Matrox ConvertIP

Installation and User Guide

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Contents

Chapter 4: Using ConvertIP DSH as an IP gateway

Chapter 5: Matrox ConvertIP Settings Reference

Chapter 6: Matrox ConvertIP Hardware Specifications

Appendix A: Configuring Matrox ConvertIP for AES67

Appendix B: Configuring your device's firewall settings

Appendix C: Providing adequate airflow to your ConvertIP device

Appendix D: ConvertIP LED status indicators and button functions

Appendix E: Matrox ConvertIP test pattern

Appendix F: Legal information and compliance

CHAPTER 1

Introduction

This chapter includes the following topics:

About Matrox ConvertIP

The Matrox ConvertIP family of products are standards-based transmitters and receivers that enable interoperable, cost-efficient, and scalable networks in Broadcast and Pro AV environments. ConvertIP DSH can also function as an IP gateway to facilitate seamless conversion between uncompressed and compressed SMPTE 2110 and IPMX signals.

- **Broadcast and media applications:** Switching from SDI to IP broadcast networks can be costly and complex. Matrox ConvertIP is a stand-alone SMPTE ST 2110 converter engineered to help you easily transition to IP. Supporting multiple input/output connectivity options, ConvertIP is designed to effortlessly convert ST 2110 IP signals to or from SDI or HDMI. ConvertIP devices also support up to 25 Gbps connectivity allowing for the delivery of uncompressed 4K video over ST 2110.
- **Professional AV/IT applications:** Matrox ConvertIP is a series of standards-based, IPMX-ready encoders and decoders designed for maximum flexibility, scalability, and interoperability. ConvertIP provides multiple input/output connectivity options for converting SMPTE ST 2110 IP signals between HDMI, HDBaseT, or SDI. ConvertIP also supports compressed and uncompressed 4K over IP signal transmission, perfect for a variety of workflows—all from a single standalone device.

For more information on the Matrox ConvertIP family of products, see our *website* for a full description of the benefits and features.

Matrox safety information

To ensure safe and reliable operation of your Matrox product, to avoid personal injury, and to prevent damage to your computer or Matrox hardware, read the following guidelines.

Installation and operation

- Read and retain all instructions. Only use your Matrox product according to the instructions, operating ranges, and guidelines provided in the Matrox user guide and other related Matrox documentation. Failure to follow these instructions could result in damage to your product or injury to the user or installer.
- Don't expose your Matrox product to rain, water, condensation, or moisture.
- **Caution: Hot Surface, Do Not Touch**
  
  Your Matrox product can become hot while operating. Ensure that your computer cover is secured in place before turning it on.
  Always turn off your computer, unplug it, and then wait for it to cool before removing the cover of your computer to touch any of its internal parts or to install your Matrox card. Allow hot surfaces to cool before touching your Matrox unit.
- **Attention: Surface chaude, ne pas toucher**
  
  Votre produit Matrox peut devenir chaud durant son fonctionnement. Assurez-vous de bien fermer le couvercle de votre ordinateur avant de l'allumer.
  Éteignez votre ordinateur, débranchez-le et attendez qu'il refroidisse avant d'ouvrir son couvercle pour accéder à ses parties internes ou pour installer votre carte Matrox. Laissez les surfaces chaudes refroidir avant de toucher votre appareil Matrox.
- Static electricity can severely damage electronic parts. Before touching any electronic parts, drain static electricity from your body (for example, by touching the metal frame of your computer).
- When handling a card, carefully hold it by its edges and avoid touching its circuitry.
- Don't stack devices or place devices so close together that they're subject to recirculated or preheated air.
- Don't operate your system or Matrox product near a heat source or restrict airflow to your system, and make sure the ambient temperature doesn't exceed the maximum recommended temperatures. Don't block ventilation holes on your unit or system.

If a power supply (internal or external) was included with your product

- Don't place the external power supply directly on top of the device.
- Only use power supplies originally supplied with the product or use a replacement that's approved by Matrox. Don't use the power supply if it appears to be defective or has a damaged chassis.

- Any AC-powered product must be connected to a grounded outlet installed by a licensed electrician. Don't defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug doesn't fit into your outlet, consult a licensed electrician to replace the obsolete outlet.
- Make sure that nothing rests on the power cables and that the cables aren't located where they can be stepped on, pinched, or tripped over.
- Don't use damaged power cables.
- Unplug your system or device during lightning storms or if unused for long periods of time.

If your product includes laser-based technology

- The device contains a Class 1 laser product for use only under the recommended operating conditions and guidelines. For more information, see your Matrox user guide.
- Invisible laser radiation may be emitted from disconnected fibers or connectors. Don't stare into beams or view directly with optical instruments.
- Only use optical transceivers originally supplied with the product or use a replacement that's approved by Matrox.
- For more information on laser support and compliance, see your Matrox user guide.

If your product includes a battery

- The battery is non replaceable.
- To dispose of your product, see https://video.matrox.com/en/environment/product-waste-managementmatrox.com/environment/weee.

Repair

- Don't attempt to open or repair a power supply unit (if one was supplied).
- Don't attempt to open or repair your Matrox product.
- If there's a fault with your Matrox product, review your Matrox warranty for more information.

Supported web browsers and operating systems

Supported web browsers

Matrox ConvertIP currently supports Google Chrome and Microsoft Edge only (on Windows and macOS).

Other web browsers may work but have not been fully validated by Matrox Video.

Supported operating systems

Since you configure Matrox ConvertIP using your web browser (see *Supported web browsers*), there is no specific operating system requirement.

The application Matrox ConvertIP Manager (see *Supported applications*) supports Microsoft Windows 11 and Windows 10 (x64).

Supported applications

The Matrox ConvertIP devices are a series of stand-alone transmitter and receiver devices, but they are also designed to work with other Matrox Video applications:

- **Matrox ConductIP:** Matrox ConductIP is a media routing appliance and software that gives you a real-time, comprehensive view of all media content on your IP network while allowing you to organize devices based on your unique setup.

  Designed to simplify content distribution in AV networks of any size, ConductIP enables you to manage video, audio, and ancillary data streams, whether they come from native IP devices or are converted from your existing broadcast and Pro AV equipment.

- **Matrox ConvertIP Manager:** Matrox ConvertIP Manager is an executable utility application that allows you to manage multiple ConvertIP devices over your network. You can connect transmitters and receivers, update multiple ConvertIP devices simultaneously, and more.

You can use Matrox ConvertIP without these added applications, but using them will unlock a greater range of functionality for your transmitter/receiver workflow.

CHAPTER 2

Matrox ConvertIP Hardware Connections

This chapter includes the following topics:

Connecting your Matrox ConvertIP SRH

This section shows the basic button functions and connections for the Matrox ConvertIP SRH device.

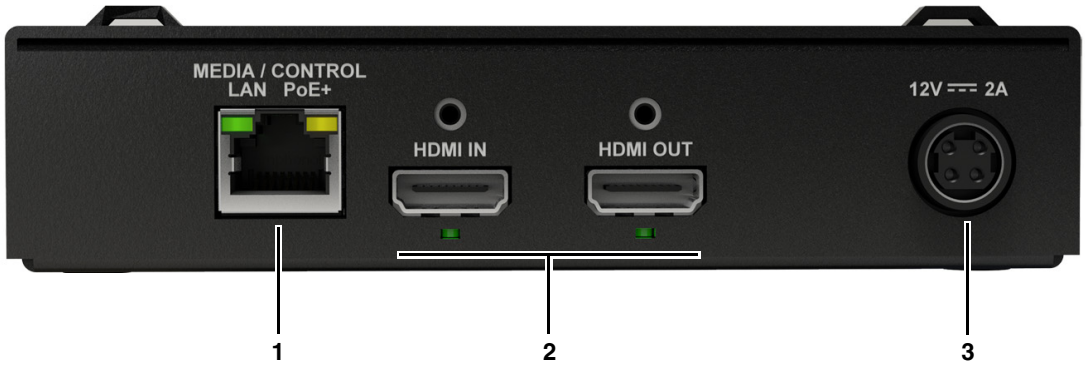
NOTE For complete information on LED behavior and button functions, see "*ConvertIP LED status indicators and button functions*" on page *138*.

Front

	LEDs / Buttons	Description
1	**Main LEDs**	• **TX**: When green, indicates the ConvertIP is in Transmitter (TX) mode. • **Status:** When flashing green, the device is encoding or decoding depending on what mode it is in. When solid green, the device is powered on, but idle. • **RX**: When green, indicates the ConvertIP is in Receiver (RX) mode. When ConvertIP is powered up for the first time, it will be in RX mode.
2	**Test**	In TX mode, press and hold for approximately 10 seconds and release to output a valid multicast stream and test pattern at the settings specified in the ConvertIP user interface. An input does not need to be connected. In RX mode, press and hold for approximately 10 seconds and release to ensure the HDMI or SDI cable is good and the connection between ConvertIP and the monitor or downstream device is valid. A valid network connection is not needed to use this. When finished, press the button for approximately 5 seconds to return to standard operation. For more information, see "*Test pattern example*" on page *155*.

	LEDs / Buttons	Description
3	**Mode**	Press and hold simultaneously with the **Reset** button for 1 second to switch the ConvertIP from transmitter to receiver and vice-versa. ConvertIP will reboot to switch modes.
4	**Reset**	Reboots the ConvertIP with a short press, or resets to factory default settings with a long press of about 8 seconds.

Rear



	Connections	Description
1	**MEDIA / CONTROL LAN PoE+**	Connect to your media network. You can also power the ConvertIP from this port (Power over Ethernet).
2	**HDMI IN**	• **In TX mode:** Connect an HDMI video source to this connector when in transmitter mode. • **In RX mode:** Connection is not used in receiver mode.
	HDMI OUT	• **In TX mode:** Not used. • **In RX mode:** Connect an HDMI monitor to show the received ST 2110 or IPMX video signal.
3	**Power**	If you do not want your ConvertIP to be powered over the Ethernet connection, connect your 12V DC power supply to this port (sold separately).

Connecting your Matrox ConvertIP DRH

This section shows the basic button functions and connections for the Matrox ConvertIP DRH device.

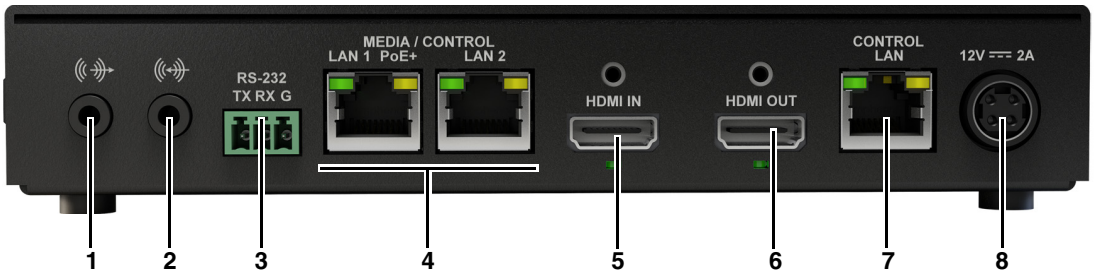
NOTE For complete information on LED behavior and button functions, see "*ConvertIP LED status indicators and button functions*" on page *138*.

Front

	LEDs / Buttons	Description
1	**Main LEDs**	• **TX:** When green, indicates the ConvertIP is in Transmitter (TX) mode. • **Status:** When flashing green, the device is encoding or decoding depending on what mode it is in. When solid green, the device is powered on, but idle. • **RX:** Indicates the ConvertIP is in Receiver (RX) mode. When ConvertIP is powered up for the first time, it will be in RX mode.
2	**Test**	In TX mode, press and hold for press and hold for approximately 10 seconds and release to output a valid multicast stream and test pattern at the settings specified in the ConvertIP user interface. An input does not need to be connected. In RX mode, press and hold for approximately 10 seconds and release to ensure the HDMI or SDI cable is good and the connection between ConvertIP and the monitor or downstream device is valid. A valid network connection is not needed to use this. When finished, press the button for approximately 5 seconds to return to standard operation. For more information, see "*Test pattern example*" on page *155*.
3	**Mode**	Press and hold simultaneously with the **Reset** button for 1 second to switch the ConvertIP from transmitter to receiver and vice-versa. ConvertIP will reboot to switch modes.

	LEDs / Buttons	Description
4	**Reset**	Reboots the ConvertIP with a short press, or resets to factory default settings with a long press of about 8 seconds.

Rear



	Connections	Description
1	**Audio Out**	Connect your analog audio output destination.
2	**Line In**[1]	Connect your analog audio input source.
3	**RS-232** **TX RX G**	To be supported in a future release.
4	**Media / Control** **LAN 1 PoE+** **LAN 2**	Connect **LAN 1 POE+** to your media network. You can also power the ConvertIP from this port (Power over Ethernet). Connect **LAN 2** to your redundant media network (if available).
5	**HDMI IN**	• **In TX mode:** Connect an HDMI video source to this connector when in transmitter mode. • **In RX mode:** Connection is not used in receiver mode.
6	**HDMI OUT**	• **In TX mode:** Connect an HDMI monitor to view the HDMI IN video source content. • **In RX mode:** Connect an HDMI monitor to show the received ST 2110 or IPMX video signal.
7	**Control LAN**	If you want to have media and control on separate networks, connect **CONTROL LAN** to a network other than your media network. If your media network is static, connect this port to a DHCP-enabled network, and then log in to ConvertIP to set the static IP address.
8	**Power**	If you do not want your ConvertIP to be powered over the Ethernet connection, connect your 12V DC power supply to this port (sold separately).

1. You must select **Line in** or **Embedded audio in** from the ConvertIP web UI.

Connecting your Matrox ConvertIP DSH

This section shows the basic button functions and connections for the Matrox ConvertIP DSH device.

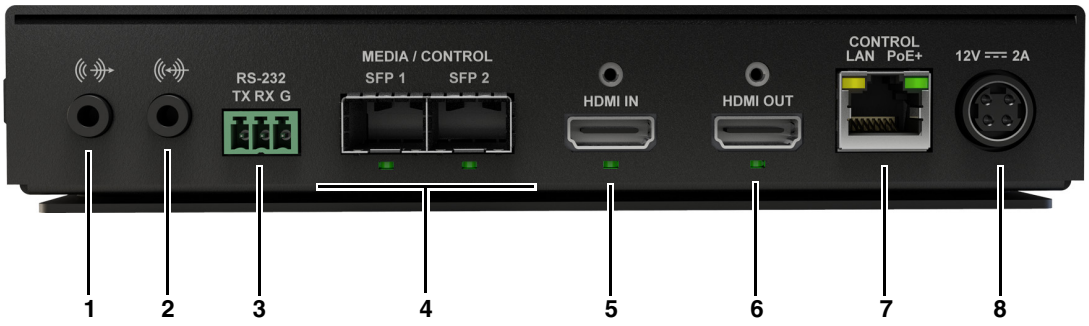
NOTE For complete information on LED behavior and button functions, see "*ConvertIP LED status indicators and button functions*" on page *138*.

Front

	LEDs / Buttons	Description
1	**Main LEDs**	• **On = TX / Off = RX:** Indicates the ConvertIP mode. When on, the device is in Transmitter or Gateway - Encoder mode. When off, the device is in Receiver or Gateway - Decoder mode. • **Status:** When flashing, the device is encoding or decoding. When solid, the device is idle. • **On = Uncomp / Off = Comp:** Indicates the compression mode. When on, the device is streaming uncompressed content. When off, the device is streaming compressed content. When flashing, the device is in Gateway mode.

	LEDs / Buttons	Description
2	**Test**	In TX mode, press and hold for approximately 10 seconds and release to output a valid multicast stream and test pattern at the settings specified in the ConvertIP user interface. An input does not need to be connected. In RX mode, press and hold for approximately 10 seconds and release to ensure the HDMI or SDI cable is good and the connection between ConvertIP and the monitor or downstream device is valid. A valid network connection is not needed to use this. When finished, press the button for approximately 5 seconds to return to standard operation. For more information, see "*Test pattern example*" on page *155*. **NOTE** This button does not work in Gateway mode.
3	**Mode**	Press and hold simultaneously with the **Reset** button for 1 second to switch the ConvertIP from transmitter to receiver and vice-versa. ConvertIP will reboot to switch modes.
4	**Reset**	Reboots the ConvertIP with a short press, or resets to factory default settings with a long press of about 8 seconds.

Rear



	Connections	Description
1	**Audio Out**	Connect your analog audio output destination.
2	**Line In**[1]	Connect your analog audio input source.
3	**RS-232** **TX RX G**	To be supported in a future release.

	Connections	Description
4	**Media / Control SFP 1 SFP 2**[2]	Connect **SFP 1** to your media network. Connect **SFP 2** to your redundant media network (if available). **NOTE** Install SFPs before booting the device. If you change an SFP, you must reboot the device.
5	**HDMI IN**	• **In TX mode:** Connect an HDMI video source to this connector when in transmitter mode. • **In RX mode:** Connection is not used in receiver mode. **NOTE** HDMI is disabled when in Gateway mode.
6	**HDMI OUT**	• **In TX mode:** Connect an HDMI monitor to view the HDMI IN video source content. • **In RX mode:** Connect an HDMI monitor to show the received ST 2110 or IPMX video signal. **NOTE** HDMI is disabled when in Gateway mode.
7	**CONTROL LAN PoE+**	If you want to have media and control on separate IP addresses, connect **CONTROL LAN** to a network other than your media network. If your media network is static, connect this port to a DHCP-enabled network, and then log in to ConvertIP to set the static IP address.
8	**Power**	If you do not want your ConvertIP to be powered over the Ethernet connection, connect your 12V DC power supply to this port (sold separately).

1. You must select **Line in** or **Embedded audio in** from the ConvertIP web UI.
2. Multi-speed SFPs are not supported. Link speeds should auto-negotiate under normal conditions; however, if auto-negotiation fails, manually configure the network switch to force 25G with RS-FEC for 25G direct attachment or to force 10G for 10G links.

Connecting your Matrox ConvertIP DRS

This section shows the basic button functions and connections for the Matrox ConvertIP DRS device.

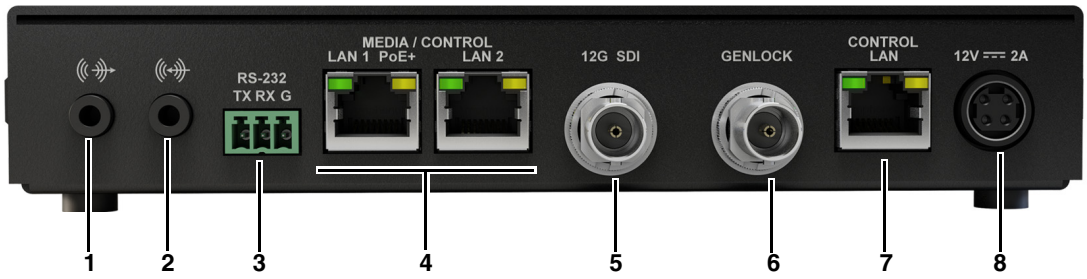
NOTE For complete information on LED behavior and button functions, see "*ConvertIP LED status indicators and button functions*" on page *138*.

Front

	LEDs / Buttons	Description
1	**Main LEDs**	• **TX**: When green, indicates the ConvertIP is in Transmitter (TX) mode. • **Status**: When flashing green, the device is encoding or decoding depending on what mode it is in. When solid green, the device is powered on, but idle. • **RX**: Indicates the ConvertIP is in Receiver (RX) mode. When ConvertIP is powered up for the first time, it will be in RX mode.
2	**Test**	In TX mode, press and hold for approximately 10 seconds and release to output a valid multicast stream and test pattern at the settings specified in the ConvertIP user interface. An input does not need to be connected. In RX mode, press and hold for approximately 10 seconds and release to ensure the HDMI or SDI cable is good and the connection between ConvertIP and the monitor or downstream device is valid. A valid network connection is not needed to use this. When finished, press the button for one second to return to standard operation. For more information, see "*Test pattern example*" on page *155*.
3	**Mode**	Press and hold simultaneously with the **Reset** button for one second to switch the ConvertIP from transmitter to receiver and vice-versa. ConvertIP will reboot to switch modes.

	LEDs / Buttons	Description
4	**Reset**	Reboots the ConvertIP with a short press, or resets to factory default settings with a long press of about 8 seconds.

Rear



	Connections	Description
1	**Audio Out**	Connect your analog audio output destination.
2	**Line In**[1]	Connect your analog audio input source.
3	**RS-232** **TX RX G**	To be supported in a future release.
4	**Media / Control** **LAN 1 PoE+** **LAN 2**	Connect **LAN 1 POE+** to your media network. You can also power the ConvertIP from this port (Power over Ethernet). Connect **LAN 2** to your redundant media network (if available).
5	**12G SDI**	• **In TX mode (in/out connector is illuminated in green):** Connect an SDI video source to this connector when in transmitter mode. • **In RX mode (in/out connector is illuminated in red):** Connect an SDI monitor to this connector to show the received ST 2110 or IPMX video signal when in receiver mode.
6	**Genlock**	ConvertIP supports a bi-level genlock output signal which is derived from the PTP clock.
7	**Control LAN**	If you want to have media and control on separate networks, connect **CONTROL LAN** to a network other than your media network. If your media network is static, connect this port to a DHCP-enabled network, and then log in to ConvertIP to set the static IP address.

	Connections	Description
8	**Power**	If you do not want your ConvertIP to be powered over the Ethernet connection, connect your 12V DC power supply to this port (sold separately).

1. You must select **Line in** or **Embedded audio in** from the ConvertIP web UI.

Connecting your Matrox ConvertIP DSS

This section shows the basic button functions and connections for the Matrox ConvertIP DSS device.

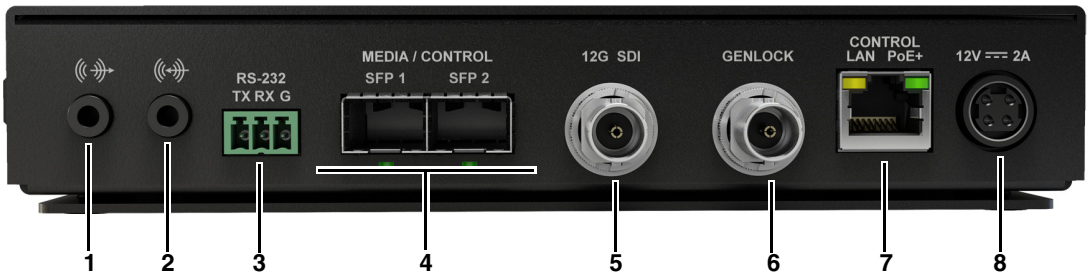
NOTE For complete information on LED behavior and button functions, see "*ConvertIP LED status indicators and button functions*" on page *138*.

