4K/UHD 6 Input Multi-Format Switcher with Mirrored HDMI and HDBaseT Outputs, PoE, and Auto-Switching

AT-UHD-CLSO-601

User Manual

Please check http://www.atlona.com/AT-UHD-CLSO-601 for the most recent **firmware update** or **manual**

atlona.com

Table of Contents

Introduction

Easy to integrate, the CLSO-601 was designed for conference and classrooms with inputs near the switcher. Displays can be up to 328 feet (100 meters) from the switcher with HDBaseT outputs. Local HDMI and multifunction analog inputs work with any source. Combined with great features such as: 4K up/down scaling, microphone ducking, and audio control, this is the core component of your AV presentation system.

Package Contents

- 1 x AT-UHD-CLSO-601
- 16 x Female Captive Screw Connector
     6 pin: audio (x3) - 5 pin: IR (x1) - 3 pin: RS-232 (x8) - 3 pin: MIC/Line (x1) - 2 pin: power (x1)
- 1 x 48V/3.125A DC power supply adaptor
- 1 x Pair of dual purpose wall/rack mounts
- 1 x IR Remote Control
- 1 x User manual

Features

- Four HDMI inputs (accepts DVI and DisplayPort with adaptors)
- Multifunctional VGA ports for RGBHV, component, S-Video, and composite signals
- Microphone (dynamic, phantom, and line) input with ducking
- HDBaseT output mirrored to HDMI output
- PoE output to power compatible receivers (**e.g.** AT-UHD-EX-100CE-RX)
- Auto switching - automated switching to last connected source without using a control system
- Balanced audio inputs for embedding audio
- EDID management options including internal and learned EDID
- Balanced (-10 dbu) analog audio output for de-embedding audio to amplifiers or audio systems
- Upscaling and downscaling to ensure compatibility with any display up to 4K @ 30Hz resolution
- Control via RS-232, IR, TCP/IP, WebGUI, front panel, and multi-language On-Screen Display
- Multi-channel audio pass through up to Dolby TrueHD or DTS-HD Master Audio
- Master and sub volume control
- Adjust treble and bass of audio output to ensure the best speaker performance
- IP to RS-232 conversion enables TCP/IP commands to be sent using RS-232 ports
- Independent audio switching enables analog audio inputs to be embedded on any video input
- Multiple RS-232 ports for source control
- HDCP Compliance and management

Wall/Rack mounts

A pair of mounts have been included for quick and easy installation to a rack or wall.
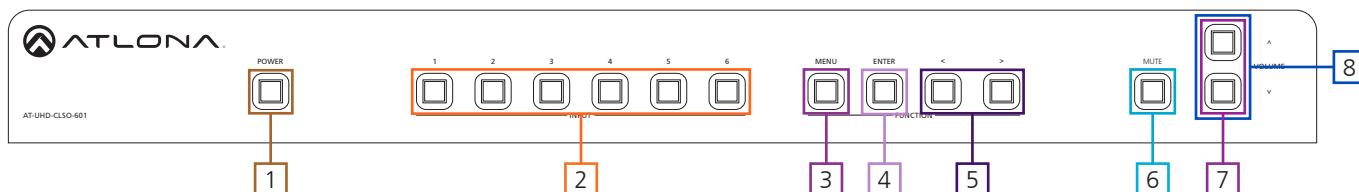
To install the CLSO-601 in a rack, use the screws already in the case (A-pictured below)
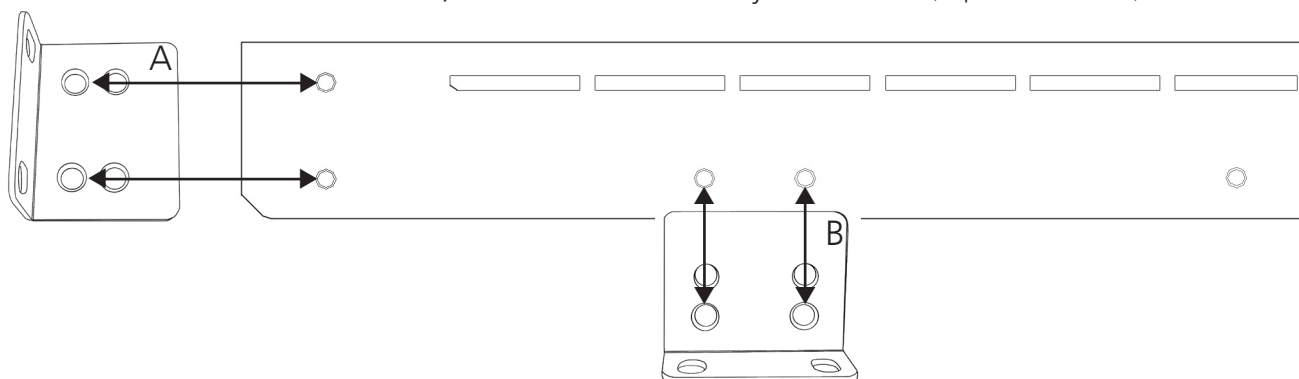
To install the CLSO-601 on a wall or under a desk/table, use the screws already in the case (B - pictured above)

Panel Description

Front Panel

1. Power - Use to turn the unit on or place into standby. LED will illuminate blue for on and red for standby
2. Input - Switch between inputs - current input is blue
   - 1 - HDMI input 1 - Used while updating MCU firmware
   - 2 - HDMI input 2 - Used while updating OSD firmware
   - 3 - HDMI input 3 - Used while updating FPGA firmware
   - 4 - HDMI input 4
   - 5 - Multifunction analog input 5
   - 6 - Multifunction analog input 6
3. Menu - Access the OSD menu - also used as a back button within the OSD
4. Enter - Select options within the OSD menu
5. < and > - Changes values of the currently select option (**e.g.** contrast to 50)
6. Mute - Silences all audio output from the CLSO-601
8. ^ and ˅ Use to navigate between selections within the OSD menu
7. Volume up/down - Adjusts output master volume

Back Panel
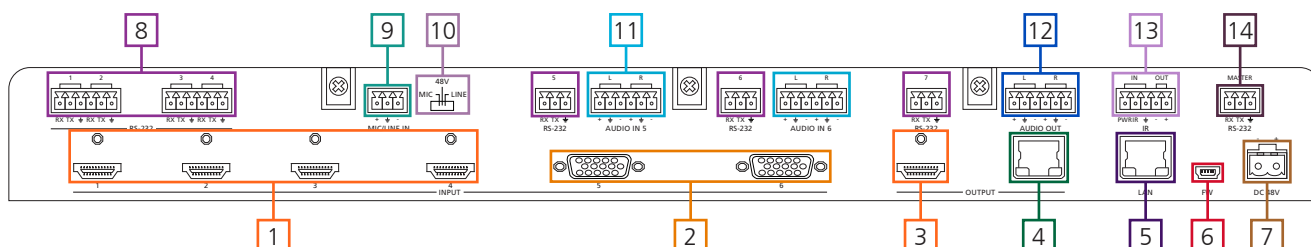
1. HDMI 1 through 4 - Connect HDMI sources here (DVI or DisplayPort compatible with adaptors)
2. VGA 5 and 6 - Connect analog video sources here
   Note: Compatible with component, composite, and S-Video signals
3. HDMI Output - Connect to local display or extenders (**e.g.** AT-UHD-EX-100CE-KIT)
4. HDBaseT Output - Connect to compatible HDBaseT displays or compatible receivers
   (**e.g.** AT-UHD-EX-100CE-RX, etc)
   Note: Compatible PoE receivers do not need power
5. LAN port - TCP/IP (Ethernet) port, connect to router, computer, or control device
6. Firmware port - Connect to a PC with a USB cable for firmware updating
7. DC 48V port - Connect included power supply here
8. RS-232 ports - Control for sources - can send RS-232 or TCP/IP commands out to sources
9. MIC/LINE IN - Connect a microphone to this port
10. MIC Switch - Match microphone input to type of microphone in use
11. Audio In - Connect audio sources here to be embedded to any video input
12. Audio Out - Audio output to audio amplifiers (**e.g.** AT-PA100-G2) or audio systems
13. IR IN/OUT - Switcher IR control ports
14. Master RS-232 - Connect control system or PC here to control the switcher

Category Cable

For the category cables used in the installation of these products, please be sure to use a 568B termination as pictured below:

1. White - Orange
2. Orange
3. White - Green
4. Blue
5. White - Blue
6. Green
7. White - Brown
8. Brown
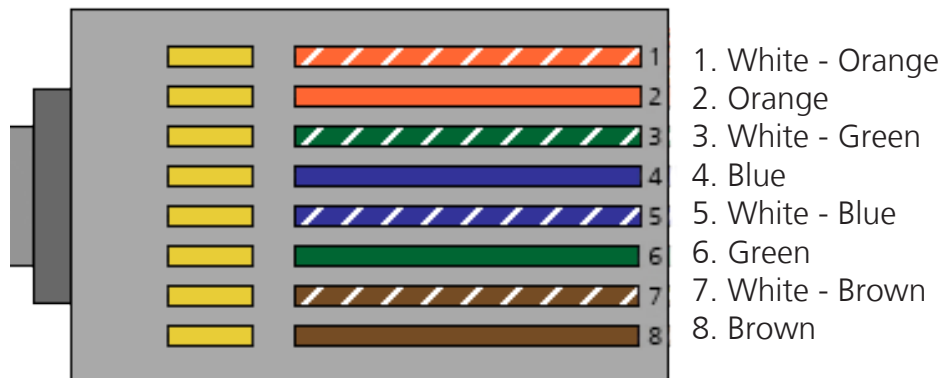
Use the table below to verify the best category cable for the installation.

