



Media Axis™

4K/60 Cross-Platform Modular Matrix Switching & Extension System

USER MANUAL



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Safety Precautions

For optimum performance and safety, please read these instructions carefully before connecting, operating, or adjusting this product. Please keep this manual for future reference.

1. This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. The use of surge protection systems are highly recommended in order to protect and extend the life of your equipment.
2. Always use the correct external power supply (indicated on the product label) when operating this unit.
3. Power down unit and unplug from the wall outlet before installing or removing transmitter/receiver modules
4. Keep away from wet, magnetic, and flammable surfaces or substances. Unplug the unit from wall outlets before cleaning. Do not use liquid cleaners or aerosol sprays. Wipe with a damp cloth.
5. Air vents should be kept clean and unobstructed at all times.
6. Any external impact may cause damage to the operation of this unit.



Product Introduction

Media Axis™ is the world's first large-scale matrix switching and extension system supporting Ultra HD/4K60 4:4:4 via Native and IP architectures. With its dynamic, proprietary design features and technologies, Media Axis™ provides a truly adaptive solution that works where and how you need it.

The Media Axis Matrix Switcher supports the following digital interfaces:

- ✓ HDMI v2.0b (w/scaling)
- ✓ 12G-SDI (standard scaling)
- ✓ CATx (HDBaseT) (w/scaling)
- ✓ Fiber (w/scaling)
- ✓ IP (10G)
- ✓ Dante™/AES67 (IP audio)

Each Media Axis™ Matrix Switcher Chassis is custom-assembled from field-upgradeable Input/Output cards:

- The **MAX-20** can support a combination of up to (5) I/O cards
- The **MAX-36** can support a combination of up to (9) I/O cards
- The **MAX-72** can support a combination of up to (18) I/O cards
- The **MAX-144** can support a combination of up to (36) I/O cards
- The **MAX-216** can support a combination of up to (54) I/O cards

Media Axis™ is the first matrix switcher of its kind to provide both IP and native inputs and outputs in the same chassis. Any input can be routed to any or all outputs, no matter what the format is. This gives the end-user ultimate flexibility and room for expansion.

Note: 12G-SDI is not a licensed HDCP interface. If the content received from the HDMI signal is protected by HDCP, there will be no output from the 12G-SDI card.



Front View:

All Media Axis chassis units are rack-mountable on a standard 19" rack. The touch screen control panel is located on the front panel (Figure 1-1).



Figure 1-1 Front view of MAX-20 enclosure

Rear View:

Input/Output Card section, communication ports, and power supplies are placed on the rear panel as shown in Figure 1-2. The actual rearview will vary depending on the configuration of Input/Output Card type. The rear view of MAX-20X in Figure 1-2 is fully populated with CATx Input/Output Cards, Fiber Input/Output Cards, HDMI Input/Output Cards, and a 12G-SDI Input Card in a MAX-20 (20x20) frame.

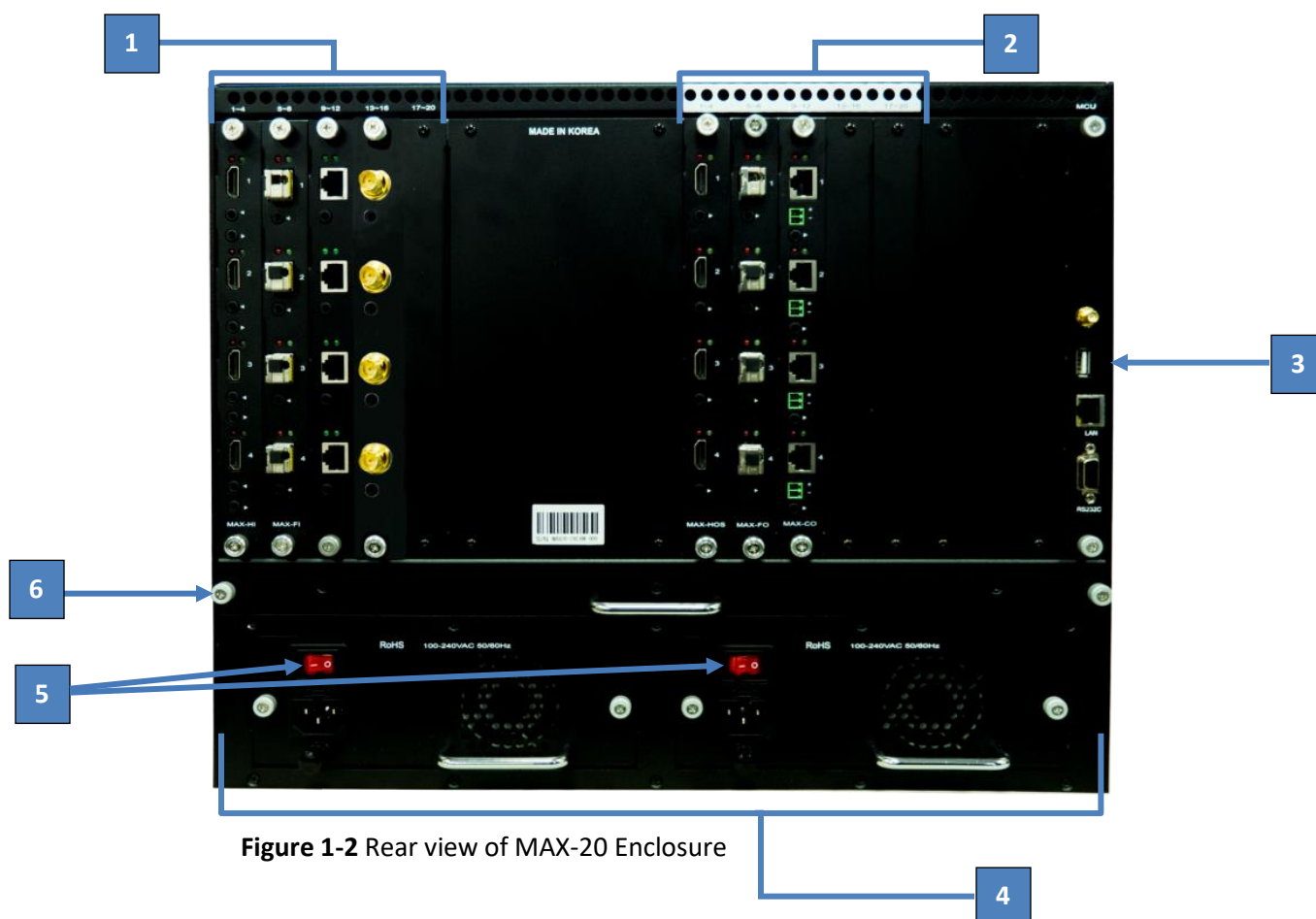


Figure 1-2 Rear view of MAX-20 Enclosure

1. Input Card Section
2. Output Card Section
3. Main MCU Card
4. Standard Redundant Power Modules
5. Power On/Off switches
6. AirLift Fan Blade Section

Features

Ultra HD/4K

Media Axis™ offers a complete catalog of distribution and extension solutions for 4K/60 4:4:4 connectivity that can be customized for any application. From 4K matrix switcher frames to 4K extenders, all with TOTALWIRE™ (HDMI, HDBaseT, and Fiber) cabling, Media Axis delivers a more complete 4K/60 4:4:4 solution than any other provider.

Cross-Platform Switching Technology

Media Axis's advanced Cross-Platform Switching Technology allows interchangeable switching between any Input signal formats to any Output signal formats. Media Axis™ supports 4K HDMI v2.0, 12G-SDI, Fiber Optic, CATx (HDBaseT), and IP signal formats with various Input and Output selection.

Available in various I/O sizes from 20x20 to 216x216

Media Axis™ offers a wide range of Input/Output configurations to match various sized installations. A total of five frame sizes are available: MAX-20X (up to 20x20), MAX-36X (up to 36x36), MAX-72X (up to 72x72), MAX-144X (up to 144x144), and MAX-216X (up to 216x216).

Power Injection

Media Axis™ provides power to the MAX CATx Extenders (Transmitter or Receiver) at the remote location over the same CATx cable that transmits Audio, Video, and Control. It eliminates the need of having power connected directly to the MAX CATx Extenders. A single CATx cable for Audio, Video, Control, and Power simplifies installations.

Note: MAX-RPS power supply sold separately. MAX-RPS injects power to MAX-CI and MAX-CO to send power to MAX CATx extenders via ethernet cable.

RS-232 +

Media Axis' RS-232 + simplifies the control and enables a single serial cable connecting the controller to the Media Axis to also control the system on three separate levels:

1. Media Axis Matrix Switcher
2. Media Axis CATx and Fiber Extenders (both Tx and Rx)
3. Devices attached to Media Axis Extenders (both Tx and Rx)

RS-232 + simplifies control within most systems, increasing reliability while also lowering costs by removing control design, hardware, and cabling.



Auto-Scaling

The Media Axis™ offers auto-scaling on both the switcher and extender receiver sides, increasing system design flexibility and switching speed. The Media Axis' HDMI Output Card (MAX-HO), provides auto-scaling for every Media Axis switcher. The CATx (MAX-CR102) and Fiber (MAX-FR102) Extender Receivers have built-in auto-scaling, while the 12G-SDI (MAX-FH-12G) Extender Receiver's auto-scaling is directly driven by the Media Axis' HDMI or Fiber Output Cards.

Audio Insertion/Extraction

The Media Axis' HDMI Input Card (MAX-HI) provides a 3.5mm Stereo Audio Output, enabling easy extraction of 2-channel PCM Audio from HDMI. Media Axis™ Extender Transmitters and Receivers provide 3.5mm Stereo Audio Inputs or Outputs as well for the insertion/extraction of 2-channel PCM Audio.

Audio Matrix

Media Axis I/O Cards offers independent built-in 3.5mm Audio on every I/O port.

Audio Attenuation and Muting

Every Media Axis allows volume attenuation and muting on the Audio Matrix Switcher's Output.

Signal Analyzer

Every Media Axis™ provides built-in comprehensive signal analysis of both incoming and outgoing signals, via the front panel LCD touch screen or control command. Signal information provided includes EDID, HDCP, transmission status, and resolution.

18 Gbps Data-Rate Frame

Ensures lossless 4K/60 4:4:4 digital AV signal switching and distribution.

Input Cards directly compatible with MAX Extender Transmitters

MAX CATx/Fiber Input Cards can receive a signal directly from MAX CATx/Fiber Extender Transmitters, eliminating the need for a matching Receiver.

Output Cards directly compatible with MAX Extenders Receivers

MAX CATx/Fiber Output Cards can send a signal directly to MAX CATx/Fiber Extender Receivers, eliminating the need for a matching Transmitter.



HDMI v2.0b Support

Adopting the latest HDMI version 2.0b enables Media Axis™ to support UHD (4K x 2K) 60Hz 4:4:4 resolution (optional) and 7.1 Channel Dolby TrueHD & DTS MasterHD

Standard Redundant Power

Every Media Axis™ is equipped with dual redundant power supply as a standard feature.

LCD Touch-Screen Display w/ Security Lock-Out

Every Media Axis™ has a front panel LCD Touch Screen for intuitive operation. Security Lock-Out feature prevents unauthorized access to the Matrix Switcher. In lock-out mode, a password entered from the touch screen or special command sent from a controller can disable the lock-out mode.

Auto-EDID (EDID Library, Emulation)

PureLink's EDID library and emulation feature failsafe EDID capture & storage to provide constant and continuous EDID for source devices.

Modular, Field-upgradeable

Media Axis™ is designed to expand, upgrade, and be reconfigured in the field. The following components are hot-swappable and field-upgradeable: I/O cards, AirLift fan units, MCU, and power supplies.

Preset

Multiple preset switching commands can be pre-programmed and saved in memory. Presets can be recalled in the future for easy and timesaving switching.

Fan, Power Supply Monitoring

Media Axis™ provides real-time fan and power supply status on the front panel LCD touch screen.

MAX-Universal Input/Output Cards

MAX Input/Output Cards can be used in any size Media Axis™ frame.

USB Firmware Updatable

Easy firmware updates using the USB port on the rear panel (no software program required).



Three Convenient Control Methods

1. Control via front panel touch screen or optional iAxis wireless control panel tablet
2. Control via RS-232/422C
3. Control via LAN (TCP/IP)

Maximum Distance up to 1.24 miles

As part of a complete switching system, send Audio, Video, control signal, and power up to 230ft over single CATx cable to and from the Media Axis™ using MAX CATx Extenders and send Audio, Video, and control signal up to 1.24 miles over Fiber Optic cable to and from the Media Axis™ using MAX Fiber Extenders.

Integrated Noise-cancellation and Error-correct Logic

Built-in on all input and output ports to prevent any damage caused by electrical noise.



Media Axis Frame Specifications

MAX-20 Frame General Specifications	
Matrix Switcher	20x20 Digital Matrix - (5) Input/ (5) Output slots
Input Signal Types	Configurable via Media Axis™ universal input cards supporting HDMI 2.0, HDBaseT, Fiber, 12G-SDI, IP, and Dante™ Audio
Output Signal Types	Configurable via Media Axis™ universal output cards supporting HDMI 2.0, HDBaseT, Fiber, IP, and Dante™ Audio
Supported Resolutions	Up to 4K@50/60Hz (4:4:4)
Supported Data Rate	18 Gbps
Compliance	HDMI 2.0, HDCP 2.2
Control Options	LCD Display (standard), iAxis™ Wireless Tablet (optional)
Cooling System	(1) Removable AirLift™ fan blade assembly
Main Power	(2) 100-240VAC 50/60Hz removable, redundant power modules
Power Supply	100-240VAC 50/60Hz
Power Injection for CATx Extenders	supported by MAX-CI/MAX-CO HDBaseT™ I/O Cards via additional power supply (MAX-RPS sold separately)
Operational Temperature	32° ~ 117° F (0° to 47° C)
Storage Temperature	- 40° ~ 158° F (-40° to 70° C)
Humidity	0 ~ 90% non-condensing



MTBF	50,000 hours
Rack Mounting Options	Standard 19" rack-mountable, 8RU
Enclosure Type	Chassis Only
Dimensions (W x D x H)	17.2" x 14.5" x 15.5" (437mm x 368.3mm x 394mm)
Weight (Frame Only)	TBD
Shipping Weight	TBD
Warranty	Limited Warranty (5-Years)

MAX-36 Frame General Specifications

Matrix Switcher	36x36 Digital Matrix - (9) Input/ (9) Output slots
Input Signal Types	Configurable via Media Axis™ universal input cards supporting HDMI 2.0, HDBaseT, Fiber, 12G-SDI, IP, and Dante™ Audio
Output Signal Types	Configurable via Media Axis™ universal output cards supporting HDMI 2.0, HDBaseT, Fiber, IP, and Dante™ Audio
Supported Resolutions	Up to 4K@50/60Hz (4:4:4)
Supported Data Rate	18 Gbps
Compliance	HDMI 2.0, HDCP 2.2
Control Options	LCD Display (standard), iAxis™ Wireless Tablet (optional)
Cooling System	(1) Removable AirLift™ fan blade assembly



