User Manual

AC-EX100TT-UHD-T

Table Top/Under Table, Dual Input (HDMI/VGA) Auto Sensing HDBaseT Transmitter

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Introduction

The AC-EX100TT-UHD-T is a 100m HDBaseT Tx with the ability to be powered by the Rx. It features RS-232 & IR Pass-through inputs along with its auto sensing HDMI and VGA ports.

Key benefits of using AC-EX100TT-UHD:

1) **ULTRA HIGH DEFINITION:** Our AC-EX100TT-UHD supports 4K up to 70M (230FT) & HD up to 100M (330FT) with crystal clear 4K Resolution. **NOTE: High quality CAT6a shielded required for maximum performance.**

2) **DISTANCE:** By using AC-EX100TT-UHD-T, the transmission distance for HD 1080P is up to 100 meters (330') and with 4K it is up to 4K up to 70M (230')

3) **AUTO SENSING:** This Table-Top/Under Table Transmitter is designed to be a "set it & forget it" piece of hardware. When the user plugs their devices in (BYOD), the transmitter will automatically sense the signal and make it active. If both inputs are in use, there is a simple button on the front to toggle inputs.

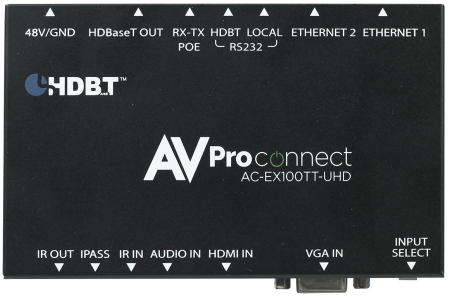
4) **CONTROL:** IR & RS-232 allow control of a rack or standalone projector/ display.

5) **POWER:** No local power is required when you use the AC-EX100-UHD-R2. Power is provided by ultra-stable PoE technology. Optionally, you can power it locally for use with any HDBaseT receiver.

Applications:

This unit is designed to work flawlessly with all PC, VESA and traditional resolutions up to and including 4K 60Hz 4:2:0 8-bit & HDR 4K 30 4:2:2 12-bit. VGA supports DCI 2K, 1080P, 1920x1200x60. In addition to its compact and robust design, The AC-EX100TT-UHD-T transmits digital signals up to 100 meters (328') giving you ultimate flexibility, especially in large rooms like libraries or auditorium style rooms/classrooms. For a complete solution pair the table-top transmitter (AC-EX100TT-UHD-T) with the AC-EX100-UHD-R2 HDBaseT Receiver to power the table-top transmitter from afar using PoE, thus eliminating the need for a power supply unit near the wall plate.

FRONT



TOP

BOTTOM

AC-EX100WPP-UHD-T Indicator lights

There are only 3 indication lights on the AC-EX100WPP-UHD-T Wall-Plate. 2 near the HDBaseT RJ45 jack and 1 on the front labeled "Input Select"

Port/Location	Color	Visual	State	Meaning
HDBaseT	Green		Flashing (Steady)	Power is present (PoE or local power)
HDBaseT	Amber		Solid	Indicates that Tx & Rx are communicating properly
"Input Select" Light	Green		Solid	Indicates VGA port is the active source (w/ 3.5mm Audio)
"Input Select" Light	Amber		Solid	Indicates HDMI port is the active source

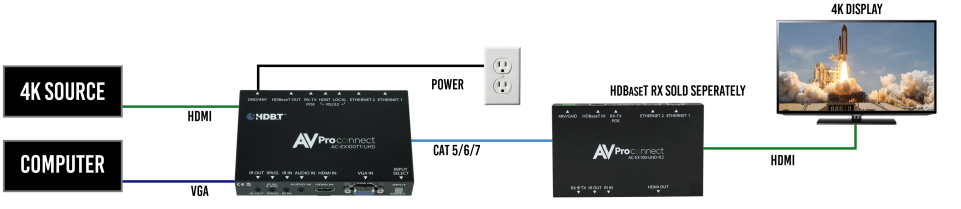
Table-top/under-table HDBaseT Transmitter