Performance Rating		Type of LAN cable	
Wiring	Shielding	CAT5e/6	CAT6a/7
Solid	Shielded (STP/FTP)	***	****
	UnShielded (UTP)	**	N/A
Stranded - Patch cable (Not recommended)	Unshielded (UTP)	*	N/A
	Shielded (STP/FTP)	*	N/A
Termination		Please use EIA/TIA-568-B termination	

Important! 4K (UHD) signals are sensitive to cable quality and installation technique. It is recommended to use CAT6a/7 solid core cables for best results.

Note: For cable distances see the specifications on page 28

Connector

Connector type and size is very important to ensure extenders work correctly. Please use the matching cable type with the correct RJ45 connector.

CAT5e and CAT 6 cables should use only CAT5e RJ45 connectors
CAT6a cables should use only CAT6a connectors
CAT7 cables should use only CAT7 connectors

Using the wrong size of connectors may result in interference causing loss of signal.

Important! "EZ RJ45 connectors" are not recommended with HDBaseT extenders. Doing so may result in stray EMI/RFI signals to be picked up and interfere with audio and video transmission.

Analog Multi-Function Inputs

The CLSO-601 multi-function analog inputs (Input 5 and 6) can be used with most analog video signal formats including VGA (with DDC), RGBHV (without DDC), component (YUV), S-Video, or composite video. Balanced analog audio can be input and embedded using the provided captive screw connectors.

Each format can be directly accessed from RS-232, IR, or IP control. Front panel buttons sequentially progress through each input format. The last format used is the first source selected when returning to these inputs. Unused formats can be removed from the sequence using WebGUI, RS-232, or IP.

VGA (m) to BNC, VGA (m) to RCA, and S-Video to 2 BNC adaptors can be used to connect sources to these inputs.

VGA
Use a VGA to VGA cable to ensure that the Preferred Resolution DDC is communicated to your source.

RGBHV
Use a HD-15 (VGA) to 5 BNC breakout cable for this format. An existing RGBHV analog matrix switch can be connected here to maintain full function of the analog matrix.

Component
YUV (YPBPR) signal from DVD (or other sources) can be input to the CLSO-601 using the green (Y), blue (PB), and red (PR) connections on a HD-15 (VGA) to 5 BNC breakout cable or with a common VGA (m)-Component (3 RCA m) adaptor.

S-Video
YC signal from a VCR or teleconference system can be input to the CLSO-601 using the blue (Y), and green (C) connections on a HD-15 (VGA) to 5 BNC (m) breakout cable and a common S-Video (m) to 2 BNC (f) adaptor

Composite
NTSC, PAL, or Secam video signals can be input to the CLSO-601 using the blue connection on a HD-15 (VGA) to 5 BNC (m) breakout cable.

A common application for this type of input would be to connect a RGBHV matrix switcher to the CLSO-601. Then each input to the matrix could be connected to a different format analog signal. A 3rd party control system could ensure the correct format is selected to match the input to the switcher.

Captive Screw

The captive screw connectors allow you to cut cables to a suitable length, reducing cable clutter while providing a more reliable connection.

Connecting

When connecting the cables to the female captive screw connector it is important that the wires be terminated correctly. The female captive screw connector has a contact plate at the top and must have the wires touching it for signal to pass. When wired correctly (see picture A) the signal will pass, incorrectly (see picture B) no signal will pass.
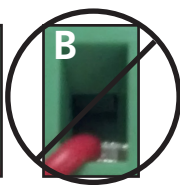
The captive screw connectors have a contact bar that is adjusted to compress the wire against the top contact plate. Use the screws at the top of the connector to compress the wire against the contact plate.
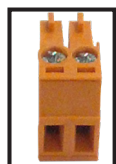
Clockwise

Turn the screws clockwise to raise the contact bar to the upper contact plate and hold the wires in place.

Counter Clockwise

Turn the screws counter clockwise to lower the contact bar to release the wires.

Power

1

Black: - White: +

The power cable (picture 1) will have exposed wires. Each wire is encased in a different colored cover.

Analog Audio

A captive screw analog audio connector is provided to ensure a more reliable and secure connection. The captive screw connector supports balanced and unbalanced audio output.

Balanced audio connections use two signal wires and a ground to minimize interference to an audio signal over longer cable runs. Unbalanced audio connections use two wires for connection with consumer audio components.

Audio can be routed to any input for use with DVI or other sources. View page 26 for commands.
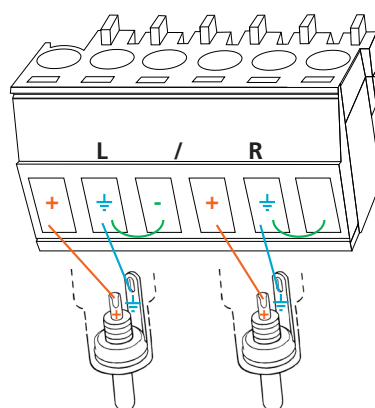
XLR

1 (⏚)
3 (-)
2 (+)

Tip (+)

Sleeve (⏚ Ground)

RCA

-
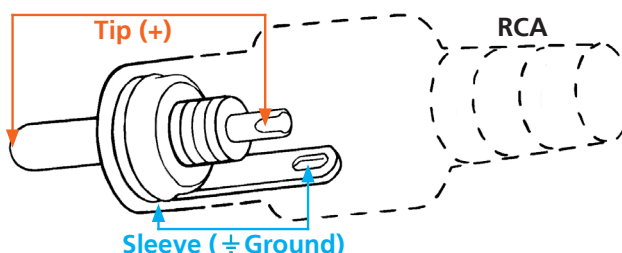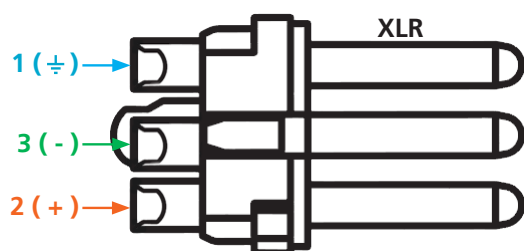
Note: Pin outs may vary, please refer to the audio device's manual to ensure a correct connection.
Important! When terminating cables, please ensure exposed adjacent wires do not touch. This may result in a short that can damage connected devices.
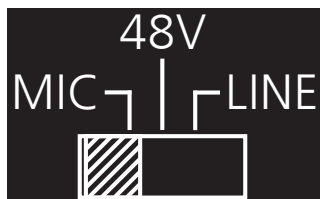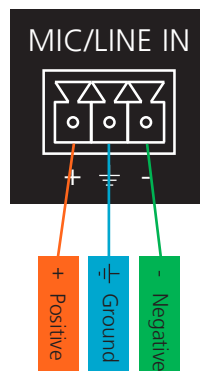
BALANCED

L / R

UNBALANCED

L / R
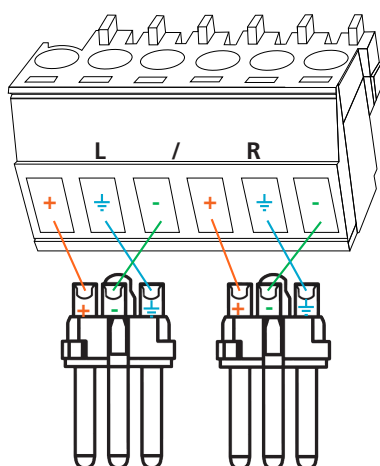
Important! With unbalanced connections a jumper is needed between ground and negative to reduce noise
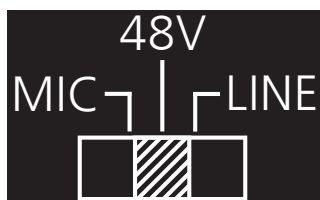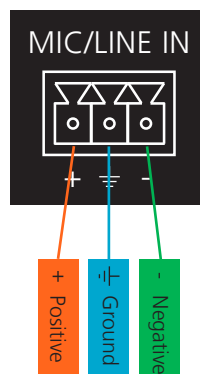
Microphone Connection

MIC (Dynamic MIC)

Connect dynamic or self-powered microphones in this mode.
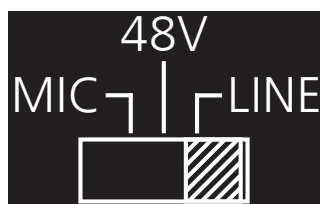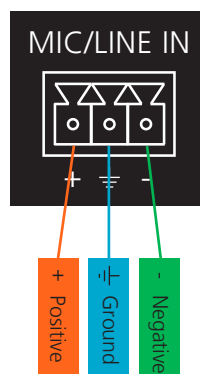

Use this setting for phantom powered microphones. Supplies 48 volts.
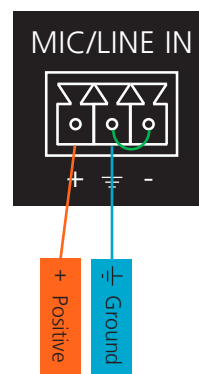

Connect wireless microphone receivers (or other sources) with line level outputs using this setting. Either balanced or unbalanced connections may be used.