Main Power	(2) 100-240VAC 50/60Hz removable, redundant power modules
Power Supply	100-240VAC 50/60Hz
Power Injection for CATx Extenders	supported by MAX-CI/MAX-CO HDBaseT™ I/O Cards via additional power supply (MAX-RPS sold separately)
Operational Temperature	32° ~ 117° F (0° to 47° C)
Storage Temperature	- 40° ~ 158° F (-40° to 70° C)
Humidity	0 ~ 90% non-condensing
MTBF	50,000 hours
Rack Mounting Options	Standard 19" rack-mountable, 10RU
Enclosure Type	Chassis Only
Dimensions (W x D x H)	17.2" x 14.5" x 17.3" (437mm x 368.3mm x 439mm)
Weight (Frame Only)	TBD
Shipping Weight	TBD
Warranty	Limited Warranty (5-Years)

MAX-72 Frame General Specifications

Matrix Switcher	72x72 Digital Matrix - (18) Input/ (18) Output slots
Input Signal Types	Configurable via Media Axis™ universal input cards supporting HDMI 2.0, HDBaseT, Fiber, 12G-SDI, IP, and Dante™ Audio



Output Signal Types	Configurable via Media Axis™ universal output cards supporting HDMI 2.0, HDBaseT, Fiber, IP, and Dante™ Audio
Supported Resolutions	Up to 4K@50/60Hz (4:4:4)
Supported Data Rate	18 Gbps
Compliance	HDMI 2.0, HDCP 2.2
Control Options	LCD Display (standard), iAxis™ Wireless Tablet (optional)
Cooling System	(1) Removable AirLift™ fan blade assembly
Main Power	(2) 100-240VAC 50/60Hz removable, redundant power modules
Power Supply	100-240VAC 50/60Hz
Power Injection for CATx Extenders	supported by MAX-CI/MAX-CO HDBaseT™ I/O Cards via additional power supply (MAX-RPS sold separately)
Operational Temperature	32° ~ 117° F (0° to 47° C)
Storage Temperature	- 40° ~ 158° F (-40° to 70° C)
Humidity	0 ~ 90% non-condensing
MTBF	50,000 hours
Rack Mounting Options	Standard 19" rack-mountable, 16RU
Enclosure Type	Chassis Only
Dimensions (W x D x H)	17.2" x 14.5" x 28.7" (437mm x 368.3mm x 728mm)
Weight (Frame Only)	TBD



Shipping Weight	TBD
Warranty	Limited Warranty (5-Years)

MAX-144 Frame General Specifications

Matrix Switcher	144x144 Digital Matrix - (36) Input/ (36) Output slots
Input Signal Types	Configurable via Media Axis™ universal input cards supporting HDMI 2.0, HDBaseT, Fiber, 12G-SDI, IP, and Dante™ Audio
Output Signal Types	Configurable via Media Axis™ universal output cards supporting HDMI 2.0, HDBaseT, Fiber, IP, and Dante™ Audio
Supported Resolutions	Up to 4K@50/60Hz (4:4:4)
Supported Data Rate	18 Gbps
Compliance	HDMI 2.0, HDCP 2.2
Control Options	LCD Display (standard), iAxis™ Wireless Tablet (optional)
Cooling System	(3) Removable AirLift™ fan blade assembly
Main Power	(2) 100-240VAC 50/60Hz removable, redundant power modules
Power Supply	100-240VAC 50/60Hz
Power Injection for CATx Extenders	supported by MAX-CI/MAX-CO HDBaseT™ I/O Cards via additional power supply (MAX-RPS sold separately)
Operational Temperature	32° ~ 117° F (0° to 47° C)



Storage Temperature	- 40° ~ 158° F (-40° to 70° C)
Humidity	0 ~ 90% non-condensing
MTBF	50,000 hours
Rack Mounting Options	Standard 19" rack-mountable, 28RU
Enclosure Type	Chassis Only
Dimensions (W x D x H)	17.2" x 14.5" x 51.6" (437mm x 368.3mm x 1310mm)
Weight (Frame Only)	TBD
Shipping Weight	TBD
Warranty	Limited Warranty (5-Years)

MAX-216 Frame General Specifications

Matrix Switcher	216x216 Digital Matrix - (54) Input/ (54) Output slots
Input Signal Types	Configurable via Media Axis™ universal input cards supporting HDMI 2.0, HDBaseT, Fiber, 12G-SDI, IP, and Dante™ Audio
Output Signal Types	Configurable via Media Axis™ universal output cards supporting HDMI 2.0, HDBaseT, Fiber, IP, and Dante™ Audio
Supported Resolutions	Up to 4K@50/60Hz (4:4:4)
Supported Data Rate	18 Gbps
Compliance	HDMI 2.0, HDCP 2.2



Control Options	LCD Display (standard), iAxis™ Wireless Tablet (optional)
Cooling System	Removable AirLift™ fan blade assembly
Main Power	(2) 100-240VAC 50/60Hz removable, redundant power modules
Power Supply	100-240VAC 50/60Hz
Power Injection for CATx Extenders	supported by MAX-CI/MAX-CO HDBaseT™ I/O Cards via additional power supply (MAX-RPS sold separately)
Operational Temperature	32° ~ 117° F (0° to 47° C)
Storage Temperature	- 40° ~ 158° F (-40° to 70° C)
Humidity	0 ~ 90% non-condensing
MTBF	50,000 hours
Rack Mounting Options	Standard 19" rack-mountable, 39RU
Enclosure Type	Chassis Only
Dimensions (W x D x H)	TBD
Weight (Frame Only)	TBD
Shipping Weight	TBD
Warranty	Limited Warranty (5-Years)



Input Card Specifications



HDMI Input Card (MAX-HI) Specifications	
Connector Types	(4) Female HDMI (4) 3.5mm stereo audio inputs for independent audio matrix (4) 3.5mm stereo audio outputs for audio de-embedding
Signal Type	HDMI 2.0 w/Deep Color, 3D, & 4K
Audio Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, Dolby Atmos®, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, LPCM up to 8 channels
Audio Insertion	3.5mm stereo audio inputs for internal independent audio matrix
Audio Extraction	Audio de-embedding via 3.5mm stereo audio outputs
Compliance	HDCP 2.2, HDMI 2.0b
Output Peripheral Device Power	5V power
Maximum Resolution	up to Ultra HD/4K (4096x2160, 4:4:4 @ 50/60Hz)
Maximum Data Rate	18 Gbps per color (R,G,B)
Maximum Pixel Clock	300 MHz
Output Re-clocking	Automatic

Input Equalization	Automatic, Max 30m 1920 x1200 @50/60Hz or 1080p; 8-bit color, Ultra HD 4K
Support Hot Plug Detection	Yes
Single Card Weight	0.5 lb. (0.23 kg)



CATx (HDBaseT) Input Card (MAX-CI) Specifications

Connector Types	(4) 8 pin female RJ45 (4) 3.5mm stereo audio inputs for independent audio matrix (4) 2-pin phoenix connector [for power injection]
Signal Type	HDMI, HDBaseT w/Deep Color, 3D, & 4K

Supported Twisted Cable Type	CAT5/5e, CAT6/6e, CAT6a, CAT7
Digital Audio Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, Dolby Atmos®, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, LPCM up to 8 channels
Audio Insertion	3.5mm stereo audio inputs for internal independent audio matrix
Compliance	HDCP 2.2
Power Injection for CATx Extenders	Yes (MAX-RPS) power supply sold separately)
Maximum Resolution	up to Ultra HD/4K (4096x2160, 4:4:4 @ 50/60Hz)
Maximum Pixel Clock	300Mhz
Input Equalization	Auto Equalization
Compatible Extenders	MAX-CT101
Single Card Weight	0.5 lb. (0.23 kg)

Note: MAX-RPS power supply required to send power to MAX-CT101 (Transmitter)



Fiber Optical Input Card (MAX-FI) Specifications

Connector Types	(4) Female 1LC fiber (4) 3.5mm stereo audio inputs for independent audio matrix
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Signal Type	Fiber w/Adaptive Singlemode & Multimode processing
Digital Audio Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, Dolby Atmos®, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, LPCM up to 8 channels
Audio Insertion	3.5mm stereo audio inputs for internal independent audio matrix
Operating Distance	multimode 500m, Singlemode 2Km
Compliance	HDCP 2.2
Maximum Resolution	up to Ultra HD/4K (4096x2160, 4:4:4 @ 50/60Hz)
Nominal Peak Wavelength	1550nm, 1310nm
Maximum Receiver Sensitivity	Singlemode -15dbm, multimode -16dbm
Optical Loss Budget	Singlemode 9db, multimode 8db
Compatible Extenders	MAX-FT101
Single Card Weight	0.5 lb. (0.23 kg)



12G-SDI Input Card (MAX-SI-12G) Specifications

Connector Types	(4) Female BNC (4) 3.5mm stereo audio inputs for independent audio matrix
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Signal Type	12G-SDI w/Deep Color, & 3D
Digital Audio Formats	Dolby Digital/DTS/PCM pass-through
Audio Insertion	3.5mm stereo audio inputs for internal independent audio matrix
Operation Standards	SMPTE 259M-A/C, SMPTE 292M, SMPTE 424M, SMPTE ST-2018, SMPTE ST-2082, ITU-RBT.601, ITU-RBT.1120
Nominal Level	0.8Vp-p
Impedance	75ohms
Return Loss	≥15 dB @ 5 MHz to 1.5 GHz
Equalization	Auto
Input Cable Equalization Distance	80m at 11.88Gbps
Re-clocking	Automatic
Auto Data Rate Lock	Supported
Maximum Resolution	up to 4K@60Hz (4:4:4)
Single Card Weight	0.5 lb. (0.23 kg)



Dante™ Audio Input Card (MAX-AI-DA) Specifications

Connector Types	(4) Female HDMI Type A inputs (4) stereo unbalanced analog audio inputs (3-pin phoenix connector) (2) RJ-45 ports (primary and secondary IP audio connections)
Operation Standard	HDMI 2.0
HDCP Compatible	HDCP 2.2
Maximum Pixel Clock	300MHz
Maximum Resolution	Up to 4K @ 60Hz 4:4:4
Equalization	Auto
HDMI Digital Audio Formats	LPCM up to 7.1, Dolby Digital 5.1, Dolby Digital Plus,

	Dolby TrueHD, DTS-HD, DTS-HD Master Audio
IP Audio Transmitter Type	Dante™/AES67, Software Selectable
IP Output Channel	HDMI Audio 32 channel + Stereo Audio 8 channel
IP Audio Format	Uncompressed, 24bit, 48KHz
IP Audio Latency	Selectable, 0.25ms, 0.5ms, 1.0ms, 2.0ms, 5.0ms
Single Board Weight	1 lb. (0.45 kg)

Output Card Specifications



HDMI Output Card (MAX-HO) Specifications	
Connector Types	(4) Female HDMI (4) 3.5mm stereo outputs for independent audio matrix
Signal Type	HDMI 2.0 w/Deep Color, 3D, & 4K
Digital Audio Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, Dolby Atmos®, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, LPCM up to 8 channels
Audio Extraction	3.5mm stereo audio outputs for internal independent audio matrix
Compliance	HDCP 2.2, HDMI 2.0b

Media Processing	Motore™ 2.0 scaling
Output Peripheral Device Power	5V power
Maximum Resolution	up to Ultra HD/4K (4096x2160, 4:4:4 @ 50/60Hz)
Maximum Pixel Clock	300 MHz
Output Re-clocking	Automatic
Output Equalization	Automatic, Max 30m 1920 x1200 @50/60Hz or 1080p; 8-bit color, Ultra HD 4K
Support Hot Plug Detection	Yes
Single Card Weight	0.5 lb. (0.23 kg)



CATx (HDBaseT) Output Card (MAX-CO) Specifications	
Connector Types	(4) 8 pin female RJ45 (4) 3.5mm stereo outputs for independent audio matrix (4) 2-pin phoenix connector [for power injection]
Signal Type	HDMI, HDBaseT w/Deep Color, 3D, & 4K
Supported Twisted Cable Type	CAT5/5e, CAT6/6e, CAT6a, CAT7
Digital Audio Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, Dolby Atmos®, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, LPCM up to 8 channels
Audio Extraction	3.5mm stereo audio outputs for internal independent audio matrix
Compliance	HDCP 2.2
Power Injection for CATx Extenders	Yes (MAX-RPS) power supply sold separately)
Maximum Resolution	up to Ultra HD/4K (4096x2160, 4:4:4 @ 50/60Hz)
Maximum Pixel Clock	300Mhz
Output Re-clocking	Auto Re-clocking
Compatible Extenders	MAX-CR102
Single Card Weight	0.5 lb. (0.23 kg)

Note: MAX-RPS power supply required to send power to MAX-CR102 (Scaling Receiver)



Fiber Optical Output Card (MAX-FO) Specifications

Connector Types	(4) Female 1LC fiber (4) 3.5mm stereo outputs for independent audio matrix
Signal Type	Fiber w/Adaptive Singlemode & Multimode processing
Digital Audio Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, Dolby Atmos®, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, LPCM up to 8 channels
Audio Extraction	3.5mm stereo audio outputs for internal independent audio matrix
Operating Distance	multimode 500m, Singlemode 2Km
Compliance	HDCP 2.2
Maximum Resolution	up to Ultra HD/4K (4096x2160, 4:4:4 @ 50/60Hz)
Nominal Peak Wavelength	1550nm, 1310nm
Maximum Receiver Sensitivity	Singlemode -15dbm, multimode -16dbm
Optical Loss Budget	Singlemode 9db, multimode 8db
Compatible Extenders	MAX-FR102
Single Card Weight	0.5 lb. (0.23 kg)



Dante™ Audio Output Card (MAX-AO-DA) Specifications

Connector Types	(4) Female HDMI Type A outputs (2) RJ-45 ports (primary and secondary IP audio connections)
Operation Standard	HDMI 2.0
HDCP Compatible	HDCP 2.2
Maximum Pixel Clock	300MHz
Maximum Resolution	Up to 4K @ 60Hz 4:4:4
Equalization	Auto
HDMI Digital Audio Formats	LPCM up to 7.1, Dolby Digital 5.1, Dolby Digital Plus,

	Dolby TrueHD, DTS-HD, DTS-HD Master Audio
IP Audio Transmitter Type	Dante™/AES67, Software Selectable
IP Output Channel	HDMI Audio 32 channel
IP Audio Format	Uncompressed, 24bit, 48KHz
IP Audio Latency	Selectable, 0.25ms, 0.5ms, 1.0ms, 2.0ms, 5.0ms
Single Board Weight	1 lb. (0.45 kg)

Installation

Package Contents

The shipping contents consists of the followings:



- ▶ 1 x Media Axis™ series Matrix Switcher Frame
- ▶ Input / Output Cards (purchased separately)
- ▶ AC Power Cords
- ▶ 1 x RS-232C Cable (crossed type)
- ▶ 1 x RJ-45 UTP Cable (crossed type)
- ▶ 1 x USB Cable for Firmware Update
- ▶ User's Manual

Installation Environments

For installation environments, we recommend the following environments:

- Below 30°C of ambient temperature
- Install and operate in the environment below 60% of ambient humidity (Best condition)
- Use it in the environment of free of vibrations and dust and in good ventilation condition
- Avoid areas with direct sunlight, heat sources, or high levels of EMI
 - EMI: Electro-Magnetic Interference
- Recommend stabilized AC Input power (Recommended to use AVR)



- AVR: Automatic Voltage Regulator
- All physical connections to the product use industry-standard connectors
- Be careful when you come in contact with the product, some parts can be somewhat hot

Install Card as follows:

1. Align the Card with metal guide rail
2. Gently slide the card into the frame until it connects to the frame
3. Tighten the top and bottom screw knobs (clockwise) to lock the Card to the frame

Removing Card as follows:

1. Disconnect any connected cables
2. Loosen and pull the top and bottom screw knobs (counterclockwise) to unlock the Card from the frame
3. Gently slide Card out of the frame

Installing the Matrix Switcher in a Rack

Note: When mounting the Media Axis in a rack, ensure that none of the fans have restricted airflow

Rack Installation Tips

- Write down the serial number (usually located on the bottom of the unit) in an easily accessible location prior to installing the unit in a rack
- It is recommended to test the unit to ensure the unit is working properly prior to installing the unit in a rack
- It is recommended to use two or more people installing the unit in a rack
- For HDMI Input and/or Output Cards, we recommend using copper cable no longer than 33 ft (10 meters) for HD Video quality assurance. Above 33 ft (10meters), we recommend using the CATx or Fiber Optic extension system. This will assure future, higher-resolution Video transmissions.
- For CATx Input and/or Output Cards, MAX CATx Extenders are required. MAX CATx Transmitters pair with MAX CATx Input Card and MAX CATx Receivers pair with MAX CATx Output Card.
- For Fiber Input and/or Output Cards, MAX Fiber Extenders are required. MAX Fiber Extender Transmitters pair with MAX Fiber Input Card and MAX Fiber Receivers pair with MAX Fiber Output Card.
- Use crossed RS-232/422 cable for serial control
- Use crossed RJ-45 cable for LAN control



Installation and Setup

- Place the Matrix Switcher into the desired position and secure Media Axis into the rack using screws through the rack ear holes
 - * It is recommended to screw all holes for a secure installation
- Plug power cord into the power supply unit on the Matrix Switcher. For redundancy power use, plug power cords into both power supply units
- Connect source devices to the Matrix Switcher's Input Cards using appropriate cables
- Connect display devices to the Matrix Switcher's Output Cards using appropriate cables. Connect control devices to the Matrix Switcher's communication ports.
 - * Command Protocols are communicated through RS-232/422, LAN, or front panel touch screen. The USB connection is only for firmware updates.
- Make sure any connected Extenders' are powered on
 - * CATx Extenders may not need power if they will be powered via power injection
- Turn on the power of display devices
- Turn on the power of the Media Axis™
- Turn on the power of the source devices

Note: In most cases, PureLink's Auto EDID factory default setting will result in a satisfactory image on the display. It is almost a plug-n-play system. There may be cases where additional adjustment is required.

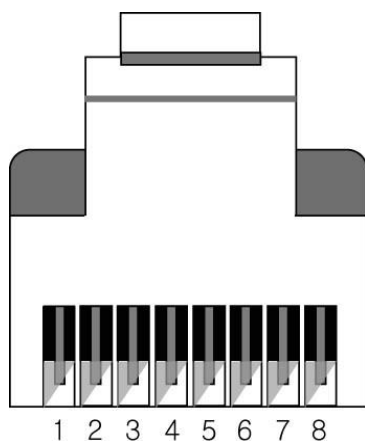
Cable Termination

- CATx (HDBaseT) cable
- RS-232/422 cable (MAX Matrix)
- LAN cable
- Audio cable
- RS-232/422 cable (MAX Extenders)



CATx Cable Termination (for CATx Input/Output Cards)

The Media Axis™ and Extenders are designed with the TIA/EIA-568-B standard. Please ensure that each PIN layout of the cable is corresponding with the picture below before connecting the cable. Please note that CATx or above level cable enables to deliver better quality and longer distances.



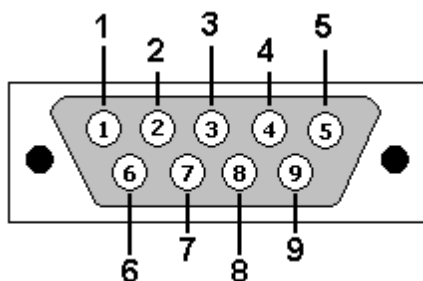
Pin	TIA/EIA-568B	Signal
	Wire color	Digital RGB
1	Orange/ White	TMDS Data2+
2	Orange	TMDS Data2-
3	Green/ White	TMDS Data1+
4	Blue	TMDS Data0+
5	Blue/ White	TMDS Data0-
6	Green	TMDS Data1-
7	Brown/ White	TMDS Clock+
8	Brown	TMDS Clock-

RS-232/422 Cable Termination (for Control)

Note: Crossover (Null modem) cable must be used for the communication with Media Axis™

The following table shows the pinout of the RS-232/422 connector. Note that in the pinout table, some transmit/receive functions (abbreviated as Tx/Rx) are different for RS-232 versus RS-422. DB9 cables are available with male-to-male, female-to-female, and male-to-female connectors. Media Axis' RS-232/422 port uses a male DB9 connector and therefore requires a cable with a female connector.

Pin	RS-232	RS-422
1	Not used	Not used



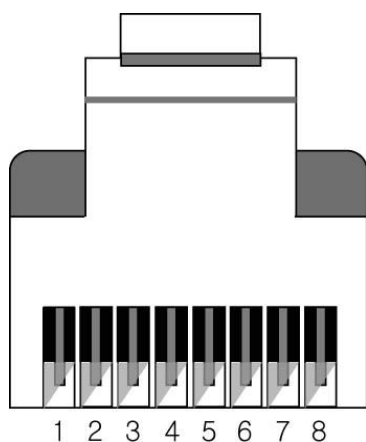
2	Rx: Receive	Rx-: Receive (-)
3	Tx: Transmit	Tx-: Transmit (-)
4	Not used	Not used
5	Ground	Ground
6	Not used	Not used
7	Not used	Tx+: Transmit (+)
8	Not used	Rx+: Receive (+)
9	Not used	Not used

LAN Cable Termination (for Control)

The following table shows the pinout of the LAN connector. Note that in the pinout table, some transmit/receive functions (abbreviated as Tx/Rx) are different for straight-through cable and crossover LAN cable.

- Straight-through Cable: for connection of Media Axis™ series Matrix Switcher to an Ethernet network
- Crossover Cable: for a direct connection between the PC or controller and Media Axis™

Pin	Crossover Cable	
	End 1 Wire Color	End 2 Wire Color
1	Orange/ White	Orange/ White
2	Orange	Green
3	Green/ White	Green/ White
4	Blue	Blue
5	Blue/ White	Blue/ White
6	Green	Orange
7	Brown/ White	Brown/ White



8	Brown	Brown
---	-------	-------

Pin	Straight-through Cable	
	End 1 Wire Color	End 2 Wire Color
1	Orange/ White	Orange/ White
2	Green	Green
3	Green/ White	Green/ White
4	Blue	Blue
5	Blue/ White	Blue/ White
6	Orange	Orange
7	Brown/ White	Brown/ White
8	Brown	Brown

RS-232 Cable Termination (for MAX Extender Tx/Rx)

A 3-pin Phoenix connector is used for RS-232 communication between MAX Extender Tx/Rx to the devices that are attached.

Part Number	Pin No.	Description	Remark
ECH350R-03	1	TXD	
	2	RXD	
	3	GND	

Operation

Media Axis™ Matrix Switchers can be operated via three convenient methods:

1. Front panel LCD touch screen or wireless iAxis tablet control panel
2. RS-232/422C
3. LAN (TCP/IP)

Front Panel LCD Touch Screen Operation

The front panel LCD touch screen of Media Axis™ is designed for the user to operate and configure settings through six main menus:

1. **Create** - Configuring Input-Output switching connections
2. **Preset** - Create, save, and recall the presets
3. **EDID** - Configure EDID settings
4. **Settings** - Configure communication settings and reset the system
5. **Info** – Check system, input, and output status
6. **I/O Configuration** - Configure I/O options

CREATE

Media Axis™ is designed to create an independent Video/Audio switch or able to switch Video/Audio together. This section will guide the user on how to create/disconnect switching Video and Audio connection.

Navigation

Users can navigate the Video and Audio tabs of the **CREATE** page by using their finger on the touch screen to swipe through the matrix (up, down, left, right) or by using the following buttons:



1. **Home Button** – press this button to go back to inputs 1 through 9 and outputs 1 through 9 no matter where you are in the inputs and outputs of the matrix
2. **Navigation Arrows** – allows users to move through all the inputs and outputs of the matrix
3. **Input/Output Range** – jump to a specific section of inputs (green) and/or outputs (blue)

The inputs are horizontal across the matrix in green, while outputs are vertical on the left side of the matrix in blue.

Video



This section is to switch Video connections only. Select Input and Output numbers to route a source signal to destination devices. (for Example: select 2->1 = input 2 is routed to output 1)



*Above shows input 1 to outputs 1-9

The buttons on the right side have the following functions:

- **Set All**
 - The "Set All" button allows you to select an individual input and send it to all outputs without having to push each output individually.
- **Clear All**
 - The "Clear All" button allows you to clear all selections without having to push each one individually
- **One to One**
 - The "One to One" button is to create a one to one connection between Input and Output (for example, connect Input #1 to Output #1, Input #2 to Output #2, ~ Input #15 to Output #15, Input #16 to Output #16).
- **Save**
 - The "Save" button allows you to save the current input/output configuration as a preset.

Audio





This section is to switch audio connections only. Select Input and Output numbers to route a source signal to destination devices. (for Example: select 2->1 = input 2 is routed to output 1)

The buttons on the right side have the following functions:

- **Set All**
 - The "Set All" button allows you to select an individual input and send it to all outputs without having to push each output individually.
- **Clear All**
 - The "Clear All" button allows you to clear all selections without having to push each one individually
- **One to One**
 - The "One to One" button is to create an one to one connection between Input and Output (for example, connect Input #1 to Output #1, Input #2 to Output #2, ~ Input #15 to Output #15, Input #16 to Output #16).
- **Save**
 - The "Save" button allows you to save the current input/output configuration as a preset.



*Volume Info

Media Axis™ displays audio matrix switching status and output volume. To see the **Volume Info** for an output, press the desired output in the far-left column. From the **Volume Info** window, you can adjust the volume of each output individually. For Example:

- 0 dB represents no attenuation
- -1dB represents -1dB attenuation
- Mute represents output volume mute

Channel Info

- Pressing an input or output number will display the **Channel Info** for that input or output

Input Channel Info

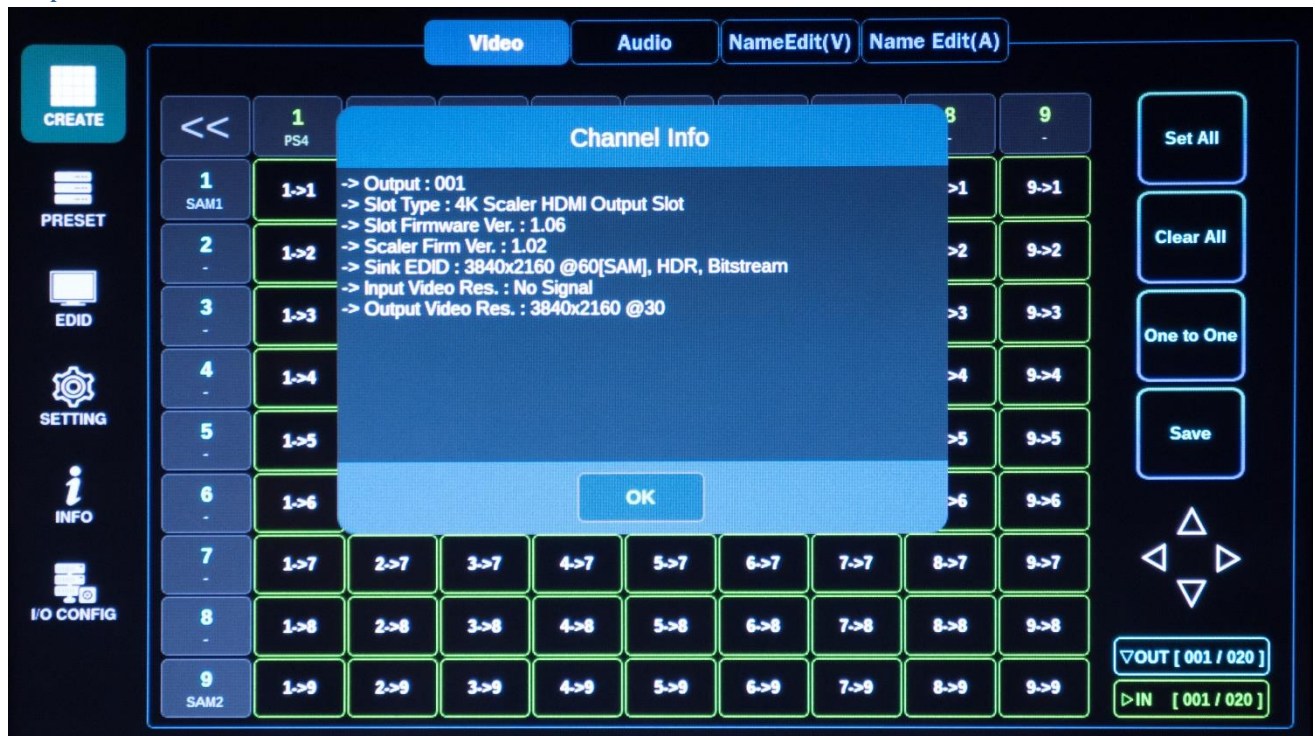


*Horizontal #s are inputs and vertical #s are outputs

Media Axis™ Matrix Switchers have a built-in signal analyzing functions that enable users to check the detailed information of incoming and outgoing signals.

- The input **Channel Info** window displays the following information:
 - Input port number, card type, firmware version, status information, EDID information, incoming signal's resolution, video format, and transmission status

Output Channel Info



*Horizontal #s are inputs and vertical #s are outputs

Media Axis™ Matrix Switchers have built-in signal analyzing functions that enable users to check the detailed information of incoming and outgoing signals.