■ Features

- HDMI 2.0 & VGA Inputs
- 4K 30 4:4:4, 4K60 4:2:0 HDMI Support
- HDR 4:2:2 12 Bit Support
- DCI 2K, 1080P, 1920x1080x60 VGA Support
- HDCP 2.2 & Earlier Supported
- 100M (330ft) 0n 1080P, Up to 70m (230ft) on 4K (Cat6a)
- No Local Power Necessary (Powered by AC-EX100-UHD-R2)
- Rugged, long-life chassis
- Plug & Play auto input sensing
- Select-able input (If both are plugged in)
- Designed for the conference/classroom room so your customer can focus on their meetings, not their video system.
- 3.5mm Input for audio (with VGA input only)
- Single UTP/STP LAN cable (CAT-5E/6A) for all signals
- ESD protection circuitry (Inputs / Outputs) till 7KV.
- Transfer IR & RS-232 signals from Tx to Rx (From Control Processor)
- I-Pass Feature for control system IR "pass-through"
- 3-20v protection circuit built in for safe IR transport
- Compatible with HDBaseT displays, projectors, AVR's
- Supports uncompressed PCM 2- Ch., 5.1, 7.1, Dolby Digital, DTS, Dolby TrueHD, DTS HD-Master Audio, Atmos.
- Can Cascade for ultra-long distance

AC-EX100TT-UHD-T

TABLE TOP HDBASET TX CONNECTION



✍ Notice

AVProConnect reserves the right to make changes to the hardware, packaging and any accompanying documentation without prior written notice.

⚠ Warning

To reduce the risk of fire, electric shock or product damage:

1. Do not expose this device to rain, moisture, dripping or splashing and ensure that no objects filled with liquids are placed on or near the device.

6. Clean this device with a dry cloth only.

2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.

7. Unplug this device during lightning storms or when unused for long periods of time.

3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.

8. Protect the power cord from being walked on or pinched particularly at plugs.

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

9. Only use attachments / accessories specified by the manufacturer.

5. Do not place sources of naked flames, such as lighted candles, on the unit.

10. Refer all servicing to qualified service personnel.

■ What's In The Box? Two ways to purchase:

AC-EX100TT-UHD-KIT (Includes AC-EX100-UHD-R2 Receiver)

- AC-EX100TT-UHD-T (Transmitter)
- AC-EX100-UHD-R2 (Receiver)
- 2 - 3 pin terminal block
- 2 - 5 pin terminal block
- 2 - IR Emitter
- 1 - IR Receiver
- 1 - 48v Power Supply
- Operating Instructions

AC-EX100TT-UHD-T (Tx Only for HDBaseT TV's & Projectors)

- AC-EX100TT-UHD-T (Transmitter)
- 1 - 3 pin terminal block
- 1 - 5 pin terminal block
- 1 - IR Emitter
- 1 - 48v Power Supply
- Operating Instructions