On Screen Display (OSD)

Input	Input 1	HDMI 1		
	Input 2	HDMI 2		
	Input 3	HDMI 3		
	Input 4	HDMI 4		
	Input 5	VGA 1		
		Component 1		
		Composite 1		
		S-Video 1		
	Input 6	VGA 2		
		Component 2		
		Composite 2		
		S-Video 2		
Audio	Volume	Master	-80 to +10db	
		Sub	HDMI 1	-80 to +10db
			HDMI 2	-80 to +10db
			HDMI 3	-80 to +10db
			HDMI 4	-80 to +10db
			Analog 1	-80 to +10db
			Analog 2	-80 to +10db
			Microphone	-80 to +10db
			Line In	-80 to 0db
	Bass	-10 to 12 dB		
	Treble	-10 to 12 dB		
Video	Contrast	0 to 100		
	Brightness	0 to 100		
	Sharpness	0 to 30		
	Color	0 to 100		
	Tint	0 to 100		
	H Position	0 to 40		
	Phase	0 to 63		
	NR	BNR	Disabled	
			Low	
			Medium	
			High	
		MNR	Disabled	
			Low	
			Medium	
			High	
		RNR	Disabled	
			Low	
			Medium	
			High	
	Scale	Full		
		Overscan		
		Underscan		
		Letterbox		
		Panscan		
		Follow Input		

Setup	Language	English	
		Spanish	
		French	
		German	
	OSD Settings	Transparency	
		Position	Horizontal
			Vertical
		Menu Timer	10 sec
			30 sec
			60 sec
		Info Banner	On
			Off
	Output Format	HD	Pass Through 480i@60 (NTSC) 480p@60 720p@60 1080i@60 1080p@60 576i@50 (PAL) 576p@50 720p@50 1080i@50 1080p@50 1080p@24
		Native	
		UHD	3840x2160p@24 3840x2160p@25 3840x2160p@30 4096x2160p@24 4096x2160p@30
		PC-1	640x480@60 640x480@72 640x480@75 800x600@60 800x600@72 800x600@75 1024x768@60 1024x768@72 1024x768@75
		PC-2	1280x768@60 1280x800@60 1280x960@60 1280x1024@60 1360x768@60 1366x768@60 1400x1050@60 1440x900@60 1600x900@60 1600x1200@60 1920x1200@60
	Network	Network Status	MAC Address xx-xx-xx-xx-xx-xx IP Address xxx.xxx.x.xxx Subnet xxx.xxx.xxx.x Gateway xxx.xxx.x.x
		DHCP	ON
			OFF

Note: After selecting a new language, close the menu and reopen it for the change to take effect.

Status	System Info	Software Revision OSD Revision FPGA Revision On-Time (h-m)	x.x.xx (e.g. 1.0.01) x.x.x (e.g. 1.0.0) x.x.x (e.g. 1.0.0) x:xx (e.g. 1:15)
	Video Info	Input Signal Type Video Format Aspect Color Space Color Depth	xxxx (e.g. HDMI 1) xxxx (e.g. HDMI) xxxx (e.g. 1080i@60) xxxx (e.g. 16x9) xxxx (e.g. YUV) xxxx (e.g. 24)
	Audio Info	Input Audio Format Sampling Rate Channels	xxxx (e.g. HDMI 1) xxxx (e.g. PCM) xxxx (e.g. 48 KHz) xxxx (e.g. 2-Ch)

TCP/IP

For convenience, the CLSO-601 comes with DHCP on. This enables the switcher to be connected to a network without concern for overlapping IP addresses with other devices on the network. If your network does not support DHCP, this feature may be turned off and the IP address set using RS-232 commands or the WebGUI.

Note: If your system is controlled using IP, it is strongly recommended that you disable DHCP and select a unused IP address so that your system controller doesn't lose contact with the switcher.

TCP/IP WebGUI

Atlona has created an easy to use WebGUI for initial setup and later changes to the configuration of the CLSO-601.

To begin, connect the LAN port of the CLSO-601 to your network. Type the IP address of the CLSO-601 into the web browser of a PC connected to the same network (as seen below).

To find the switcher IP: Select "Network Status" within the OSD menu or use RS-232 command "IPCFG".
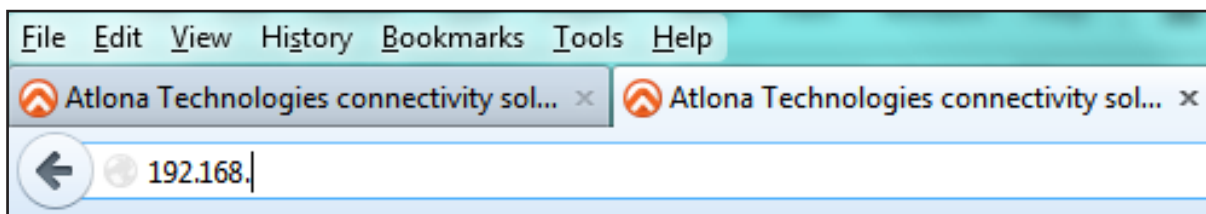
Important: If any stability issues are experienced, disable any anti-virus or firewall that may interfere with network communication to the switcher. Once set up is done and the switcher GUI is no longer being used, the firewall and anti-virus can be re-enabled.

A login screen will appear (this is the same log in for admin and general users). For the first log in (and future admin changes) the username is "root" and password is "Atlona".

Note: Only the admin password can be changed (see page 17). The username will always remain "root".

The home screen tab will display the general system information. If an HDMI port is the current input, audio will display (see image above). If an analog port is selected then no audio information will be displayed. (see below)

AT-UHD-CLSO-601 Setup

| Home | Network Setup | Settings | Config | EDID | Audio | Control | Update |

DHCP   **ON**   OFF

IP Address   192.168.000.058

Subnet   255.255.255.000

Gateway   192.168.000.001

Telnet Port   23

Login Mode   ON   **OFF**

MAC Address   B8-98-B0-00-00-58

The network set up page will allow the IP information to be changed. When a change is made the screen will grey and the ability to save or cancel will display at the bottom (see below).

Note: When DHCP is on, the IP address cannot be configured. Turn DHCP off to enable IP configuration.
Note: For a stable connection when using a control system, it is best to set up a static IP. When selecting an IP address, make certain no other devices on your network are using that IP address.

Note: Be sure to save all changes before moving to the next page.

DHCP   **ON**   OFF

IP Address   192.168.000.117

Subnet   255.255.255.000

Gateway   192.168.000.001

Telnet Port   23

Login Mode   **ON**   OFF

MAC Address   B8-98-B0-00-00-01

Save Setting   Cancel

Login Mode has been added to provide a secure telnet login. Once Login Mode has been turned on a username and password will be required on all IP connections to the switcher.

Note: Login mode should be in off position when the CLSO is used with control systems that do not support passwords. If your control system supports password protection, set the login mode to on. The GUI always requires a password.
Note: The username and password used in IP Login Mode will be the same login information as the WebGUI.

The settings page is used to set front panel and video options. Select the source from the first menu. If VGA is selected, more video options will display. (see top of page 16)

System Settings

Power - Turn the switcher on and off
Panel Lock - Locks/unlocks the front panel buttons
Auto Switch - Turns auto switching between HDMI inputs on/off
VGA auto switch - Turns VGA auto switching on/off
Note: VGA auto switching is only available on VGA and will not work with component, composite, and S-Video
        Component, composite, and S-Video poll settings will grey out when VGA auto switching is on

Output Resolution

Switch between multiple video output resolutions:
Pass through - Input video will pass to the display without being scaled
Native - Upscales/downscales the output signal to match the HDBaseT display's preferred resolution
HD - Will upscale/downscale the output signal to match the selected HD resolution
PC - Will upscale/downscale the output signal to match the selected PC resolution
Note: When the output is set to UHD resolutions, UHD sources are passed through without scaling. Frame rates are not
        changed. (**e.g.** if 3840x2160@30Hz input is received, output will remain 30Hz even if output is set to 24Hz)

Video Settings

Set the output video settings:

Scale - Sets video output aspect ratio - Full, overscan, letter box, pan and scan, or follow input
      Full - Sources always fill the screen, regardless of source aspect ratio
      Overscan - Image is slightly zoomed in so that broadcast data at edges is masked
      LetterBox - Used to create 16:9 aspect ratio on 4:3 aspect ratio TVs
      Pan and Scan - Used to create 4:3 aspect ratio on 16:9 aspect ratio TVs
      Follow Input - Aspect ratio on TV matches source aspect ratio

BNR - Block noise reduction - Disabled, low, medium, or high

MNR - Mosquoto noise reduction - Disabled, low, medium, or high

RNR - Random noise reduction - Disabled, low, medium, or high

Contrast* - Sets output white levels - 0 up to 100

Brightness* - Sets output black levels - 0 up to 100

Sharpness* - Sets output sharpness - 0 up to 30

Color* - Sets output color saturation - 0 up to 100

Tint* - Sets output hues - 0 up to 100
      *Only available when outputs 5 and 6 (VGA 1 & VGA 2) are selected

Poll Settings

Turn analog input options on and off. If a selection is unchecked it will not display as an input option when switching to input 5 or 6.

e.g. In the above picture, only VGA and S-Video would show as a source option
Note: Component, composite, and S-Video poll settings will grey out when VGA auto switching is on

OSD Display Settings

OSD func - Turns the CLSO's display OSD menu on/off
OSD info - Turns the source information on the display on/off when switching

Factory Default

Select to reset CLSO back to factory settings.