- The output **Channel Info** window displays the following information:
 - Output port number, card type, firmware version, selected input channel number, connected monitor's EDID information, incoming signal's resolution, video format, and transmission status

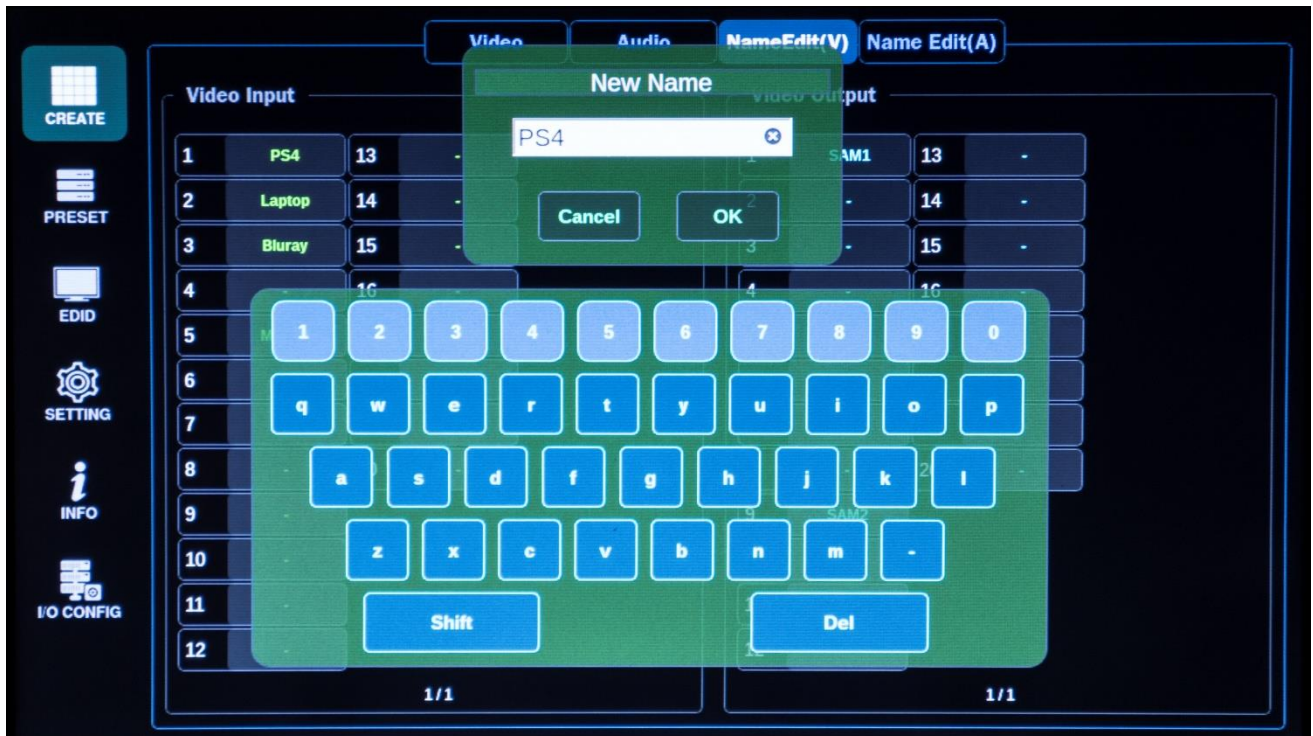
Name Edit (video and audio)

Media Axis™ allows users to add and change/edit the names of both input and output devices (for video and audio). To do so:

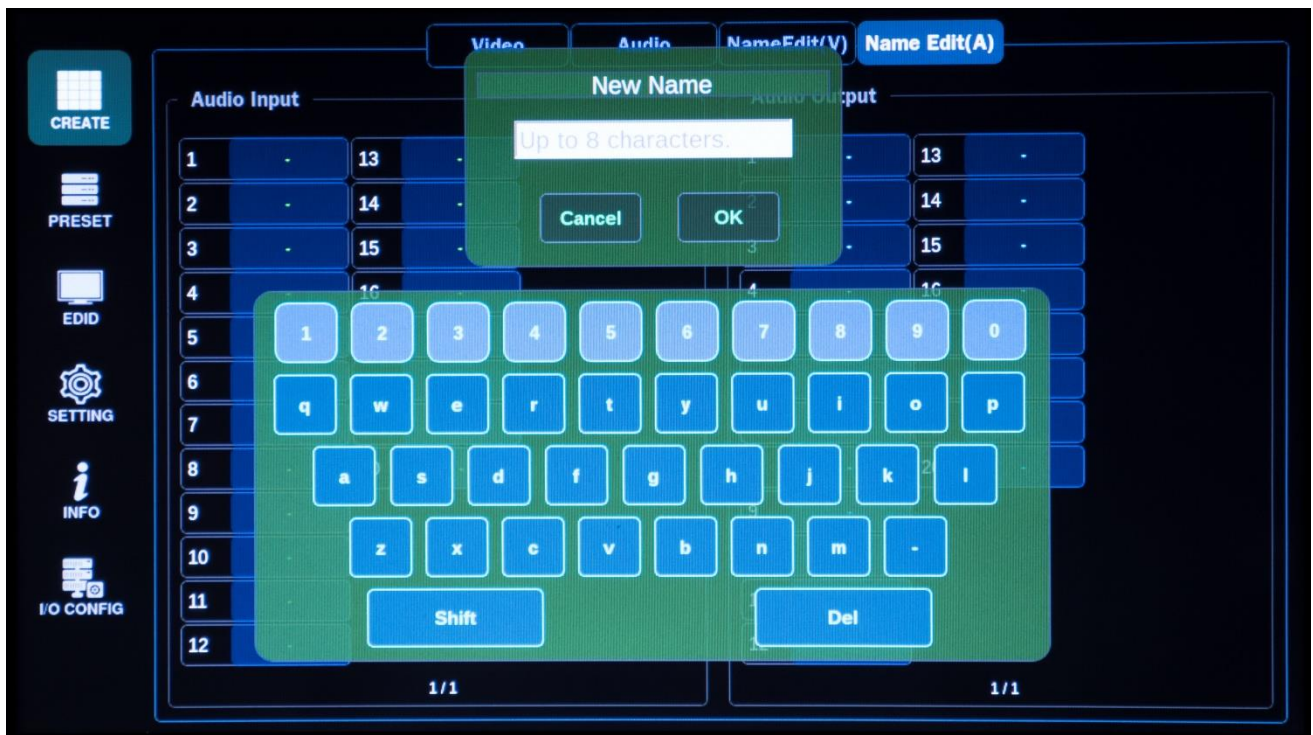
- Navigate to the **Name Edit(V)** to edit video inputs and outputs or **Name Edit(A)** to edit audio inputs and outputs
- Selected the desired input or output to be edited
- Enter the name using the onscreen keyboard
- Press **OK** to save



*Name Edit page for video



- Press the input/output to change/edit; Edit name using the keypad as shown above (video)



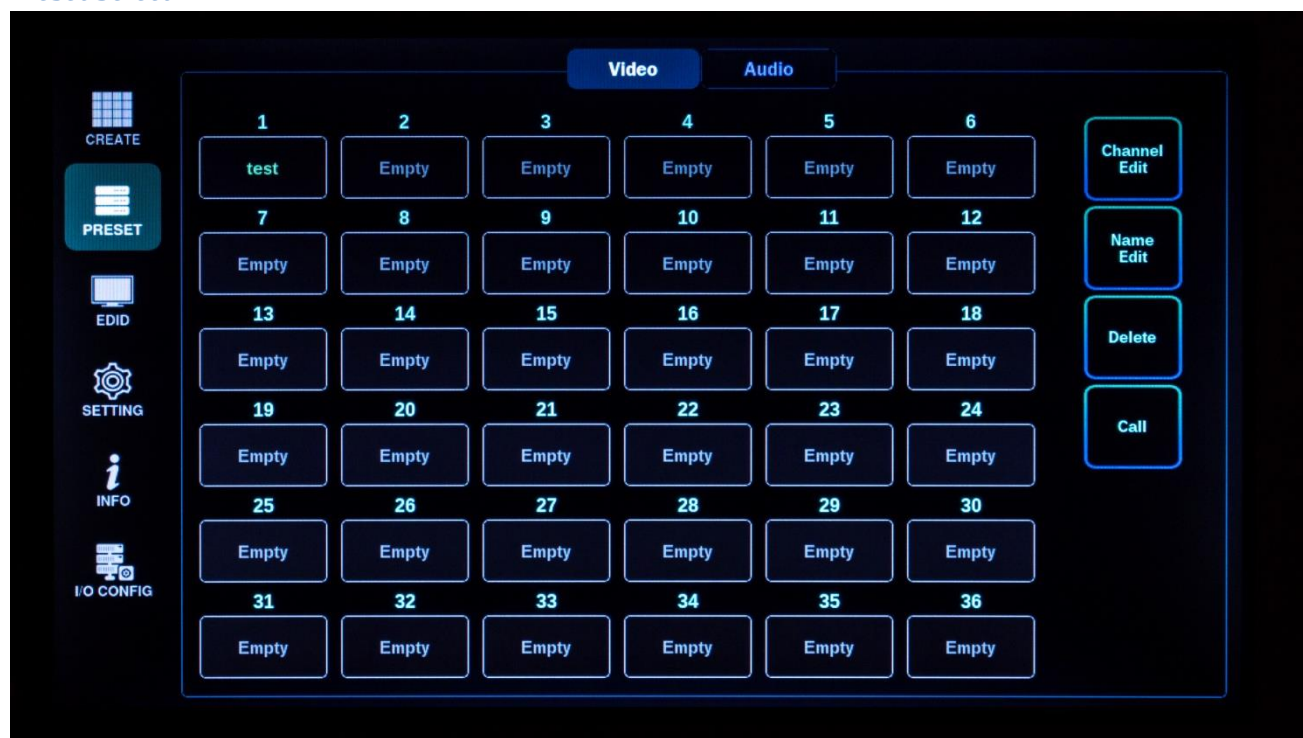
- Press the input/output to change/edit; Edit name using the keypad as shown above (audio)

PRESET

The Media Axis™ Matrix Switcher provides a preset function for users to execute predefined, multiple switches at once in the **PRESET** page. Presets can be saved and recalled from the front panel touch screen.

- All presets remain stored when power is lost and restored unless the user factory resets the Matrix Switcher
- When a preset is recalled, it replaces the previously selected I/O configuration
- Saving video and audio presets are done in the same manner under the **Video** and **Audio** tabs

Preset Select



To create, edit channel, edit the name, delete, or recall, select the desired Preset number. The buttons on the righthand side have the following functions:

- **Channel Edit** – create a new or edit an existing preset (after creating a new preset the user will be prompted to name the preset)
- **Name Edit** – edit the name of the preset
- **Delete** – delete the selected preset
- **Call** – call the selected preset (this will replace the previously selected I/O configuration)

Channel Edit

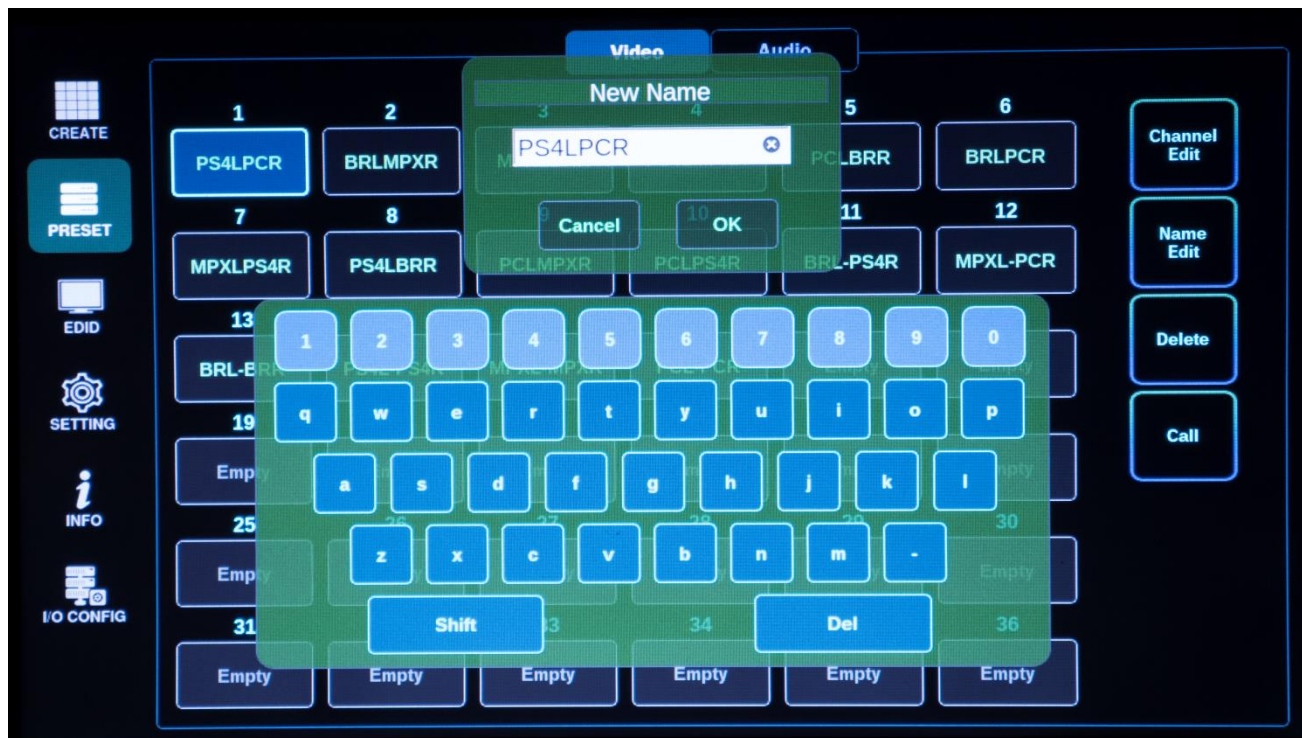
VIDEO - CH 1

<<	1 PS4	2 Laptop	3 Bluray	4 -	5 MPX50	6 -	7 -	8 -	9 -	Save
1 SAM1	1->1	2->1	3->1	4->1	5->1	6->1	7->1	8->1	9->1	Cancel
2 -	1->2	2->2	3->2	4->2	5->2	6->2	7->2	8->2	9->2	
3 -	1->3	2->3	3->3	4->3	5->3	6->3	7->3	8->3	9->3	
4 -	1->4	2->4	3->4	4->4	5->4	6->4	7->4	8->4	9->4	
5 -	1->5	2->5	3->5	4->5	5->5	6->5	7->5	8->5	9->5	
6 -	1->6	2->6	3->6	4->6	5->6	6->6	7->6	8->6	9->6	
7 -	1->7	2->7	3->7	4->7	5->7	6->7	7->7	8->7	9->7	
8 -	1->8	2->8	3->8	4->8	5->8	6->8	7->8	8->8	9->8	
9 SAM2	1->9	2->9	3->9	4->9	5->9	6->9	7->9	8->9	9->9	

▾OUT [001 / 020]
 ▸IN [001 / 020]

Create or edit the Input/Output switching connections and press the **Save** button to save the current Input/Output switching connections. Press **Cancel** to disregard any changes made.

Name Edit



To edit the name of a preset, on the **PRESET** main menu, select the desired preset # and then press the **Name Edit** button. Users can name presets in a combination of letters and numbers using the keypad shown on the LCD. Press the **OK** button to save the name or **Cancel** to disregard the changes.

EDID

In the **EDID** page, the Media Axis™ Matrix Switcher provides an Auto EDID management system, an easy and fail-safe way to handle EDID, via the EDID library system and EDID emulation.

What's EDID?

Extended Display Identification Data (EDID) is an information set that a digital display provides to describe its capabilities to a video source. Video sources will know what kinds of displays are connected and it will determine which resolution to output according to the EDID information received from the display.

The EDID normally includes the manufacturer's name and serial number, sets of capable resolution including native resolution, supported timing, pixel mapping data (for digital displays only), etc.

In a digital connectivity environment, in order to support the maximum resolution of the connected monitor, EDID handshake is critical because improper EDID handshake between sources and the display will result in no image on the display.

EDID handshake may sound simple, however, with multiple peripheral devices within the chain, the display's EDID information can easily be lost or blocked while it is traveling to the source device.

Media Axis™ provides an Auto EDID management system™ to meet today's sophisticated digital connectivity integration environment.

Auto EDID Management System

EDID Library

The 11 most widely used EDID data is pre-programmed into the internal EEPROM chipset which users can take and save onto any of the Matrix Switcher's Input EEPROM chipsets.

EDID Library List

By optimizing factory default EDID and EDID library features, in most cases, Media Axis™ will work out of the box without any additional configuration.