■ Specifications

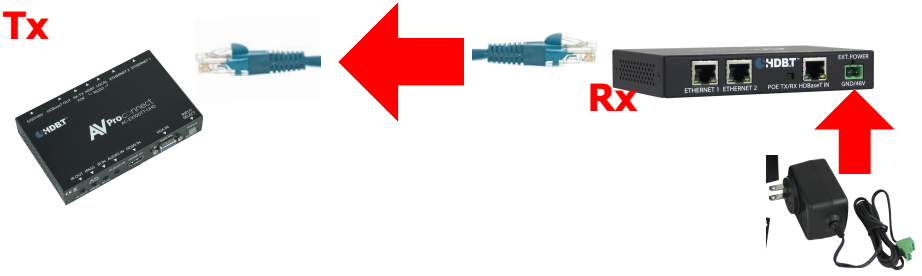
Video:	
Video Resolutions	Up to 4K 60Hz 4:2:0 &4K 30Hz 4:4:4
VESA Resolutions	Up to 2560x2048 (QSXGA)
HDR Formats/Resolutions	4K24 4:2:2 12 bit, 4K24 4:2:0 10 bit
Color Space	YUV (Component), RGB (CSC: Rec. 601, Rec. 709, BT2020, DCI, P3 D6500)
Chroma Subsampeling	4:4:4, 4:2:2, 4:2:0 Supported
Deep Color	Up to 16 bit (1080), Up to 12 bit (4K)
Audio:	
Audio Formats Supported HDMI	PCM 2.0 Ch, LPCM 5.1 & 7.1, Dolby Digtal, DTS 5.1, Dolby Digital Plus, Dolby TrueHD, DTS-HD Master Audio, DTS-X, Dolby Atmos
Audio Formats Supported Extracted (2CH Port)	PCM 2 CH (No Downmix)
Distance:	
HDBaseT (CAT) Distance (4K)	70M (230 Feet)
HDBaseT (CAT) Distance (Full HD)	100M (330 Feet)
HDMI Lead In/Out	Up to 50 Feet (using Bullet Train HDMI)
HDMI Lead In/Out (w/ AOC Cable)	Up to 130 Feet (using Bullet Train AOC)
Other:	
Bandwidth	10.2 Gbps
HDCP	HDCP 2.2 and earlier
Ports:	
HDMI	Type A
Audio (Input, w/ VGA ONLY)	3.5mm Stereo (unbalanced)
IR OUT	3.5mm Mono (2 Conductor for Emitter)
IR IN	3.5mm Mono (2 Conductor for Control System Direct ONLY)
RS232 (Device Control & Pass Through)	2x 3.5mm Stereo (3 conductor)
Power	2 pin terminal block each
Ethernet (Tx & Rx)	2x RJ45 connections each (10/100)
Environmental:	
Operating Temprature	23 to 125°F (-5 to 51°C)
Storage Temperature	-4 to 140°F (-20 to 60°C)
Humidity Range	5-90% RH (No Condensation)
Power:	
Power Consumption (Total)	9 Watts Max Pair
Power Supply	Input: AC 100-240V ~ 50/60Hz Output: DC 48V .5A (Wall Version)
Dimensions:	
Dimensions (Single Unit Only, Tx or Rx are same) (Length/Width/Height) (Tx or Rx each alone)	mm: 138 x 85 x 25 inch: 5.43 x 3.35 x 1
Dimensions (Packaged Length/Width/Height)	mm: 203 x 165 x 91 inch: 8 x 6.5 x 3.6
Weight (Unit)	.3 lbs (.13Kg)
Weight (Packaged)	1 lbs (.90Kg)
*Specifications subject to change without notice. Mass & dimensions are approximate	

■ Powering the AC-EX100TT-UHD-T

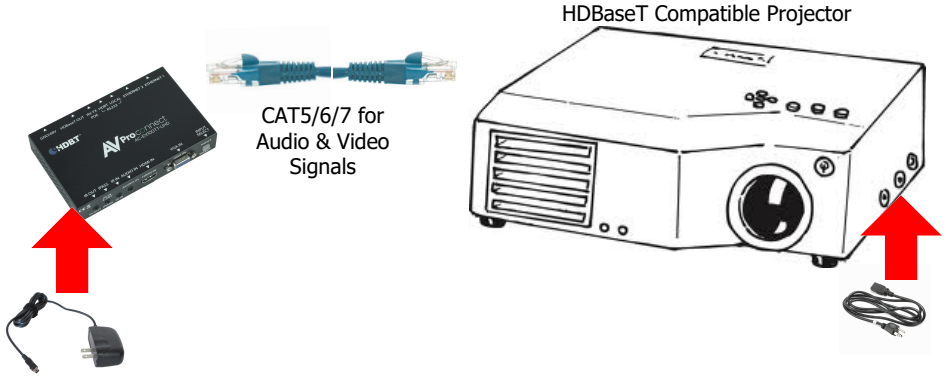
There are 2 ways to power the unit:

1. Use a HDBaseT Receiver that provides up stream power. We recommend using the AC-EX100-UHD-R2.
2. If you will be using the unit directly into a NON PoE provider (AVR, projector, display, or other HDBaseT receiver), you can power it using a 48v, .5A - 2 pin type power supply.
   NOTE: In these diagrams, arrows indicate the flow of POWER, not other signals.

OPTION 1: PoE From Receiver (AC-EX100-UHD-R2)



OPTION 2: Local power to work with other HDBaseT devices

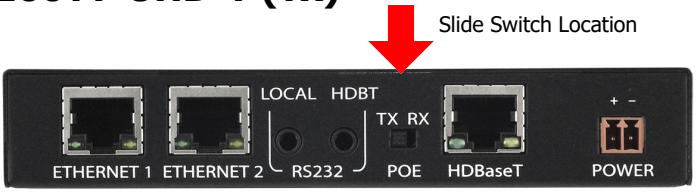


■ Using Bi-Directional Power w/ AC-EX100-UHD-R2

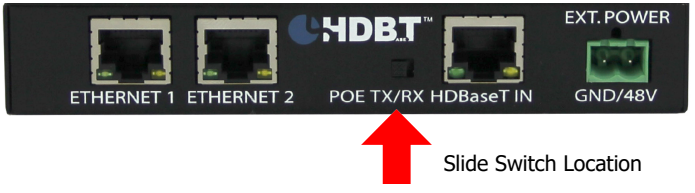
Using the bi-directional PoE feature is fairly easy to do. Even though the AC-EX100-UHD System is designed to handle "hot" changes. We strongly recommend you switch directional power while the units are completely unplugged from Power, HDMI or CAT Cable.