Front

	LEDs / Buttons	Description
1	**Main LEDs**	• **On = TX / Off = RX**: Indicates the ConvertIP mode. When on, the device is in Transmitter mode. When off, the device is in Receiver mode. • **Status**: When flashing, the device is encoding or decoding. When solid, the device is idle. • **On = Uncomp / Off = Comp**: Indicates the compression mode. When on, the device is streaming uncompressed content. When off, the device is streaming compressed content.
2	**Test**	In TX mode, press and hold for approximately 10 seconds and release to output a valid multicast stream at the settings specified in the ConvertIP user interface. An input does not need to be connected. In RX mode, press and hold for approximately 10 seconds and release to ensure the HDMI or SDI cable is good and the connection between ConvertIP and the monitor or downstream device is valid. A valid network connection is not needed to use this. When finished, press the button for approximately 5 seconds to return to standard operation. For more information, see "*Test pattern example*" on page *155*.
3	**Mode**	Press and hold simultaneously with the **Reset** button for 1 second to switch the ConvertIP from transmitter to receiver and vice-versa. ConvertIP will reboot to switch modes.

	LEDs / Buttons	Description
4	**Reset**	Reboots the ConvertIP with a short press, or resets to factory default settings with a long press of about 8 seconds.

Rear



	Connections	Description
1	**Audio Out**	Connect your analog audio output destination.
2	**Line In**[1]	Connect your analog audio input source.
3	**RS-232** **TX RX G**	To be supported in a future release.
4	**Media / Control** **SFP 1 SFP 2**[2]	Connect **SFP 1** to your media network. Connect **SFP 2** to your redundant media network (if available). **NOTE** Install SFPs before booting the device. If you change an SFP, you must reboot the device.
5	**12G SDI**	• **In TX mode (in/out connector is illuminated in green):** Connect an SDI video source to this connector when in transmitter mode. • **In RX mode (in/out connector is illuminated in red):** Connect an SDI monitor to this connector to show the received ST 2110 or IPMX video signal when in receiver mode.
6	**Genlock**	ConvertIP supports a bi-level genlock output signal which is derived from the PTP clock.
7	**Control Lan PoE+**	If you want to have media and control on separate networks, connect **CONTROL LAN** to a network other than your media network. If your media network is static, connect this port to a DHCP-enabled network, and then log in to ConvertIP to set the static IP address. You can also power the ConvertIP from this port (Power over Ethernet).

	Connections	Description
8	**Power**	If you do not want your ConvertIP to be powered over the Ethernet connection, connect your 12V DC power supply to this port (sold separately).

1. You must select **Line in** or **Embedded audio in** from the ConvertIP web UI.
2. Multi-speed SFPs are not supported. Link speeds should auto-negotiate under normal conditions; however, if auto-negotiation fails, manually configure the network switch to force 25G with RS-FEC for 25G direct attachment or to force 10G for 10G links.

Connecting your Matrox ConvertIP SRST

This section shows the basic button functions and connections for the Matrox ConvertIP SRST device.

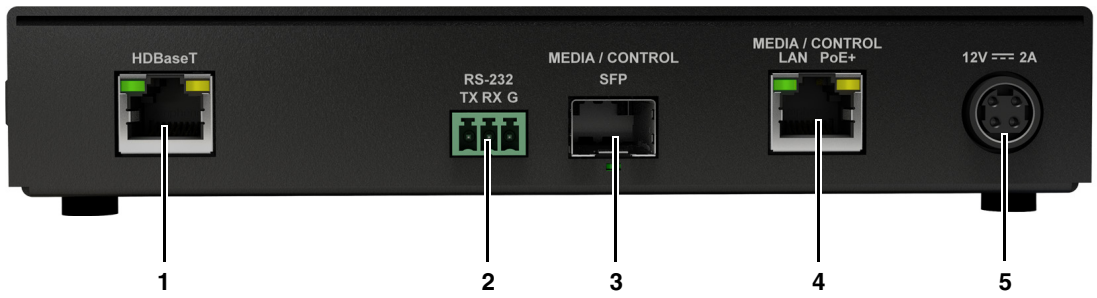
NOTE For complete information on LED behavior and button functions, see "*ConvertIP LED status indicators and button functions*" on page *138*.

Front

	LEDs / Buttons	Description
1	**Main LEDs**	• **On = TX / Off = RX**: Indicates the ConvertIP mode. When on, the device is in Transmitter mode. When off, the device is in Receiver mode. • **Status**: When flashing, the device is encoding or decoding. When solid, the device is idle. • **On = Uncomp / Off = Comp**: Indicates the compression mode. When on, the device is streaming uncompressed content. When off, the device is streaming compressed content.
2	**Test**	In TX mode, press and hold for approximately 10 seconds and release to output a valid multicast stream at the settings specified in the ConvertIP user interface. An input does not need to be connected. In RX mode, press and hold for approximately 10 seconds and release to ensure the connection between ConvertIP and the monitor or downstream device is valid. A valid network connection is not needed to use this. When finished, press the button for approximately 5 seconds to return to standard operation. For more information, see "*Test pattern example*" on page *155*.
3	**Mode**	Press and hold simultaneously with the **Reset** button for 1 second to switch the ConvertIP from transmitter to receiver and vice-versa. This will reboot the ConvertIP.

	LEDs / Buttons	Description
4	**Reset**	Reboots the ConvertIP with a short press, or resets to factory default settings with a long press of about 8 seconds.

Rear



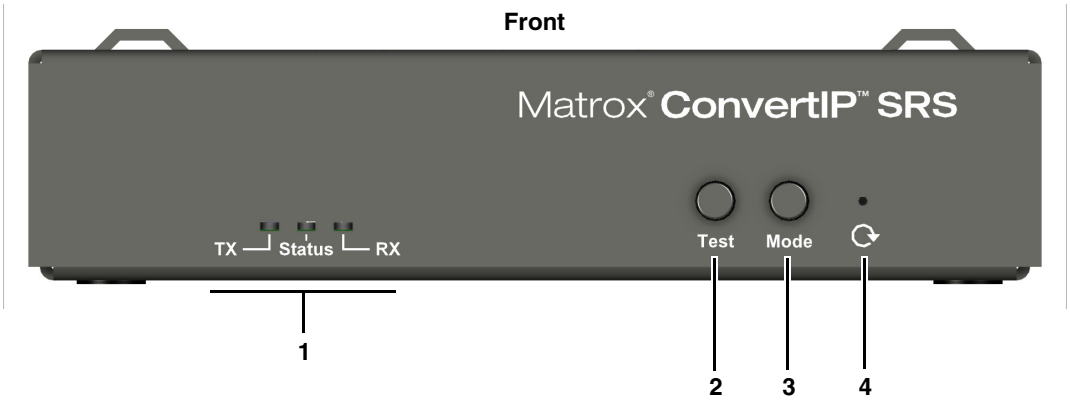
	Connections	Description
1	**HDBaseT**	Connect your HDBaseT video device to this connector.
2	**RS-232 TX RX G**	To be supported in a future release.
3	**Media / Control SFP**[1]	If the SFP firmware is installed, this will be the only active port for media/control. The *Media / Control LAN PoE+* will not be functional. **NOTE** Install SFPs before booting the device. If you change an SFP, you must reboot the device.
4	**Media / Control LAN PoE+**	Connect to your media network. You can also power the ConvertIP from this port (Power over Ethernet).
5	**Power**	If you do not want your ConvertIP to be powered over the Ethernet connection, connect your 12V DC power supply to this port (sold separately).

1. Multi-speed SFPs are not supported. Link speeds should auto-negotiate under normal conditions; however, if auto-negotiation fails, manually configure the network switch to force 25G with RS-FEC for 25G direct attachment or to force 10G for 10G links.

Connecting your Matrox ConvertIP SRS

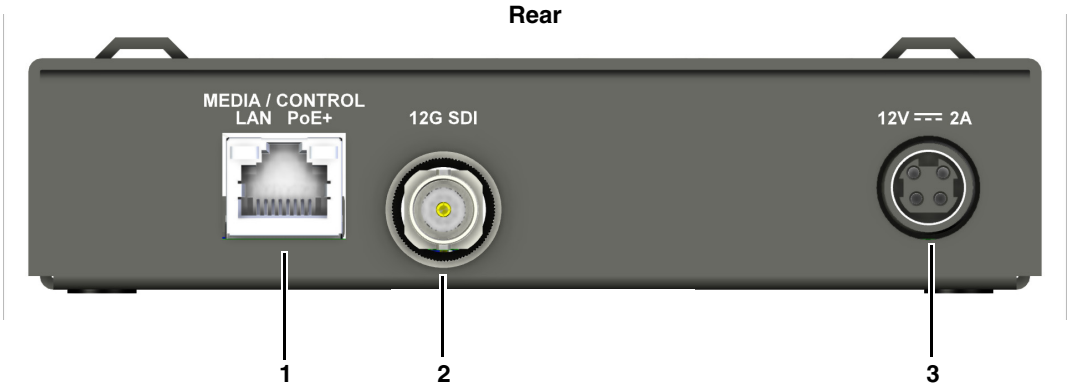
This section shows the basic button functions and connections for the Matrox ConvertIP SRS device.

NOTE For complete information on LED behavior and button functions, see "*ConvertIP LED status indicators and button functions*" on page *138*.



	LEDs / Buttons	Description
1	**Main LEDs**	• **TX**: When green, indicates the ConvertIP is in Transmitter (TX) mode. • **Status:** When flashing green, the device is encoding or decoding depending on what mode it is in. When solid green, the device is powered on, but idle. • **RX**: When green, indicates the ConvertIP is in Receiver (RX) mode. When ConvertIP is powered up for the first time, it will be in RX mode.
2	**Test**	In TX mode, press and hold for approximately 10 seconds and release to output a valid multicast stream at the settings specified in the ConvertIP user interface. An input does not need to be connected. In RX mode, press and hold for approximately 10 seconds and release to ensure the connection between ConvertIP and the monitor or downstream device is valid. A valid network connection is not needed to use this. When finished, press the button for approximately 5 seconds to return to standard operation. For more information, see "*Test pattern example*" on page *155*.

	LEDs / Buttons	Description
3	**Mode**	Press and hold simultaneously with the **Reset** button for 1 second to switch the ConvertIP from transmitter to receiver and vice-versa. ConvertIP will reboot to switch modes.
4	**Reset**	Reboots the ConvertIP with a short press, or resets to factory default settings with a long press of about 8 seconds.

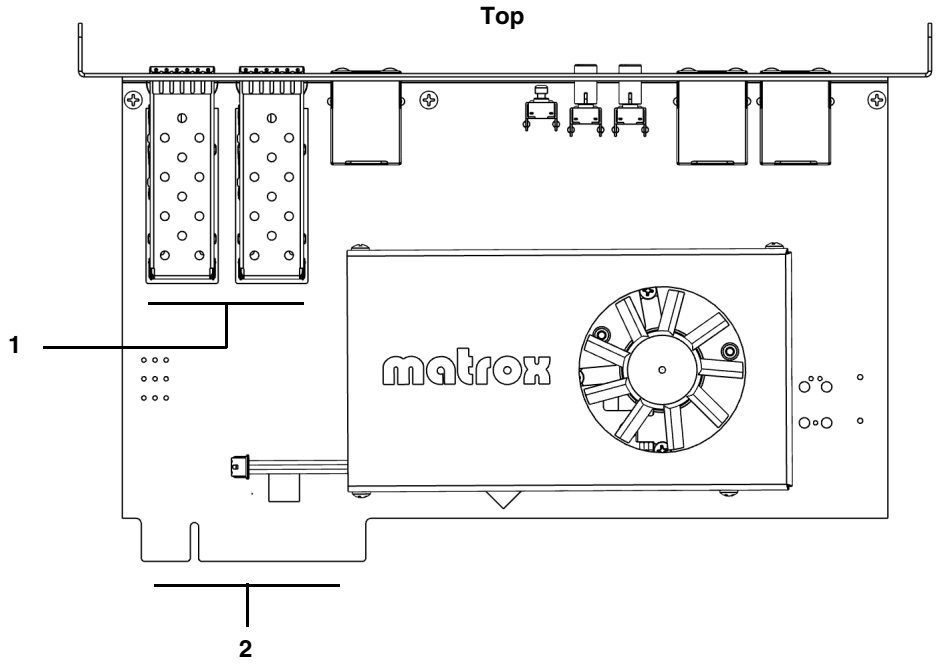


	Connections	Description
1	**MEDIA / CONTROL LAN PoE+**	Connect to your media network. You can also power the ConvertIP from this port (Power over Ethernet).
2	**12G SDI**	• **In TX mode (in/out connector is illuminated in green):** Connect an SDI video source to this connector when in transmitter mode. • **In RX mode (in/out connector is illuminated in red):** Connect an SDI monitor to this connector to show the received ST 2110 or IPMX video signal when in receiver mode.
4	**Power**	If you do not want your ConvertIP to be powered over the Ethernet connection, connect your 12V DC power supply to this port (sold separately).

Connecting your Matrox ConvertIP SDM

This section shows the basic button functions and connections for the Matrox ConvertIP SDM device.

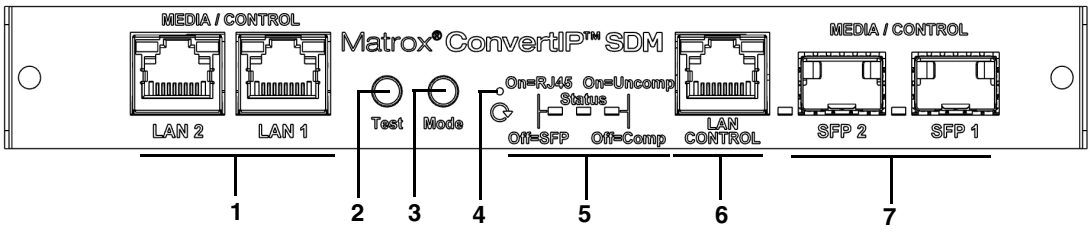
NOTE For complete information on LED behavior and button functions, see "*ConvertIP LED status indicators and button functions*" on page *138*.



	LEDs / Buttons	Description
1	**SFP modules**	Insert the SFP modules before powering on your monitor/ConvertIPIP SDM. Do not try to “hot-plug” the SFP modules after the power is on.
2	**Card slot connection**	Insert the ConvertIP SDM card into the appropriate slot on your monitor before powering on the monitor/ConvertIP SDM. This provides power to the card and establishes the SDM connection. For more information, see your monitor’s official documentation.

IMPORTANT To ensure proper functioning of ConvertIP SDM, LAN/RJ45 media and SFP media cannot both be connected at the same time.

Front



	Connections	Description
1	**Media / Control LAN 1** **LAN 2**	Connect **LAN 1** to your media network. Connect **LAN 2** to your redundant media network (if available).
2	**Test**	Press and hold for approximately 10 seconds and release to activate the test pattern. When finished, press the button for approximately 5 seconds to return to standard operation. For more information, see "*Test pattern example*" on page *155*.
3	**Mode**	Press and hold simultaneously with the **Reset** button for 1 second to switch the ConvertIP from SFP media ports to LAN/RJ45 media ports and vice-versa. ConvertIP will reboot to switch modes.
4	**Reset**	Reboots the ConvertIP with a short press, or resets to factory default settings with a long press of about 8 seconds.
5	**Main LEDs**	• **Status:** When flashing green, the device is decoding. When solid green, the device is powered on, but idle. • **RJ45 / SFP:** Indicates the media ports being used (RJ45 or SFP). • **Uncomp / Comp**: When green, indicates the ConvertIP is in Uncompressed mode. When unlit, indicates the ConvertIP is in Compressed mode. When ConvertIP is powered up for the first time, it will be in Uncompressed mode.Status: Flashing indicates encoding/decoding. Solid indicates device is idle.

	Connections	Description
6	**LAN Control**	If you want to have media and control on separate IP addresses, connect **LAN CONTROL** to a network other than your media network. If your media network is static, connect this port to a DHCP-enabled network, and then log in to ConvertIP to set the static IP address.
7	**Media / Control SFP 1 SFP 2**[1]	Connect **SFP 1** to your media network. Connect **SFP 2** to your redundant media network (if available). **NOTE** Install SFPs before booting the device. If you change an SFP, you must reboot the device.

1. Multi-speed SFPs are not supported. Link speeds should auto-negotiate under normal conditions; however, if auto-negotiation fails, manually configure the network switch to force 25G with RS-FEC for 25G direct attachment or to force 10G for 10G links.

CHAPTER 3

Getting started with Matrox ConvertIP

This chapter includes the following topics:

Initial setup overview

The following list is an overview of the tasks you'll need to perform to get started with Matrox ConvertIP. When needed, links to other topics are provided for more information.

Although this list is shown as a series of steps, you do not necessarily need to do all these tasks in the order described. For example, you can connect your video source before powering up the ConvertIP.

NOTE Some of the tasks listed here can be done more quickly using the Matrox ConvertIP Manager application. For more information, go to the download page of our *website*.

To get started with Matrox ConvertIP:

Step 1. **Connect the Matrox ConvertIP to a power source:** Matrox ConvertIP can be powered by an external power supply (sold separately) or by using PoE+ (Power Over Ethernet).

More info: See "*Matrox ConvertIP Hardware Connections*" on page *7*.

Step 2. **Connect Matrox ConvertIP to your network:** Network connections vary by Matrox ConvertIP model. For example, the ConvertIP SRH model features a single network connector for media, control, and optional power. Other ConvertIP models offer additional connectors, allowing for separate networks for media and control. For more information, see the connection sections for your specific ConvertIP device:

More info:

- See "*Connecting your Matrox ConvertIP SRH*" on page *8*.
- See "*Connecting your Matrox ConvertIP DRH*" on page *10*.
- See "*Connecting your Matrox ConvertIP DSH*" on page *13*.
- See "*Connecting your Matrox ConvertIP DRS*" on page *16*.
- See "*Connecting your Matrox ConvertIP DSS*" on page *19*.
- See "*Connecting your Matrox ConvertIP SRST*" on page *22*.
- See "*Connecting your Matrox ConvertIP SRS*" on page *24*.
- See "*Connecting your Matrox ConvertIP SDM*" on page *26*.

Step 3. **Access the Web interface:** When ConvertIP is connected to your network, it will boot in DHCP and broadcast in mDNS. This allows you to connect to the ConvertIP Command Center with your web browser (Google Chrome is recommended).

You can connect with your ConvertIP's IP address or, if your computer and ConvertIP are on the same subnet, go to *https://mtxcip-ConvertIP_serial*, where "ConvertIP_serial" is the serial number found on your device label (e.g. *https://mtxcip-ab12345/*).

More info: See "*Discovering Matrox ConvertIP devices on your network*" on page *32*.

Step 4. **Log in and create an initial user account:** When you first log in to the ConvertIP Command Center, you will need to create the Administrator account (username and password). You can also do this using the Matrox ConvertIP Manager application.

More info: See "*Logging in to Matrox ConvertIP*" on page *33*.

Step 5. **Update Matrox ConvertIP:** There may be a more recent firmware version available for your ConvertIP from the Matrox Video *website*. It is recommended to always use the latest version. Ignore this step if you already have the latest version of ConvertIP. To use a ConvertIP DSH as an IP gateway, you must install a gateway firmware.

More info:

- See "*Firmware update*" on page *81*.
- To complete the setup of a ConvertIP DSH as an IP gateway, refer to "*Setting up ConvertIP DSH for Gateway mode*" on page *45*.

Step 6. **Verify the status of your device:** Go to the *Status* page of the ConvertIP Command Center to display the device status. Make sure everything is working as needed.

More info:

- See "*Status*" on page *65*.

Step 7. **Configure settings:** Configure your ConvertIP devices as transmitters or receivers according to your streaming workflow. You can switch between modes easily from the **Maintenance** page.

More info:

- See "*Matrox ConvertIP Settings Reference*" on page *64*.
- See "*Connecting ConvertIP receivers and transmitters*" on page *36*
- See "*Maintenance*" on page *81*.

Step 8. **Connect your streams:** Once you have configured your ConvertIP receiver and transmitter devices, you are ready to begin streaming. You can establish a single connection from one ConvertIP to another from the ConvertIP Command Center. For more complex workflows, you can use Matrox ConductIP or the Matrox ConvertIP Manager application to connect multiple sender and receiver flows.

More info:

- See "*Connecting ConvertIP receivers and transmitters*" on page *36*.
- See "*Routing (TX devices)*" on page *71*.
- See "*Stream settings (RX devices)*" on page *72*.

Result of this task: You are ready to use Matrox ConvertIP.

Discovering Matrox ConvertIP devices on your network

When you initially connect Matrox ConvertIP devices to your network, they will boot in DHCP and broadcast in mDNS. This means that you will have to discover them on your network before you can log in to the web-based Command Center to configure them.

After your ConvertIP devices are connected to your network, there are several ways to discover them and get their IP addresses:

- Connect a monitor to the ConvertIP's HDMI or SDI outputs, and activate the test pattern to see the IP address you can use to log in. For more information, see "*Test pattern example* on page *155*.

NOTE This test pattern will not work for ConvertIP DSH when it is used as an IP gateway.

- Use the Matrox ConductIP or Matrox ConvertIP Manager applications to detect the ConvertIP devices on your network. Each application includes embedded help to guide you through the process of discovering and updating your ConvertIP devices.
- If your computer and ConvertIP are on the same subnet, open your web browser and go to *https://mtxcip-ConvertIP_serial*, where "ConvertIP_serial" is the serial number found on your device label. If your network is set up to use mDNS, this will take you to the ConvertIP login page.

Logging in to Matrox ConvertIP

After you have discovered your Matrox ConvertIP device on the network and know its IP address, you can log in to the web-based Command Center for configuration.

Step 1. Discover the ConvertIP devices on your network (see "*Discovering Matrox ConvertIP devices on your network*" on page *32*).