Note: This will reset the switcher to factory default, including: resolutions, audio settings, HDCP settings, etc.

The config page will allow the admin password to be changed, users to be added, and the RS-232 ports to be configured (CLSO-601 system port and the RS-232 I/O ports can be adjusted individually).

Note: User information will display for the admin only.
Note: Only the admin password can be changed. The admin username will always remain "root". If the admin password is lost the system must be returned to factory settings and setup repeated.

The EDID page enables the input preferred timing to be selected and HDCP compliance reporting to be set. This function is controllable through RS-232 as well.

Note: CLSO-601 protects HDCP encoded content and will not pass HDCP content to a non-HDCP compliant device.

Note: Some devices flag all content as protected when connected to an HDCP compliant display. This prevents what should be non-protected content from reaching devices (**i.e.** teleconference system) through the CLSO-601.

Note: When HDCP reporting is non-compliant, only user created content is transmitted. Protected content from all sources (**e.g.** BluRay, AppleTV, etc) is blocked.

Audio settings adjust output volume for all sources including the microphone.

        Master - Affects all sources at the same time

        Inputs - Used to balance levels from each source.

Note: For best results, gains should be balanced between master and source levels.

Microphone ducking uses the audio level from the microphone to decrease the program level so the speaker may be heard.

Note: Proper set up is critical for satisfactory operation. If program levels are too high they can trigger the ducking process.
Note: Setting the microphone volume too high may result in feedback.

It is recommended that a handheld or headset microphone be used with ducking to reduce feedback and maximize the difference between voice and program levels.

Best results are received with the following sequence:
1. Set master volume to 0. (This is 10 db below maximum)
2. Raise appropriate microphone (or line in) volume until just below feedback or adequate volume is reached (whichever setting is lower). - Master level and amplifier gains may be increased to get appropriate levels
   Note: If feedback occurs and volume is not adequate, move the speakers and/or microphone to eliminate feedback.
3. Raise source "sub" volumes to appropiate levels without talking
4. Set attack time to minimize popping, but still fast enough that initial talking sounds are heard.
5. Set release time so that program levels do not increase between sentences.
   Note: Shorten time so that the microphone doesn't interfere with the program.
6. Set the trigger level so that words spoken at a normal level trigger the ducking process
   Note: Set the trigger level too sensitive and the program will trigger the ducking. Set too low and the speaker will have to talk very loudly to trigger ducking. The further right the slider is, the more sensitive the setting.
7. Set program decrease to ensure when ducking is triggered the program level is low enough the speaker can be heard.
             Fine tuning these settings will help achieve the best results.

The Control Page includes settings which enable display controls by the switcher. It provides a way to program button functions, turn auto switching on/off, and determine the type of control commands (TCP/IP or RS-232) sent out.

Button Control Selection

Power - Set which device the power button controls
    None: Power button will turn the UHD-CLSO-601 on and off
    RS-232: Power button will send power on/off command over HDBaseT using RS-232 to
            compatible receivers and displays
    IP: Power button will send power on/off command over Ethernet using either the LAN
        connection or the HDBaseT connection
Volume/Mute
    Audio Out: Volume and mute buttons will control volume output of the switcher
    RS-232: Volume/Mute buttons will send the commands over HDBaseT using RS-232 to
            compatible receivers and displays
    IP: Volume/Mute buttons will send the commands over Ethernet using either the LAN
        connection or the HDBaseT connection

CEC Control

Power
    On - Sends a command over HDBaseT to the HDMI output of the connected receiver to turn
        the connected display on
    Off - Sends a command over HDBaseT to the HDMI output of the connected receiver to turn
        the connected display off
    Note: CEC may not work with every display type. See the note below.

    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.

System Settings

System Settings		
Display Auto Power On	**Enabled**	**Disabled**
Display Auto Power Off	**Enabled**	**Disabled**
Power Button Lock	Enabled	**Disabled**
Lamp Cool Down Timer (0~300)	0 Sec	Save
Auto Power Off Timer (1~240)	10 Sec	Save
Display Warm Up Timer (0~300)	0 Sec	Save
Control Type	IP ▾	
Feedback Verify	OFF ▾	

System Settings

Display Auto Power On - When enabled, the unit will send a programmed command to the display to turn on after detecting an A/V signal

Display Auto Power Off - When enabled, the unit will send a command to the display to turn off after not detecting an A/V signal

Lamp Cool Down Timer (10-300) - Used with a projector whose lamp cannot be turned on for up to 5 minutes after being shut off. Match settings with lamp delay on projector

Auto Power Off Timer (10-240) - Sets the period of time between the loss of A/V signal and when the "Display Off" command is sent

> **Note:** LED will blink red for the auto power off time period then go solid
> **Note:** All functionality remains, only the HDBaseT output is turned off

Display Warm Up Timer (10-300) - Sets the period of time after the display is turned on, that the power button will be locked

> **Note:** LED will blink green for the warm up timer period and then stay solid
> **Note:** When timers are set to 0 seconds, they will disable the timers' functions

Control Type - Select whether the display on/off commands are sent using RS-232, TCP/IP, or CEC

Feedback Verify

On: If receiving no feedback, the product will send the command up to 4 times
Off: The command will only be sent once, whether feedback is received or not

TCP/IP Settings of Controlled Device

This option sets the IP for display control. The static IP set here should match the display's static IP. To set or view the display's IP address, check the display's user manual.

> **Note:** The switcher and the display must be on the same network for these commands to work
> **Note:** Be sure the static IP address set for the display does not match any other device on the network

IP Mode
    Non-login: Does not require a username and password when using TCP/IP to control the display
    Login: Requires a username and password to control the display through TCP/IP
IP Address & Port - Set to match the display's static IP
Username & Password - Required when in login mode
Save - Saves the IP settings for accessing the controlled device

RS-232/IP Commands

ASCII/Hex - Set which type of commands are sent to the display
On/Off/Volume+/Volume-/Mute - Enter the specific commands and feedback that will be sent/received when using any of the control options
> **Note:** Individual commands will be found in the display's manual

End of line symbols - None, CR, LF, CR-LF, Space, STX, ETX, Null - Select the appropriate symbol from the drop down list. Carriage return, line feed, and carriage return with line feed are the most commonly used symbols.
> **Note:** Be sure to check the display's manual for the correct symbol

The firmware page provides an area to update the switcher, Valens, audio, FPGA, and OSD firmwares.

• Select the browse button for the type of firmware to be updated
     - Firmware Update - MCU/Main firmware
     - Valens Update - Valens firmware
     - Audio Update - DSP firmware
     - FPGA Update - FPGA firmware
     - OSD Update - OSD firmware
• Select the new firmware file that was downloaded either from atlona.com or box.com
• Press the update button

A progress bar will display as the update is completed. After the update is complete, if a restart is required, the webGUI will display a prompt. The firmware update is now complete and the switcher is ready to be used.