Emulation

The user can easily save EDID data from any display devices directly onto the Matrix Switcher's input port. By saving the display device's EDID information on the Media Axis' input port, the input port will act as a display to the video source.

Note: There may be display devices that will not allow another device to emulate its EDID data.

Note: Certain EDID data may not be compatible with some devices, in this case, it is recommended to use the scaling option.



Internal EDID (EDID Library)

In the **Internal** tab, select an EDID from the library and save it on to the Input EEPROM. Media Axis™ has 11 of the most widely used EDID data pre-programmed.



- Under the Internal Output section, scroll through the list of EDID options using the touch screen and select the desired EDID
- Under the Input section, select the input # where the selected EDID data will be saved on to (multiple inputs can be selected at once)
- Press the **Enter** button to save
- **Set All** – will select all options under the Input section
- **Clear CH** – will clear all selections under the Input section

External EDID (Emulation)

The **External** tab is to emulate EDID data from any display devices that are connected to the Media Axis' output via copper cables and saves the information on to Media Axis' Input EEPROM.

Note: For CATx and Fiber output cards, EDID emulation is not possible. In this case, try the EDID library feature.



- Under the External Output section, select the output # of the display's EDID that is desired to be emulated
- The display device's EDID information will be displayed from the selected output
- Under the Input section, select the input # where the selected EDID data will be saved on to (Multiple inputs can be selected at once)
- Press the **Enter** button to save
- **Set All** – will select all options under the Input section
- **Clear CH** – will clear all selections under the Input section

SETTINGS

Media Axis™ communication settings can be configured using the LCD front panel touch screen from the **SETTING** page, no need for an external PC or device. This section will demonstrate how to set RS-232, LAN, and Product ID information.

RS232



In the **Device** tab, there are four values that need to be set for serial communication: Baud Rate, Data Bits, Stop Bits, and Parity. Click and select each value using the touch screen and press the Enter button to save.

Factory default (recommended) settings for serial communication are:

- Baud Rate - 19200
- Data Bits - 8
- Stop Bits - 1
- Parity - none
- Flow Control - none

Supported settings are:

- Supported Baud Rate
 - 4800 Bps, 9600 Bps, 14400 Bps, 19200 Bps, 38400 Bps, 57600Bps, 76800 Bps, 115200Bps
- Supported Data bit
 - 5-bit, 6-bit, 7-bit, 8-bit
- Supported Parity
 - None, Even, Odd
- Supported Stop bit:
 - 1-bit, 2-bit

LAN



Media Axis™ can be controlled through the 10/100 base Ethernet port using either GUI (graphic user interfaces) or a command-line interface. The graphic user interfaces use a standard web browser such as Microsoft Internet Explorer.

There are four values that need to be set for LAN communication in the **Device** tab: IP address, Gateway address, Subnet mask, and Mac address. Click and select each value using the touch screen and press the Enter button to save once changes are made.

Note: Please contact your Network Administrator for network information to avoid any IP conflicts.

Factory default settings for LAN communication are:

IP Address: 192.168.000.002

Gateway Address: 192.168.000.001

Subnet Mask: 255.255.255.000

Mac Address:

Media Axis™ has its own MAC address and that MAC address allows users to communicate with PC network solutions without any communication conflict.

Use the number keypad to set network information.

Use "." to move to the next section.



Product ID



In the **Device** tab by setting different IDs to Media Axis™, up to 255 units of Media Axis™ Matrix Switchers can be connected and operated on the same network either via serial or LAN communication. The Product ID can be set between 001 ~ 255.

The factory default setting is 255.

Note: The Product ID is associated with the command control Protocol; therefore, it is important to remember the Media Axis' current Product ID.

Factory Reset



Performing a factory reset will revert the general setting back to their factory default values.

In the **Reset** tab:

- **Main RESET** – resets the Media Axis™
- **Selected I/O RESET** – resets only selected inputs and outputs
- **Factory RESET** – resets the Media Axis™ back to its original state (**Note: this will delete ALL saved settings and information**)

The following are the factory default setting values:

RS-232 Baud rate:	19200 Bps
IP Address:	192.168.000.002
Gateway:	192.168.001
Input/Output Connection:	No Connection
Product ID:	255

- All Video/Audio switching connections will be cleared
- Serial communication setting will be restored back to the factory default:
 - Baud Rate: 19200
 - Data Bits: 8
 - Parity: None

- Stop Bits: 1
- LAN Communication setting will be restored back to the factory default:
 - IP Address: 192.168.000.002
 - Gateway Address: 192.168.000.001
 - Subnet Mask: 255.255.255.000
- All Audio Output volume will be set to 0dB

INFO

On the **INFO** page, Media Axis™ provides status information on the current system, routing of video and audio, and input and output status on a single page.

The screenshot displays the 'INFO' page of a Media Axis device. The page is divided into two main sections: 'System Info' and 'Channel Info'. The 'System Info' section is currently active, showing various system parameters. The 'Channel Info' section is also visible, showing a grid of 36 channels (18 rows by 2 columns) with 'Video' and 'Audio' tabs. The 'System Info' section includes the following data:

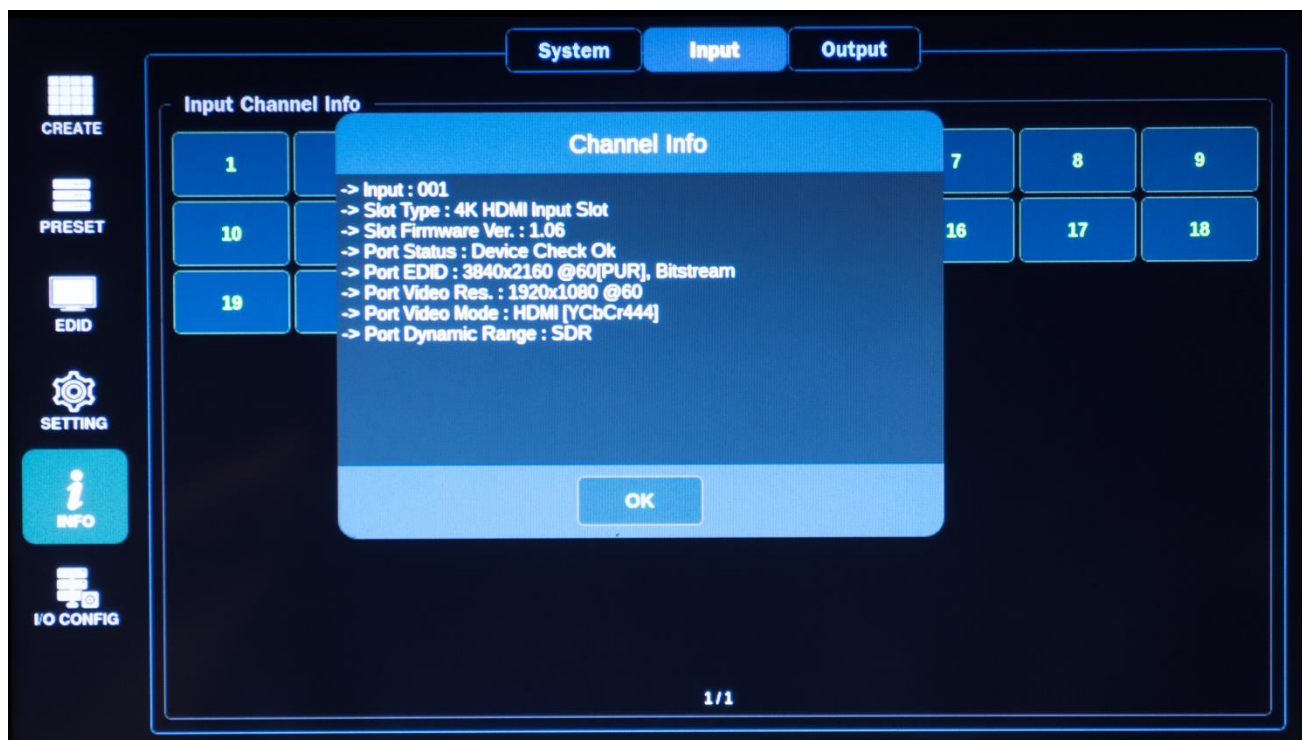
Parameter	Value	Parameter	Value
- In/Out Channel	: 36	- Firmware Version	: MAX-036-V1.04
- RS232 Baudrate	: 19200 bps	- UI Version	: MAX-Touch-V1.01
- LAN IP Address	: 255.255.255.255	- Power Status	: 1 2
- Product ID	: 255		
- WiFi Status	: ON		

The 'Channel Info' section shows a grid of 36 channels (18 rows by 2 columns). The 'Video' tab is selected, and the 'Audio' tab is also visible. The grid shows the following data:

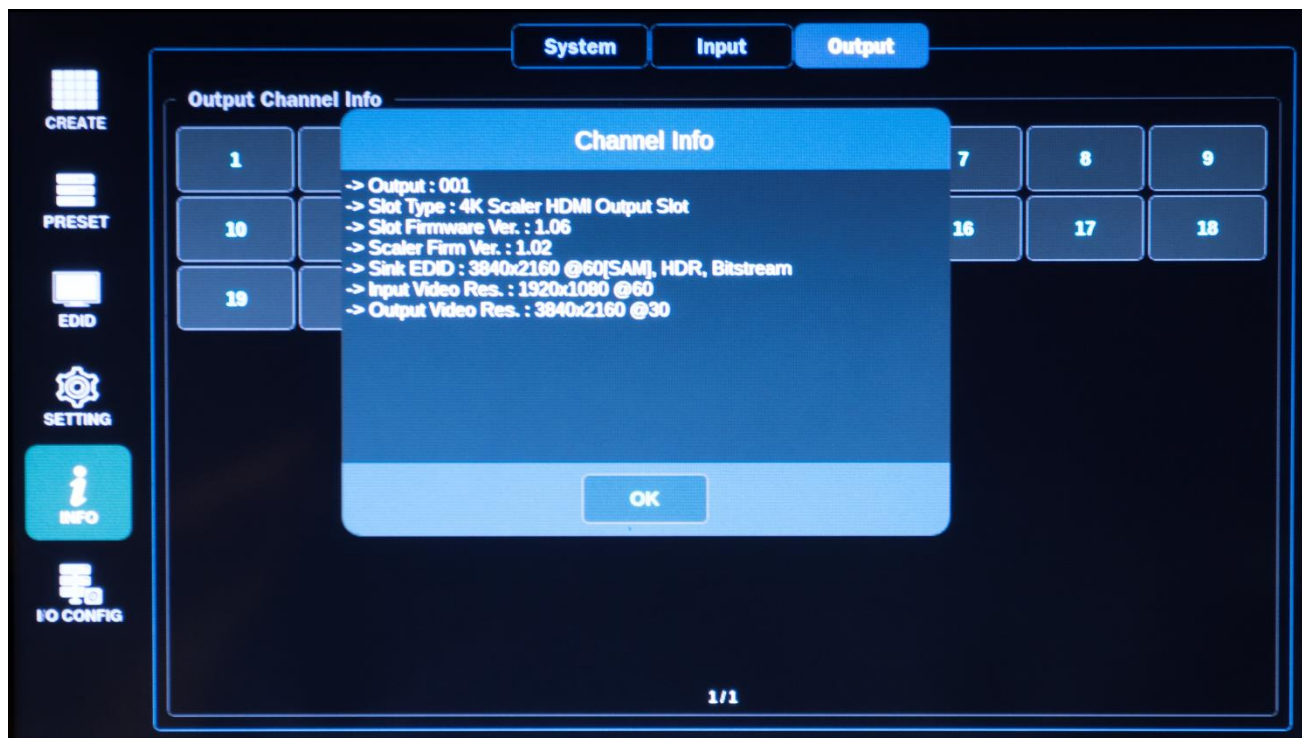
Channel	Video	Audio
1	-	-
2	-	-
3	-	-
4	16	14
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-

The page also features a sidebar with navigation options: CREATE, PRESET, EDID, SETTING, INFO (highlighted), and I/O CONFIG. The bottom of the page shows '1 / 1'.

*System tab



*Input tab – press the desired input to check Channel Info



*Output tab – press the desired output to check Channel Info

I/O CONFIGURATION

In the **I/O CONFIG** page, users can configure the Input and Output Video settings.



Scaler Out

- For scaling outputs, you can set output resolutions independently per output channel
- From the Channel section, select the desired output # to be changed (multiple outputs can be selected at once)
- From the Timing section, select the desired resolution for the output to be scaled to
- Press **Enter** to save
- **Set All** – all outputs will be selected under the Channel section
- **Clear All** – all outputs selections will be cleared

Output Config



Configuration on each output of the Media Axis™ can be changed through the **Output Config** tab.

- **HDMI Audio** – change/turn off the audio source of each output
- **HDMI Mode** – choose between **HDMI** or **DVI**
- **Power Save** – choose between **OFF**, **5s**, **10s**, or **15s**
- **Function 1** – choose between **ON** or **OFF**
- **Function 2** – choose between **ON** or **OFF**

Audio Volume



Media Axis™ allows users to change/mute audio volume for each individual output through the **Audio Volume** tab.

- 0 dB represents no attenuation
- -1dB represents -1dB attenuation
- Mute represents output volume mute

Command Line Operation

Control Programmer's Guide (Code Structure and Examples)

This section is designed for programmers who wish to create their own control programs using the command codes. All PureLink Media Axis™ Matrix Switchers provide a simple character stream control used by external control devices attached to the PureLink device. Command codes are used primarily for control, during system installation and setup, and for diagnostic purposes.

Command code is a set of alphanumeric characters that combine to form control commands. Command code strings are entered into a terminal emulation program (such as Windows HyperTerminal) running on an external control device. The control device (PC, third-party controller) sends the commands to the system. Control devices must be able to send and receive ASCII or HEXA code via an RS-232 or Ethernet port.

Command Code Formats

A command code is a series of command characters and numbers used to send commands to the system. Commands include basic formulas for creating and disconnecting switches, as well as for verifying the status of switches and other functions.

In a command code, each character is either general command (e.g., C for connect) or an identifier that indicates what the following number designates (e.g., "O" and the number following it designates an "Output number"). The command code *255CI001O001! can be interpreted as follows: (*) Starting the command code (255) Product ID is 255 (C) Create a connection on (I001) Input 01 to (O001) Output 01 (!) take the command. For a complete list of command characters and their functions, see page 63.

Ack value (Acknowledge value: Response from PureLink device) will be echoed back to the terminal screen as the unit accepts them. When a command is successfully executed, all of the characters appear containing the character "s" which stands for status. For example:

Ex 1: Command (Connect Input 1 to Output 1)

```
*255CI001O001! ↵
```

Ack value

```
*255sC I001O001!
```

Ex 2: Command (Check Input connection status on Output 3)

```
*255?O003! ↵
```

Ack Value

```
*255s? I03O003!
```



General Rules for Command Codes

The commands are coded in ASCII and HEXA. Please refer to Table 5.1 on page 63 for detailed descriptions of keys and functions. A basic command code setup is shown below:

Ex: *255CI01001! ↵

Start + Product ID + Command + Input number + Output number + End + Enter

(*) (255) (C) (I001) (O001) (!) (↵)

- ▶ A command-line allows the execution of only one command. Multiple commands require execution of multiple strings; one command per string.
- ▶ All commands begin with * (Start) byte.
- ▶ All commands end with ! (End) byte.
- ▶ All commands will be executed when ↵ (Enter) is entered.
- ▶ The correct Product ID must be entered in a command code. Systems will not react to the command if a wrong Product ID is entered. The factory default Product ID is set to 255 and the universal Product ID is 999. Systems will react to the command whenever a universal Product ID is entered in the command code.
- ▶ Command codes typically are not case-sensitive.
- ▶ To specify multiple Inputs and Outputs, enter a “,” (Comma) between numbers.
(E.g.: *255CI001O001,002,003! ↵: Connects Input 1 to Output 1, 2, and 3)
- ▶ Use - (Hyphen) for range connection.
(E.g.: *255CI001O001-004! ↵: Connects Input 1 to Output 1, 2, 3, and 4)

Command Code Characters Table

The table below shows command code characters (keys), which are used to generate control commands, their functions, and short function descriptions.