Step 2. Open your web browser and go to the IP address of your ConvertIP (e.g. https://192.168.12.345) to access the Command Center.

More info: You must use “https” to connect to the Command Center.

Step 3. Enter your **Username** and **Password**, then click **Login**.

More info: If this is the first time you are logging in to this ConvertIP you will instead be prompted to create a username and password to continue with the initial setup.

Result of this task: You are logged in to your ConvertIP.

When done, remember: You can also use the Matrox ConductIP or Matrox ConvertIP Manager applications to access the ConvertIP Command Center.

Modifying the ConvertIP user account

You create a single user account on ConvertIP when you log on for the first time. After that, you can add a first and last name to the account, and change the account password.

To modify the user account:

Step 1. Log on to ConvertIP (see "*Logging in to Matrox ConvertIP*" on page *33*).

Step 2. Go to **Account > Account management**.

Step 3. To add a first and last name to this username (shown in the **Username** field), enter the information where indicated.

Step 4. To change the password for this username, click **Change password** and follow the onscreen instructions to proceed.

Step 5. When finished click **Apply**.

Result of this task: Your changes are applied to your user account.

Configuring ConvertIP certificates

You will need to use the Matrox ConvertIP Manager application to perform this task.

Step 1. Download the Matrox ConvertIP Manager application *here*.

Step 2. Open Matrox ConvertIP Manager, and generate the server certificate:

- **a.** At the top-right, click the **Settings** button.
- **b.** Select **Trusted certificates**.
- **c.** Click **Generate root certificate and private key**.
- **d.** Click the folder icon next to **Root certificate directory** and choose where to save the certificate and key.
- **e.** Change the extension of the root certificate directory **Certificate file name** so it reads *CA.crt*.
- **f.** Click **Ok**.

Step 3. Click **Import trusted certificate**, select the *CA.crt* file, and click **Open**.

Step 4. Install the certificate on your devices.

- **a.** Return to the **Devices** page.
- **b.** Check mark the devices for which the certificate is to be installed.
- **c.** Select the **Devices** menu (three vertical dots).
- **d.** Select **Certificates** and **Install certificate**.
- **e.** If prompted, enter the usernames and passwords for the selected devices.

More info: The **Root certificate** will appear as *graphics.matrox.com*.

- **f.** Click the icon to the right of **Root certificate private key file** and select the *CA.key* file created earlier.
- **g.** Click **Ok**, then click **Yes** to reboot the device.

Step 5. Use **Windows File Explorer** to go to the folder where the *CA.crt* file is located.

Step 6. Double-click the file and click **Install certificate...** to start the Certificate Import Wizard.

Step 7. Select **Local machine**.

Step 8. Select **Place all certificates in the following store** and click **Browse...**

Step 9. Select **Trusted Root Certification Authorities** and click **Ok**.

More info: If the import was successful, a confirmation message will appear.

Step 10. If the Web browser (Google Chrome is recommended) was previously used to access ConvertIP device configurations, open the browser's settings and delete all browser data, then close and restart the browser.

Step 11. Access the configuration pages of the ConvertIP device either by IP address (https://[IP_address]) or by name (https://MTXCIP-[serial_number]) and confirm that the browser pages are secure (without warnings) as expected.

Result of this task: You have successfully configured your ConvertIP certificates.

Connecting ConvertIP receivers and transmitters

This section describes the different methods for connecting ConvertIP transmitters and receivers via the Matrox ConvertIP Command Center user interface. If you have a small installation with a few devices, using this approach will provide the simplest way to establish connections. However, if you have a complex setup with multiple devices, it is recommended to manage your connections using *Matrox ConvertIP Manager* or *Matrox ConductIP*.

NOTE You must activate the **Master enable** on the transmitter for streaming to work. See "*Master enable*" on page *67*.

Switching ConvertIP operating modes

To switch your ConvertIP operating mode (**Transmitter**/**Receiver**):

Step 1. Open your web browser and go to the IP address of your ConvertIP (e.g. https://192.168.123.456).

Step 2. Go to **Device > Maintenance**.

Step 3. Under **Operating mode**, select your desired mode from the list.

More info: The current ConvertIP operating mode is displayed in the top-right corner of the user interface.

Step 4. Click **Apply**.

Result of this task: Your ConvertIP will reboot and begin operating in the selected mode. You can then log in again to continue.

Connecting ConvertIP devices

In the Matrox ConvertIP Command Center, you can connect a ConvertIP transmitter to a ConvertIP receiver using SDP URLs from the transmitter, the quick connect method, or custom receiver settings.

Using SDP URLs from the transmitter

To connect a transmitter to a receiver using the SDP URLs from the transmitter:

Step 1. Open your web browser and go to the IP address of your ConvertIP transmitter (e.g. https://192.168.123.456).

Step 2. Go to **AV and Stream Configuration > Dashboard**.

Step 3. Manually copy the **Video SDP file URL**.

Step 4. Open a new browser tab and go to the IP address of your receiver ConvertIP (e.g. https://192.168.123.789).

Step 5. Go to **AV and Stream Configuration > Stream settings**.

Step 6. For the **Connection method**, select **Use SDP URLs**.

Step 7. Paste the copied text into the **Video SDP URL**.

More info: If your receiver device has Multiviewer Mode enabled, you will be able to paste the Video SDP URLs of four transmitter devices.

Step 8. Repeat the steps for the **Audio SDP file URL**.

Step 9. Click **Apply**.

Result of this task: Your ConvertIP transmitter is connected to your ConvertIP receiver.

Using the quick connect method

To connect a transmitter to a receiver using the quick connect method:

Step 1. Open your web browser and go to the IP address of your receiver ConvertIP (e.g. https://192.168.123.789).

Step 2. Go to **AV and Stream Configuration > Stream settings**.

Step 3. For the **Connection mode**, select **Use quick connect mode**.

More info: A list of the available ConvertIP transmitters will appear after a few seconds. Click **Refresh list of ConvertIP devices on network** to force a search for devices.

Step 4. Select a transmitter ConvertIP from the list of **Available ConvertIP devices**.

More info: If your receiver device has **Multiviewer Mode** enabled, you will be able to select four transmitter devices.

Step 5. Click **Apply**.

Result of this task: Your ConvertIP transmitter is connected to your ConvertIP receiver.

Using custom settings on the receiver

To connect a transmitter to a receiver using custom receiver settings:

Step 1. Open your web browser and go to the IP address of your ConvertIP receiver (e.g. https://192.168.123.789).

Step 2. Go to **AV and Stream Configuration > Stream settings**.

Step 3. For the **Connection mode**, select **Custom settings**.

Step 4. Enter the required information, which can be found on your ConvertIP transmitter device.

More info: You will need to manually match the settings coming from the ConvertIP transmitter to have a successful connection. If your receiver device has **Multiviewer Mode** enabled, you will be able to enter video information from four transmitter devices.

Step 5. Click **Apply**.

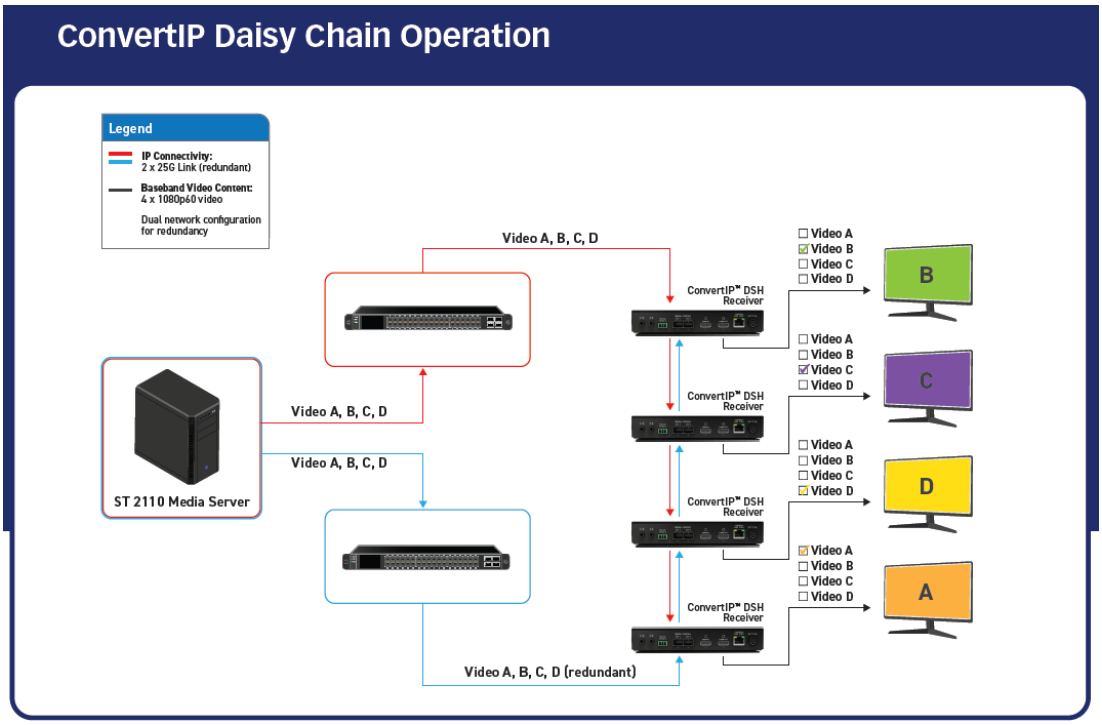
Result of this task: Your ConvertIP transmitter is connected to your ConvertIP receiver.

Daisy chaining your Matrox ConvertIP devices

This section explains how to create a daisy-chained setup with multiple Matrox ConvertIP DSS, DSH and/or SDM devices. Using the SFP ports, you can chain the ConvertIP devices to support up to 25G of bandwidth, depending on the specific device. This configuration allows video output through each device's HDMI or SDI outputs.

NOTE For ConvertIP SDM, daisy chaining is only supported when the dual SFP media ports are enabled. When dual LAN/RJ45 is enabled, daisy chaining will not work. For ConvertIP DSH, daisy chaining is only possible in RX mode.

For example, here is an HDMI monitoring workflow using multiple ConvertIP DSH devices:



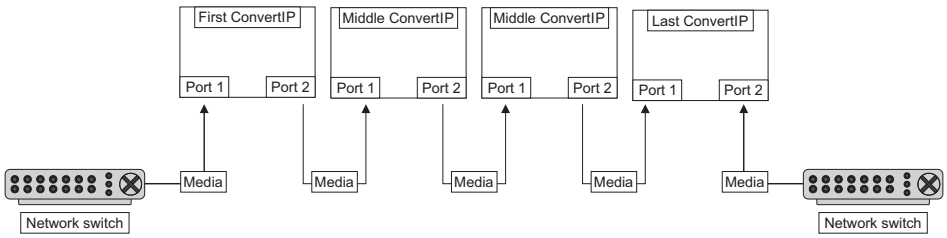
ConvertIP receivers configured in Daisy-chain mode converting FHD 2110 video content [1080p59.94] for HDMI monitoring.

This example shows a daisy chain configuration using ConvertIP DSH devices (in RX mode) to distribute four video signals (A, B, C, D) from an ST 2110 media server. The signals are routed through multiple receivers connected by redundant 25GbE links via the SFP ports, ensuring high availability. Each receiver outputs its assigned signal to designated monitors, with the final receiver providing a redundant connection for all video feeds. This setup is optimized for monitoring Full HD video content (1080p59.94) via HDMI, providing a robust and redundant networked video distribution system.

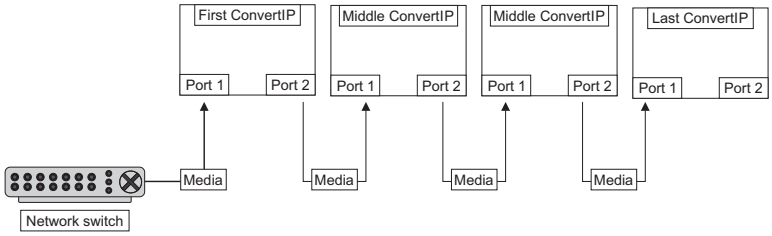
NOTE This example illustrates an HDMI-based setup that can also be applied for the ConvertIP SDM. The ConvertIP DSS allows for an identical workflow with SDI-based setups. Additionally, HDMI and SDI connections can be mixed within the daisy chain configuration.

Here are two simplified workflow examples with and without redundancy:

With redundancy



Without redundancy



To set up your daisy-chained ConvertIP workflow:

Step 1. Connect all your ConvertIP DSS, DSH and/or SDM devices to your network via their SFP ports. Make sure you know which ones will be the first, middle, and last in your daisy chain position.

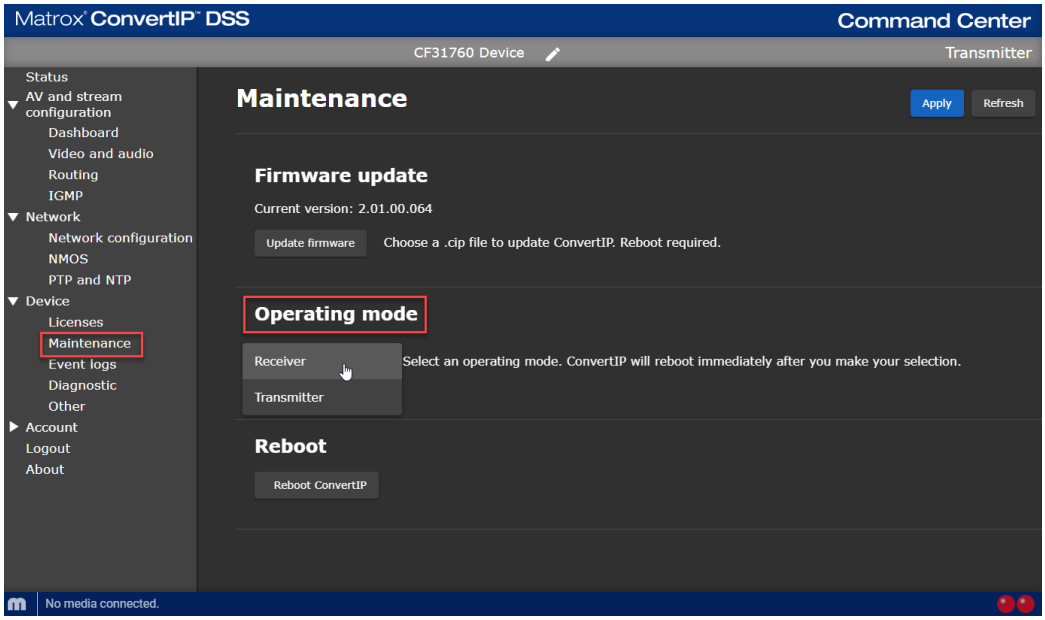
More info:

- See "*Connecting your Matrox ConvertIP DSH*" on page *13*.
- See "*Connecting your Matrox ConvertIP DSS*" on page *19*.
- See "*Connecting your Matrox ConvertIP SDM*" on page *26*.

Step 2. Log in to the ConvertIP Command Center (see "*Logging in to Matrox ConvertIP*" on page *33*).

NOTE For ConvertIP SDM, proceed to *Step 4.*

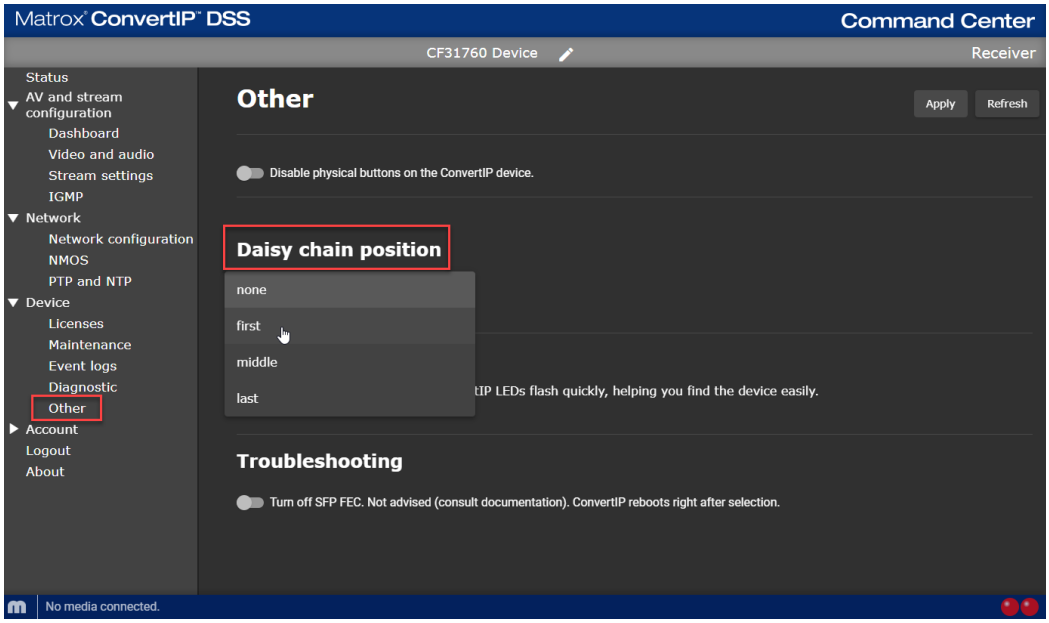
Step 3. If your ConvertIP is **not** already in RX mode, go to **Settings > Device > Maintenance > Operating mode**, select **Receiver**, then click **Apply**.



Your ConvertIP will reboot to switch modes.

Step 4. Set the **Daisy chain position** for your ConvertIP:

a. Go to **Settings > Device > Other**.



b. Under **Daisy chain position**, select the position of this ConvertIP (**First**, **Middle**, or **Last**). If this ConvertIP is in any position other than first or last in the chain, select **Middle**.

c. Click **Apply**.

d. Repeat for all other ConvertIP devices in the chain.

Step 5. If you are including redundancy to your daisy chain:

a. Make sure to connect the second SFP port of your **Last** ConvertIP receiver to your network switch.

b. Enable redundancy for *each* ConvertIP in the chain starting from first to last. Go to **Settings > AV and stream configuration > Stream settings**, turn on **Enable redundancy**, then click **Apply**.

c. Make sure the SFP ports are detected and have a valid IP (go to **Settings > Status > Network Connections**).

Step 6. Connect your monitors to the HDMI and/or SDI outputs of your chained ConvertIP devices.

Step 7. Using the Matrox ConvertIP Manager, or Matrox ConductIP applications, configure the sender and receiver flows to create your desired monitoring workflow.

More info: Both Matrox Video applications include embedded help to guide you through the process of connecting sender and receiver flows.

Result of this task: Your ConvertIP devices are successfully daisy-chained together, and you can start your streaming and monitoring workflow.

When done, remember: For daisy chaining to work from one device to another, the devices must be powered. If power is lost, the connection to the next device is also lost.

IMPORTANT You are responsible for ensuring that a daisy chain is not over-subscribed. You can daisy chain as many devices as you wish. However, if the group of daisy chain receivers is allowed to collectively subscribe to more streams than the link can sustain, every stream that is sent to the daisy chain group may be impacted.

Note that if multiple devices in the daisy chain group are subscribed to a stream, the switch will only send one stream over the link. Go to **Settings** > **Dashboard** to see the bitrate and link usage of a device in the web UI.

You can mix and match any of the streams taking note of the following:
- Link speed of the daisy chain group (10G or 25G).
- ConvertIPs with Codec firmware installed can only operate on a 10G link.

CHAPTER 4

Using ConvertIP DSH as an IP gateway

This chapter includes the following topics:

About Gateway mode

This section explains how to configure a ConvertIP DSH to operate as an IP gateway. The device functions as a video-over-IP gateway when gateway firmware is installed.

NOTE HDMI inputs and outputs are disabled when in Gateway mode.

In Gateway mode, the ConvertIP DSH bridges a ConvertIP TX unit and a ConvertIP RX unit. Bridging is required when the TX unit's output stream is not compatible with the RX unit's configuration.

The device supports two modes:

- **Encoder:** Converts uncompressed video to compressed.
- **Decoder:** Converts compressed video to uncompressed.

You can switch between encoder and decoder modes from the **Maintenance** page.

Alternatively, the device can pass through video without compression or decompression. In this case, the output format must be configured as either ST 2110 or IPMX.

Example: Bridging ST 2110 and IPMX networks

In a live production environment, a ConvertIP DSH device can act as an IP gateway to connect two separate IP networks with different timing and compression requirements.

Consider a scenario in which a broadcast facility uses a vision mixer and other production equipment that natively support ST 2110. These devices are connected to a production network with PTP timing.

The facility also uses IPMX-compatible distribution equipment that connects to a separate distribution network with no PTP support. The distribution network sends compressed video to IPMX receivers and HDMI monitors.

In such a case, the workflow would be as follows:

1. A ConvertIP TX device sends an uncompressed ST 2110 stream from the production network.
2. The ConvertIP DSH, running in Encoder mode, receives the ST 2110 stream over its primary network port.
3. The ConvertIP DSH compresses the video and forwards it over its secondary network port to the distribution network using IPMX.
4. An IPMX-compatible receiver decodes the compressed stream and sends video to an HDMI monitor.

This workflow enables real-time conversion between uncompressed and compressed IP video formats across separate networks, bridging ST 2110 systems with IPMX infrastructure.

Setting up ConvertIP DSH for Gateway mode

To use your ConvertIP DSH device as an IP gateway, begin with the standard initial setup, then complete the additional steps described here.

NOTE You can perform many of these tasks more efficiently using the Matrox ConvertIP Manager application. For more information, go to the download page of our *website*.

To configure ConvertIP DSH for Gateway mode:

Step 1. **Complete the initial setup:** Follow steps 1 through 5 in the initial setup procedure.

More info: See "*Initial setup overview*" on page *30*.

Step 2. **Verify the device status:** Go to the *Status* page in the ConvertIP Command Center to check the device's operational status.

More info:

- See "*Status*" on page *50*.

Step 3. **Configure Gateway mode settings:** From the **Maintenance** page, configure the device to operate in either encoder or decoder mode.

More info:

- See "*Matrox ConvertIP DSH Gateway mode settings reference*" on page *50*.
- See "*Connecting ConvertIP DSH Gateway devices*" on page *46*
- See "*Maintenance*" on page *59*.