FIrmware Update using USB

Putting the unit into update mode:

1. Unplug the power from the CLSO-601

2. Connect CLSO-601 to a computer using the mini USB to USB A cable

3. Press and hold the input key of the specific type of firmware update
    Input 1 - USB/main firmware
    Input 2 - OSD firmware
    Input 3 - DSP/Audio firmware
    Input 4 - FPGA firmware
    Input 5 - Valens firmware

4. Plug the power back into the CLSO-601 (while still holding the input key)

5. Continue holding the input key for 5 seconds then release it
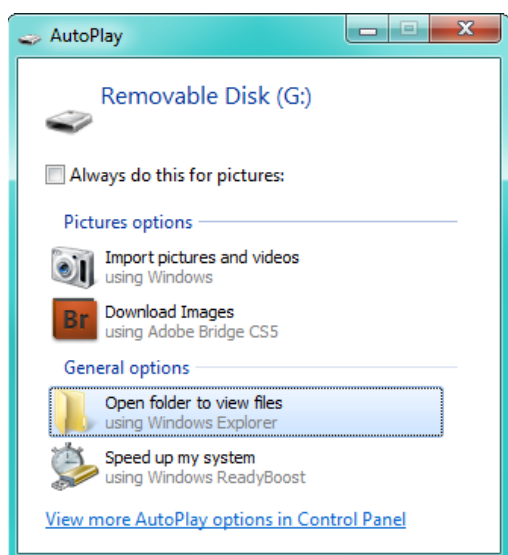
If the computer does not auto detect the connection, open "My Computer" and select the USB drive.
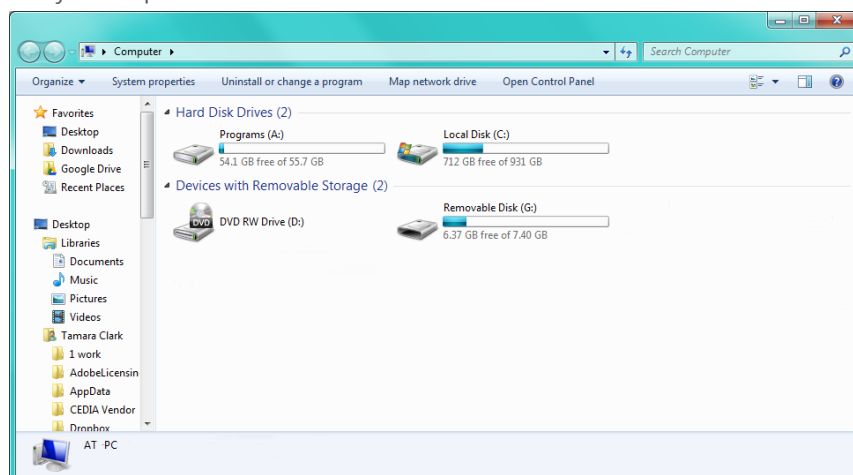
6. Click the option, "open folder to view files" (if AutoPlay runs)

7. Place the latest firmware in the folder (if there is already a file in the folder, delete it)

8. Remove the USB cable from the CLSO-601 and computer

9. Unplug the power cable from the CLSO-601

10. Plug the power cable back in

11. Repeat the process until all firmwares are updated

The update process is complete and the switcher is ready to be used Unplug the power from the CLSO-601

Remote

Power
On - turns CLSO-601 on
Off - sets CLSO-601 into standby

Source Selection
HDMI1 - Input 1
HDMI2 - Input 2
HDMI3 - Input 3
HDMI4 - Input 4
VGA1 - Input 5
VGA2 - Input 6
SV1 - Input 5 (S-Video 1)
SV2 - Input 6 (S-Video 2)
CV1 - Input 5 (Composite 1)
CV2 - Input 5 (Composite 2)
COMP1 - Input 5 (Component 1)
COMP2 - Input 6 (Component 2)

Controls
Menu - Pulls up on screen display
      menu - also serves as back
      button
Exit - Closes on screen display
      menu
Arrows - Use to navigate the on
      screen display menu and
      adjust volume
OK - Enter button, use to select
      choices within the on
      screen display menu
Mute - Silences all audio outputs
Auto - Auto VGA setup

Output Resolution Selection
SVGA - 800x600
XGA - 1024x768
WXGA1 - 1280x800
WXGA2 - 1360x768
SXGA - 1280x1024
SXGA+ - 1440x900
UXGA - 1600x1200
WUXGA - 1920x1200
720p
1080p
4Kx2K - 3840x2160
Native - Upscales/downscales
      the output signal to match
      the HDBaseT display's
      preferred resolution

Remote control buttons: ON — POWER — OFF; HDMI1, VGA1, CV1; HDMI2, VGA2, CV2; HDMI3, SV1, COMP1; HDMI4, SV2, COMP2; EXIT, MENU, OK, MUTE, AUTO; SVGA, XGA, WXGA 1; WXGA 2, SXGA, SXGA+; UXGA, WUXGA, 720p; 1080p, 4Kx2K, NATIVE. CLSO R2

System IR is typically used to connect to control system processors. This input is used to control the CLSO-601.

Note: The IR receiver is optional for the UHD-CLSO-601. The compatible IR receiver (AT-IR-CS-RX) can be purchased through atlona.com.

The wires of the emitter and receiver have been marked to differenciate the pin outs.

Signal (S)
Ground (⏚)

IR
IN   OUT
P S ⏚ ⏚ S
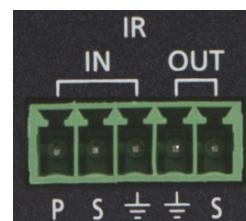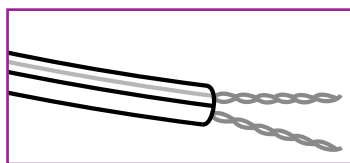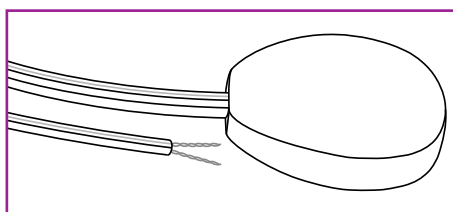
The included IR emitter has two wires: signal and ground. Signal will have a solid line and ground will be blank. The IR emitter will plug into the IR OUT ports.

Signal (S)
Ground (⏚)
Power (P)
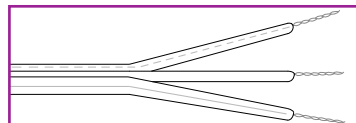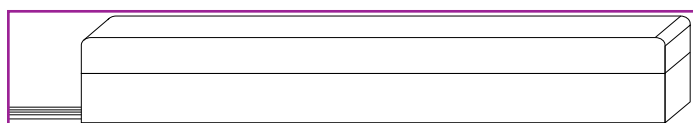
There are three wires on the IR receiver (sold separately): signal, ground, and power. Signal has a dotted line, ground will be blank, and power will have a solid line. The IR receiver will plug into the IR IN ports.

RS-232

Connection

RS-232 pin out will be determined by the RS-232 cable and will connect as Rx (receiver), Tx (transmitter), and ⏚ (ground). (See picture 1)
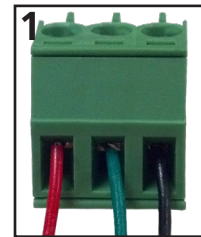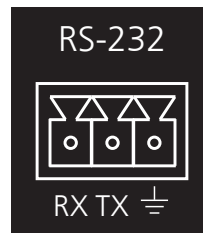
Wire color will differ by cable manufacturer.

RS-232 is often connected through a DB 9-pin to captive screw connector. The pins will have functions associated with them, some will be unassigned.

> **Note:** Typical DB9 connectors use pin 2 for TX, pin 3 for RX, and pin 5 for ground. On some devices functions of pins 2 and 3 are reversed.
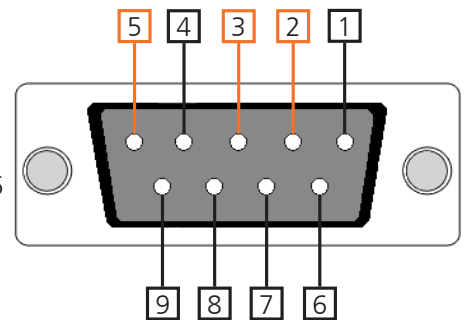
Set Up

To set up the RS-232 hyperterminal (if not using 3rd party software) use the following steps:

1. Connect the CLSO-601 to a PC using a 3 pin to USB cable
2. Go to the Device Manager folder (see picture A)
3. Find the CLSO-601 COM port and right click with a mouse and select properties (see picture B)

> **Note:** If unsure which COM port is the CLSO-601, unplug the cable and plug it back in. It will disappear and reappear on the COM port list.