1. PoE direction is set by the dip switch on the Tx and Rx. You are setting the PoE behavior for the unit. You are selecting whether you want the unit to RECEIVE PoE or SEND PoE.
2. Here are the two possible modes.
   EX1. To Power from transmitter, PoE setting should be as follows: HDBT Tx -- The PoE slide switch should be set to Tx.
   HDBT Rx -- The PoE slide switch should be set to Rx.
   EX2. To Power from the receiver, PoE setting should be as follows: HDBT Tx -- The PoE slide switch should be set to Rx.
   HDBT Rx -- The PoE slide switch should be set to Tx.
3. Be sure you have the power supply plugged in on the newly selected PoE origination side.
4. Continue normal operation.

AC-EX100TT-UHD-T (Tx)



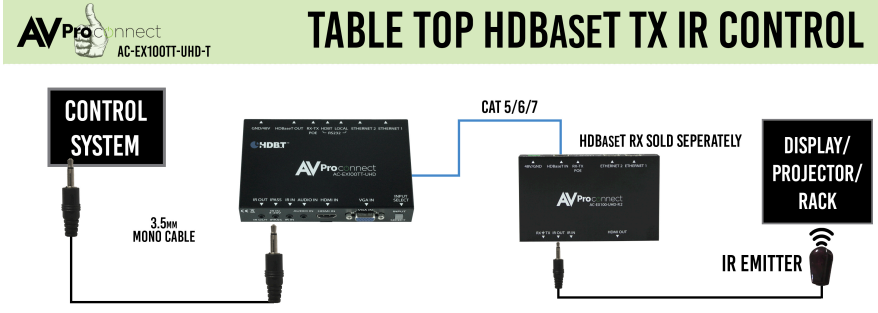
AC-EX100-UHD-R2 (Rx)

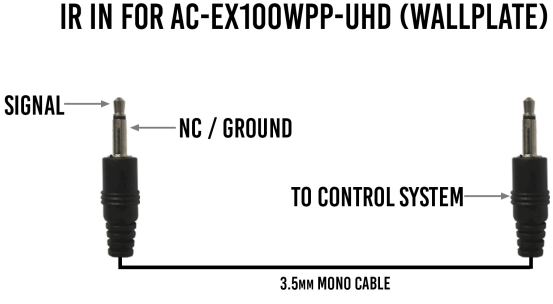


■ IR Configuration

The AC-EX100TT-UHD-T has an IR input designed to work when connected directly to control processors, or other IR signal generators like Global Cache, On Controls, etc... IR signals are routed through the entire HDBaseT link to the Rx (AC-EX100-UHD-R2).
This allows you to send control signals to:

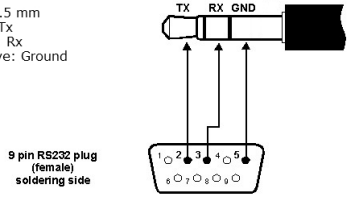
1. The "Rack" to control and amplifier, matrix, AVR or similar for more advanced systems.
2. Control power, volume, etc... of the remote projector/display connected to the receiver.





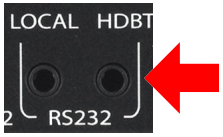
■ RS-232 Configuration

On 3.5 mm
Tip: Tx
Ring: Rx
Sleeve: Ground



■ RS-232 Pass-Through

The AC-EX100TT-UHD-T has a bi-directional RS-232. RS-232 signals are routed through the entire HDBaseT Link to the Rx (AC-EX100-UHD-R2). You must plug into the "HDBT" RS232 port - This will pass unaltered commands to the Rx. This is the port for pass-through:

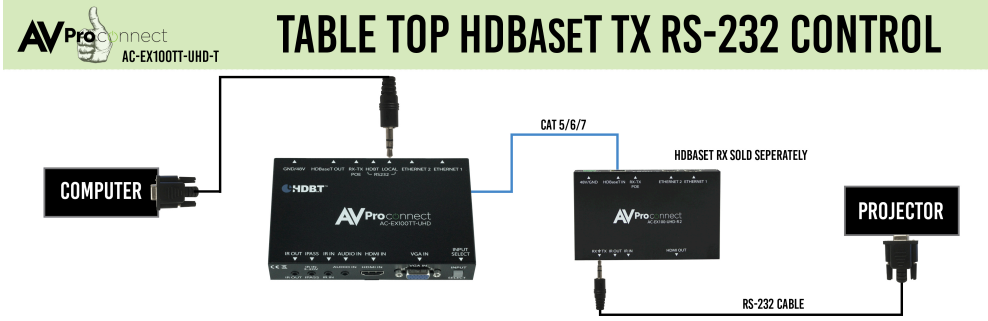


This allows you to:

1. The "Rack" to control an amplifier, matrix, AVR something or similar for more advanced systems
2. Control power, volume, etc... of the projector connected to the Receiver.

   NOTE: In larger systems, RS-232 is the recommended control method for maximum performance and longevity.

   Pre-made 3.5mm to DB9 cables can be purchased from AVProStore.



RS232 Commands for local control on next page...

■ RS-232 Local Control & Commands

Additionally, the transmitter RS-232 command bridge detects and scans commands from both the local RS-232 port and the HDBaseT stream. As soon as a properly formatted command is detected, the command is executed inside of the AC-EX100TT-UHD-T. This means you can control/switch ports from a distance or from local RS-232 with proper commands. Commands that are not listed below, get forwarded to the RS-232 port at the remote Rx.

To control locally, Use this port:

Pin Configuration:

Same for Local and HDBT
Tip - Tx (transmit data out)
Ring - Rx (receive data in)
Sleeve - GND (ground)

RS232 Settings:
Baud Rate - 115200
Checksum - None
Bit Num - 8
Stop Bit - 1

RS232 Commands:

Command	Action
@help	Shows Help File
@ver	Shows Firmware Version
@insel vga	Set Input Selection to VGA
@insel hdmi	Set Input Selection to HDMI
@insel status	Input Selection Status
@autosw on	Enable Auto Switch
@autosw off	Disable Auto Switch
@autosw status	View Autoswitch Status
@edid sink	Reads Downstream EDID
@default	Sets to standard EDID (4K)
@status	Shows Status of Current EDID Selection

■ RS-232 Local Control & Commands cont.

The RS-232 port is also connected to the HDBT extender, and available on the remote end. We allow a control system to communicate both with the device on the other end as well as the AC-EX100TT-UHD-T directly.

To do this, the commands above must be prefixed with either @ex100tt or @<hostname> where <hostname> is the name configured through the web page (See how to use WebOS below: defaults to ex100tt-XXXX).

NOTE: XXXX= Device Serial Number, the device serial number is found .....

Response Structure:

<@hostname> <sp> <parameter> <sp>... <parameter> <sp> <end of response>

<@hostname> = indicates the device initiating the response
<sp> = space, ASCII 0x20
<parameter> = command-specific number of parameters, each followed by a space or 0x20 in hex <end of response> = newline char \n for ASCII and 0xA in hex

For example:

@ex100tt insel vga
@ex100tt-0000 insel vga

■ Using Ethernet (as a HUB):

Ethernet usage is very straight-forward. It is used for driving network communication over the HDbaseT link. This of these ports as a "Hub", if you plug one port into a router all the other ports on both the Tx & Rx now have access to the network.

Usage Examples:

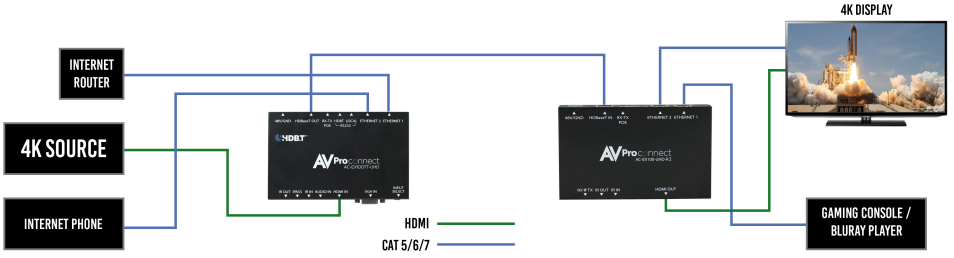
- Supplying a hardwire Ethernet connection to video zones for on-device streaming and/or local gaming devices and players.
- Supplying server based content from a server to a remote display.
- Supplying a zone with a hardwired Ethernet connection for a Wi-Fi access-point in remote zones.