Step 4. **Connect your streams:** After configuring your devices, use the ConvertIP Command Center to create a single point-to-point connection between devices. For more complex workflows, you can use Matrox ConductIP or the Matrox ConvertIP Manager application to manage multiple sender and receiver flows.

More info:

- See "*Connecting ConvertIP DSH Gateway devices*" on page *46*.
- See "*Input stream settings*" on page *54*.
- See "*Output stream settings*" on page *56*.

Result of this task: The ConvertIP DSH is ready to operate in Gateway mode.

Connecting ConvertIP DSH Gateway devices

This section describes how to connect ConvertIP DSH devices operating in Encoder or Decoder mode. All procedures use the Matrox ConvertIP Command Center user interface.

When operating in Gateway mode, the ConvertIP DSH functions as both an IP receiver and an IP transmitter:

- **Encoder:** Receives an uncompressed stream and transmits a compressed stream.
- **Decoder:** Receives a compressed stream and transmits an uncompressed stream.

In small installations, the web-based ConvertIP Command Center may be suitable for establishing connections. In larger or more complex workflows, it may be easier to manage your connections using *Matrox ConvertIP Manager* or *Matrox ConductIP*.

NOTE You must activate the **Master enable** on the devices for streaming to work. See "*Master enable*" on page *51*.

Switching Gateway modes (Encoder/Decoder)

To switch the ConvertIP DSH between **Encoder** and **Decoder** modes:

Step 1. Open your web browser and go to the device's IP address (e.g. https://192.168.123.456).

Step 2. Go to **Device > Maintenance**.

Step 3. Under **Operating mode**, select your desired mode from the list.

More info: The current ConvertIP operating mode is displayed in the top-right corner of the user interface.

Step 4. Click **Apply**.

Result of this task: Your ConvertIP will reboot and begin operating in the selected mode. You can then log in again to continue.

Connecting ConvertIP devices for stream conversion

In a ConvertIP-only environment, a ConvertIP DSH in Gateway mode must:

1. Receive an uncompressed (Encoder) or compressed (Decoder) stream from a ConvertIP TX device.
2. Convert the stream (encode/compress or decode/uncompress).
3. Transmit the converted stream to one or more ConvertIP RX devices.

In the Matrox ConvertIP Command Center, you can connect the devices using SDP URLs, the quick connect method, or custom settings.

Stream settings (e.g. scaling) are configured in the **Video and Audio** settings page of the Gateway device.

Using SDP URLs

To connect devices manually using SDP URLs:

Step 1. Connect the transmitter to the Gateway device.

- **a.** In your web browser, go to the IP address of your ConvertIP TX device (e.g. https://192.168.123.456).
- **b.** Go to **AV and Stream Configuration > Dashboard**.
- **c.** Copy the **Video SDP file URL**.
- **d.** In a new browser tab, go to the IP address of your ConvertIP Gateway device (e.g. https://192.168.123.789).
- **e.** Go to **AV and Stream Configuration > Input stream settings**.
- **f.** Set the **Connection method** to **Use SDP URLs**.
- **g.** Paste the **Video SDP URL**.
- **h.** Repeat for the **Audio SDP file URL**.
- **i.** Click **Apply**.

Step 2. Connect the Gateway device to a receiver.

- **a.** In your web browser, go to the IP address of your ConvertIP Gateway device (e.g. https://192.168.123.789).
- **b.** Go to **AV and Stream Configuration > Dashboard**.
- **c.** Copy the **Video SDP file URL**.
- **d.** In a new browser tab, go to the IP address of your ConvertIP RX device (e.g. https://192.168.123.012).
- **e.** Go to **AV and Stream Configuration > Stream settings**.
- **f.** Set the **Connection method** to **Use SDP URLs**.
- **g.** Paste the **Video SDP URL**.
- **h.** Repeat for the **Audio SDP file URL**.
- **i.** Click **Apply**.

Result of this task: The Gateway device is converting the transmitter's stream, making it compatible with the connected receiver.

Using the quick connect method

To connect devices using the quick connect method:

Step 1. Connect the transmitter to the Gateway device.

a. In your web browser, go to the IP address of your ConvertIP Gateway device (e.g. https://192.168.123.789).

b. Go to **AV and Stream Configuration > Input stream settings**.

c. Set the **Connection mode** to **Use quick connect mode**.

d. A list of the available ConvertIP TX devices will appear after a few seconds. Click **Refresh list of ConvertIP devices on network** to force a search for devices.

e. Select a ConvertIP TX device from the list of **Available ConvertIP devices**.

f. Click **Apply**.

Step 2. Connect the Gateway device to a receiver.

a. In your web browser, go to the IP address of your ConvertIP RX device (e.g. https://192.168.123.012).

b. Go to **AV and Stream Configuration > Stream settings**.

c. Set the **Connection mode** to **Use quick connect mode**.

d. A list of the available ConvertIP TX devices will appear after a few seconds. Click **Refresh list of ConvertIP devices on network** to force a search for devices.

e. Select the Gateway ConvertIP from the list of **Available ConvertIP devices**.

f. Click **Apply**.

Result of this task: The Gateway device is converting the transmitter's stream, making it compatible with the connected receiver.

Using custom settings

To connect devices using custom settings:

Step 1. Connect the transmitter to the Gateway device.

a. In your web browser, go to the IP address of your Gateway ConvertIP (e.g. https://192.168.123.789).

b. Go to **AV and Stream Configuration > Input stream settings**.

c. Set the **Connection mode** to **Custom settings**.

d. Enter the required information, which can be found on your ConvertIP TX device.

More info: You will need to manually match the settings coming from the ConvertIP TX device to have a successful connection.

e. Click **Apply**.

Step 2. Connect the Gateway device to a receiver.

a. In your web browser, go to the IP address of your ConvertIP RX device (e.g. https://192.168.123.012).

b. Go to **AV and Stream Configuration > Stream settings**.

c. Set the **Connection mode** to **Custom settings**.

d. Enter the required information, which can be found on your ConvertIP Gateway device.

More info: You will need to manually match the settings coming from the ConvertIP Gateway to have a successful connection.

e. Click **Apply**.

Result of this task: The Gateway device is converting the transmitter's stream, making it compatible with the connected receiver.

Matrox ConvertIP DSH Gateway mode settings reference

This section describes the Status, AV Stream and Configuration, Network, and Device settings as they appear when the ConvertIP DSH operates in Gateway mode.

For other settings, refer to:

- "*Account*" on page *85*
- "*Logout*" on page *86*
- "*About*" on page *87*

Status

The **Status** page provides an overview of the ConvertIP DSH when operating in Gateway mode.

From the gray bar at the top of the page, you can edit the ConvertIP device name and see the operating mode (encoder or decoder). Click **Refresh** to see the latest status for all settings.

NOTE The displayed information varies depending on the selected mode (encoder or decoder).

This page includes details about your ConvertIP hardware, such as the serial number, mode (Encoder or Decoder), and configuration type (e.g. codec support). For more information see "*Status*" on page 65.

AV and Stream Configuration

The **AV and Stream Configuration** page allows you to configure how the ConvertIP DSH receives and transmits streams in Gateway mode.

From the gray bar at the top of the page, you can edit the ConvertIP device name and see the operating mode (encoder or decoder).

NOTE The available settings differ based on the operating mode. This section describes both encoder and decoder options together.

Setting	Description
Dashboard	
Master enable	Enable/disable to activate or deactivate the ConvertIP streaming operation. When first connected, this is disabled and must be enabled manually, or via an NMOS API call to route the signal.
IP stream input	• **Video information:** Provides information about your video stream such as its resolution, frame rate, compression type, and more. The video pixel depth is a scale from 0 to 4 of the quality of compressed video, given the current bitrate and resolution. • **Audio information:** Provides information about your audio stream such as the input selection, number of channels, format, and more. • **Bitrate information**: Provides information about your bitrate and link usage. • **Routing method**: Includes the URL for video, audio, and ancillary SDP information. Click **Copy SDP URL** if you want to paste the URL elsewhere. Click **Show and copy SDP** if you want to view the SDP in a new browser tab. The text content will also be copied to your clipboard.

Setting	Description
IP stream output	• **Video information:** Provides information about your video stream such as its resolution, frame rate, compression type, and more. The video pixel depth is a scale from 0 to 4 of the quality of compressed video, given the current bitrate and resolution. • **Audio information:** Provides information about your audio stream such as the input selection, number of channels, format, and more. • **Bitrate information**: Provides information about your bitrate and link usage. • **Routing method**: Includes the URL for video, audio, and ancillary SDP information. Click **Copy SDP URL** if you want to paste the URL elsewhere. Click **Show and copy SDP** if you want to view the SDP in a new browser tab. The text content will also be copied to your clipboard.

Setting	Description
Video and audio	
Video settings	**Encoder settings:** • **Keep uncompressed input format and resolution:** Keeps the input stream uncompressed. • **Encode input stream to a compressed format:** Converts the input stream to a JPEG XS or Pro AV Colibri compressed format. • **Follow input resolution and framerate:** ConvertIP will detect and use the resolution and framerate of the input connected to the ConvertIP. • **Set manually:** Specify the parameters manually to upscale, downscale, and color convert according to your desired workflow[1]. **Decoder settings:** • **Follow input resolution and framerate:** ConvertIP will detect and use the resolution and framerate of the input connected to the ConvertIP. • **Set manually:** Specify the parameters manually to upscale, downscale, and color convert according to your desired workflow[1].
Transmission Mode	Select between IPMX or ST 2110: • **IPMX:** The input will be processed and transmitted immediately, and the SDP file will indicate this is being transmitted using an IPMX profile. • **ST 2110 (requires PTP):** This will output a standard ST 2110 signal. On SDI models, you can indicate if the SDI signal is already locked to PTP. It it isn't, enable **Input is locked to PTP** to align it to PTP. Note this will add a frame of latency. The SDP file will indicate this is being transmitted using a ST 2110 profile.

Setting	Description
Input stream settings	
Connection method (Use custom settings)	If the ConvertIP routing is managed by an NMOS controller (such as Matrox ConductIP), ConvertIP will operate according to this method. You can also manually specify these settings if needed. This is ConvertIP's default option. • **Enable redundancy:** Enables a second multicast IP address for video content. After enabling this option, you must enter your redundant network information where indicated. This option is typically used for network maintenance. • **Enable unicast:** When enabled, this automatically fills the IP address fields on the page with the device's current IP address. • **Flow type: IPMX:** Enable this option when the incoming stream from a ConvertIP or third-party transmitter is using the IPMX protocol. If this is enabled, the incoming stream must be in IPMX, otherwise ConvertIP is expecting an ST 2110 stream.

Setting	Description
(Cont.) Connection method (Use custom settings)	• **Source is compressed:** With this connection method, there is no SDP file to indicate whether or not the source content is compressed. The user must specify this information if applicable. • **Enable linear mode:** By default, the ConvertIP uses a gapped packet transmission scheme whereby it pauses packet transmission during vertical blanking. Enabling linear mode eliminates the gap and transmission of packets is even throughout. • **Link offset delay[2]:** This is useful when multiple receiver devices are receiving the signal from the same transmitter device. Packets may arrive at the input of multiple receivers at slightly different times due to network delay. The receiver can calculate the network delay from the RTP timestamp and the current PTP time. You may need to adjust this setting in a situation where two receivers have different network paths and one is outputting slightly faster or slower than the other. Setting the link offset to the largest delay on all receivers will help align the outputs.

Setting	Description
Connection method (Use quick connect mode)	Using this mode, a receiver can select to receive an A/V stream from any ConvertIP transmitter unit on the network, even if another receiver is consuming the stream. When you access this page, ConvertIP will automatically search for compatible ConvertIP transmitter devices on the same subnet. You can also click **Refresh list of ConvertIP devices on network**. When ready, click on a ConvertIP from the list to connect to it. To clear the selection, click **Reset selected senders.** **NOTE** This connection will receive both video and audio content from the ConvertIP transmitter you choose. If you want video and audio from two different sources, you must **Use custom settings** or **SDP URLs** and configure your streams accordingly.
Connection method (Use SDP URLs)	This mode allows for the details found in an SDP file to be automatically applied. Copy your SDP URLs from your transmitter device and paste them in the corresponding fields. For example, if you log into the **Dashboard** page of any ConvertIP that is ready to transmit, audio and video SDP URLs are available to copy to your clipboard, which you then paste in the SDP field of a ConvertIP in receiver mode.
Output stream settings	
Video	Click **Include** to include video content in your stream. The destination IP address and UDP port will be populated automatically, but you can change them if specific addresses or ports are required.
Audio	Click **Include** to include audio content in your stream. The destination IP address and UDP port will be populated automatically, but you can change them if specific addresses or ports are required.

Setting	Description
Enable redundancy	As per SMPTE 2022-7 specifications, this enables a second IP address for your video content. After enabling this option, you must enter your redundant network information where indicated. This feature ensures audio/video resiliency in the event of network disruption or planned network maintenance.
Reset multicast parameters to default values.	Click here to reset all routing parameters to their default values.
IGMP	
IGMP version[3]	Select the IGMP version you want to use depending on your network. The ConvertIP will reboot to apply this change.

1. When video content is 1080i (i.e. interlaced), ConvertIP will not scale or convert the stream. The stream will be processed in its native format.
2. This setting is designed to be used when there is PTP on the network.
3. To ensure proper functionality of IGMP, a managed switch that supports IGMP (with IGMP snooping enabled) should be in place, and at least one device acting as an IGMP querier should be present to initiate group membership queries.

Network

The Network settings for a ConvertIP DSH device when it is operating in Gateway mode are generally the same as those for standard operation. As the NMOS settings vary slightly, they are described here. For all other settings, refer to "*Network* on page *76*.

Setting	Description
NMOS	
Enable	• Enable/disable NMOS on the selected port.

Setting	Description
NMOS interface	• **LAN selection**[1]**:** Select the network connection on which to enable NMOS. • **Port:** Specify the port. • **Node and device name:** Specify the name for your ConvertIP device. You can also do this at the top of the page. This is the name that will appear in Matrox ConductIP, or in any third-party application that uses NMOS protocol for device identification. • **Node and device description:** Provide a description for your ConvertIP. This is the description that will appear in Matrox ConductIP, or in any third-party application that uses NMOS protocol for device identification. • **Receiver group name:** NMOS signifier for the input group. • **Sender group name:** NMOS signifier for the output group. • **Heartbeat interval:** Defines how often nodes should perform a heartbeat to maintain their resources in the Registration API.
NMOS registry	Select the NMOS registry broadcast settings. MDNS enables Domain Name Service over link-local multicast, while DNS-SD supports network service discovery via DNS. For manual selection, specify the corresponding settings.

1. The difference between **Control LAN** and **Control LAN (if available)** is that, with the latter, NMOS will fall back to **Media LAN 1** if the control network does not have an NMOS server.

Device

The Diagnostic settings, Other settings, and Operating mode setting of a ConvertIP DSH operating in Gateway mode differ from the settings for standard operation and are described here. For all other settings, refer to "*Device*" on page *80*.

Setting	Description
Maintenance	
Operating mode	Select **Encoder** or **Decoder** to switch into that mode. For all models, this will initiate a device reboot.
Diagnostic	
Packet capture interface	Choose the interface for packet capture, then click **Start Capture**. Once the capture is finished, you can download the file for further analysis.
Telemetry configuration	This section allows you to obtain the maximum delay of a packet from its expected time.
Telemetry data	• **Missing packets main:** This shows the number of packets missing in the video stream 0 in the main ST 2110 path. If this number is changing frequently, it means that there are many video packets being lost, resulting in corrupted video. • **Missing packets sec:** This shows the number of packets missing in the video stream 0 in the secondary ST 2110 path (redundancy path). • **FEC correction err:** To be supported in a future release. • **Replay:** This shows how often the video output uses the same frame twice in a row. Typically, a difference in the frame rate (ST 2110 slower than video output), or a video output not locked to the ST 2110 input will trigger a “replay” event.

Setting	Description
(Cont.) Telemetry data	• **Skip:** This shows how often the video output ignores an incoming ST 2110 frame. Typically, a difference in the frame rate (ST 2110 slower than video output), or a video output not locked to the ST 2110 input will trigger a “skip” event. • **Frame errors:** This shows the number of frames in error (compressed video only). Typically, a single missing packet or any decode error will trigger this. • **First packet to next frame:** This determines the time between the first packet of 2 consecutive frame (video 0 only). This value should be 16.667 ms for a 60hz frame rate. • **First packet to last packet:** This determines the time between the first packet and the last packet of a frame (video 0 only). You can this to determine the traffic shape of the ST 2110 packet (linear or gapped mode). If set, it means that the search engine successfully detected the MAC address & UDP provided to it in an incoming packet. • **First packet vs redundancy** and **First packet on primary:** This determines the time between the first packet of the main path vs the secondary path (video 0 only). You can use this to determine the current skew between both ST 2110 inputs. The “First packet on primary” status shows which one between the main and secondary path is the first to be received. • **First packet Wdma vs Vout:** This determines the time between the incoming first packet of a frame vs the first pixel played on the video output. You can use this to see the delay between the capture and playback. However, it won’t show delay greater than one frame. • **MAC packet detected:** If set, this means that the search engine successfully detected the MAC address provided to it in an incoming packet.

Setting	Description
(Cont.) Telemetry data	• **UDP packet detected** and **PTYPE packet detected:** If set, this means that the search engine successfully detected the MAC address, UDP, and PTYPE addresses provided to it in an incoming packet.
Other	
Disable physical buttons on ConvertIP device	This option prevents anyone from mistakenly pressing a physical button on the ConvertIP hardware and possibly disrupting an operation.
Limit video pixel output to legal range values.	This option forces ConvertIP to strictly adhere to the legal range for pixel values when working with limited range video formats in YUV or RGB.
Limit video pixel input to legal range values. (TX only)	This option forces ConvertIP to strictly adhere to the legal range for pixel values when working with limited range video formats in YUV or RGB.
Reduce NMOS registry and discovery log level from Standard to Detail (Gateway - Encoder only)	This option is disabled by default and should only be enabled when requested by Matrox Technical Support.
Locate device	This helps you locate the ConvertIP device in a rack or area with many units. Click **Locate** to make the LEDs on the devices blink rapidly. Click **Locate** again to turn off the LEDs.
Troubleshooting	• **Disable SFP FEC**[1]**:** Disables forward error correction on ConvertIP DSH and DSS models. Some 25G network switches do not support FEC, but it is not recommended to operate a 25G network without FEC as packet errors can occur. • **Disable HDCP:** Disabling HDCP may fix compatibility issues[2].

1. Available only on SFP 25G devices and on ConvertIP SDM when in SFP mode using 25G.
2. A RX unit will not be able to connect to a HDCP-protected TX unit when using manual connection method.

ConvertIP DSH Gateway LED status indicators

LED	Colors	What it means
Front of ConvertIP		
On = TX / Off = RX	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in Encoder mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Status	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, ConvertIP is in the process of sending or receiving.
	Green (solid)	ConvertIP is idle but operating normally.
	Orange (flashing)	Test signal being sent or firmware being updated.
	Orange (flashing quickly)	DHCP network not found.
	Orange (solid)	Warning condition.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.

LED	Colors	What it means
On = Uncomp / Off = Comp	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, is in Gateway mode and operating normally (Encoder or Decoder).
	Green (solid)	ConvertIP is in uncompressed mode and operating normally (TX or RX).
	Black (LED not lit)	ConvertIP is in compressed mode and operating normally (TX or RX).
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.

CHAPTER 5

Matrox ConvertIP Settings Reference

This chapter includes the following topics:

Status

This section describes the **Status** page in Matrox ConvertIP.

From the gray bar at the top of the page, you can edit the ConvertIP device name and see the operating mode (transmitter or receiver). Click **Refresh** to see the latest status for all settings.

NOTE The information displayed on this page will be different depending on whether your ConvertIP is in transmitter mode (TX) or in receiver mode (RX). In this section, the TX and RX settings.

The **Status** page gives you a quick overall view of the status of your ConvertIP, such as:

- Details about your ConvertIP hardware, such as the serial number, mode (TX or RX for all models except ConvertIP SDM; SFP or RJ45 for ConvertIP SDM), and configuration type (e.g. codec support).
- Details about your ConvertIP's configuration. The device configuration represents the firmware that has been loaded on to the device and its capabilities.
- Details about the IP stream, such as whether or not it is active, the NMOS group, the resolution, and more.
- Details about your audio and video inputs/outputs, such as the video resolution, audio status, and whether or not there is a test signal being used.
- Details about your network, such as the IP addresses of your ConvertIP's different LAN ports (Control, Media 1, and Media 2).
- Additional status information about PTP lock, NMOS server registration/priority, hardware temperature, and more.
- Details about the various services running on ConvertIP. Typically this information is used to troubleshoot ConvertIP along with technical support if needed.
  - **Web Server:** Shows if the server is functioning properly and all keys and certificates are valid.
  - **Video:** If this shows "success", the device is ready to process video.
  - **Audio:** Shows if the audio signal is found and active.
  - **Ancillary**[1]**:** Shows if the ancillary data signal is found and active.
  - **Auto Mode:** Shows if the ConvertIP receiver is in "Quick connect mode". If this shows "success" you can use ConvertIP in this mode.
  - **SDP Mode:** (ConvertIP RX only), this shows if the ConvertIP is in SDP mode. If this shows "success" you can use ConvertIP in this mode.
  - **NTP:** Shows if NTP is enabled.
  - **PTP:** Shows if PTP is enabled.
  - **NMOS Server:** Regularly checks to see if the NMOS server is online and functioning correctly.
  - **Registry Server:** Regularly checks to see if the registry server is online and functioning correctly.

1. On ConvertIP DSS, DRS, and SRS models only.

– **HDCP:** Shows if the content is HDCP-compliant[1].

1. HDCP 2.2 Type 1 content is not allowed to be down-converted to previous standards. This means that a display having only HDCP 1.4 support is not allowed to display HDCP 2.2 Type 1 content.

AV and Stream Configuration

This section describes the **AV and Stream Configuration** page in Matrox ConvertIP.

From the gray bar at the top of the page, you can edit the ConvertIP device name and see the operating mode (transmitter or receiver).

NOTE The information displayed on this page may be different depending on whether your ConvertIP is in transmitter mode (TX) or in receiver mode (RX). In this section, the TX and RX settings are described together.