4. Under the properties menu select the port settings tab and update the menu to the **CLSO-601 default settings of**: Bits Per Second: 115200, Data Bits: 8, Parity: None, Stop Bits: 1 and Flow Control: None. (see picture C)

Set up is done and any hyperterminal program may be used to control the CLSO-601 now.
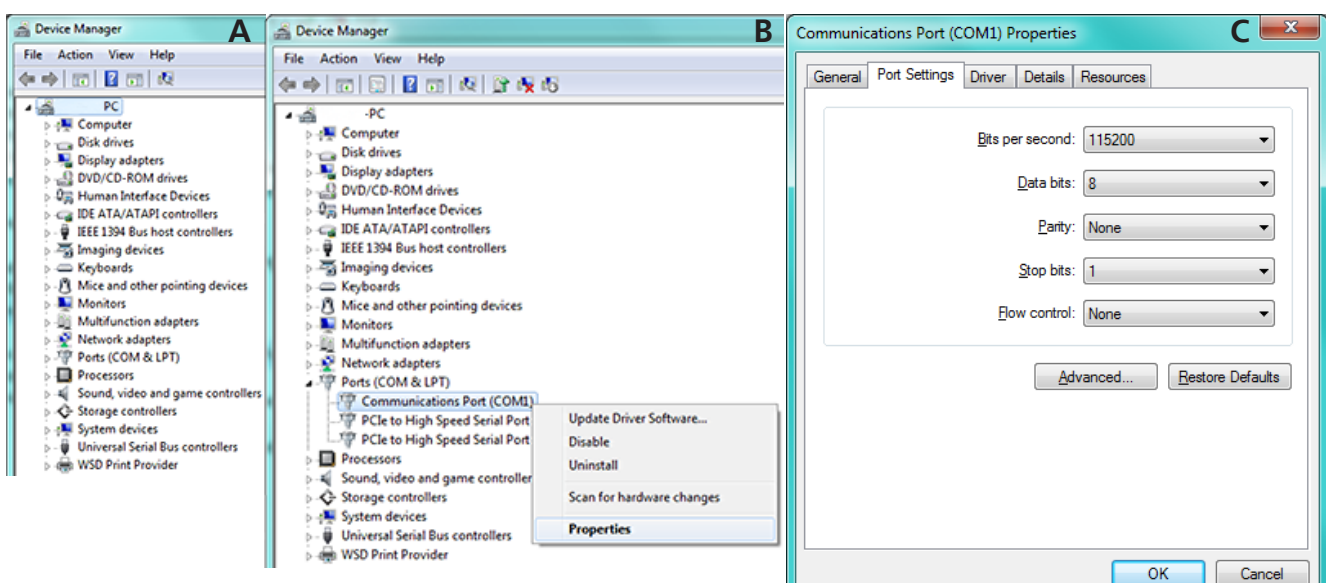
Commands

The command codes are case sensitive, do not change capitalization, spacing, or lettering.

Command	Feedback	Description
PWON	PWON	Power ON
PWOFF	PWOFF	Stand-by
PWSTA	PWON/PWOFF	Get system power status
RS232zoneX[Y]	RS232zoneX[Y]	RS232zoneX[Y], X: 1-8. [Y] is the command string sent to the display device or source through the RS-232 port
RS232paraX[Y]	RS232paraX[Y]	RS232paraX[baudrate,databit,parity,stopbit] X is 1-8. [Y] is the parameter for RS-232
CSpara[Y]	CSpara[Y]	Set RS232 parameter [Y] is the parameter for RS-232.
VOL+	VOL(xx)	Turns the volume up one level
VOL-	VOL(xx)	Turns the volume down one level
VOL(xx)	VOL(xx) **e.g.** VOL(10)	Turns volume to the specified level <xx: 10 ~ -80> Read the volume current level status => VOL **e.g.** Adjusts the master volume level to -23dB => VOL(-23)
MVOL+	MVOL(xx)	Turns the MIC volume up one level
MVOL-	MVOL(xx)	Turns the MIC volume down one level
MVOL(xx)	MVOL(xx) **e.g.** MVOL(30)	Turns MIC5V volume to the specified level <xx: 30 ~ -80> Read the MIC5V volume current level status => MVOL
MICx [Y]	MICx [Y] **e.g.** MICatime 20	Sets up MIC values x = on / off / sta / atime (attack time) / rtime (background release time) / sens (microphone sensitivity level) / reduce (background reduce level) Y = value (ex. 20)
LVOL+	LVOL(xx)	Turns the Line volume up one level
LVOL-	LVOL(xx)	Turns the Line volume down one level
LVOL(xx)	LVOL(xx) **e.g.** LVOL(0)	Turns Line volume to the specified level <xx: 0 ~ -80> Read the Line volume current level status => LVOL
SnVOL+	SnVOL(xx)	Turns the Sub volume up one level <n: 1-6> (n = input number) **e.g.** Adjusts the HDMI 4 volume to up => S4VOL+
SnVOL-	SnVOL(xx)	Turns the Sub volume down one level <n: 1-6> (n = input number) **e.g.** Adjusts the VGA1 volume to down => S5VOL-
SnVOL(xx)	SnVOL(xx) **e.g.** S2VOL(-15)	Turns Sub volume to the specified level <n: 1-6, xx: 0 ~ -80> Read the Sub volume current level status => SnVOL **e.g.** Adjusts the HDMI1 volume level to -10dB => S1VOL(-10)
VOLMute [Y]	VOLMute [Y]	VOLMute [on/off/sta]. Set volume to mute on. => VOLMute on
Menu[X]	Menu[X] **e.g.** MenuDown	Control OSD interface, [X]: Sw/Up/Down/Left/Right/Info/Sel **e.g.** Select OSD option => MenuSel
Lock	Lock	Locks the front panel
Unlock	Unlock	Unlocks the front panel
Version [Y] **e.g.** Version osd	Version [Y] **e.g.** Version x.x.xx	Brings up the software versions: ex. Version mcu firmware [mcu] OSD menu [osd] DSP [dsp] FPGA [fpga]
Type	AT-UHD-CLSO-601	Brings up the model information
Mreset	Mreset	Reset device to manufacture default

Command	Feedback	Description
EQB+	EQB(xx)	Turns EQ bass up one level
EQB-	EQB(xx)	Turns EQ bass down one level
EQB(xx)	EQB(xx)	Turns EQ bass to the specific level xx: (xx: -10 to 12)
EQT+	EQT(xx)	Turns EQ treble up one level
EQT-	EQT(xx)	Turns EQ treble down one level
EQT(xx)	EQT(xx)	Turns EQ treble to the specific level xx: (xx: -10 to 12)
ManHPos+	ManHPos(xx)	Sets horizontal position one pixel to the right
ManHPos-	ManHPos(xx)	Sets horizontal position one pixel to the left
ManHPos(xx)	ManHPos(xx)	Sets horizontal position to a specific setting (xx: 0-40)
ManPha+	ManPha(xx)	Adjusts pixel phase up one level
ManPha-	ManPha(xx)	Adjusts pixel phase down one level
ManPha(xx)	ManPha(xx)	Adjusts pixel phase to a set amount (xx: 0 to 63)
VFmtRes [Y]	VFmtRes XX **e.g.** VFmtRes 09	Set output video format to any of the [Y] resolutions below **e.g.** Set output video format to 1080p@60 => VFmtRes 06 **e.g.** Read the list of video format => VFmtRes List

[Y] resolution list -

00	Pass-Through	**01**	640x480p60	**02**	720x480i60
03	720x480p60	**04**	1280x720p60	**05**	1920x1080i60
06	1920x1080p60	**07**	720x576i50	**08**	720x576p50
09	1280x720p50,	**10**	1920x1080i50	**11**	1920x1080p50
12	1920x1080p24	**13**	1920x1080p25	**14**	1920x1080p30
15	640x480p72	**16**	640x480p75	**17**	800x600p60
18	800x600p72	**19**	800x600p75	**20**	1024x768p60
21	1024x768p72	**22**	1024x768p75	**23**	1280x768p60
24	1280x800p60	**25**	1280x960p60	**26**	1280x1024p60
27	1360x768p60	**28**	1366x768p60	**29**	1440x900p60
30	1600x1200p60	**31**	1920x1200p60	**32**	2048x1080p24
33	2048x1080p50	**34**	2048x1080p60	**35**	2048x1152p60
36	3840x2160p24	**37**	3840x2160p25	**38**	3840x2160p30
39	4096x2160p24	**40**	4096x2160p30	**41**	1400x1050p60
42	1600x900p60	**254**	Native		

Command	Feedback	Description
Input X Y	Input X Y **e.g.** Input HDMI 2	Input [interface]* [index]*. Select input source video. **e.g.** Select input to HDMI 2 video => Input HDMI 2
HDCPSetX Y **e.g.** HDCPSet2 off	HDCPSetX Y **e.g.** HDCPSet2 off	Sets HDCP mode of the HDMI ports X = 1 / 2 / 3 / 4 Y = on / off / sta
PrefTimg X	PrefTimg X	Set preferred timing to EDID. X is 1-10 & sta
VGAPrefT X	VGAPrefT X	Set preferred VGA timing to EDID. X is 1-8 & sta
BNR [Y]	BNR [Y]	BNR [off/low/medium/high/sta]. Configure video block noise reduction
MNR [Y]	MNR [Y]	MNR [off/low/medium/high/sta]. Configure video mosquito noise reduction
RNR [Y]	RNR [Y]	RNR [off/low/medium/high/sta]. Configure video random noise reduction
PollAddInX [Y]	PollAddInX [Y]	PollAddInX [VGA/COMP/CV/SV]. Add source of analog polling. X = 1 (VGA input 5) or 2 (VGA input 6). Ex: PollAddIn2 SV allows enabling of SV for VGA input 5.
PollDelInX [Y]	PollDelIn [Y]	PollDelInX [VGA/COMP/CV/SV]. Delete source of analog polling. X = 1 (VGA input 5) or 2 (VGA input 6). Ex: PollDelIn VGA,CV,COMP will delete VGA & CV & COMP
OSD [Y]		OSD [func/logo/info][on/off/sta]
Aspect [Y]	Aspect [Y]	Aspect [full/overscan/underscan/letterbox/panscan/follow/sta] Sets video aspect function
OutAMute [Y]	OutAMute [Y]	OutAMute [on/off/sta] Sets output audio mute of HDMI and HDBT
AUD In[X] Ai[Y]	AUD In[X] Ai[Y]	AUD In[X] Ai[Y] x: 1-6 Y: 5-6 or P Replaces the selected input's audio with the selected analog input (5 or 6) or sets it to pass through (p) normally **e.g.** Replace input 2's audio with analog 6 - Aud In2 Ai6 **e.g.** Pass through input 3's audio normally - Aud In3 AiP
AutoSW [Y]	AutoSW [Y]	AutoSW [on/off/sta/VGAon/VGAoff/VGAsta] Sets auto switch mode status Factory Default: Sets auto switch to off with VGA auto switch to off
ASwPrePort [Y]	ASwPrePort [Y]	ASwPrePort [HDMI1/HDMI2/HDMI3/HDMI4/Previous] Sets default auto switch port or sets to previous input
ASwOutTime [Y]	ASwOutTime [Y]	ASwOutTime [sec] Sec: 1-600 (default is 1 second) Sets the delay time for how long the auto switching receives no signal from the input before switching ports **e.g.** Sets the auto switching delay time to 1 minute with no signal before changing ports - ASwOutTime60