Usage is plug-&-play - the ports are always active and as long as ONE of the FOUR combined ports between the Tx and Rx is connected to the network the other three also have access.

Ethernet Indicator Lights:

- AMBER - This indicates an Ethernet connection is made, and the connection is stable. This should be SOLID.
- GREEN - This indicates that there is activity on the line. This light flashes randomly as data is transmitted. If this light is steady OFF there is no data coming through or you may need to reset the Ethernet router.

Usage Diagram:



■ Ethernet (IP/LAN) Control

The unit can be controlled with LAN and the Ethernet is extended as well so you can actually send commands and pull up the internal WebOS page from the remote Rx and control it using IP.

IP Defaults (Static IP):

- Host IP (WebOS Access) - 192.168.1.239
- Subnet Mask - 255.255.255.000
- Gateway IP: 192.168.1.254

By default the unit is reached by using the STATIC IP above. You can toggle DHCP on/off as well by pressing and holding the input select button for 5 SECONDS as you power up the AC-EX100TT-UHD-T.

Press and hold to toggle DHCP

Using DHCP/Host Alias - The Host Alias is an alternate way to access & control the unit. It works off of DHCP protocol, so this means you will not have to change your PC's IP no matter what network you are on, so long as your PC is on the same network you will have access.

Default Host Alias: ex100tt-xxxx (xxxx=the serial ID, this can be found by looking at the serial number on the bottom of the unit. Find the number as pictured below and add a ZERO to the front of it:

In this image you can see the device serial number is 177, so the Host Alias ID is http://ex100tt-0177/

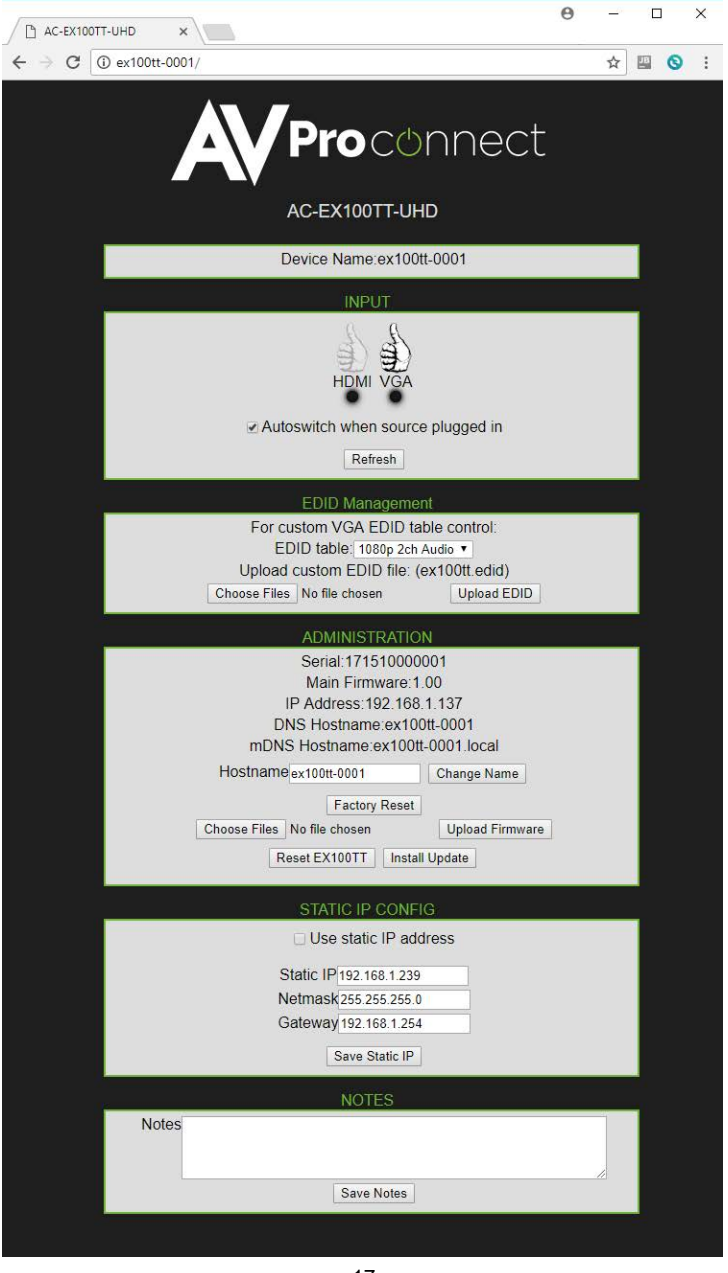
Type into PC browser page: http://ex100tt-xxxx/
Type into MAC browser page: http://ex100tt-xxxx.local