Setting	Description
Dashboard	
Master enable	Enable/disable to activate or deactivate the ConvertIP streaming operation. When first connected, this is disabled and must be enabled manually, or via an NMOS API call to route the signal.
Multiviewer Mode[1] (RX only)	Enable/disable to activate or deactivate Multiviewer mode. In multiviewer, there are four quadrants of equal size. Daisy chaining is supported in Multiviewer mode.
Video information	Provides information about your video stream such as its resolution, frame rate, compression type, and more. The video pixel depth is a scale from 0 to 4 of the quality of compressed video, given the current bitrate and resolution. In Multiviewer Mode[1], each of the four video inputs is numbered 1 through 4 to correspond to quadrants as follows: • 1: top-left • 2: top-right • 3: bottom-left • 4: bottom-right
Audio information	Provides information about your audio stream such as the input selection, number of channels, format, and more.
Ancillary information[2]	Indicates the presence of relevant ancillary data packets in the IP stream.

Setting	Description
Bitrate information	Provides information about your bitrate and link usage.
Video SDP file URL	Includes the URL for SDP information. Click **Copy SDP URL** if you want to paste the URL elsewhere. Click **Show and copy SDP** if you want to view the SDP in a new browser tab. The text content will also be copied to your clipboard.
Audio SDP file URL	Includes the URL for SDP information. Click **Copy SDP URL** if you want to paste the URL elsewhere. Click **Show and copy SDP** if you want to view the SDP in a new browser tab. The text content will also be copied to your clipboard.
Ancillary SDP file URL[2]	Includes the URL for SDP information. Click **Copy SDP URL** if you want to paste the URL elsewhere. Click **Show and copy SDP** if you want to view the SDP in a new browser tab. The text content will also be copied to your clipboard.
Monitor connected at output	When applicable, shows the monitor type connected to the ConvertIP's HDMI output.

Setting	Description
Video and audio	
Video settings	**TX settings:** • **Use input format:** ConvertIP will detect and use the format connected to the ConvertIP. • **Set manually:** Specify the parameters manually to upscale, downscale, and color convert according to your desired workflow[3]. • **Enable compression:** Compress the video content and specify the parameters. Guidelines are provided to help you select the proper bitrate. **RX settings:** • **Use input format**[4]**:** ConvertIP will detect and use the format connected to the stream input. • **Use the preferred format from EDID:** Uses the preferred format from the EDID of the monitor connected to the ConvertIP[3]. • **Set manually:** Specify the parameters manually to upscale, downscale, and color convert according to your desired workflow[3].
Audio settings	**TX settings:** • **Use HDMI embedded audio:** Uses audio from embedded HDMI video. • **Use SDI embedded audio:** Uses audio from embedded SDI video. • **Use analog audio input:** Uses audio from the **Line in** connector on supported ConvertIP models. • **Session Announcement Protocol:** Enabling this setting allows a non-NMOS controller using this discovery mechanism to detect the SMPTE-2110-30 audio streams generated by ConvertIP. **RX settings:** • Displays audio status only.

Setting	Description
Test pattern settings[5]	Instead of video content, this forces a test pattern to stream when in TX mode, or streams the SDI or HDMI output when in RX mode. If you press the **Test** button on the ConvertIP device to output the test pattern, this option will appear as selected. The test pattern includes information about the ConvertIP you are using, such as the model, mode it is in (TX or RX), and IP address of the various LAN ports.
Lost signal settings	Specify what ConvertIP should do when a signal is lost. • **TX mode:** Select **message** to display a message, or **no output** to stop outputting the signal. • **RX mode:** Select **message** to display a message, **no output** to stop outputting the signal, or **blank** to show that there is no input signal.
Transmission Mode (TX only)	On a transmitter device, select between IPMX or ST 2110: • **IPMX:** The input will be processed and transmitted immediately, and the SDP file will indicate this is being transmitted using an IPMX profile. • **ST 2110 (requires PTP):** This will output a standard ST 2110 signal. On SDI models, you can indicate if the SDI signal is already locked to PTP. It it isn't, enable **Input is locked to PTP** to align it to PTP. Note this will add a frame of latency. The SDP file will indicate this is being transmitted using a ST 2110 profile.
Output Synchronization[6] **(RX only)**	Use this to delay the HDMI or SDI output synchronization of a receiver device. **NOTE** When set to 0 (the default), video output is aligned to the next RTP alignment point that is calculated from PTP. This setting should not require adjustment unless you need to delay the sync of the output signal to align it with external signals.

Setting	Description
Routing (TX devices)	
Video	Click **Include** to include video content in your stream. The destination IP address and UDP port will be populated automatically, but you can change them if specific addresses or ports are required.
Audio	Click **Include** to include audio content in your stream. The destination IP address and UDP port will be populated automatically, but you can change them if specific addresses or ports are required.
Anc^2	Click **Include** to include ancillary data content in your stream.
Enable redundancy	As per SMPTE 2022-7 specifications, this enables a second IP address for your video content. After enabling this option, you must enter your redundant network information where indicated. This feature ensures audio/video resiliency in the event of network disruption or planned network maintenance.
Reset multicast parameters to default values.	Click here to reset all routing parameters to their default values.

Setting	Description
Stream settings (RX devices)	
Connection method (Use custom settings)	If the ConvertIP routing is managed by an NMOS controller (such as Matrox ConductIP), ConvertIP will operate according to this method. You can also manually specify these settings if needed. This is ConvertIP's default option. In Multiviewer Mode, you can include multiple video streams. For more, see *Video information*. • **Enable redundancy:** Enables a second multicast IP address for video content. After enabling this option, you must enter your redundant network information where indicated. This option is typically used for network maintenance. • **Enable unicast:** When enabled, this automatically fills the IP address fields on the page with the device's current IP address. • **Flow type: IPMX:** Enable this option when the incoming stream from a ConvertIP or third-party transmitter is using the IPMX protocol. If this is enabled, the incoming stream must be in IPMX, otherwise ConvertIP is expecting an ST 2110 stream. • **Source is compressed:** With this connection method, there is no SDP file to indicate whether or not the source content is compressed. The user must specify this information if applicable. • **Enable linear mode:** By default, the ConvertIP uses a gapped packet transmission scheme whereby it pauses packet transmission during vertical blanking. Enabling linear mode eliminates the gap and transmission of packets is even throughout.

Setting	Description
(Cont.) Connection method (Use custom settings)	• **Link offset delay[6]:** This is useful when multiple receiver devices are receiving the signal from the same transmitter device. Packets may arrive at the input of multiple receivers at slightly different times due to network delay. The receiver can calculate the network delay from the RTP timestamp and the current PTP time. You may need to adjust this setting in a situation where two receivers have different network paths and one is outputting slightly faster or slower than the other. Setting the link offset to the largest delay on all receivers will help align the outputs.
Connection method (Use quick connect mode)	Using this mode, a receiver can select to receive an A/V stream from any ConvertIP transmitter unit on the network, even if another receiver is consuming the stream. When you access this page, ConvertIP will automatically search for compatible ConvertIP transmitter devices on the same subnet. You can also click **Refresh list of ConvertIP devices on network**. When ready, click on a ConvertIP from the list to connect to it. To clear the selection, click **Reset selected senders.** **NOTE** This connection will receive both video and audio content from the ConvertIP transmitter you choose. If you want video and audio from two different sources, you must **Use custom settings** or **SDP URLs** and configure your streams accordingly. In Multiviewer Mode, you can select multiple ConvertIP transmitter units. For more, see *Video information*. **NOTE** In Multiviewer Mode, only video content is supported.

Setting	Description
Connection method (Use SDP URLs)	This mode allows for the details found in an SDP file to be automatically applied. Copy your SDP URLs from your transmitter device and paste them in the corresponding fields. For example, if you log into the **Dashboard** page of any ConvertIP that is ready to transmit, audio and video SDP URLs are available to copy to your clipboard, which you then paste in the SDP field of a ConvertIP in receiver mode. In Multiviewer Mode, you can add the video SDP URLs from multiple transmitter devices. For more, see *Video information*.
Display EDID (RX devices)	
Select EDID to use	Select the EDID of the monitor connected to the HDMI OUT, or select an EDID file to use if the connected monitor does not provide a suitable EDID for your workflow. **NOTE** These EDID settings only apply when your video output parameters are set to **Use the preferred format from EDID** (see *Video settings*).
Manage the EDID file	Allows you to download or upload an EDID. • **Download** the EDID file of the monitor connected to the HDMI OUT, which you can then upload to another ConvertIP to optimize your workflow. • **Upload** an EDID file when the connected monitor's EDID is not available or cannot be read by ConvertIP. The uploaded EDID will then appear in **Select EDID to use** list. **NOTE** These EDID settings only apply when your video output parameters are set to **Use the preferred format from EDID** (see *Video settings*).

Setting	Description
EDID management (TX devices)	
Select EDID to use	Select the ConvertIP's internal EDID, or a different EDID that you have uploaded to ConvertIP using the **Export/Load the internal EDID** option. **NOTE** These EDID settings only apply when your video output parameters are set to **Use the preferred format from EDID** (see *Video settings*).
Export/Load the internal EDID	Allows you to upload or download an EDID, or use **Passthrough** to have the monitor connected on the HDMI output interface with the GPU that is sending the video to ConvertIP. **NOTE** These EDID settings only apply when your video output parameters are set to **Use the preferred format from EDID** (see *Video settings*).
IGMP	
IGMP version[7]	Select the IGMP version you want to use depending on your network. The ConvertIP will reboot to apply this change.

1. Multiviewer does not scale inputs. Only inputs 1920x1080p or less are accepted. The device will reject requests to subscribe to high resolution streams. 1080i input is not supported for Multiviewer at this time. Streams with different color spaces or frame rates are accepted.
2. Only on ConvertIP DRS, DSS and SRS models.
3. When video content is 1080i (i.e. interlaced), ConvertIP will not scale or convert the stream. The stream will be processed in its native format.
4. Not available in Multiviewer Mode. When Multiviewer is disabled, the device falls back to its previous setting.
5. On ConvertIP DRH and DSH models in TX mode, the test pattern will be output from the HDMI OUT if a monitor is connected to that port.
6. This setting is designed to be used when there is PTP on the network.
7. To ensure proper functionality of IGMP, a managed switch that supports IGMP (with IGMP snooping enabled) should be in place, and at least one device acting as an IGMP querier should be present to initiate group membership queries.

Network

This section describes the **Network** page in Matrox ConvertIP.

From the gray bar at the top of the page, you can edit the ConvertIP device name and see the operating mode (transmitter or receiver).

NOTE Since you can configure Matrox ConvertIP to be a transmitter (TX) or a receiver (RX), the information on this page may be different depending on the mode your ConvertIP is in. In this section, both the TX and RX settings are described together.

Setting	Description
Network configuration	
Control LAN	Set your **Control LAN** to **DHCP** or **Static**. If you set this to static, you'll need to specify the corresponding IP address and network information. This is the LAN that receives the control commands for ConvertIP settings. This is typically set to DHCP in most cases. • **Enable MDNS discovery:** Enable to broadcast the ConvertIP internal NMOS registry on the network under the multicast DNS protocol. This resolves hostnames to IP addresses within networks that do not include a domain name server. Multicast DNS publication only works with devices on the same subnet. • **Enable LLMNR discovery:** Enable Link-Local Multicast Name Resolution to allow an IPv4 host to perform name resolution for hosts on the same local link.
Media LAN 1	Set your **Media LAN 1** to **DHCP** or **Static**. If you set this to static, you'll need to specify the corresponding IP address and network information. This is the LAN that receives video/audio content. • **Enable VLAN tagging:** Enable to add the **VLAN Identifier (VID)** to media packets. • **Enable MDNS discovery:** See *Control LAN*. • **Enable LLMNR discovery:** See *Control LAN*.

Setting	Description
Media LAN 2	Set your **Media LAN 2** to **DHCP** or **Static**. If you set this to static, you'll need to specify the corresponding IP address and network information. This is the LAN that receives video/audio content. • **Enable VLAN tagging:** See *Media LAN 1*. • **Enable MDNS discovery:** See *Control LAN*. • **Enable LLMNR discovery:** See *Control LAN*. **Media LAN 2** is only used as a redundant connection for **Media LAN 1**. If you are only using one connection, use **Media LAN 1**.
NMOS	
Enable	• Enable/disable NMOS on the selected port.
NMOS interface	• **LAN selection**[1]**:** Select the network connection on which to enable NMOS. • **Port:** Specify the port. • **Node and device name:** Specify the name for your ConvertIP device. You can also do this at the top of the page. This is the name that will appear in Matrox ConductIP, or in any third-party application that uses NMOS protocol for device identification. • **Node and device description:** Provide a description for your ConvertIP. This is the description that will appear in Matrox ConductIP, or in any third-party application that uses NMOS protocol for device identification. • **Group name:** A group is an NMOS signifier that identifies more than one media stream (such as one video and multiple audio tracks) as a single logical group. ConvertIP devices appear as natural NMOS groups (video, audio, and ancillary data) in applications such as Matrox ConductIP. This is the name of this device's group.

Setting	Description
(Cont.) NMOS interface	• **Heartbeat interval:** Defines how often nodes should perform a heartbeat to maintain their resources in the Registration API.
NMOS registry	Select the NMOS registry broadcast settings. MDNS enables Domain Name Service over link-local multicast, while DNS-SD supports network service discovery via DNS. For manual selection, specify the corresponding settings.
Security	
Manage certificates and keys	All devices come with a default Matrox Video server certificate. If you don't want to use the default certificate, click **Upload** to import your own root certificate (root CA). Once a certificate has been imported, you can **Download** it or **Delete** it. For more information see "*Configuring ConvertIP certificates* on page 35".
PTP and NTP	
PTP settings	• **Enable PTP:** Enable to allow this ConvertIP to be synchronized to a master clock on the network. • **Follower or BMC[2]:** If you want ConvertIP to follow your network PTP, select **Follower** and specify the required information (default values recommended). If you want ConvertIP to be your PTP server, select **BMC** and specify the required information (default values recommended).
NTP settings	• **Enable fallback to NTP when streaming is disabled.:** If no PTP time server is available, enable the NTP time server to log ConvertIP activity (i.e. Event logs). • **LAN selection:** Select which LAN port supports NTP. Typically, the **Control LAN** is used for this. • **NTP server:** Specify the NTP server address.

Setting	Description
Status	Shows the PTP connection status. • **Clock**: MAC address of the machine acting as the PTP clock. If ConvertIP is the PTP master, this will show the ConvertIP's MAC address. • **IsLocked**: Shows "True" if ConvertIP is locked to PTP clock. Shows "False" if not locked. • **Sync Interval**: Synchronization interval of packets per second for messages sent between master clock and follower. • **Offset from leader**: This value can help with troubleshooting network issues that prevent proper operation.

1. The difference between **Control LAN** and **Control LAN (if available)** is that, with the latter, NMOS will fall back to **Media LAN 1** if the control network does not have an NMOS server.
2. BMC was tested up to 100 devices. If there are more than 100 devices on your network that require PTP, we recommend that you use a dedicated PTP master clock device.

Device

This section describes the **Device** page in Matrox ConvertIP.

From the gray bar at the top of the page, you can edit the ConvertIP device name and see the operating mode (transmitter or receiver).

NOTE Since you can configure Matrox ConvertIP to be a transmitter (TX) or a receiver (RX), the information on this page may be different depending on the mode your ConvertIP is in. In this section, both the TX and RX settings are described together.

Setting	Description
Licenses	
Upload license	Click **Upload License** to browse and select a Matrox Video license file (.lic) from your computer. This license activates additional options, like JPEG XS support. Once uploaded, the license will appear on this page, indicating its presence on the ConvertIP device. Please note that this license is unique to the device and is permanent.

Setting	Description
Maintenance	
Firmware update	To update the ConvertIP, click on **Update firmware** and browse to a folder on your computer. Select the appropriate Matrox ConvertIP update file for the desired version. A firmware update package may include multiple versions for each ConvertIP model. Choose the version that matches your intended workflow, such as JPEG XS, Pro AV codec, or uncompressed/25G. All settings are retained during the firmware update process. **NOTE** Note the following: • You can also utilize the firmware update to enable additional codec support, such as JPEG XS. However, please note that a license file must be present for JPEG XS to function correctly. • Using the Matrox ConvertIP Manager can provide a more convenient method for uploading or changing firmware, especially when managing multiple devices. For more information, see the Matrox ConvertIP Manager embedded HTML help.
Operating mode	Select **Transmitter** or **Receiver** to switch ConvertIP into that mode. For ConvertIP SDM only, select **RJ45 Media Port** or **SFP Media Port** to switch ConvertIP into that mode. For all models, this will initiate a device reboot.
Reboot	Reboot the ConvertIP. This is a simple reboot of the device and not a factory reset.
Event logs	
Events	This is a list of the events that have occurred on this ConvertIP device over a given time period.
Log	You can download logs of the events (e.g. for Matrox Video Technical Support purposes) or clear the logs.

Setting	Description
Diagnostic	
Packet capture interface	Choose the interface for packet capture, then click **Start Capture**. Once the capture is finished, you can download the file for further analysis.
Telemetry configuration (RX only)	This section allows you to obtain the maximum delay of a packet from its expected time.
Telemetry data (RX only)	• **Missing packets main:** This shows the number of packets missing in the video stream 0 in the main ST 2110 path. If this number is changing frequently, it means that there are many video packets being lost, resulting in corrupted video. • **Missing packets sec:** This shows the number of packets missing in the video stream 0 in the secondary ST 2110 path (redundancy path). • **FEC correction err:** To be supported in a future release. • **Replay:** This shows how often the video output uses the same frame twice in a row. Typically, a difference in the frame rate (ST 2110 slower than video output), or a video output not locked to the ST 2110 input will trigger a “replay” event. • **Skip:** This shows how often the video output ignores an incoming ST 2110 frame. Typically, a difference in the frame rate (ST 2110 slower than video output), or a video output not locked to the ST 2110 input will trigger a “skip” event.

Setting	Description
(Cont.) Telemetry data (RX only)	• **Frame errors:** This shows the number of frames in error (compressed video only). Typically, a single missing packet or any decode error will trigger this. • **First packet to next frame:** This determines the time between the first packet of 2 consecutive frame (video 0 only). This value should be 16.667 ms for a 60hz frame rate. • **First packet to last packet:** This determines the time between the first packet and the last packet of a frame (video 0 only). You can this to determine the traffic shape of the ST 2110 packet (linear or gapped mode). If set, it means that the search engine successfully detected the MAC address & UDP provided to it in an incoming packet. • **First packet vs redundancy** and **First packet on primary:** This determines the time between the first packet of the main path vs the secondary path (video 0 only). You can use this to determine the current skew between both ST 2110 inputs. The "First packet on primary" status shows which one between the main and secondary path is the first to be received. • **First packet Wdma vs Vout:** This determines the time between the incoming first packet of a frame vs the first pixel played on the video output. You can use this to see the delay between the capture and playback. However, it won't show delay greater than one frame. • **MAC packet detected:** If set, this means that the search engine successfully detected the MAC address provided to it in an incoming packet. • **UDP packet detected** and **PTYPE packet detected:** If set, this means that the search engine successfully detected the MAC address, UDP, and PTYPE addresses provided to it in an incoming packet.

Setting	Description
Other	
Disable physical buttons on ConvertIP device	This option prevents anyone from mistakenly pressing a physical button on the ConvertIP hardware and possibly disrupting an operation.
Limit video pixel output to legal range values. (RX only)	This option forces ConvertIP to strictly adhere to the legal range for pixel values when working with limited range video formats in YUV or RGB.
Limit video pixel input to legal range values. (TX only)	This option forces ConvertIP to strictly adhere to the legal range for pixel values when working with limited range video formats in YUV or RGB.
Reduce NMOS registry and discovery log level from Standard to Detail (RX only)	This option is disabled by default and should only be enabled when requested by Matrox Technical Support.
Daisy chain position (RX only)	When devices are daisy-chained, select the receiver's position in the chain.
Locate device	This helps you locate the ConvertIP device in a rack or area with many units. Click **Locate** to make the LEDs on the devices blink rapidly. Click **Locate** again to turn off the LEDs.
Troubleshooting	• **Disable SFP FEC**[1]**:** Disables forward error correction on ConvertIP DSH and DSS models. Some 25G network switches do not support FEC, but it is not recommended to operate a 25G network without FEC as packet errors can occur. • **Disable HDCP:** Disabling HDCP may fix compatibility issues[2].

1. Available only on SFP 25G devices and on ConvertIP SDM when in SFP mode using 25G.
2. A RX unit will not be able to connect to a HDCP-protected TX unit when using manual connection method.

Account

This section describes the **Account** page in Matrox ConvertIP.

From the gray bar at the top of the page, you can edit the ConvertIP device name and see the operating mode (transmitter or receiver).

NOTE Since you can configure Matrox ConvertIP to be a transmitter (TX) or a receiver (RX), the information on this page may be different depending on the mode your ConvertIP is in. In this section, both the TX and RX settings are described together.

Setting	Description
Account management	
First name / Last name	Add a first name and last name to the current user account.
Username	The username of the current user account.
Change password	Change the password for the current user account. This option is only available when not using an active directory user account.
Domain password	Enter the domain password for the current user account. This field only appears when you enter an active directory username. **NOTE** A root CA certificate is required for active directory to work.
Management tools	
Import user configuration	Imports ConvertIP settings from a *.bin* file on your computer.
Export user configuration	Exports ConvertIP settings as a .bin file that you can save to your computer. This file can be used to quickly reconfigure a ConvertIP when used in multiple settings. You can also share a configuration between devices.
Reset user configuration	Resets the ConvertIP settings to their factory default values.

Logout

This section describes the **Logout** page in Matrox ConvertIP.

It is recommended that you log out from your ConvertIP session when finished. If you close the browser window without properly logging out, other users trying to log in will receive a message saying that there is already a user connected, and they will be asked if they want to proceed. This may result in unnecessary confusion among different ConvertIP users.

About

This section describes the **About** page in Matrox ConvertIP.

This page displays the following:

- ConvertIP device firmware version.
- ConvertIP device serial number.
- Link to the Matrox Video website where you can download the official documentation.
- Link to the ConvertIP warranty.
- Link to the third-party licenses used with the ConvertIP.
- Link to the official Matrox Video Software License Agreement.