[Interface] index -

HDMI 1	HDMI 2	HDMI 3
HDMI 4	COMP 1	COMP 2
CVBS 1	CVBS 2	SVIDEO 1
SVIDEO 2	VGA 1	VGA 2

[X] preferred timing -

1	1280x800	**2**	1920x1080	**3**	1024x768
4	1280x720	**5**	1920x1200	**6**	1366x768
7	800x600	**8**	1600x900	**9**	2560x1440
10	3840x2160	**sta**	Read status		

VGA [X] preferred timing -

1	1280x800	**2**	1920x1080	**3**	1024x768
4	1280x720	**5**	1920x1200	**6**	1366x768
7	800x600	**8**	1600x900	**sta**	Read status

IP Commands

Command	Feedback	Description
IPCFG	IP Addr : x.x.x.x Netmask : x.x.x.x Gateway : x.x.x.x IP Port : x	Displays IP address configure
IPQuit	IPQuit	Telnet Logout
IPAddUser [X] [Y]	IPAddUser [X] [Y]	IPAddUser [name] [password]. Add user of telnet. If only command write "IPAddUser", it will display all user list. => IPAddUser
IPDelUser [Y]	IPDelUser [Y]	IPDelUser [name]. Del user of telnet
IPDHCP [Y]	IPDHCP [Y]	IPDHCP [on/off/sta]. Set DHCP mode status and auto reset telnet. **e.g.** Set DHCP mode is on => IPDHCP on
IPStatic [X] [Y] [Z]	IPStatic [X] [Y] [Z]	IPStatic [Address] [Netmask] [Gateway]. Set static IP address and auto reset telnet. **e.g.** Set static IP address is 192.168.1.1 255.255.255.0 192.168.1.254 => IPStatic 192.168.1.1 255.255.255.0 192.168.1.254
IPPort [Y]	IPPort [Y]	IPPort [port]. Set telnet port and auto reset telnet **e.g.** Set telnet port 80 => IPPort 80
IPLogin [Y]	IPLogin [Y]	IPLogin [on/off/sta]. Set telnet login status. **e.g.** Set telnet login is on => IPLogin on
Broadcast [Y]	Broadcast [Y]	Broadcast [on/off/sta]. Broadcast switch. **e.g.** Set broadcast mode is on => Broadcast on
IPTimeout [Y]	IPTimeout [Y]	IPTimeout [Sec]. Set telnet idle timeout time. Default is 2 minute. **e.g.** Set telnet idle timeout 10 minutes => IPTimeout 600

Each command must be terminated with a carriage return and line feed.
Feedback is terminated with a carriage return and line feed.
Note: If the command fails or is incorrect the feedback should be "Command FAILED"

Baud Rate

Default baud rate to control the switcher is 115200 and default baud rate to control the display or projector is 9600.

> **Note:** For the display's actual baud rate, refer to the owner's manual

To change the baud rate of the switcher (for switcher control) or the zone output (for display/source control), the commands below will be needed

Switcher baud command

CSpara[baudrate,data-length,parity,stop-bit] (data-length, parity, and stop-bit for switcher must be 8,0,1)

Example: To change the baud rate to 38400 use **CSpara[38400,8,0,1]**

> **Note:** Use this command if the connected control system does not output 115200

Zone output baud commands **(for display control)**

RS232paraX[baudrate,data-length,parity,stop-bit]

Example: To change the output baud rate to 19200 use RS232para1[19200,8,0,1]

> **Note:** Use this command if the connected display uses a different baud rate

RS232zoneX[command]

Once the switcher and zone output have been set up for the best communication, commands can be sent to control the display. The commands will come from the user manual of the display or projector. The commands and any carriage returns/line feeds in the commands will need to be placed in the bracket.

Example: To turn the display or projector (of the HDBaseT output) on if the command is PWRON carriage return, use the command: RS232zone8[PWRON carriage return]

Control Diagram
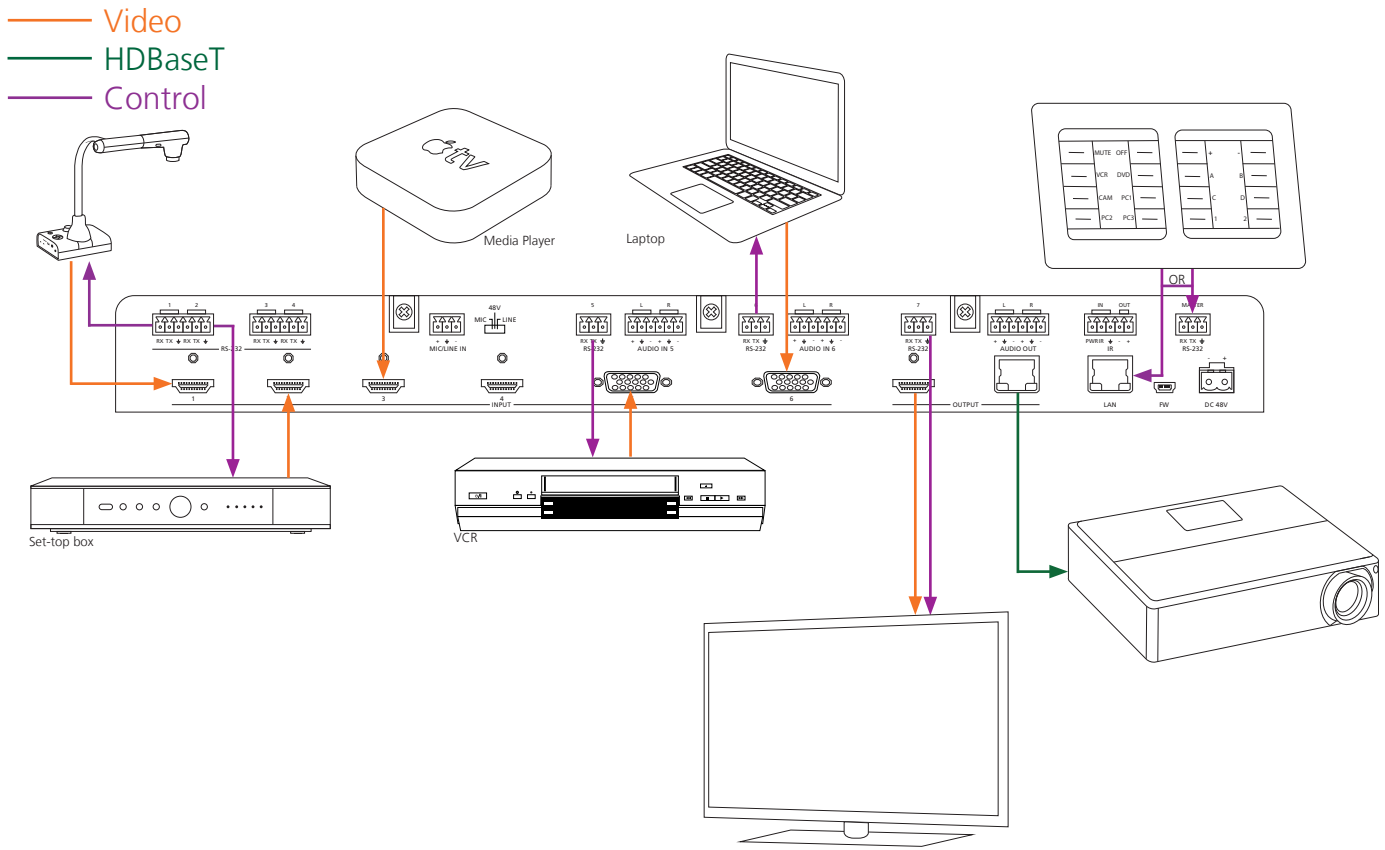
Control Drivers

Visit the **Control Drivers** tab at http://www.atlona.com/AT-UHD-CLSO-601/ to download the control drivers for the CLSO-601.

