Computer
*   USB-A to USB mini-B cable

1. Disconnect power from the AT-DISP-CTRL.

2. Connect a USB-A to USB mini-B cable between the PC and the firmware port on the AT-DISP-CTRL. The unit will be powered by the USB cable.
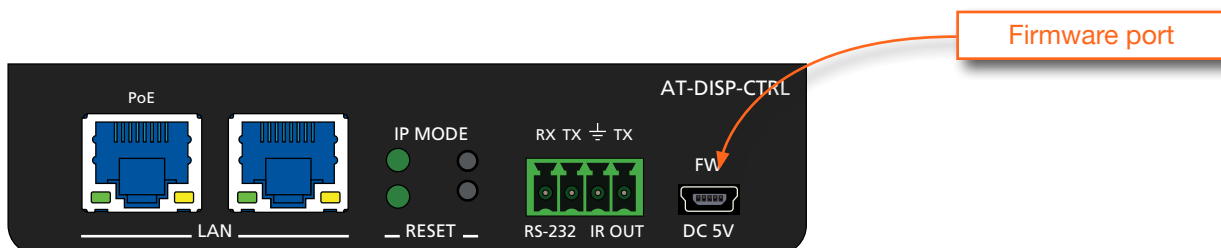
Firmware port

3. The USB UPDATE folder will be displayed.

    If this folder is not displayed, automatically, select the USB UPDATE drive from Windows Explorer.
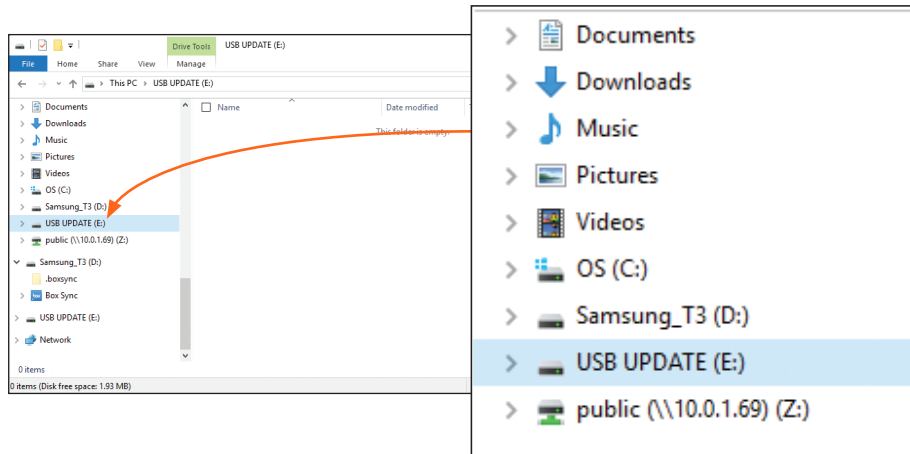
4. Delete all files from the USB UPDATE drive, if any are present.

5. Drag-and-drop the firmware file to the drive.

6. After the file has been copied, disconnect the USB cable from both the computer and the AT-DISP-CTRL.

7. The firmware update process is complete.

Mounting Instructions

The AT-DISP-CTRL includes two mounting brackets, which can be used to attach the unit to any flat surface. Use the two enclosure screws, on the sides of the unit to attach the mounting brackets.

1. Position one of the mounting brackets, as shown below, aligning the holes on the side of the enclosure with one set of holes on the mounting bracket.

2. Use the enclosure screws to secure the mounting bracket to the enclosure.

3. Repeat the above steps to attach the second mounting bracket to the opposite side of the unit.

Included screws

4. Mount the unit using the oval-shaped holes, on each mounting bracket. If using a drywall surface, a #6 drywall screw is recommended.

NOTE: Mounting brackets can also be inverted to mount the unit under a table or other flat surface.

Specifications

Video

Video		
HDMI Specification	HDMI 2.0[1], HDCP 1.4 / 2.2	
HDMI In/Out	UHD/HD/SD	4096x2160 (DCI) @ 24/25/30/60[1] Hz 3840x2160 (UHD) @ 24/25/30/60[1] Hz 1920x1080p @ 23.98/24/25/29.97/30/50/59.94/60 Hz 1920x1080i @ 50/59.94/60 Hz 1280x720p @ 50/59.94/60 Hz	720x576p @ 50 Hz 720x576i @ 50 Hz 720x480p @ 59.94/60 Hz 640x480p @ 60 Hz
	VESA	2560×1600 @ 60 Hz 2048×1536 @ 60 Hz 1920x1200 @ 60 Hz 1680×1050 @ 60 Hz 1600×1200 @ 60 Hz 1440×900 @ 60 Hz 1400×1050 @ 60 Hz 1280×1024 @ 60 Hz	1280×800 @ 60 Hz 1366×768 @ 60 Hz 1360×768 @ 60 Hz 1152×864 @ 60 Hz 1024×768 @ 60 Hz 800×600 @ 60 Hz 640×480 @ 60 Hz
Color Space	YUV, RGB	
Chroma Subsampling	4:4:4, 4:2:2, 4:2:0	
Color Depth	8-bit, 10-bit, 12-bit	
HDR	HDR10, Hybrid-Log Gamma (HLG), and Dolby® Vision™ @ 60Hz	

Audio	
Pass-Through Formats	PCM 2.0, Dolby® Digital, Dolby Digital Plus™, Dolby TrueHD, Dolby Atmos®, DTS® Digital Surround™, DTS-HD Master Audio™, and DTS:X®
Sample Rate	32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz
Bit Rate	24 Mbits/s max

Protocols	
Supported	HTTP, Telnet
Addressing	DHCP, static
Authentication	IEEE 802.1x: PEAP/MSCHAPv2 or EAP-TLS

Control	
CEC	Device control and configuration
RS-232	Device control and configuration; supports baud rates from 2400 to 230400
IP	Device control and configuration
IR	Device control and configuration

Connectors	
HDMI IN	1 - Type A, 19-pin female
HDMI OUT	1 - Type A, 19-pin female
LAN	2 - RJ45, 10/100/1000 Mbps, one port is PoE-capable
RS-232 / IR OUT	1 - 4-pin captive screw
FW / 5C DC	1 - Mini-USB, Type B, 4-pin, female

Controls and Indicators	
IP MODE	1 - momentary, tact-type
RESET	1 - momentary, tact-type
POWER	1 - LED, green
SOURCE	1 - LED, amber
IP MODE, RESET	2 - LED, green

Resolution / Distance	4K/UHD - Feet / Meters		1080p - Feet / Meters	
HDMI IN/OUT	15	5	30	10

Signal				
Maximum TMDS Clock	600 MHz			

Power				
Power over Ethernet (PoE)	IEEE 802.3af			
Total Power Consumption	5.3 W			
External Power Supply	5 V / 500 mA (USB)			

Environmental	
Operating Temperature	+32 to +122 °F 0 to +50 °C
Storage Temperature	-4 to +140 °F -20 to +60 °C
Operating Humidity (RH)	20% to 95%, non-condensing

Chassis	
Dimensions (H x W x D)	1.02 in x 4.29 in x 3.50 in 26 mm x 109 mm x 89 mm
Weight	0.65 lbs 0.30 kg
Safety	CE, FCC, RoHS