CHAPTER 6

Matrox ConvertIP Hardware Specifications

This chapter includes the following topics:

Matrox ConvertIP SRH specifications

These are the hardware technical specifications for the Matrox ConvertIP SRH.

Matrox ConvertIP SRH	
Product	
Part numbers	• CIP-SRH • CIP-SRH2
Form factor	• Standalone appliance • Rack-mountable: 1U high, 1/3 rack wide
Connectivity	
Video input	1x HDMI 2.1
Video outputs	1x HDMI
Video resolution	• Most desktop resolutions up to 4Kp60 • Select 5K resolutions
Audio input/output	• Up to 8 channels of audio embedded in HDMI signal
Network connector	1x RJ45 LAN port for Media and Control with PoE+ (1/2.5G)
RS-232	No
Control and management	• Matrox ConvertIP Command Center (web UI) • NMOS support (ConductIP) • Matrox ConvertIP Manager (software application)
Performance	
Maximum video resolutions	4096 x 2160 60p
Bit depth and color space	• YCbCr 4:2:0 10-bit[1] and 8-bit[1] • YCbCr 4:2:2 10-bit • RGB 4:4:4 8-bit • SDR/HDR[2]

Matrox ConvertIP SRH	
Video and Audio Processing	
Video scaling	High Quality multi-tap 10-bit Up/Down Scaler
Video deinterlacing	Yes[1]
Color space conversion	Yes
HDCP support	HDCP 1.4 and 2.3 support
Encoding Formats	

Video[3]	Default compressed bitrates: 200 Mbps for HD content, 820 Mbps for 4K content
	• Pro AV Colibri codec included
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps
	• JPEG XS codec upgrade required[4]
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps

Audio	Uncompressed PCM (~1 Mbps/ch)
Latency	Less than a 1/4 frame (<4 ms)
Network	
Network standard	RJ45 providing 1 GbE or 2.5 GbE Base-T Ethernet
IP addressing	• IPv4 • IPv6[1] • DHCP (default) and static IP
Supported protocols	• SMPTE ST 2110 (-10, -22, -30) • SMPTE 2059 (-1, -2) • IPMX TR10
Redundancy	No

Matrox ConvertIP SRH	
Command and control	HTTPS over TCP
Discovery, registration and control	NMOS discovery and control according to standards IS-04 v1.2 and 1.3 and IS-05 v1.0 and 1.1
PoE+	Yes (IEEE 802.3at Type 2)
Physical	
Product dimensions	7.13 (D) x 5.5 (W) x 1.42 (H) inches 181 (D) x 138 (W) x 36 (H) mm
Unit weight	1.44 lbs / 655 g
Cooling	Fanless

Power	• Power: max 18 Watts
	• PoE+
	• Optional PSU (sold separately)
	  • Line Voltage: 100-240 V a.c., 0.5A
	  • Frequency: 50-60 Hz
	  • Input: IEC320-C14
	  • Output: 12v using DIN4 locking power connector

Hardware and Software	
Hardware included	ConvertIP SRH appliance
Optional hardware	ConductIP NMOS-based routing solution (Part #: CDCTIP-MRA2Y)
Accessories (sold separately)	• ConvertIP power supply unit (Part #: EPS40WKIT-NA, EPS40WKIT-EU, EPS40WKIT-UK, EPS40WKIT-AU, EPS40W-10PK)[5] • Rackmount kit (Part #: RMK-19TR-A)[6] • Angled bracket kit (Part #: RMK-6BRKT-A) • Secure cable solution for HDMI (Part #: SK-SLND-4) • NRG redundant power supply unit (Part #: NRG-5-1DB or NRG-5-2DB)

Matrox ConvertIP SRH	
Optional software	• JPEG XS codec license • Crestron Module to expand existing controlled environments
Environmental	
Operating conditions	• Temperature: 0 to 45 degrees Celsius • Altitude: 650 hPa (3,580 m) to 1,013 hPa (0 m) • Humidity: 20% to 80% non-condensing
Storage conditions	• Temperature: -40 to 70 degrees Celsius • Altitude: 192 hPa (12,000 m) to 1,020 hPa (-50 m) • Humidity: 5% to 95% non-condensing
General	
EMC/EMI device class	Class A
EMC/EMI compliance	• CE (EU) • FCC (USA) • ICES-003 (Canada) • KC (Korea) • RCM (Aus/NZ)
Environmental compliance	• China RoHS • EU RoHS • REACH
Warranty	Two-year limited warranty with free online or telephone support

1. Available in a future software update.
2. Limited support on HDMI models when using an SDP file to define colorimetry. Additional work is required to support HDR signaling in SDI workflows.
3. Bitrates will vary according to resolution.
4. For more information, contact your Matrox Video representative.
5. Part # EPS40W-10PK does not include IEC-C14 power cord. These cables must be sourced locally.
6. Can fit up to three ConvertIP SRH units in a 1RU space.

Matrox ConvertIP DRH specifications

These are the hardware technical specifications for the Matrox ConvertIP DRH.

Matrox ConvertIP DRH	
Product	
Part numbers	• CIP-DRH • CIP-DRH2
Form factor	• Standalone appliance • Rack-mountable: 1U high, 1/2 rack wide
Connectivity	
Video input	1x HDMI 2.1
Video output	1x HDMI (zero latency pass-through in TX mode)
Video resolution	• Most desktop resolutions up to 4Kp60 • Select 5K resolutions
Audio input/output	• Up to 8 channels of audio embedded in HDMI signal • Unbalanced analog stereo input via 1/8” (3.5 mm) jack • Line Level
Network connector	3x RJ45 ports • LAN 1 for Media and Control with PoE+ (1/2.5G) • LAN 2 for redundant Media and Control (1/2.5G) • Control LAN for Control data only (100/1000 Mbps)
RS-232	Yes[1]
Control and management	• Matrox ConvertIP Command Center (web UI) • NMOS support (ConductIP) • Matrox ConvertIP Manager (software application)

Matrox ConvertIP DRH	
Performance	
Maximum video resolutions	4096 x 2160 60p
Bit depth and color space	• YCbCr 4:2:0 10-bit[1] and 8-bit[1] • YCbCr 4:2:2 10-bit • RGB 4:4:4 8-bit • SDR/HDR[2]
Video and Audio Processing	
Video scaling	High Quality multi-tap 10-bit Up/Down Scaler
Video deinterlacing	Yes[1]
Color space conversion	Yes
HDCP support	HDCP 1.4 and 2.3 support
Encoding Formats	

Video[3]	Default compressed bitrates: 200 Mbps for HD content, 820 Mbps for 4K content
	• Pro AV Colibri codec included
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps
	• JPEG XS codec upgrade required[4]
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps

Audio	Uncompressed PCM (~1 Mbps/ch)
Latency	Less than a 1/4 frame (<4 ms)
Network	
IP addressing	• IPv4 • IPv6[1] • DHCP (default) and static IP
Supported protocols	• SMPTE ST 2110 (-10, -22, -30) • SMPTE 2059 (-1, -2) • IPMX TR10
Redundancy	Yes (ST 2022-7)

Matrox ConvertIP DRH	
Command and control	HTTPS over TCP
Discovery, registration and control	NMOS discovery and control according to standards IS-04 v1.2 and 1.3 and IS-05 v1.0 and 1.1
PoE+	Yes (IEEE 802.3at Type 2)
Physical	
Product dimensions	7.13 (D) x 7.53 (W) x 1.42 (H) inches 181 (D) x 191 (W) x 36 (H) mm
Unit weight	1.40 lbs / 635 g
Cooling	Fanless

Power	• Power: max 18 Watts
	• PoE+
	• Optional PSU (sold separately)
	  • Line Voltage: 100-240 V a.c., 0.5A
	  • Frequency: 50-60 Hz
	  • Input: IEC320-C14
	  • Output: 12v using DIN4 locking power connector

Hardware and Software	
Hardware included	ConvertIP DRH appliance
Optional hardware	ConductIP NMOS-based routing solution (Part #: CDCTIP-MRA2Y)
Accessories (sold separately)	• ConvertIP power supply unit (Part #: EPS40WKIT-NA, EPS40WKIT-EU, EPS40WKIT-UK, EPS40WKIT-AU, EPS40W-10PK)[5] • Rackmount kit (Part #: RMK-19TR-A)[6] • Angled bracket kit (Part #: RMK-6BRKT-A) • Secure cable solution for HDMI (Part #: SK-SLND-4) • NRG redundant power supply unit (Part #: NRG-5-1DB or NRG-5-2DB)

Matrox ConvertIP DRH	
Optional software	• JPEG XS codec license • Crestron Module to expand existing controlled environments
Environmental	
Operating conditions	• Temperature: 0 to 45 degrees Celsius • Altitude: 650 hPa (3,580 m) to 1,013 hPa (0 m) • Humidity: 20% to 80% non-condensing
Storage conditions	• Temperature: -40 to 70 degrees Celsius • Altitude: 192 hPa (12,000 m) to 1,020 hPa (-50 m) • Humidity: 5% to 95% non-condensing
General	
EMC/EMI device class	Class A
EMC/EMI compliance	• CE (EU) • FCC (USA) • ICES-003 (Canada) • KC (Korea) • RCM (Aus/NZ)
Environmental compliance	• China RoHS • EU RoHS • REACH
Warranty	Three-year limited warranty with free online or telephone support

1. Available in a future software update.
2. Limited support on HDMI models when using an SDP file to define colorimetry. Additional work is required to support HDR signaling in SDI workflows.
3. Bitrates will vary according to resolution.
4. For more information, contact your Matrox Video representative.
5. Part # EPS40W-10PK does not include IEC-C14 power cord. These cables must be sourced locally.
6. Can fit up to two ConvertIP DRH units in a 1RU space.

Matrox ConvertIP DSH specifications

These are the hardware technical specifications for the Matrox ConvertIP DSH.

Matrox ConvertIP DSH	
Product	
Part numbers	• CIP-DSH • CIP-DSH2
Form factor	• Standalone appliance • Rack-mountable: 1U high, 1/2 rack wide
Connectivity	
Video input	1x HDMI 2.1
Video output	1x HDMI (zero latency pass-through in TX mode)
Video resolution	• Most desktop resolutions up to 4Kp60 • Select 5K resolutions
Audio input/output	• Up to 8 channels of audio embedded in HDMI signal • Unbalanced analog stereo input via 1/8” (3.5 mm) jack • Line Level

Matrox ConvertIP DSH	

Network connector	• Support for Direct Attach cables for 10G and 25G.
	• 2x SFP28 cages for IPMX and ST 2110 media and In-band control on SFP 1 and SFP 2
	  • 10 GbE IEEE 802.3-2022 (10GBASE-SR/LR fiber module)
	  • 10 GBASE-T SFP to copper adapter
	  • 25 GbE IEEE 802.3-2022 (25GBASE-SR/CR/CR-S)
	  • 25 GbE IEEE 802.3-2022 (25GBASE-LR)
	  • 25 GbE IEEE 802.3-2022 (25GBASE-SR/LR/ER)
	  • 25 G Ethernet Consortium specification
	• SFP2 for redundant media only
	• Dedicated RJ45 management network interface for control only with PoE+ (100/1000 Mbps)

RS-232	Yes[1]
Control and management	• Matrox ConvertIP Command Center (web UI) • NMOS support (ConductIP) • Matrox ConvertIP Manager (software application)
Performance	
Maximum video resolutions	• 4096 x 2160 60p • 5K resolutions
Bit depth and color space	• YCbCr 4:2:0 10-bit[1] and 8-bit[1] • YCbCr 4:2:2 10-bit • RGB 4:4:4 10-bit and 8-bit • SDR/HDR[2]
Video and Audio Processing	
Video scaling	High Quality multi-tap 10-bit Up/Down Scaler
Video deinterlacing	Yes[1]

Matrox ConvertIP DSH	
Color space conversion	Yes
HDCP support	HDCP 1.4 and 2.3 support
Encoding Formats	

Video[3]	Uncompressed:
	• HD 3 Gbps and 4K 12 Gbps
	Default compressed bitrates: 220 Mbps for HD content, 880 Mbps for 4K content
	• Pro AV Colibri codec included
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps
	• JPEG XS codec upgrade required[4]
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps

Audio	Uncompressed PCM (~1 Mbps/ch)
Latency	Less than a 1/4 frame (<4 ms)

Matrox ConvertIP DSH	
Network	
IP addressing	• IPv4 • IPv6[1] • DHCP (default) and static IP
Supported protocols	• SMPTE ST 2110 (-10, -20, -21, -22, -30) • SMPTE 2059 (-1, -2) • IPMX TR10
Redundancy	Yes (ST 2022-7)
Command and control	HTTPS over TCP
Discovery, registration and control	NMOS discovery and control according to standards IS-04 v1.2 and 1.3 and IS-05 v1.0 and 1.1
PoE+	Yes (IEEE 802.3at Type 2)
Physical	
Product dimensions	7.13 (D) x 7.53 (W) x 1.42 (H) inches 181 (D) x 191 (W) x 36 (H) mm
Unit weight	1.66 lbs / 755 g
Cooling	Fanless

Power	• Power: max 18 Watts
	• PoE+
	• Optional PSU (sold separately)
	  • Line Voltage: 100-240 V a.c., 0.5A
	  • Frequency: 50-60 Hz
	  • Input: IEC320-C14
	  • Output: 12v using DIN4 locking power connector

Matrox ConvertIP DSH	
Hardware and Software	
Hardware included	ConvertIP DSH appliance
Optional hardware	ConductIP NMOS-based routing solution (Part #: CDCTIP-MRA2Y)
Accessories (sold separately)	• ConvertIP power supply unit (Part #: EPS40WKIT-NA, EPS40WKIT-EU, EPS40WKIT-UK, EPS40WKIT-AU, EPS40W-10PK)[5] • Rackmount kit (Part #: RMK-19TR-A)[6] • Angled bracket kit (Part #: RMK-6BRKT-A) • Secure cable solution for HDMI (Part #: SK-SLND-4) • NRG redundant power supply unit (Part #: NRG-5-1DB or NRG-5-2DB)
Optional software	• JPEG XS codec license • Crestron Module to expand existing controlled environments
Environmental	
Operating conditions	• Temperature: 0 to 45 degrees Celsius • Altitude: 650 hPa (3,580 m) to 1,013 hPa (0 m) • Humidity: 20% to 80% non-condensing
Storage conditions	• Temperature: -40 to 70 degrees Celsius • Altitude: 192 hPa (12,000 m) to 1,020 hPa (-50 m) • Humidity: 5% to 95% non-condensing

Matrox ConvertIP DSH	
General	
EMC/EMI device class	Class A
EMC/EMI compliance	• CE (EU) • FCC (USA) • ICES-003 (Canada) • KC (Korea) • RCM (Aus/NZ)
Environmental compliance	• China RoHS • EU RoHS • REACH
Warranty	Three-year limited warranty with free online or telephone support

1. Available in a future software update.
2. Limited support on HDMI models when using an SDP file to define colorimetry. Additional work is required to support HDR signaling in SDI workflows.
3. Bitrates will vary according to resolution.
4. For more information, contact your Matrox Video representative.
5. Part # EPS40W-10PK does not include IEC-C14 power cord. These cables must be sourced locally.
6. Can fit up to two ConvertIP DSH units in a 1RU space.

Matrox ConvertIP DRS specifications

These are the hardware technical specifications for the Matrox ConvertIP DRS.

Matrox ConvertIP DRS	
Product	
Part numbers	• CIP-DRS • CIP-DRS2
Form factor	• Standalone appliance • Rack-mountable: 1U high, 1/2 rack wide
Connectivity	
Video input	• TX mode: 1.5G, 3G, and 12G SDI • RX mode: No input
Video output	• TX mode: No output • RX mode: 1.5G, 3G, and 12G SDI
Video resolution	HD and 4K resolutions (including broadcast)
Genlock	Bi-Level output support
VANC ancillary data processing	Yes
Audio input/output	• Up to 16 channels of audio embedded in SDI output signal • Unbalanced analog stereo input via 1/8” (3.5 mm) jack • Line Level
Network connector	3x RJ45 ports • LAN 1 for Media and Control with PoE+ (1/2.5G) • LAN 2 for redundant Media and Control (1/2.5G) • Control LAN for Control data only (100/1000 Mbps)
RS-232	Yes[1]

Matrox ConvertIP DRS	
Control and management	• Matrox ConvertIP Command Center (web UI) • NMOS support (ConductIP) • Matrox ConvertIP Manager (software application)
Performance	
Maximum video resolutions	4096 x 2160 60p
Bit depth and color space	• YCbCr 4:2:2 10-bit • SDR/HDR[1]
Video and Audio Processing	
Video scaling	High Quality multi-tap 10-bit Up/Down Scaler
Video deinterlacing	Yes[1]
Color space conversion	Yes
HDCP support	Not applicable
Encoding Formats	

Video[2]	Default compressed bitrates: 200 Mbps for HD content, 820 Mbps for 4K content
	• Pro AV Colibri codec included
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps
	• JPEG XS codec upgrade required[3]
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps

Audio	Uncompressed PCM (~1 Mbps/ch)
Latency	Less than a 1/4 frame (<4 ms)
Network	
Network standard	RJ45 providing 1 GbE or 2.5 GbE Base-T Ethernet
IP addressing	• IPv4 • IPv6[1] • DHCP (default) and static IP

Matrox ConvertIP DRS	
Supported protocols	• SMPTE ST 2110 (-10, -20, -22, -30, -40) • SMPTE 2059 (-1, -2) • IPMX TR10
Redundancy	Yes (ST 2022-7)
Command and control	HTTPS over TCP
Discovery, registration and control	NMOS discovery and control according to standards IS-04 v1.2 and 1.3 and IS-05 v1.0 and 1.1
PoE+	Yes (IEEE 802.3at Type 2)
Physical	
Product dimensions	7.13 (D) x 7.53 (W) x 1.42 (H) inches 181 (D) x 191 (W) x 36 (H) mm
Unit weight	1.47 lbs / 665 g
Cooling	Fanless

Power	• Power: max 18 Watts
	• PoE+
	• Optional PSU (sold separately)
	  • Line Voltage: 100-240 V a.c., 0.5A
	  • Frequency: 50-60 Hz
	  • Input: IEC320-C14
	  • Output: 12v using DIN4 locking power connector

Hardware and Software	
Hardware included	ConvertIP DRS appliance
Optional hardware	ConductIP NMOS-based routing solution (Part #: CDCTIP-MRA2Y)

Matrox ConvertIP DRS	
Accessories (sold separately)	• ConvertIP power supply unit (Part #: EPS40WKIT-NA, EPS40WKIT-EU, EPS40WKIT-UK, EPS40WKIT-AU, EPS40W-10PK)[4] • Rackmount kit (Part #: RMK-19TR-A)[5] • Angled bracket kit (Part #: RMK-6BRKT-A) • NRG redundant power supply unit (Part #: NRG-5-1DB or NRG-5-2DB)
Optional software	• JPEG XS codec license • Crestron Module to expand existing controlled environments
Environmental	
Operating conditions	• Temperature: 0 to 45 degrees Celsius • Altitude: 650 hPa (3,580 m) to 1,013 hPa (0 m) • Humidity: 20% to 80% non-condensing
Storage conditions	• Temperature: -40 to 70 degrees Celsius • Altitude: 192 hPa (12,000 m) to 1,020 hPa (-50 m) • Humidity: 5% to 95% non-condensing
General	
EMC/EMI device class	Class A
EMC/EMI compliance	• CE (EU) • FCC (USA) • ICES-003 (Canada) • KC (Korea) • RCM (Aus/NZ)
Environmental compliance	• China RoHS • EU RoHS • REACH
Warranty	Three-year limited warranty with free online or telephone support

1. Available in a future software update.
2. Bitrates will vary according to resolution.
3. For more information, contact your Matrox Video representative.
4. Part # EPS40W-10PK does not include IEC-C14 power cord. These cables must be sourced locally.

5. Can fit up to two ConvertIP DRS units in a 1RU space.

Matrox ConvertIP DSS specifications

These are the hardware technical specifications for the Matrox ConvertIP DSS.