To Use IP Control - you can send the commands below directly to the unit OR ***To access the WebOS for the first time*** you can type the static IP above or the Host Alias. The next page has an example of the WebOS in use.

■ Ethernet (IP/LAN) Control cont. (Commands)

IP Commands for AV-EX100TT-UHD-T	
Command	Action
help	Shows Help File
ver	Shows Firmware Version
insel vga	Set Input Selection to VGA
insel hdmi	Set Input Selection to HDMI
insel status	Input Selection Status
autosw on	Enable Auto Switch
autosw off	Disable Auto Switch
autosw status	View Autoswitch Status
edid sink	Reads Downstream EDID
default	Sets tostandard EDID (4K)
status	Shows Status of Current EDID Selection

■ Ethernet (IP/LAN) WebOS Example Page



■ Selecting the source

The Input is automatically set based on proprietary Auto-Sensing Technology. The source displayed will be from the LAST device plugged in. The auto-sensing is based on the detection of +5V present in VGA / HDMI inputs. If this signal is missing or the source is in standby the auto-detection cannot work.

You also have the ability to select a source if VGA and HDMI are both occupied. Selecting the source is a single press on the "Input Select" button on the front of the AC-EX100TT-UHD-T. There are only 2 possible states:

1. When the light is ORANGE/AMBER the HDMI source is active.
2. When the light is GREEN the VGA source is active.

Continuing to press the button will toggle between both sources.

Input Select Button/Indicator Light

Indicator Colors:

VGA Active

HDMI Active

■ Mounting Options

While the AC-EX100TT-UHD-T can be mounted any way or anywhere you see fit with the supplied mounting ears, there are three common BYOD end user configurations:

1. In a "Table-Top" configuration: The unit is out on a top of a table for the user to plug into.
2. In "Under-Table" configuration: The signal is coming from a presenter location like a podium.
3. In a "Rack-Room" configuration to utilize remote control and auto sensing"

▪ Maintenance

To ensure reliable operation of this product as well as protecting the safety of any person using or handling this device while powered, please observe the following instructions.

- Use the power supplies provided. If an alternate supply is required, check voltage, polarity and that it has sufficient power to supply the device it is connected to.
- Do not operate these products outside the specified temperature and humidity range given in the above specifications.
- Ensure there is adequate ventilation to allow this product to operate efficiently.
- Repair of the equipment should only be carried out by qualified professionals as these products contain sensitive components that may be damaged by any mistreatment.
- Only use this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with these products.
- Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

▪ Damage Requiring Service

The unit should be serviced by qualified service personnel if:

- The DC power supply cord or AC adaptor has been damaged
- Objects or liquids have gotten into the unit
- The unit has been exposed to rain
- The unit does not operate normally or exhibits a marked change in performance
- The unit has been dropped or the housing damaged

▪ Support

Should you experience any problems while using this product, first, refer to the Troubleshooting section of this manual before contacting Technical Support. When calling, the following information should be provided:

- Product name and model number
- Product serial number
- Details of the issue and any conditions under which the issue is occurring

▪ Warranty

If your product does not work properly because of a defect in materials or workmanship, AVProConnect (referred to as "the warrantor") will, for the length of the period indicated as below, (Parts/Labor (10) Years), which starts with the date of original purchase ("Limited Warranty period"), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor. During the "Labor" Limited Warranty period there will be no charge for labor. During the "Parts" warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

This warranty extends to products purchased directly from AVPro or an authorized dealer. AVPro is not liable to honor this warranty if the product has been used in any application other than that for which it was intended, has been subjected to misuse, accidental damage, modification or improper installation procedures, unauthorized repairs or is outside of the warranty period. Please direct any questions or issues you may have to your local dealer before contacting AVPro.

Thank you for choosing AVProConnect!

Please contact us with any questions. We are happy to be of service!

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