***Table 5.1**

Key		Function	Description and Example	Byte
HEX	ASCII			
0x2A	*	Start the command	Header Code	1
0x21	!	End the command	Tail Code	1
0D0A	↵	Execute the command	Execute the command	1
0x43 0x63	C c	Connect* (Video and Audio)	Initiates a Connect (switch) command for both Video and Audio; this must precede Input # and Output # specification	1
0x56,0x43 0x76,0x63	VC vc	Connect (Video only)	Initiates a Connect (switch) command for Video only; this must precede Input # and Output # specification	2
0x41,0x43 0x61,0x63	AC ac	Connect* (Audio only)	Initiates a Connect (switch) command for Audio only; this must precede Input # or Output # specification	2
0x44 0x64	D d	Disconnect*	Disconnect command for both Video and Audio; this must precede Input # and Output # specification	1
0x56,0x44 0x76,0x64	VD vd	Disconnect (Video only)	Disconnect command for Video only; this must precede Input # and Output # specification	2
0x41,0x44 0x61,0x64	AD ad	Disconnect* (Audio only)	Disconnect command for Audio only; this must precede Input # and Output # specification	2
0x3F	?	Connection status	Video connection status check command; this must precede Input # or Output # specification	1
0x41,0x3F	A?	Audio connection status*	Audio connection status check command; this must precede Input # or Output # specification	2
0x2C	,	Space	Separates the numbers within entries that contain multiple numbers	1

0x2D	-	Range	Specifies a range of numbers in entries containing multiple numbers	1
0x49,0x4D	IM	Input monitoring select	Input Video preview monitoring select command: this must precede Input #	2
0x49,0x46	IF	Input channel information	Input channel information request command: this must precede Input #	2
0x49,0x50	IP	Input Extender command Transmission	Send command to the device that is connected to the Input Extender (CATx, Fiber only): this must precede Input #, baud rate, timing	2
0x4F,0x46	OF	Output channel information	Output channel information request command: this must precede Output #	2
0x4F,0x53	OS	Output Extender Scaler timing select	Output Extender (CATx, Fiber only) Scaler timing select command: this must precede Output # and Video timing	2
0x4F,0x50	OP	Output Extender command transmission	Send command to the device that is connected to the Output Extender (CATx, Fiber only): this must precede Output #, baud rate, timing	2
0x41,0x56	AV	Audio Matrix Switcher's Output Audio volume set (1.0dB step attenuation)*	Output Audio volume control command: this must precede Output # and volume specification	2
0x41,0x46	AF	Audio Matrix Switcher's Output Audio Volume Information*	Audio Matrix Switcher's Output Audio volume information request command: this must precede Output #	2
0x49 0x69	l i	Product ID check	Product ID check command; check Switcher's current ID number	1
0x3f,0x76,0x65,0x72,0x73,0x69,0x6f,0x6e	?version	Firmware version check	Firmware version check command: *255?version! ↵	
0x40	@	Baud rate setting	Baud rate sting command: *255@001!↵ → 19200 *255@002!↵ → 38400 *255@003!↵ → 57600 *255@004!↵ → 115200	

0x4E 0x6E	N n	Networking setting	Network configuration setting command: - IP Setting *255NIP125.135.199.004! ↵ - Subnet Mask Setting *255NSM255.255.255.000! ↵ - Gateway Setting *255NGW192.168.000.001! ↵ - MAC Address Setting *255NMA00.50.C2.B0.20.05! ↵ - Port Number Setting *255NPN3000! ↵ - Network Information *255NNI000! ↵	1
0x48 0x68	H h	Connection check	Switcher communication connection check command: *255H000! ↵	1

Command Ack (Acknowledge) Value Response

When command codes are entered into a terminal emulation program (such as HyperTerminal) and are accepted by the system, they respond back to the terminal screen one at a time, as noted below in the table. The complete command has executed successfully when all of the entered characters including “s” which stands for status, appear. If a command character is not accepted, a different character than the one entered appears and all or part of the command has not been executed.

Ack (Acknowledge) Value Response Table

The following table shows ack value response characters along with their descriptions and meanings, which may appear instead of the initially entered character or number. If these characters appear, all or part of the command has not been executed.

***Table 5.2 Descriptions of Acknowledge (ACK) Signals**

Ack value	Description
Input 1 is not connected	No information on channel 1
Command Code Error	Indicates that the system has rejected all or part of the command
Product ID Error	Indicates that the wrong ID number was entered

Command Code Ack Value Examples:

Command Code Entered	Ack Value as appears in the control program	Explanation of Result
*255CI001O001! ↵	*255sC I001O001!	The command was successfully executed
*255CO001! ↵	Command Code Error	The command was not executed because the Input number was not included
*255CI001O001 ↵	Command Code Error	The command was not executed because “!” (End) was not included
*300CI001O001! ↵	Product ID Error	The command was not executed because the actual Product ID and entered Product ID did not match

Connecting Video and Audio Switches:

- Create settings command

*255CI001O001,I001O002,I002O003,I004O004! ↵

Connect input 1 to output 1, input 1 to output 2, input 2 to output 3, input 4 to output 4

Ⓜ response

*255sCI001O001,I001O002,I002O003,I004O004! ↵

Examples (Connect **Video and Audio**):



Command Codes	Response
*255CI0010001! ↵	*255sCI0010001! ↵
*255CI0010008,I008O002!↵	*255sCI0010008,I008O002!↵
*255CI0010001,002,003! ↵	*255sCI0010001,I001O002,I001O003! ↵
*255CI0010002-004! ↵	*255sCI0010002,I001O003,I001O004! ↵

** I000: Disconnect

Example:

*255CI0000001! ↵: output 1 disconnect

↳ response

*255sCI0000001! ↵

Connecting Video Only Switches:

- Create settings command

*255VCI0010001,I001O002,I002O003,I004O004! ↵

Connect input 1 to output 1, input 1 to output 2, input 2 to output 3, input 4 to output 4

↳ response

*255sVCI0010001,I001O002,I002O003,I004O004! ↵

Examples (Connect **Video**):

Command Codes	Response
*255VCI0010001! ↵	*255sVCI0010001! ↵
*255VCI0010008,I008O002!↵	*255sVCI0010008,I008O002!↵
*255VCI0010001,002,003! ↵	*255sVCI0010001,I001O002,I001O003! ↵
*255VCI0010002-004! ↵	*255sVCI0010002,I001O003,I001O004! ↵

** I000: Disconnect

Example:

*255VCI0000001! ↵: output 1 disconnect

☞ response

*255sVCI0000001! ↵

Connecting Audio Only Switches:

- Create settings command

*255ACI0010001,I001O002,I002O003,I004O004! ↵

Connect input 1 to output 1, input 1 to output 2, input 2 to output 3, input 4 to output 4

☞ response

*255sACI0010001,I001O002,I002O003,I004O004! ↵

Examples (Connect **Audio Only**):

Command Codes	Response
*255ACI0010001! ↵	*255sACI0010001! ↵
*255ACI0010008,I008O002! ↵	*255sACI0010008,I008O002! ↵
*255ACI0010001,002,003! ↵	*255sACI0010001,I001O002,I001O003! ↵
*255ACI0010002-004! ↵	*255sACI0010002,I001O003,I001O004! ↵

** I000: Disconnect

Example:

*255ACI0000001! ↵: output 1 disconnect

☞ response

*255sACI0000001! ↵

Disconnecting Video and Audio Switches:

Response example

*255DI0010000! ↵

☞ response

*255sDI0000001,I000O004! ↵ if input 1 to output 1, 4 connected

Examples (Disconnect **Video and Audio**):

Command Codes	Action
*255DI0010000! ↵	Disconnect video input 1 to no output
*255DI0000003,004,005! ↵	Disconnects video outputs 3, 4, and 5
*255DI0000003-006! ↵	Disconnects video output 3, 4, 5, and 6
*255DALLIO! ↵	Disconnects video all inputs and outputs

Disconnecting Video Only Switches:

Response example

*255VDI0010000! ↵

☞ response

*255sVDI0000001,I0000004! ↵ if input 1 to output 1, 4 connected

Examples (Disconnect **Video Only**):

Command Codes	Action
*255VDI0010000! ↵	Disconnect video input 1 to no output
*255VDI0000003,004,005! ↵	Disconnects video outputs 3, 4, and 5
*255VDI0000003-006! ↵	Disconnects video output 3, 4, 5, and 6
*255VDALLIO! ↵	Disconnects video all inputs and outputs

Disconnecting Audio Only Switches:

Response example

*255ADI0010000! ↵

☞ response

*255sADI0000001,I0000004! ↵ if input 1 to output 1, 4 connected

Examples (Disconnect **Audio Only**):

Command Codes	Action
*255ADI0010000! ↵	Disconnect audio input 1 to no output
*255ADI0000003,004,005! ↵	Disconnects audio outputs 3, 4, and 5
*255ADI0000003-006! ↵	Disconnects audio output 3, 4, 5, and 6
*255ADALLIO! ↵	Disconnects audio all inputs and outputs

Video Preset Call Examples:

Command Codes	Action
*255PCV02! ↵	Video preset 2 call
*255PCV12! ↵	Video preset 12 call

Audio Preset Call Examples:

Command Codes	Action
*255PCA04! ↵	Video preset 4 call
*255PCA23! ↵	Video preset 23 call

Video Channel Status Return:

Response example

*255?VI001! ↵

Ⓜ response

*255s?VI001O002,I001O003,I001O009! ↵

Examples (**Video Channel Status**):

Command Codes	Action
*255?VI001! ↵	Check video channel status on Input 1
*255?VO005! ↵	Check video channel status on Output 5
*255?VALLIO! ↵	Check video channel status all inputs and outputs

Audio Channel Status Return:

Response example

*255?AI001! ↵

☞ response

*255s?AI001O002,I001O003,I001O009! ↵

Examples (**Audio Channel Status**):

Command Codes	Action
*255?AI001! ↵	Check audio channel status on Input 1
*255?AO005! ↵	Check audio channel status on Output 5
*255?AALLIO! ↵	Check audio channel status all inputs and outputs

Firmware Information:

Users can check the firmware version.

*255?VERSION! ↵

☞ response

*255s?VERSION:MAX-036-Vx.xx! ↵

Touch Screen Lock:

Examples (**Touch Screen Lock**):

Command Codes	Action
*255KST!↵	Touch Lock Status Return
*255KON! ↵	Touch Lock On
*255KOFF! ↵	Touch Lock Off

Note: With the touch panel lock enabled, you will be able to navigate through the different tabs on the Touch Panel, but you will not be able to make any changes (Routing, EDID Changes, etc.)

Output Scaler Timing Set:

T01	Auto	T10	1280*720p@50Hz	T19	3840*2160p@30Hz
T02	1024*768p@60Hz	T11	1280*720p@60Hz	T20	3840*2160p@50Hz
T03	1280*1024p@60Hz	T12	1920*1080p@50Hz	T21	3840*2160p@60Hz
T04	1440*1050p@60Hz	T13	1920*1080p@59Hz		
T05	1680*1050p@60Hz	T14	1920*1080p@60Hz		
T06	1600*1200p@60Hz	T15	2560*1080p@50Hz		
T07	1920*1200p@59Hz	T16	2560*1080p@60Hz		
T08	2560*1440p@59Hz	T17	3840*2160p@24Hz		
T09	2560*1600p@59Hz	T18	3840*2160p@25Hz		

Examples (Output Scaler Timing):

Command Codes	Action
*255OSO001T01! ↵	Set Output 1 Scaler timing to Auto
*255OSO002T02,O003T03! ↵	Set Output 2 Scaler timing to 1024x768@60 and Output 3 Scaler timing to 1280x1024@60
*255OSO001-004T05! ↵	Set Output 1 – 4 Scaler timing to 1680x1050@60

Output Scaler Timing Return:

Examples (Output Scaler Timing Status):

Command Codes	Action
*255?OSO001! ↵	Check output scaler timing on Output 1
*255?OSO001,002! ↵	Check output scaler timing on Output 1, 2
*255?OSALLIO ↵	Check output scaler timing on all outputs

Media Axis Scaling Receivers (MAX-CR102 & MAX-FR102):



Scaling Receiver's Output resolution can be set via the front panel control button or serial command from the Media Axis.

OS: Output Extender Scaler Timing Select

The "OS" is an initiation command for Output Extender Scaler timing selection. The characters and numbers that follow the "OS" command tell the system, set scaling timing on selected Output. The last character "!" is found at the end of a command code which tells the system to execute the command. For a complete list of command characters and their functions, see examples below.

NOTE: OS commands only apply to the HDMI with scaling output cards and CAT/Fiber output cards with MAX-CR102 (CAT) and MAX-FR102 (Fiber) Extender Receivers. See **Output Scaler Timing** table on page 73 a full list of resolutions.