Matrox ConvertIP DSS	
Product	
Part numbers	• CIP-DSS • CIP-DSS2
Form factor	• Standalone appliance • Rack-mountable: 1U high, 1/2 rack wide
Connectivity	
Video input	• TX mode: 1.5G, 3G, and 12G SDI • RX mode: No input
Video output	• TX mode: No output • RX mode: 1.5G, 3G, and 12G SDI
Video resolution	HD and 4K resolutions (including broadcast)
Genlock	Bi-Level output support
VANC ancillary data processing	Yes
Audio input/output	• Up to 16 channels of audio embedded in SDI output signal • Unbalanced analog stereo input via 1/8” (3.5 mm) jack • Line Level

Network connector	• 2x SFP28 cages for ST 2110 media and In-band control on SFP 1 and SFP 2
	  • 10 GbE IEEE 802.3ae (10GBASE-SR/LR fiber module)
	  • 25 GbE IEEE 802.3by (25GBASE-SR/CR/CR-S)
	  • 25 GbE IEEE 802.3cc (25GBASE-LR)
	• SFP2 for redundant media only
	• Dedicated RJ45 management network interface for control with PoE+ (100/1000Mbps)

Matrox ConvertIP DSS	
RS-232	Yes[1]
Control and management	• Matrox ConvertIP Command Center (web UI) • NMOS support (ConductIP) • Matrox ConvertIP Manager (software application)
Performance	
Maximum video resolutions	4096 x 2160 60p
Bit depth and color space	• YCbCr 4:2:2 10-bit • SDR/HDR[1]
Video and Audio Processing	
Video scaling	High Quality multi-tap 10-bit Up/Down Scaler
Video deinterlacing	Yes[1]
Color space conversion	Yes
HDCP support	Not applicable
Encoding Formats	

Video[2]	Uncompressed:
	• HD 3 Gbps and 4K 12 Gbps
	Default compressed bitrates: 200 Mbps for HD content, 820 Mbps for 4K content
	• Pro AV Colibri codec included
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps
	• JPEG XS codec upgrade required[3]
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps

Audio	Uncompressed PCM (~1 Mbps/ch)
Latency	Less than a 1/4 frame (<4 ms)
Network	
Network standard	RJ45 providing 1 GbE or 2.5 GbE Base-T Ethernet

Matrox ConvertIP DSS	
IP addressing	• IPv4 • IPv6[1] • DHCP (default) and static IP
Supported protocols	• SMPTE ST 2110 (-10, -20, -21, -22, -30, -40[1]) • SMPTE 2059 (-1, -2) • IPMX TR10
Redundancy	Yes (ST 2022-7)
Command and control	HTTPS over TCP
Discovery, registration and control	NMOS discovery and control according to standards IS-04 v1.2 and 1.3 and IS-05 v1.0 and 1.1
PoE+	Yes (IEEE 802.3at Type 2)
Physical	
Product dimensions	7.13 (D) x 7.53 (W) x 1.42 (H) inches 181 (D) x 191 (W) x 36 (H) mm
Unit weight	1.70 lbs / 770 g
Cooling	Fanless

Power	• Power: max 18 Watts
	• PoE+
	• Optional PSU (sold separately)
	  • Line Voltage: 100-240 V a.c., 0.5A
	  • Frequency: 50-60 Hz
	  • Input: IEC320-C14
	  • Output: 12v using DIN4 locking power connector

Matrox ConvertIP DSS	
Hardware and Software	
Hardware included	ConvertIP DSS appliance
Optional hardware	ConductIP NMOS-based routing solution (Part #: CDCTIP-MRA2Y)
Accessories (sold separately)	• ConvertIP power supply unit (Part #: EPS40WKIT-NA, EPS40WKIT-EU, EPS40WKIT-UK, EPS40WKIT-AU, EPS40W-10PK)[4] • Rackmount kit (Part #: RMK-19TR-A)[5] • Angled bracket kit (Part #: RMK-6BRKT-A) • NRG redundant power supply unit (Part #: NRG-5-1DB or NRG-5-2DB)
Optional software	• JPEG XS codec license • Crestron Module to expand existing controlled environments
Environmental	
Operating conditions	• Temperature: 0 to 45 degrees Celsius • Altitude: 650 hPa (3,580 m) to 1,013 hPa (0 m) • Humidity: 20% to 80% non-condensing
Storage conditions	• Temperature: -40 to 70 degrees Celsius • Altitude: 192 hPa (12,000 m) to 1,020 hPa (-50 m) • Humidity: 5% to 95% non-condensing

Matrox ConvertIP DSS	
General	
EMC/EMI device class	Class A
EMC/EMI compliance	• CE (EU) • FCC (USA) • ICES-003 (Canada) • KC (Korea) • RCM (Aus/NZ)
Environmental compliance	• China RoHS • EU RoHS • REACH
Warranty	Three-year limited warranty with free online or telephone support

1. Available in a future software update.
2. Bitrates will vary according to resolution.
3. For more information, contact your Matrox Video representative.
4. Part # EPS40W-10PK does not include IEC-C14 power cord. These cables must be sourced locally.
5. Can fit up to two ConvertIP DSS units in a 1RU space.

Matrox ConvertIP SRST specifications

These are the hardware technical specifications for the Matrox ConvertIP SRST.

Matrox ConvertIP SRST	
Product	
Part numbers	• CIP-SRST • CIP-SRST2
Form factor	• Standalone appliance • Rack-mountable: 1U high, 1/2 rack wide
Connectivity	
Video input	TX mode: HDBaseT™ v3 RX mode: No input
Video output	TX mode: No input RX mode: HDBaseT™ v3
Video resolution	HD and 4K resolutions (including broadcast)
Audio input/output	• Up to 8 channels of audio embedded

Network connector	• 1x RJ45 LAN for Media and Control with PoE+
	• 1x SFP28 cages for Media and Control
	  • 10 GbE IEEE 802.3ae (10GBASE-SR/LR fiber module)
	  • 25 GbE IEEE 802.3by (25GBASE-SR/CR/CR-S)
	  • 25 GbE IEEE 802.3cc (25GBASE-LR)

RS-232	No
Control and management	• Matrox ConvertIP Command Center (web UI) • NMOS support (ConductIP) • Matrox ConvertIP Manager (software application)
Performance	
Maximum video resolutions	4096 x 2160 60p

Matrox ConvertIP SRST	
Bit depth and color space	• YCbCr 4:2:0 10-bit[1] and 8-bit[1] • YCbCr 4:2:2 10-bit • RGB 4:4:4 8-bit • SDR/HDR[1]
Video and Audio Processing	
Video scaling	High Quality multi-tap 10-bit Up/Down Scaler
Video deinterlacing	Yes[1]
Color space conversion	Yes
HDCP support	HDCP 1.4 and 2.3 support
Encoding Formats	

Video[2]	Uncompressed
	• HD 3 Gbps and 4K 12 Gbps
	Default compressed bitrates: 200 Mbps for HD content, 820 Mbps for 4K content
	• Pro AV Colibri codec included
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps
	• JPEG XS codec upgrade required[3]
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps

Audio	Uncompressed PCM (~1 Mbps/ch)
Latency	Less than a 1/4 frame (<4 ms)
Network	
Network standard	RJ45 providing 1 GbE or 2.5 GbE Base-T Ethernet
IP addressing	• IPv4 • IPv6[1] • DHCP (default) and static IP
Supported protocols	• SMPTE ST 2110 (-10, -20, -21, -22, -30) • SMPTE 2059 (-1, -2) • IPMX TR10
Redundancy	No

Matrox ConvertIP SRST	
Command and control	HTTPS over TCP
Discovery, registration and control	NMOS discovery and control according to standards IS-04 v1.2 and 1.3 and IS-05 v1.0 and 1.1
PoE+	Yes (IEEE 802.3at Type 2)
Physical	
Product dimensions	7.13 (D) x 7.53 (W) x 1.42 (H) inches 181 (D) x 191 (W) x 36 (H) mm
Unit weight	1.70 lbs / 770 g
Cooling	Fanless

Power	• Power: max 18 Watts
	• PoE+
	• Optional PSU (sold separately)
	  • Line Voltage: 100-240 V a.c., 0.5A
	  • Frequency: 50-60 Hz
	  • Input: IEC320-C14
	  • Output: 12v using DIN4 locking power connector

Hardware and Software	
Hardware included	ConvertIP SRST appliance
Optional hardware	ConductIP NMOS-based routing solution (Part #: CDCTIP-MRA2Y)
Accessories (sold separately)	• ConvertIP power supply unit (Part #: EPS40WKIT-NA, EPS40WKIT-EU, EPS40WKIT-UK, EPS40WKIT-AU, EPS40W-10PK)[4] • Rackmount kit (Part #: RMK-19TR-A)[5] • Angled bracket kit (Part #: RMK-6BRKT-A) • NRG redundant power supply unit (Part #: NRG-5-1DB or NRG-5-2DB)
Optional software	• JPEG XS codec license • Crestron Module to expand existing controlled environments

Matrox ConvertIP SRST	
Environmental	
Operating conditions	• Temperature: 0 to 45 degrees Celsius • Altitude: 650 hPa (3,580 m) to 1,013 hPa (0 m) • Humidity: 20% to 80% non-condensing
Storage conditions	• Temperature: -40 to 70 degrees Celsius • Altitude: 192 hPa (12,000 m) to 1,020 hPa (-50 m) • Humidity: 5% to 95% non-condensing
General	
EMC/EMI device class	Class A
EMC/EMI compliance	• CE (EU) • FCC (USA) • ICES-003 (Canada) • KC (Korea) • RCM (Aus/NZ)
Environmental compliance	• China RoHS • EU RoHS • REACH
Warranty	Three-year limited warranty with free online or telephone support

1. Available in a future software update
2. Bitrates will vary according to resolution.
3. For more information, contact your Matrox Video representative.
4. Part # EPS40W-10PK does not include IEC-C14 power cord. These cables must be sourced locally.
5. Can fit up to two ConvertIP SRST units in a 1RU space.

Matrox ConvertIP SRS specifications

These are the hardware technical specifications for the Matrox ConvertIP SRS.

Matrox ConvertIP SRS	
Product	
Part numbers	• CIP-SRS • CIP-SRS2
Form factor	• Standalone appliance • Rack-mountable: 1U high, 1/3 rack wide
Connectivity	
Video input	• TX mode: 12G SDI • RX mode: No input
Video output	• TX mode: No output • RX mode: 12G SDI
Video resolution	HD and 4K resolutions (including broadcast)
Genlock	No
VANC ancillary data processing	Yes
Audio input/output	Up to 16 channels of audio embedded in SDI output signal
Network connector	1x RJ45 LAN port for Media and Control with PoE+ (1/2.5G)
RS-232	No
Control and management	• Matrox ConvertIP Command Center (web UI) • NMOS support (ConductIP) • Matrox ConvertIP Manager (software application)
Performance	
Maximum video resolutions	4096 x 2160 60p
Bit depth and color space	• YCbCr 4:2:2 10-bit • SDR/HDR[1]

Matrox ConvertIP SRS	
Video and Audio Processing	
Video scaling	High Quality multi-tap 10-bit Up/Down Scaler
Video deinterlacing	Yes[1]
Color space conversion	Yes
HDCP support	Not applicable
Encoding Formats	

Video[2]	Default compressed bitrates: 200 Mbps for HD content, 820 Mbps for 4K content
	• Pro AV Colibri codec included
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps
	• JPEG XS codec upgrade required[3]
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps

Audio	Uncompressed PCM (~1 Mbps/ch)
Latency	Less than a 1/4 frame (<4 ms)
Network	
Network standard	RJ45 providing 1 GbE or 2.5 GbE Base-T Ethernet
IP addressing	• IPv4 • IPv6[1] • DHCP (default) and static IP
Supported protocols	• SMPTE ST 2110 (-10, -22, -30, -40[1]) • SMPTE 2059 (-1, -2) • IPMX TR10
Redundancy	No
Command and control	HTTPS over TCP
Discovery, registration and control	NMOS discovery and control according to standards IS-04 v1.2 and 1.3 and IS-05 v1.0 and 1.1
PoE+	Yes (IEEE 802.3at Type 2)

Matrox ConvertIP SRS	
Physical	
Product dimensions	7.88 (D) x 5.5 (W) x 1.39 (H) inches 200 (D) x 138 (W) x 35 (H) mm
Unit weight	1.09 lbs / 495 g
Cooling	Fanless

Power	• Power: max 18 Watts
	• PoE+
	• Optional PSU (sold separately)
	  • Line Voltage: 100-240 V a.c., 0.5A
	  • Frequency: 50-60 Hz
	  • Input: IEC320-C14
	  • Output: 12v using DIN4 locking power connector

Hardware and Software	
Hardware included	ConvertIP SRS appliance
Optional hardware	ConductIP NMOS-based routing solution (Part #: CDCTIP-MRA2Y)
Accessories (sold separately)	• ConvertIP power supply unit (Part #: EPS40WKIT-NA, EPS40WKIT-EU, EPS40WKIT-UK, EPS40WKIT-AU, EPS40W-10PK)[4] • Rackmount kit (Part #: RMK-19TR-A)[5] • Angled bracket kit (Part #: RMK-6BRKT-A) • NRG redundant power supply unit (Part #: NRG-5-1DB or NRG-5-2DB)
Optional software	• JPEG XS codec license • Crestron Module to expand existing controlled environments

Matrox ConvertIP SRS	
Environmental	
Operating conditions	• Temperature: 0 to 45 degrees Celsius • Altitude: 650 hPa (3,580 m) to 1,013 hPa (0 m) • Humidity: 20% to 80% non-condensing
Storage conditions	• Temperature: -40 to 70 degrees Celsius • Altitude: 192 hPa (12,000 m) to 1,020 hPa (-50 m) • Humidity: 5% to 95% non-condensing
General	
EMC/EMI device class	Class A
EMC/EMI compliance	• CE (EU) • FCC (USA) • ICES-003 (Canada) • KC (Korea) • RCM (Aus/NZ)
Environmental compliance	• China RoHS • EU RoHS • REACH
Warranty	Three-year limited warranty with free online or telephone support

1. Available in a future software update.
2. Bitrates will vary according to resolution.
3. For more information, contact your Matrox Video representative.
4. Part # EPS40W-10PK does not include IEC-C14 power cord. These cables must be sourced locally.
5. Can fit up to three ConvertIP SRS units in a 1RU space.

Matrox ConvertIP SDM specifications

These are the hardware technical specifications for the Matrox ConvertIP SDM.

Matrox ConvertIP SDM	
Product	
Part number	CIP-SDM2
Form factor	Intel ® Smart Display Module (Large format)
Connectivity	
Video output	Via Intel ® SDM connector
Video resolution	Most desktop resolutions up to 4Kp60
Audio input/output	Up to 8 channels of audio

Network connector[1]	• 2x SFP28 cages for ST 2110 media and in-band control on SFP 1 and SFP 2
	  • 10 GbE IEEE 802.3ae (10GBASE-SR/LR fiber module)
	  • 25 GbE IEEE 802.3by (25GBASE-SR/CR/CR-S)
	  • 25 GbE IEEE 802.3cc (25GBASE-LR)
	• LAN 1 and LAN 2 for media and in-band control (RJ45 1/2.5G)
	• Control LAN for Control data only (RJ45 1G)
	*LAN 2 and SFP2 for redundant media only

Control and management	• Matrox ConvertIP Command Center (Web UI) • NMOS support (ConductIP) • Matrox ConvertIP Manager (software application)
Performance	
Maximum video resolutions	4096 x 2160 60p *All standard desktop GPU resolutions supported

Matrox ConvertIP SDM	
Bit depth and color space	• YCbCr 4:2:0 10-bit and 8-bit • SDR/HDR[2] • RGB 4:4:4 8-bit and 10-bit[3] • YCbCr 4:2:2 10-bit
Video and Audio Processing	
Video scaling	High Quality multi-tap 10-bit Up/Down Scaler
Video deinterlacing	Yes[4]
Color space conversion	Yes
HDCP support	HDCP 1.4 and 2.3 support
Encoding Formats	

Video[5]	Uncompressed
	• HD 3 Gbps and 4K 12 Gbps
	Default compressed bitrates: 200 Mbps for HD content, 820 Mbps for 4K content
	• Pro AV Colibri codec included
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps
	• JPEG XS codec upgrade required[6]
	  • 4:2:2 10-bit YUV and 4:4:4 8-bit RGB; 100 to 2000 Mbps

Audio	Uncompressed PCM (~1 Mbps/ch)
Latency	Less than a 1/4 frame (<4 ms)
Network	
IP addressing	• IPv4 • IPv6[4] • DHCP (default) and static IP
Supported protocols	• SMPTE ST 2110 (-10, -20, -22, -30[4]) • SMPTE 2059 (-1, -2) • IPMX TR10
Redundancy	Yes (ST 2022-7)
Command and control	HTTPS over TCP

Matrox ConvertIP SDM	
Discovery, registration and control	NMOS discovery and control according to standards IS-04 v1.2 and 1.3 and IS-05 v1.0 and 1.1
Physical	
Product dimensions	With bracket: 125 (D) x 196 (W) mm Without bracket: 116 (D) x 174 (W) mm
Unit weight	237 g
Fan	Low noise emissions (<24 dB)
Power	Conforms to Intel SDM-L power consumption range
Hardware and Software	
Hardware included	ConvertIP SDM receiver
Optional hardware	ConductIP NMOS-based routing solution (Part #: CDCTIP-MRA2Y)
Optional software	• JPEG XS codec license • Crestron Module to expand existing controlled environments
Environmental	
Operating conditions	Conform to Intel SDM-L specifications
Storage conditions	• Temperature: -40 to 70 degrees Celsius • Altitude: 192 hPa (12,000 m) to 1,020 hPa (-50 m) • Humidity: 5% to 95% non-condensing

Matrox ConvertIP SDM	
General	
EMC/EMI device class	Class A
EMC/EMI compliance	• CE (EU) • FCC (USA) • ICES-003 (Canada) • KC (Korea) • RCM (Aus/NZ)
Environmental compliance	• China RoHS • EU RoHS • REACH
Warranty	Two-year limited warranty with free online or telephone support

1. Operators must choose between SFP 1, 2 or LAN 1, 2 for media transport.
2. Limited support on HDMI models when using an SDP file to define colorimetry. Additional work is required to support HDR signaling in SDI workflows.
3. HDMI 2.0 specifications do not support 4:4:4 10-bit at 4K at 60 fps.
4. Available in a future software update.
5. Bitrates will vary according to resolution.
6. For more information, contact your Matrox Video representative.

Appendix A

Configuring Matrox ConvertIP for AES67

This appendix includes the following topics:

Configuring Matrox ConvertIP for AES67 workflows

AES67 is the foundation for SMPTE ST-2110 audio and serves as the basis for IPMX audio. This standard allows interoperability between different IP audio devices, enabling seamless audio streaming between an AES67 device and an IPMX device, such as the Matrox ConvertIP.

While AES67 provides a broad framework for audio over IP, it encompasses both mandatory and optional features. Unlike IPMX and, to some extent, ST 2110, AES67 does not include a standardized control protocol, which can add complexity to configuration and integration processes.

This appendix provides step-by-step instructions for configuring Matrox ConvertIP with native AES67 and Dante devices operating in AES67 mode. It also outlines the specific configurations and limitations when using Dante devices in this mode, ensuring a clear understanding of the workflow and optimal performance.

IMPORTANT While this section references and recommends certain third-party applications to enhance your workflow, Matrox Video assumes no responsibility for any issues that may arise from their use. Additionally, Matrox Video does not update its documentation to reflect changes in these third-party tools or maintain any hyperlinks mentioned in the document. Any screenshots included are accurate as of the publication date of this document. For the most current information and guidance on using these applications, please refer to the official documentation provided by the respective third parties.

Configuring Dante devices for AES67 operation

Most Dante devices support AES67 operation, which can be enabled using the Dante Controller application. Follow these steps to configure your Dante devices for AES67 mode:

Step 1. Download the Dante Controller application from the *Audinate website*. Install it on a computer connected to the same network as your Dante devices.

Step 2. After launching Dante Controller, configure the network interface by selecting **File > Interfaces**. Choose the network interface connected to the same network as your Dante devices.

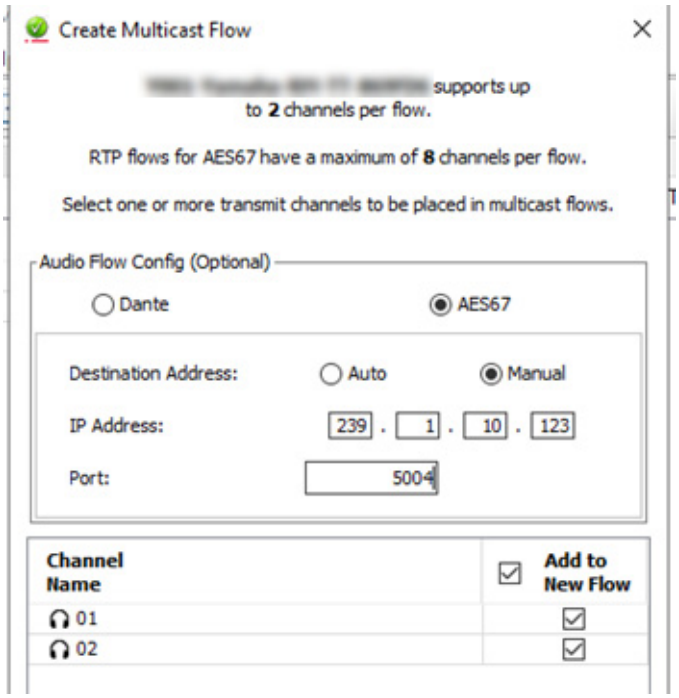
Step 3. Dante Controller will scan the network and display all detected Dante devices. Once your device appears in the list, select **Devices > Device View** from the menu and choose your device from the dropdown list.

Step 4. In the **AES67 Config** tab, ensure that **AES67 Mode** is enabled. This setting allows the device to operate in AES67 mode.

Step 5. Use the **RTP Multicast Address Prefix** field to specify the multicast subnet. We recommend using the 239.1.x.x range, as it aligns with the default scheme for Matrox ConvertIP.

Step 6. If your Dante device is a sender, additional configuration is needed to send an AES67 flow and select the appropriate format.

a. Open **Devices > Create a New Multicast Flow**.



b. In the dialog box, choose **AES67**.

c. For the **Destination Address**, we recommend selecting **Manual** mode and specifying an address in the format 239.1.x.y, where *x.y* are the last two digits of the device's IPv4 address. For example, if the device's IP address is 192.168.10.123, use 239.1.10.123.

Your device is now configured for AES67 operation. If further adjustments are necessary, refer to the official documentation for your specific Dante device.

Configuring ConvertIP for AES67 operations

In an AES67 environment, all devices are synchronized using Precision Time Protocol (PTP). To enable ConvertIP to send or receive signals from AES67 devices, it must be configured to sync with the same PTP master as the AES67 devices.

Follow these steps to configure ConvertIP for AES67 operations:

Step 1. Determine the PTP domain used by your AES67 devices. Most Dante devices default to PTP domain 0.

Step 2. Access the ConvertIP configuration settings (see "*Network*" on page *76*) and set the PTP domain to match the AES67 devices. If using Dante devices, set the PTP domain to 0.

Step 3. Ensure that ConvertIP is successfully synchronized with the PTP master and is in sync with the other AES67 devices on the network.

By aligning ConvertIP with the correct PTP domain, you ensure seamless communication and interoperability with AES67 devices.

Connecting an AES67 source to a ConvertIP receiver

To connect an AES67 sender to a ConvertIP receiver, you can choose between two methods: the Custom Settings page on ConvertIP or the ConductIP proxy feature.

- **ConvertIP Custom Settings method:** Ideal for quick, static connections. Use this method when you need a straightforward and permanent link between the AES67 sender and the ConvertIP receiver.
- **ConductIP Proxy method:** Preferred for dynamic environments. This method allows you to manage and modify connections more flexibly, making it easier to adapt to changing network conditions or connection requirements.

Choose the method that best suits your workflow needs based on the level of flexibility and control required.

ConvertIP Custom Settings method

To connect an AES67 source to a ConvertIP receiver using the Custom Settings method, follow these steps:

Step 1. Gather the multicast address, port, and other necessary details for the AES67 source. If this information is not readily available, refer to "*Retrieving the SDP for an AES67 device*" on page *131*.