CLSO-601 Updating

Visit the **Firmware Update** tab at http://www.atlona.com/AT-UHD-CLSO-601/ to download the current updates and instructions for the CLSO-601: OSD and Firmware.

Note: Atlona is constantly improving and updating features and stability. It is recommended that you check to make sure you are on the most current firmware before installation, especially when using a control system.

Connection Diagram

Video
HDBaseT
Audio
Control

VCR

Media Player

Set-top box

Blu-ray Player

Laptop

Control System

OR

AT-UHD-EX-100CE-RX

atlona.com

Toll free: 1-877-536-3976
Local: 1-408-962-0515
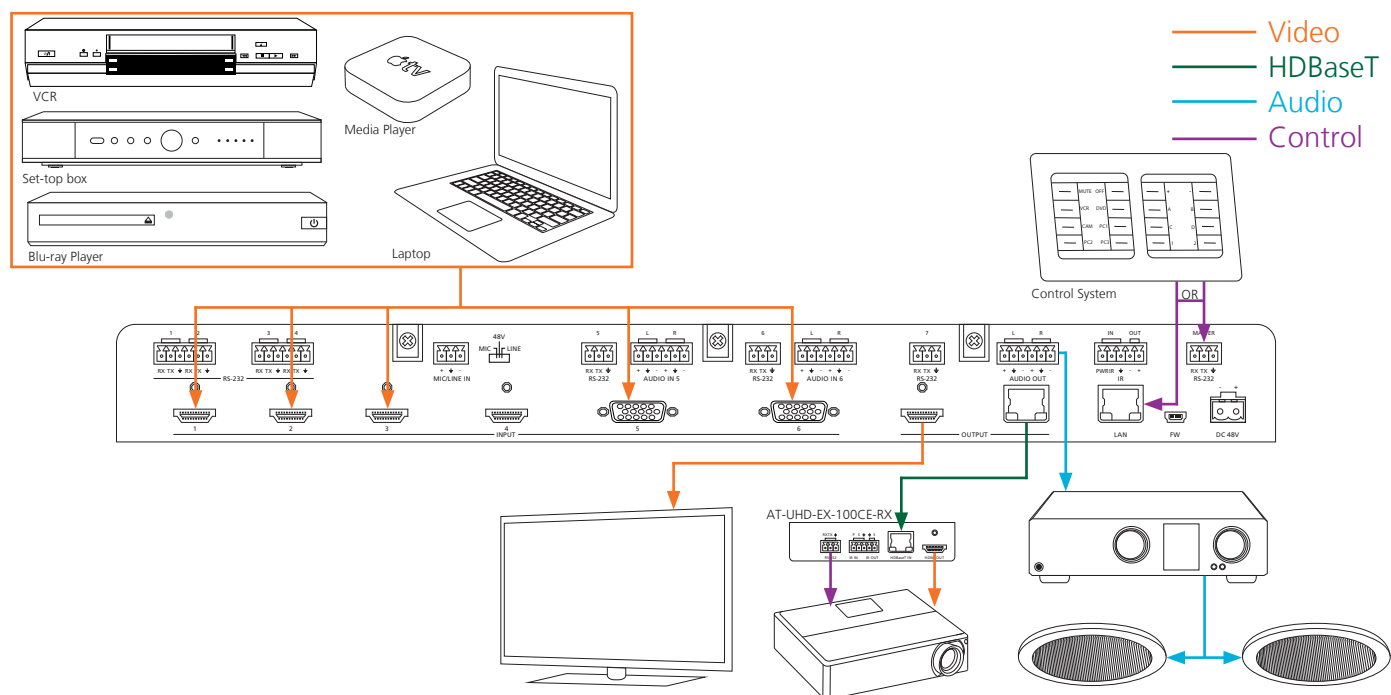
Specifications

Video Resolutions

IN	4096x2160@24/30Hz, 3840x2160@24/25/30Hz, 1080p@23.98/24/25/29.97/30/50/59.94/60, 1080i@50/59.94/60Hz, 720p@25/29.97/30/50/59.94/60Hz, 576p, 576i, 480p, 480i 2560x1440, 2048x1152, 2048x1080, 1920x1200, 1680x1050, 1600x1200, 1600x900, 1440x1050, 1440x900, 1366x768, 1360x768, 1280x1024, 1280x960, 1280x800, 1280x768, 1024x768, 800x600, 640x480
OUT	4096x2160@24/30Hz, 3840x2160@24/25/30Hz, 1080p@24/25/30/50/60Hz, 1080i@50/60Hz, 720p@50/60Hz, 576p, 576i, 480p, 480i 2048x1152, 2048x1080, 1920x1200, 1600x1200, 1600x900, 1440x1050, 1440x900, 1366x768, 1360x768, 1280x1024, 1280x960, 1280x800, 1280x768, 1024x768, 800x600, 640x480
Composite/S-Video	NTSC, NTSC4, PAL, PAL-M, PAL-N, SECAM
Colorspace	YUV, RGB
Chroma Subsampling	4:4:4, 4:2:2, 4:2:0
Color depth	8-bit, 10-bit, 12-bit

Audio

Analog OUT	PCM 2Ch (de-embedded)
HDMI/HDBaseT OUT	PCM 2Ch, supports DTS and Dolby pass through
Sample Rate	32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
Bit rate	up to 24-bit

Distance

CAT5e/6 @ 4K	up to 70M	up to 230 ft
CAT5e/6 @ 1080p	up to 100M	up to 328 ft
CAT6a/7 @ 4K	up to 100M	up to 328 ft
HDMI @ 4K	up to 5 meters	up to 15 feet
HDMI IN/OUT @ 1080p	up to 10 meters	up to 30 feet

Signal

Bandwidth	10.2 Gbps
HDCP	Switchable - Compliant / Non-compliant

Temperature

Operating	0°C to 50°C	32°F to 122°F
Storage	-20°C to 60°C	-4°F to 140°F
Humidity	20 to 90% non-condensing	

Power

Consumption	33W
Idle Consumption	3.1W
Supply	Input: AC100~240V 50/60Hz Output: DC 48V 3.125A

Dimension

H x W x D	44 x 433.8 x 255 (mm)	1.73 x 17.08 x 10.04 (inch)
w/feet	55.15 x 433.8 x 255 (mm)	2.17 x 17.08 x 10.04 (inch)
Rack Unit	1U	

Weight

Device	3.12 kg	6.9 lbs

Certification

Power Supply	CE, FCC, cULus, RoHS, CCC, RCM
Product	CE, FCC

Safety Information

Safeguards

To reduce the risk of electric shock, do not expose this product to rain or moisture

Do not modify the wall plug. Doing so will void the warranty and safety features.

If the wall plug does not fit into your local power socket, hire an electrician to replace your obsolete socket.

This equipment should be installed near the socket outlet and the device should be easily accessible in the case it requires disconnection.

Precautions

FCC regulations state that any unauthorized changes or modifications to this equipment, not expressly approved by the manufacturer, could void the user's authority to operate this equipment.

Operate this product using only the included external power supply. Use of other power supplies could impair performance, damage the product, or cause fires.

In the event of an electrostatic discharge this device may automatically turn off. If this occurs, unplug the device and plug it back in.

Protect and route power cords so they will not be stepped on or pinched by anything placed on or against them. Be especially careful of plug-ins or cord exit points from this product.

Avoid excessive humidity, sudden temperature changes or temperature extremes.

Keep this product away from wet locations such as bathtubs, sinks, laundries, wet basements, fish tanks, and swimming pools.

Use only accessories recommended by Atlona to avoid fire, shock, or other hazards.

Unplug the product before cleaning. Use a damp cloth for cleaning and not cleaning fluid or aerosols. Such products could enter the unit and cause damage, fire, or electric shock. Some substances may also mar the finish of the product.

Never open, remove unit panels, or make any adjustments not described in this manual. Attempting to do so could expose you to dangerous electrical shock or other hazards. It may also cause damage to your product. Opening the product will void the warranty.

Do not attempt to service the unit. Disconnect the product and contact your authorized Atlona reseller or contact Atlona directly.

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

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:

A) 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

B) 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

C) 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's products is the purchaser's exclusive remedy and Atlona's 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's products and is non-transferrable to any subsequent purchaser(s) or owner(s) of these products.

Coverage Periods

Atlona's 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
• 3 years from proof of purchase date for all Refurbished (B-Stock) 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 www.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 www.atlona.com.

Exclusions

This Limited Product Warranty excludes:

• Damage, deterioration or malfunction caused by any alteration, modification, improper use, neglect, improper packing 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 www.atlona.com .

Atlona, Inc Product Registration

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

Registration creates an ownership record if your product is lost or stolen and helps ensure you'll receive notification of performance issues and firmware updates.

At Atlona we respect and protect your privacy, assuring you that your registration information is completely secure. Atlona product registration is completely voluntary and failure to register will not diminish your limited warranty rights.

To register go to: http://www.atlona.com/registration