LAN Setting Return:

*255?SNA! ←

Product ID Set:

*255SID255! ←

Product ID Return:

*255?SID! ←

Audio Matrix Volume Set:

Examples (**Audio Matrix Volume**):

Command Codes	Action
*255AVO001V00! ←	Set Audio Output 1 to 0 dB
*255AVO001V01,O002V55! ←	Set Audio Output 1 to -0.5dB and Audio Output 2 to -27.5dB

Audio Matrix Volume Return:

*255?AVALLIO! ←

Output Audio Set:

A00: Source Audio , A01 : Audio Matrix Audio , A02 : Audio Mute

Examples (**Set Output Audio**):

Command Codes	Action
*255OAO001A01! ←	Set Output 1 Audio selection to Audio Matrix Audio (3.5mm Stereo)
*255OAO002A02,O003A00! ←	Set Output 2 Audio selection to Mute and Output 3 Audio selection to Source Audio
*255OAO001-004A02!←	Set Output 1-4 Audio selection to Mute

Output Audio Set Return:

Examples (**Output Audio Status**):

Command Codes	Action
*255?OAO001! ←	Check Audio Selection status on Output 1
*255?OAO001,002!←	Check Audio Selection status on Output 1 and 2
*255?OAALLIO←	Check Audio selection status on all outputs

Output HDMI Mode Set:



D00 : HDMI Mode, D01 : DVI Mode

Examples (**Set Output HDMI Mode**):

Command Codes	Action
*255ODO001D01! ↵	Set Output 1 mode to DVI
*255ODO002D01,O003D00! ↵	Set Output 2 mode to DVI and Output 3 mode to HDMI
*255ODO001-004D01!↵	Set Output 1-4 mode to DVI

Output HDMI Mode Return:

Examples (**Output HDMI Mode Status**):

Command Codes	Action
*255?ODO001! ↵	Check mode status on Output 1
*255?ODO001,002!↵	Check mode status on Output 1 and 2
*255?ODALLIO↵	Check output mode status on all outputs

Output HDMI Power Save Set:

D00 : OFF, D01 : 5sec, D02 : 10sec, D03 : 15sec

Examples (**Set Output HDMI Power Save**):

Command Codes	Action
*255OLO001D01! ↵	Set Output 1 Power save set to 5 sec
*255OLO002D02,O003D00! ↵	Set Output 2 Power save set to 10 sec and Output 3 Power save set to OFF
*255OLO001-004D01!↵	Set Power save set to 5 sec on output 1-4

Output HDMI Power Save Return:

Examples (Output HDMI Power Save Status):

Command Codes	Action
*255?OLO001! ↵	Check Power save status on Output 1
*255?OLO001,002! ↵	Check Power save status on Output 1 and 2
*255?OLALLIO ↵	Check Power save status on all outputs

Main Reset:

*255RSTMAIN! ↵

IN Port Reset:

*255RSTI002! ↵	Input port 2 reset
*255RSTI001,002,005! ↵	Input port 1,2,5 reset

IN Port Info:

*255IFI002! ↵	Input port 2 information return
*255IFI001,002,005! ↵	Input port 1,2,5 information return

OUT Port Reset:

*255RSTO002! ↵	Output port 2 reset
*255RSTO001,002,005! ↵	Output port 1,2,5 reset

OUT Port Info:

*255OF0002! ←	Output port 2 information return
*255OF0001,002,005! ←	Output port 1,2,5 information return

Connection Checking:

*255H000! ←

Output RS232+ Set:

*Baud rate: B00(4800) , B01(9600) , B02(19200) , B03(38400) , B04(57600) , B05(115200)

*Data bits: D00(7bit) , D01(8bit)

*Parity: P00(None) , P01(Even) , P02(Odd)

*Stop bit: S00(1bit) , S01(2Bit)

Examples (Set Output RS232+):

Command Codes	Action
*255OPO001B02,D01,P00,S00! ←	Send command to the device that is connected to Output #1 extender at 19200bps , 8bit , None , 1bit Set
*255OPO001-004 B01,D01,P00,S00! ←	Send command to the device that is connected to Output #1~#4 extender at 9600bps , 8bit , None , 1bit Set
*255OPALLB02,D01,P00,S00! ←	Send command to the device that is connected to all outputs at 19200bps, 8bit, None, 1bit Set
*255OPALL"abcdefg" !←	Send to all Output open port (abcdefg)
*255OPO001"abcdefg"! ←	Send to Output open port #1 (abcdefg)
*255OPO001-004"abcdefg" !←	Send to Output open port #1 ~ #4 (abcdefg)

LAN Data Set:



*255SNIP192.168.000.004! ↵	Set IP address at 125.135.199.004
*255SNSM255.255.255.000! ↵	Set Subnet Mask at 255.255.255.000
*255SNGW192.168.000.001! ↵	Set Gateway at 192.168.000.001
*255SNMA00.00.C2.B0.20.05! ↵	Set Mac Address at 00.00.C2.B0.20.05

LAN Keep-Alive Set

*255SNKA01! ↵ (Keep-Alive ON)

*255SNKA00! ↵ (Keep-Alive OFF)

LAN Setting Return:

*255?SNA! ↵

Product ID Set:

*255SID255! ↵

Product ID Return:

*255?SID! ↵

RS232 Data Set:

*255SRBR01! ↵	Set IP address at 125.135.199.004
*255SRST01! ↵	Set Subnet Mask at 255.255.255.000
*255SRPT02! ↵	Set Gateway at 192.168.000.001
	Set Mac Address at 00.00.C2.B0.20.05

- Baud Rate

01: 4800 , 02:9600 , 03:14400 , 04:19200 , 05:38400 , 06:57600
07:76800 , 08:115200

- Parity
01: None , 02: EVEN , 03: ODD
- Stop Bits
01: 1, 02: 2

RS232 Setting Return:

*255?SRA! ↵

Internal EDID List Return:

*255?ELIST! ↵

Output EDID Info Return:

*255?EO001! ↵

Internal EDID Set:

*255ESL001,002,003..006! ↵

External EDID Data Set:

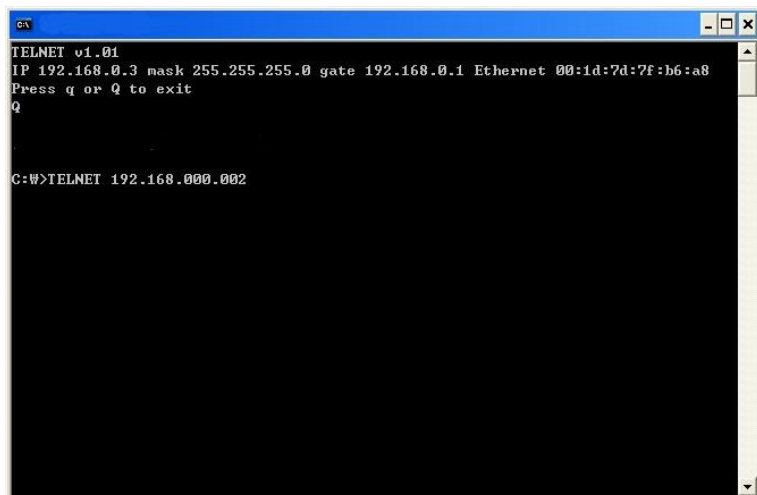
*255ESO001I001,002! ↵

LAN (TCP/IP) Operation



TELNET Protocol with LAN(TCP/IP)

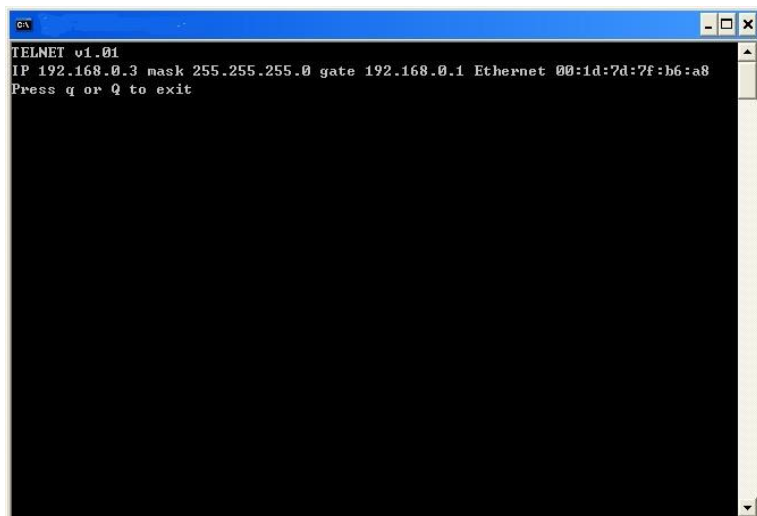
The Media Axis™ can be controlled from remote locations through the LAN port using WINDOWS XP DOS prompts, hyper-terminal, or TELNET program ([the control code is fully compliant with RS-232C](#)).



```
TELNET v1.01
IP 192.168.0.3 mask 255.255.255.0 gate 192.168.0.1 Ethernet 00:1d:7d:7f:b6:a8
Press q or Q to exit
Q

C:\W>TELNET 192.168.000.002
```

Enter TELNET <Router IP Address> in the DOS prompt



```
TELNET v1.01
IP 192.168.0.3 mask 255.255.255.0 gate 192.168.0.1 Ethernet 00:1d:7d:7f:b6:a8
Press q or Q to exit
```

Message indicating TELNET connection will appear

```

TELNET v1.01
IP 192.168.0.3 mask 255.255.255.0 gate 192.168.0.1 Ethernet 00:1d:7d:7f:b6:a8
Press q or Q to exit

*999I000! *255sI Router ID 255*

```

Router ID verification command code

Send “ *999I000! ”

Router will send response:

“ *255sI Router ID 255”

HTTP Protocol with LAN(TCP/IP)

Control PC Search

Searching data for channel configuration

Character train should begin with “LCD.CGI” to “O01=I08” to Output 01 = Input 8. The sequence and size of the character train must be the same.

To RESET the Protocol, a new connection to the server (Switcher) must be established.

Switching Channels

```

http://192.168.0.2/LCD.CGI?O01=I01&O02=I02&O03=I03&O04=I04&O05=I05&O06=I06
&O07=I07&O08=I08&Submit_=SEND

```

RESET

```

http://192.168.0.2/LCD.CGI?O01=I01&O02=I02&O03=I03&O04=I04&O05=I05&O06=I06
&O07=I07&O08=I08&Submit_=RESET

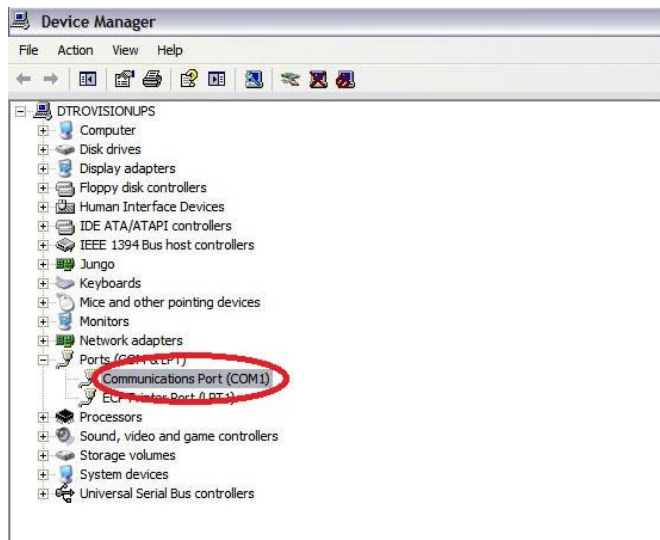
```

Additional Information

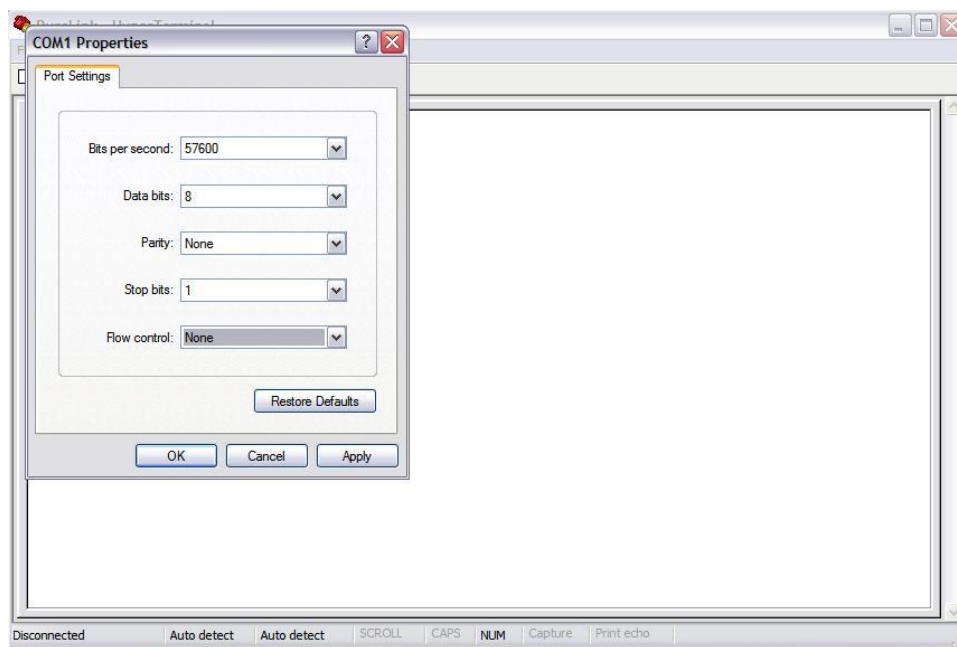
Firmware Update Instruction

1. Set Media Axis' baud rate to 115200bps using the front panel LCD touch screen or control command. (Data bits: 8bit, Stop bits: 1bit, Parity: disable)
2. Connect PC to the Media Axis™ using a USB cable (update cable is included in the original box)
 - ✓ Please disconnect the RS-232 cable from the Matrix Switcher during firmware update.

Confirm that the Media Axis™ (USB serial port) is properly connected to the PC on PC's device manager section.

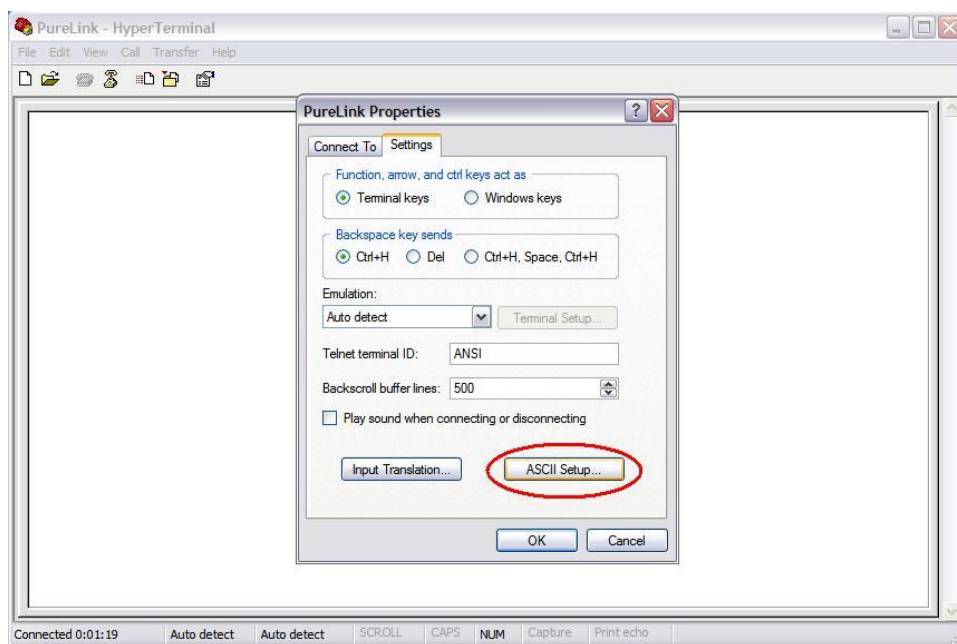


3. Create a hyper terminal connection (connect it using same com port number; COM1)
 - Create a name (ex, PureLink)
 - Bits per second: 115200bps
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
 - Flow control: None

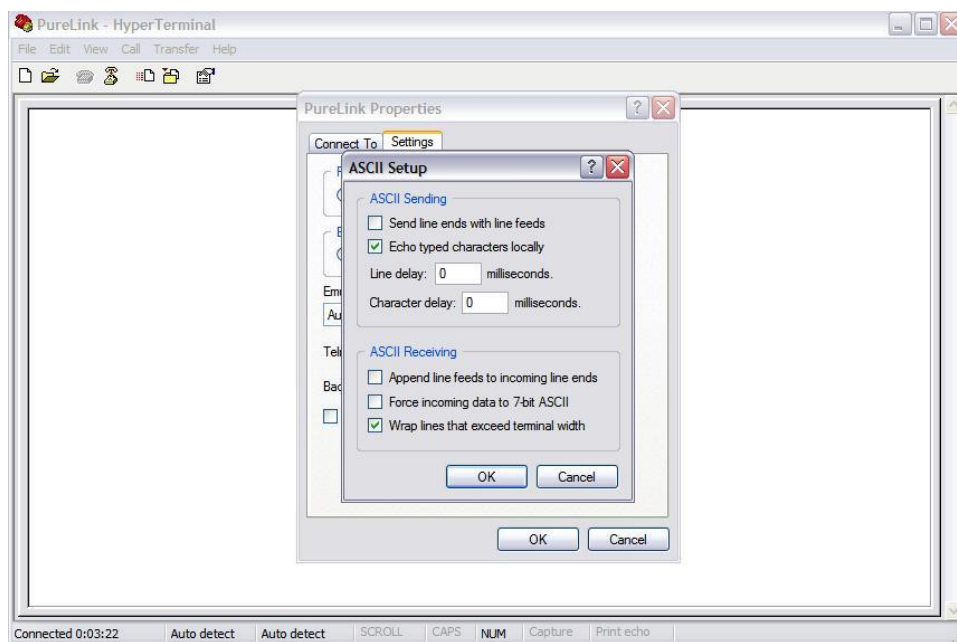


4. Hyper terminal setting

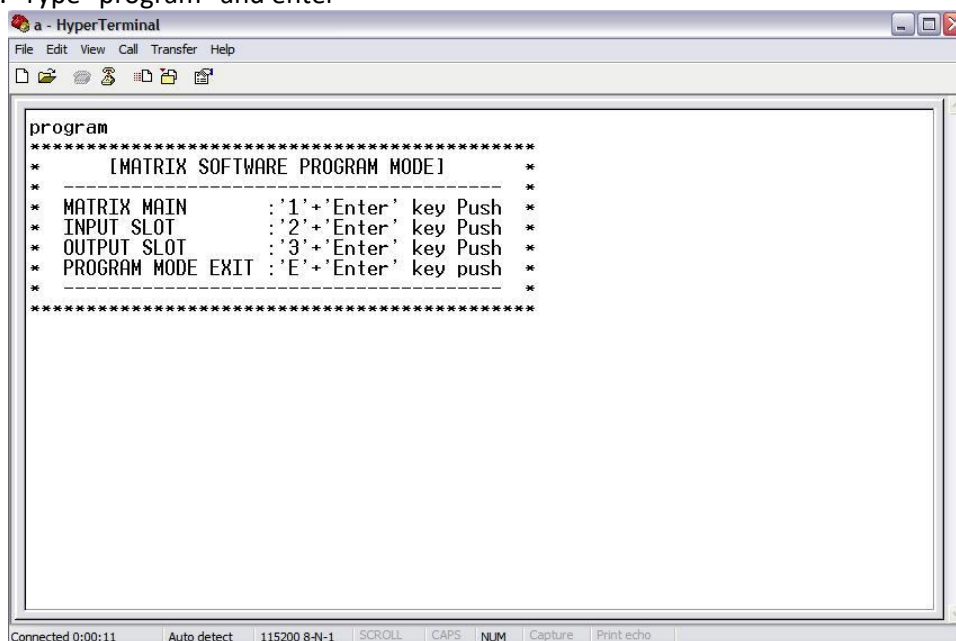
Go to file --> Properties setting --> ASCII setup



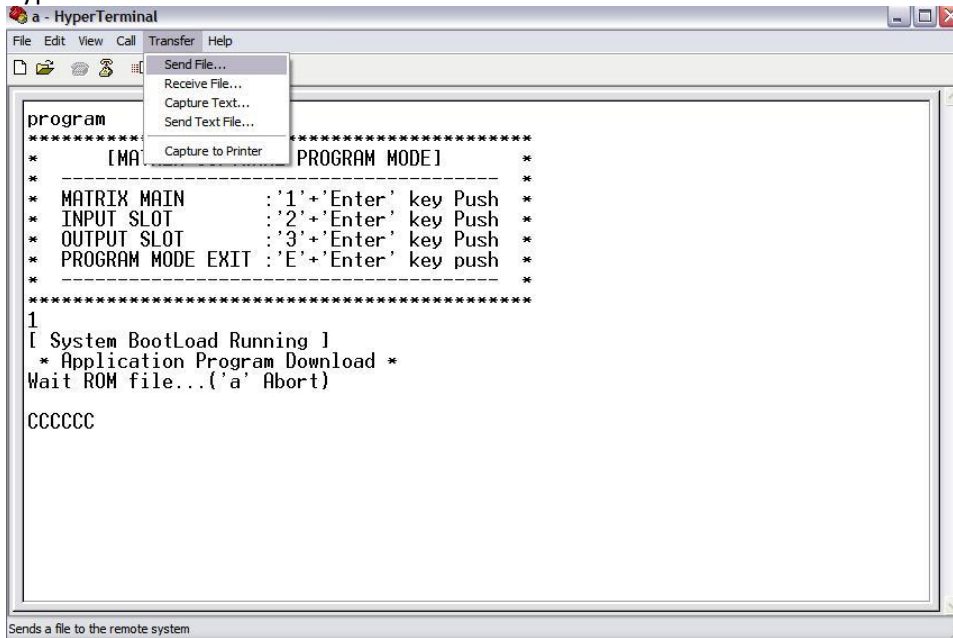
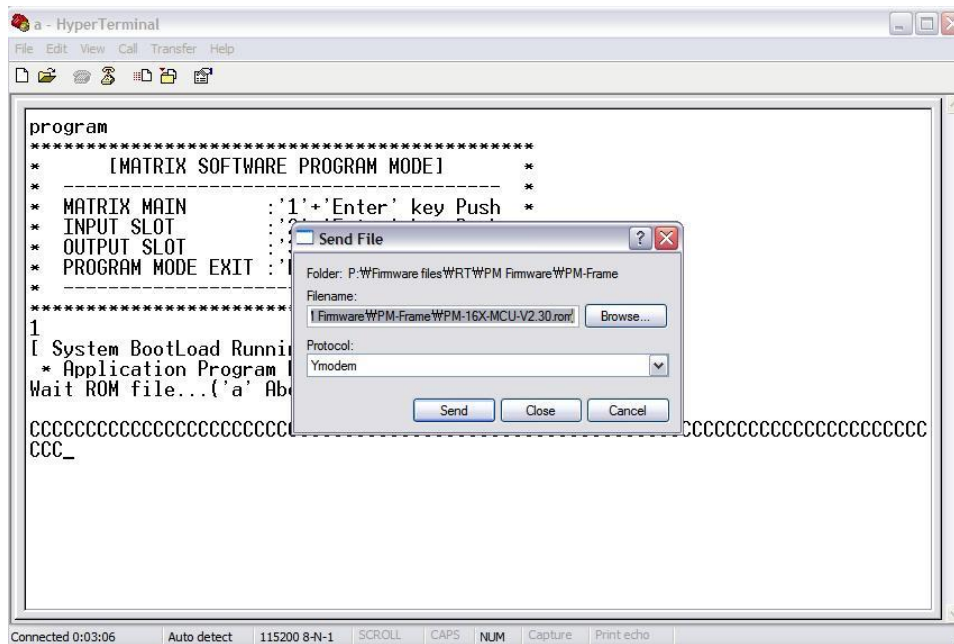
Check on "Echo typed characters locally" and then ok.



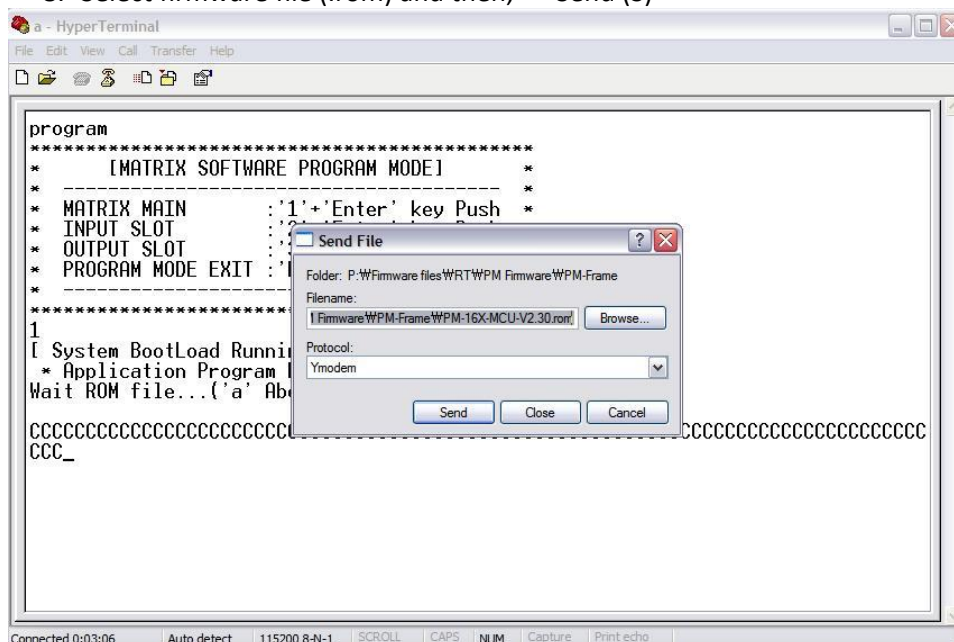
5. Type "program" and enter



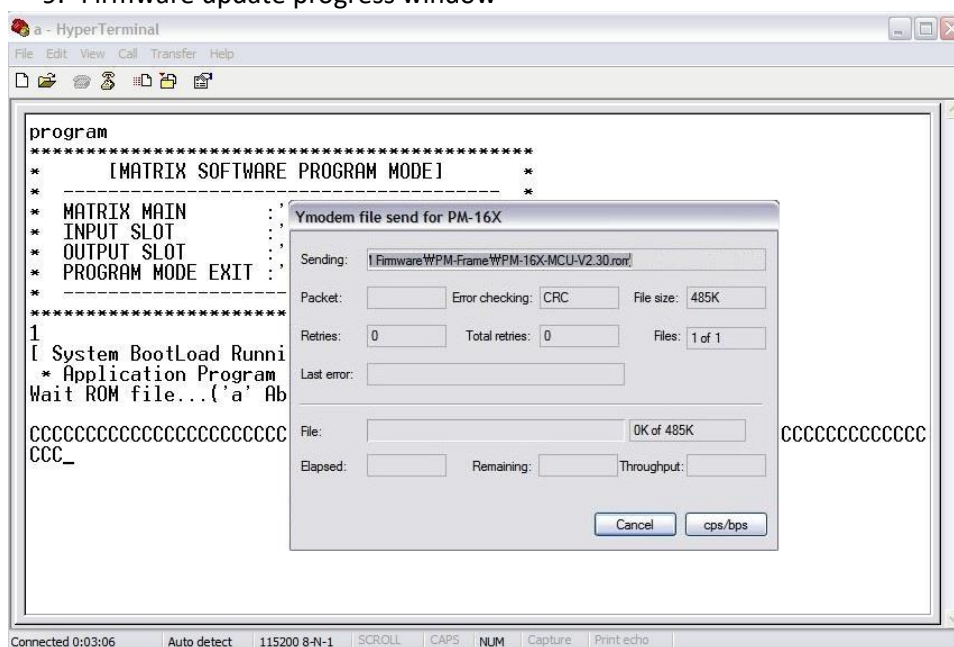
6. Type "1" and enter

7. Go to send (T) menu and then => send file
Select Ymodem Protocol

8. Select firmware file (.rom) and then, => Send (S)



9. Firmware update progress window



Firmware update completion window =>

Once the firmware update is completed, disconnect the USB cable and power cycle the unit (OFF/ON)

Set baud rate back to 19200

Warranty & Customer Service

PureLink™ Five Year Limited Warranty

For Media Axis™ Branded Products Only

Dtrovision, LLC. (hereinafter "PureLink") warrants its Media Axis™ branded products (hereinafter "Product") purchased directly from PureLink or Dealer shall be free from defects in workmanship and materials, under normal use and service, for a period of five (5) years on parts and three (3) years on labor. Any repaired or replaced equipment related to Product shall be covered only under the remaining portion of the warranty. This warranty has no relationship to and exists independently of any warranty offered by Dealer. This warranty is a limited warranty and gives you specific legal rights. You may also have other rights which vary from state to state.

TERMS & CONDITIONS

PureLink shall repair or replace the Product if it develops a material fault during the period of warranty, on condition that i) the Product has only been subject to normal use in a domestic or commercial environment in a manner consistent with its specifications and functionality, ii) the Product has been cared for reasonably and only subjected to reasonable wear and tear, iii) the defect has not been caused by willful or negligent abuse or neglect, or any accident or improper installation procedure, iv) the serial number of the Product has not been altered or removed.

This warranty only applies to the original purchaser, and shall be the exclusive remedy to the original purchaser. PureLink shall not be liable for any damages whatsoever caused by Product or the failure of Product to perform, including incidental or consequential damages. PureLink shall not be liable for any claim made by a third party or made by the purchaser for a third party.

Except as expressly set forth in this warranty, PureLink makes no other warranties, expressed or implied, including any implied warranties of merchantability and fitness for a particular purpose. PureLink expressly disclaims all warranties not satisfied in this limited warranty. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supersedes all previous warranties.

WARRANTY RETURNS/REPAIRS/EXCHANGES

No merchandise may be returned without prior authorization from PureLink, and a Return Materials Authorization (RMA) number. Failure to comply with these conditions will result in rejection of the returned merchandise.

Any warranty service on Products must be arranged through Dealer. Authorized returns must be shipped freight prepaid and fully insured to PureLink, Ramsey, NJ USA, with the RMA number clearly marked on the outside of all shipping boxes and containers. PureLink reserves the right at its sole discretion to refuse any shipments arriving freight collect or without an RMA number. Any authorized returned merchandise must be accompanied by a note describing the reason for return, along with contact information including name, phone number, return mailing and shipping addresses, e-mail address, and RMA number.

On any products returned and accepted with an RMA number, return freight charges following repair of items under warranty shall be paid by PureLink, shipping by the standard ground carrier of its choice.



ADVANCE WARRANTY REPLACEMENTS

PureLink's advance replacement service offers a Replacement Unit upon request - free of charge for eligible products purchased less than one (1) year of the warranty claim and with a 25% exchange fee for products purchased more than one (1) year prior to the warranty claim. Products no longer covered under warranty do not qualify for Advance Replacement services.

Advance replacement requests must be validated by a member of PureLink's Technical Support Team. Replacement Units may be new or refurbished and is subject to availability. PureLink is responsible for shipping the Replacement Unit to your designated location by standard ground service. All other shipping methods will be responsibility of the Dealer.

Original Unit Return – the Original Unit must be returned within thirty (30) calendar days of the return authorization date. Failure to return the Original Unit within this period will be subject to a minimum 15% re-stocking fee. Dealer is solely responsible for the shipping of the Original Unit to PureLink.

TO MAKE A WARRANTY CLAIM

To make a warranty claim, promptly notify PureLink within the warranty periods described above. PureLink, in its sole discretion, will determine what action, if any, is required under this warranty.

Most problems can be corrected over the phone through close cooperation between Customer and a PureLink technician. To better enable PureLink to address a warranty claim, please have the Product's serial and model numbers. If PureLink, in its sole discretion, determines that an on-site visit or other remedial action is necessary, PureLink may send a representative to Customer's

CUSTOMER SERVICE

Technical support inquiries can be submitted electronically through the PureLink website at www.purelinkav.com. For immediate assistance, please contact PureLink's Customer Care Team at +1 (201) 401-9013 or support@purelinkav.com.