Step 2. Access the ConvertIP receiver settings.

a. Navigate to the ConvertIP receiver you wish to configure.

b. Go to the **AV and Stream Configuration** section (see "*AV and Stream Configuration*" on page *67*), and then to **Stream Settings**.

Step 3. Under the **Connection Method** dropdown menu, choose **Use Custom Settings**.

Step 4. Fill in the audio section with the multicast address, port, and any other required parameters for the AES67 source.

Step 5. Save and apply the settings to establish the connection between the AES67 sender and the ConvertIP receiver.

This method is suitable for establishing quick, static connections when you have all the necessary stream details on hand.

ConductIP Proxy method

The ConductIP platform includes a feature that allows you to create NMOS Proxy Senders for non-NMOS devices, such as AES67 sources. This enables seamless integration of AES67 audio streams into your NMOS-controlled environment.

NOTE For more detailed information on using ConductIP, see the *Matrox ConductIP User Guide* included in the ConductIP application.

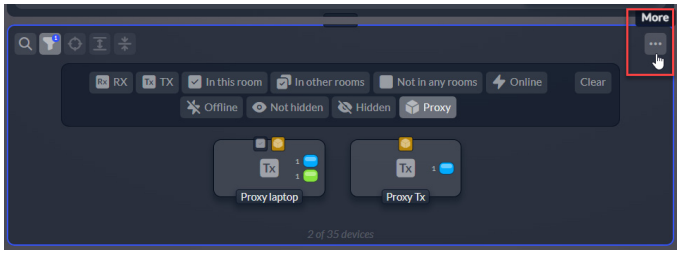
Follow these steps to set up a Proxy Sender for your AES67 source:

Step 1. Obtain the SDP file for your AES67 device. If you do not have this file, refer to "*Retrieving the SDP for an AES67 device*" on page *131* for instructions on how to retrieve it.

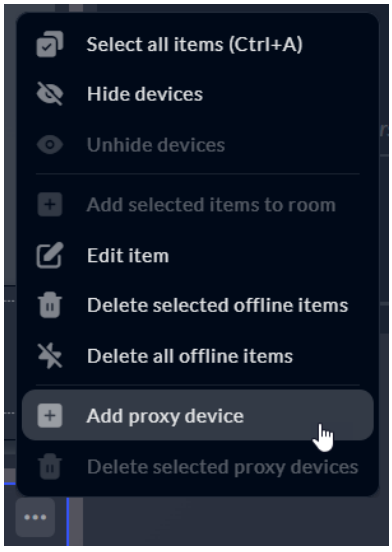
Step 2. Create a proxy device in ConductIP.

a. Navigate to the **Rooms** tab in ConductIP.

b. In the bottom section, you will see all the NMOS devices on your network. Click the **(...)** button in the top-right corner for additional settings.



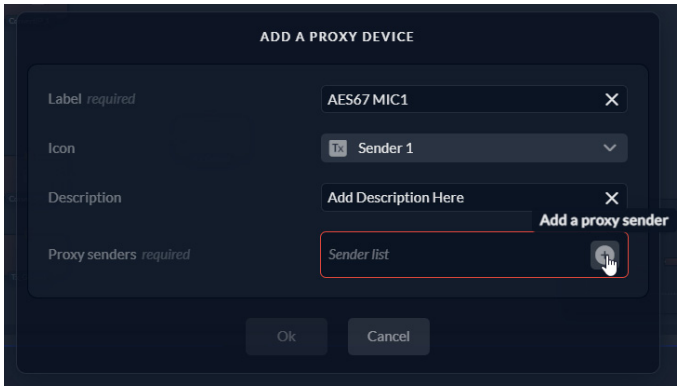
c. Click on **Add Proxy Device**.



d. In the **ADD A PROXY DEVICE** dialog, enter a name for your device in the **Label** field, such as **AES67 MIC1**.

e. Choose an appropriate icon for the device, such as **Sender1**, or any other icon you prefer.

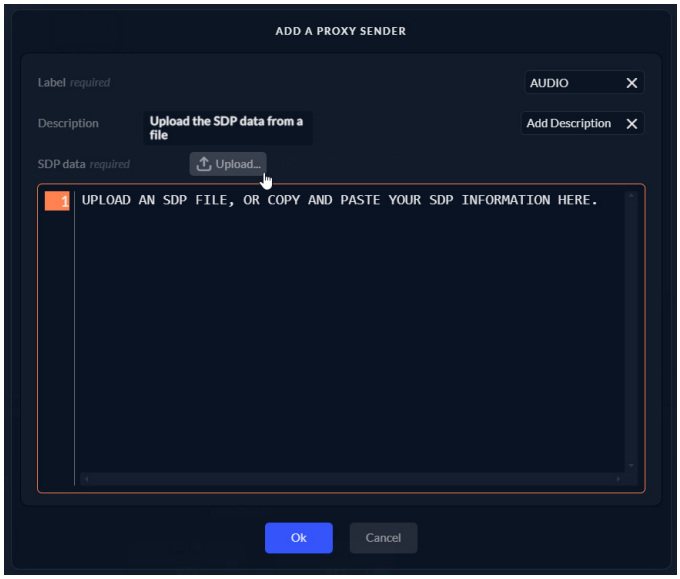
Step 3. Create a proxy sender.



a. Click the **(+)** button in the **Proxy senders** field to create a sender for the proxy device.

b. In the **ADD A PROXY SENDER** dialog that appears, enter a name for your sender in the **Label** field, such as **AUDIO**.

c. Upload the SDP file for your AES67 device, or copy and paste the contents of the SDP file into the provided red section in the dialog box.



d. Click **OK** to close the **ADD A PROXY SENDER** dialog box, and then click **OK** again to close the **ADD A PROXY DEVICE** dialog box.

Step 4. Assign the proxy device to a room.

Result of this task: Your newly created AES67 NMOS Proxy Sender is now available. You can assign this sender to any room where you want to use it.

This method allows for dynamic management and integration of non-NMOS AES67 sources within the ConductIP environment, providing flexibility and ease of use.

Retrieving the SDP for an AES67 device

The SDP file for an AES67 source contains crucial information needed for configuring ConvertIP's custom settings and creating an NMOS Proxy Sender in ConductIP. Follow the steps below to retrieve the SDP file using the AES67 Stream Monitor tool. This method works for most AES67 devices, including Dante devices operating in AES67 mode.

Step 1. Download and run AES67 Stream Monitor.

a. Search for "AES67 Stream Monitor" online or visit *https://aes67.app*.

b. Download the ZIP file and extract its contents.

c. There is no installation required; simply run the application by double-clicking on **AES67.exe**.

Step 2. Ensure that your computer is connected to the same media network where the AES67 source is transmitting its IP stream.

More info: If your computer has multiple network adapters, click on the **Settings** button in the AES67 Stream Monitor and select the appropriate network interface from the dropdown menu.

AES67 devices periodically broadcast SAP (Session Announcement Protocol) messages to announce their presence and stream details to AES67 controllers. The AES67 Stream Monitor listens for these SAP messages and adds any detected devices to a list.

Step 3. Locate and retrieve the SDP file.

a. Wait for the list to populate. This may take some time, depending on network traffic and the number of AES67 devices.

b. Once your AES67 device appears in the list, click on the **Details** button next to it. The application will display the content of the SDP file for your device. Copy this information for use in configuring ConvertIP or creating an NMOS proxy sender.

Step 4. Copy the SDP content.

a. In the **AES67 Stream Monitor**, once your device appears in the list, click on the **Details** button.

b. Click on the **Raw SDP** section and drag your mouse to select the entire SDP content.

c. Right-click and choose **Copy** or use `Ctrl+C` to copy the selected text.

Using the SDP content

- **For ConductIP Proxy method:** Paste the copied SDP content directly into the **ADD A PROXY SENDER** dialog in the appropriate section (see "*ConductIP Proxy method*" on page *129*).
- **For ConvertIP Custom Settings method:** Use the following mappings from the SDP file to fill in the required fields (see "*ConvertIP Custom Settings method*" on page *128*).

Here is an example SDP file and how to extract the necessary details:

```
v=0
o=- 302301890 302301890 IN IP4 10.200.3.89
s=Y001-Yamaha-RM-TT-869FD6 : 2
c=IN IP4 239.69.234.198/32
t=0 0
a=keywds:Dante
m=audio 5004 RTP/AVP 97
i=2 channels: 01, 02
a=recvonly
a=rtpmap:97 L24/48000/2
a=ptime:1
a=ts-refclk:ptp=IEEE1588-2008:00-1D-C1-FF-FE-86-9F-D6:0
a=mediaclk:direct=2473356975
```

- **Destination IP Address:** `239.69.234.198`
- **Destination UDP Port:** `5004`
- **RTP Payload Type:** `97`
- **Source IP Address:** `10.200.3.89`
- **Format:** `L24`
- **Sampling Rate:** `48000`
- **Number of Channels:** `2`
- **Packet Time (ptime):** `1` ms (found in `a=ptime:1`)

By following these steps, you can effectively configure your ConvertIP and ConductIP systems using the details from the SDP file of your AES67 source.

Connecting a ConvertIP source to an AES67 receiver

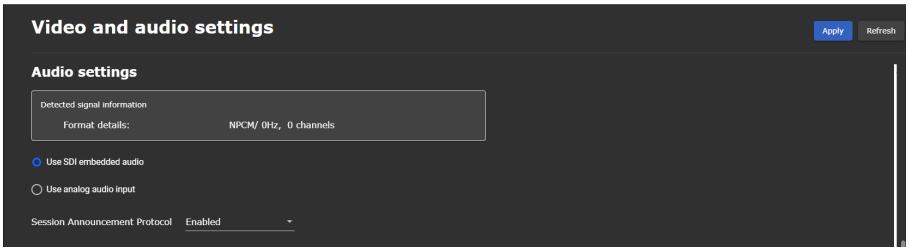
To successfully connect a ConvertIP source to an AES67 receiver, follow these steps:

Step 1. Choose a multicast address and audio format that are compatible with the AES67 receiver. A commonly supported format is:

- **Channels:** 2
- **Bit Depth:** 24-bit
- **Sample Rate:** 48 kHz
- **Packet Time:** 1 ms

Step 2. If the AES67 receiver is a Dante device, ensure that you are using a multicast address in the same multicast subnet configured for that Dante device. If the multicast address is not in the correct range, the Dante Controller will not recognize the ConvertIP as an available source.

Step 3. On the ConvertIP TX device, go to **AV and stream configuration > Video and audio** and enable **Session Announcement Protocol**.



By following these steps, your ConvertIP source should be successfully connected to the AES67 receiver, allowing for seamless audio transmission.

Appendix B

Configuring your device’s firewall settings

This appendix includes the following topics:

Matrox ConvertIP firewall port configuration

The following are the firewall port recommendations for your ConvertIP.

Port	TCP/UDP	Media	Control	Configurable	Description
53	TCP/UDP	x	x		DNS
68	UDP	x	x		DHCP Client
80	TCP	x	x		HTTP
123	UDP	x	x		NTP (Network Time Protocol)
319	UDP	x			PTP
320	UDP	x			PTP
443	TCP	x	x		HTTPS
546	UDP	x	x		DHCPv6 Client
636	TCP	x	x		LDAPS (LDAP over SSL)
3210	TCP	x	x	x	NMOS server
3211	TCP	x	x	x	NMOS Query API
5004	UDP	x		x	RTP (Real-Time Protocol)
RTP+1	UDP	x		x	RTCP (Real-Time Control Protocol)
5050	TCP	x	x	x	NMOS server
NMOS+1	TCP	x	x	x	HDCP Key Exchange Protocol server
5353	UDP	x	x		mDNS (Multicast DNS)
5355	UDP	x	x		LLMNR (Link-Local Multicast Name Resolution)
8080	TCP	x	x		HTTP Alternate
8443	TCP	x	x		HTTPS Alternate

Appendix C

Providing adequate airflow to your ConvertIP device

This appendix includes the following topics:

Matrox ConvertIP airflow recommendations

Because your ConvertIP device disperses heat, it requires adequate airflow to ensure proper operation and to prevent damage. The following provides guidelines for effective airflow around your device.

- Leave the proper amount of room around your device. To prevent airflow restriction, we recommend allowing *at least* 0.75 inches (1.91 cm) of clearance between the top of your device and anything above it. More space may be required depending on your environment.
- When your device is resting on a good insulator like wood or cardboard, make sure your device is resting on the original rubber feet. If installed on a metal tray, or on a rack, the rubber feet can be removed.
- Operate your device in a well ventilated location. Don't operate your device near a heat source or restrict airflow to your device (for example, by operating your device inside a desk cabinet).
- Monitor your ambient temperatures. Make sure the ambient temperature doesn't exceed the maximum recommended temperatures. For more information on supported operating temperatures, see "*Matrox ConvertIP Hardware Specifications* on page 88.

Appendix D

ConvertIP LED status indicators and button functions

This appendix includes the following topics:

ConvertIP LED status indicators

The tables below describe the behavior of the LEDs on the various ConvertIP models.

ConvertIP SRH

LED	Colors	What it means
Front of ConvertIP		
TX / RX	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	**TX lit:** ConvertIP is in TX mode and operating normally. **RX lit:** ConvertIP is in RX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Status	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, ConvertIP is in the process of sending or receiving.
	Green (solid)	ConvertIP is idle but operating normally.
	Orange (flashing)	Test signal being sent or firmware being updated.
	Orange (flashing quickly)	DHCP network not found.
	Orange (solid)	Warning condition.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.

LED	Colors	What it means
Rear of ConvertIP		
HDMI IN	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in TX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
HDMI OUT	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in RX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.

ConvertIP DRH

LED	Colors	What it means
Front of ConvertIP		
TX / RX	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	**TX lit:** ConvertIP is in TX mode and operating normally. **RX lit:** ConvertIP is in RX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Status	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, ConvertIP is in the process of sending or receiving.
	Green (solid)	ConvertIP is idle but operating normally.
	Orange (flashing)	Test signal being sent or firmware being updated.
	Orange (flashing quickly)	DHCP network not found.
	Orange (solid)	Warning condition.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
Rear of ConvertIP		
HDMI IN	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in TX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.

LED	Colors	What it means
HDMI OUT	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in RX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.

ConvertIP DSH

LED	Colors	What it means
Front of ConvertIP		
On = TX / Off = RX	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in TX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.

LED	Colors	What it means
Status	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, ConvertIP is in the process of sending or receiving.
	Green (solid)	ConvertIP is idle but operating normally.
	Orange (flashing)	Test signal being sent or firmware being updated.
	Orange (flashing quickly)	DHCP network not found.
	Orange (solid)	Warning condition.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
On = Uncomp / Off = Comp	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, is in uncompressed 25G mode and operating normally (TX or RX).
	Green (solid)	ConvertIP is in uncompressed mode and operating normally (TX or RX).
	Black (LED not lit)	ConvertIP is in compressed mode and operating normally (TX or RX).
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Rear of ConvertIP		

LED	Colors	What it means
HDMI IN	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in TX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
HDMI OUT	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in RX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
SFPs	Green (flashing)	Link with activity.
	Green (solid)	Link with no activity.
	Black (LED not lit)	No SFP connected.
	Yellow (solid)	No link.

ConvertIP DRS

LED	Colors	What it means
Front of ConvertIP		
TX / RX	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in TX mode and operating normally.
	Black (LED not lit)	ConvertIP is in RX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Status	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, ConvertIP is in the process of sending or receiving.
	Green (solid)	ConvertIP is idle but operating normally.
	Orange (flashing)	Test signal being sent or firmware being updated.
	Orange (flashing quickly)	DHCP network not found.
	Orange (solid)	Warning condition.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Rear of ConvertIP		
12G SDI	Red (solid)	ConvertIP is in RX mode and operating normally.
	Green (solid)	ConvertIP is in TX mode and operating normally.

ConvertIP DSS

LED	Colors	What it means
Front of ConvertIP		
On = TX / Off = RX	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in TX mode and operating normally.
	Black (LED not lit)	ConvertIP is in RX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Status	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, ConvertIP is in the process of sending or receiving.
	Green (solid)	ConvertIP is idle but operating normally.
	Orange (flashing)	Test signal being sent or firmware being updated.
	Orange (flashing quickly)	DHCP network not found.
	Orange (solid)	Warning condition.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.

LED	Colors	What it means
On = Uncomp / Off = Comp	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, is in uncompressed 25G mode and operating normally (TX or RX).
	Green (solid)	ConvertIP is in uncompressed mode and operating normally (TX or RX).
	Black (LED not lit)	ConvertIP is in compressed mode and operating normally (TX or RX).
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Rear of ConvertIP		
SFPs	Green (flashing)	Link with activity.
	Green (solid)	Link with no activity.
	Black (LED not lit)	No SFP connected.
	Yellow (solid)	No link.
12G SDI	Red (solid)	ConvertIP is in RX mode and operating normally.
	Green (solid)	ConvertIP is in TX mode and operating normally.

ConvertIP SRST

LED	Colors	What it means
Front of ConvertIP		
On = TX / Off = RX	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in TX mode and operating normally.
	Black (LED not lit)	ConvertIP is in RX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Status	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, ConvertIP is in the process of sending or receiving.
	Green (solid)	ConvertIP is idle but operating normally.
	Orange (flashing)	Test signal being sent or firmware being updated.
	Orange (flashing quickly)	DHCP network not found.
	Orange (solid)	Warning condition.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.

LED	Colors	What it means
On = Uncomp / Off = Comp	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, is in uncompressed 25G mode and operating normally (TX or RX).
	Green (solid)	ConvertIP is in uncompressed mode and operating normally (TX or RX).
	Black (LED not lit)	ConvertIP is in compressed mode and operating normally (TX or RX).
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Rear of ConvertIP		
SFP	Green (flashing)	Link with activity.
	Green (solid)	Link with no activity.
	Black (LED not lit)	No SFP connected.
	Yellow (solid)	No link.

ConvertIP SRS

LED	Colors	What it means
Front of ConvertIP		
TX / RX	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in TX mode and operating normally.
	Black (LED not lit)	ConvertIP is in RX mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Status	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, ConvertIP is in the process of sending or receiving.
	Green (solid)	ConvertIP is idle but operating normally.
	Orange (flashing)	Test signal being sent or firmware being updated.
	Orange (flashing quickly)	DHCP network not found.
	Orange (solid)	Warning condition.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Rear of ConvertIP		
12G SDI	Red (solid)	ConvertIP is in RX mode and operating normally.
	Green (solid)	ConvertIP is in TX mode and operating normally.

ConvertIP SDM

LED	Colors	What it means
Front of ConvertIP		
On = RJ45 / Off = SFP	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up.
	Green (solid)	ConvertIP is in LAN/RJ45 mode and operating normally.
	Black (LED not lit)	ConvertIP is in SFP mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Status	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, ConvertIP is in the process of sending or receiving.
	Green (solid)	ConvertIP is idle but operating normally.
	Orange (flashing)	Test signal being sent or firmware being updated.
	Orange (flashing quickly)	DHCP network not found.
	Orange (solid)	Warning condition.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.

LED	Colors	What it means
On = Uncomp / Off = Comp	Red (solid)	ConvertIP is off-line. If the condition persists after reboot, contact Matrox Video technical support.
	Green (flashing)	ConvertIP is booting up or, if already booted, is in uncompressed 25G mode and operating normally.
	Green (solid)	ConvertIP is in uncompressed mode and operating normally.
	Black (LED not lit)	ConvertIP is in compressed mode and operating normally.
	Orange (flashing)	A firmware update is in progress.
	All LEDs Orange (solid)	ConvertIP physical buttons are disabled.
	Red/green/orange (flashing)	The ConvertIP “locate” option has been started.
Rear of ConvertIP		
SFPs	Green (flashing)	Link with activity.
	Green (solid)	Link with no activity.
	Black (LED not lit)	No SFP connected.
	Yellow (solid)	No link.

ConvertIP button functions

The table below describes the behavior of the **Test**, **Mode**, and **Reset** buttons on the ConvertIP.

Button	Action	What it does
Test	Press and hold for 10 seconds. Repeat action for 5 seconds to stop.	Sends a test signal to the output.
	Press and hold for 1 second.	Clears warning LED.
Mode	Press and hold with **Reset** button for 1 second.	Toggle between TX and RX modes (all models except SDM) or between SFP and LAN/RJ45 (SDM only).
Reset	Press and hold for 1 second.	Reboots the ConvertIP.
	Press and hold for 10 seconds.	Resets ConvertIP to factory default settings.

Appendix E

Matrox ConvertIP test pattern

This appendix includes the following topics:

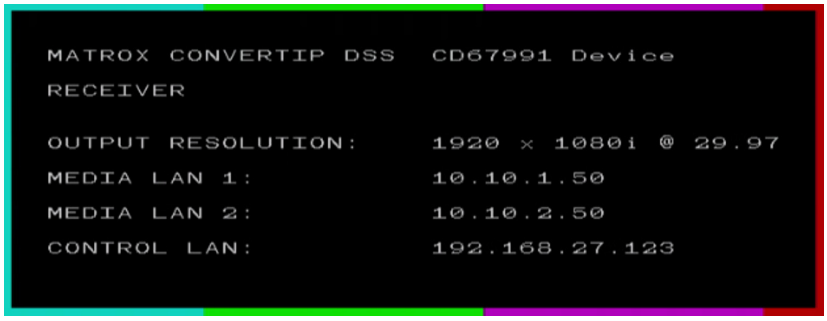
Test pattern example

The image included in this section is an example of what a typical test pattern looks like when you activate the option.

You can activate the test pattern in two ways:

- Press the **Test** button on your ConvertIP device for approximately 10 seconds. Press it again for 5 seconds to return to normal operation.
- From the ConvertIP Command Center (**Settings > AV and stream configuration > Video and audio > Force test pattern output**).

This information can help you find the ConvertIP device on a DHCP network, or provide required details for troubleshooting:



The following information is provided:

- The ConvertIP model and device name.
- The operating mode (Receiver or Transmitter).
- The currently configured resolution.
- The IP addresses for the different connected LAN ports.

Appendix F

Legal information and compliance

This appendix includes the following topics:

- *Compliance statements*
- *Disclaimers*

Compliance statements

USA

FCC Compliance Statement

Remark for the Matrox hardware products supported by this guide This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING Changes or modifications to this unit not expressly approved by the party responsible for the compliance could void the user's authority to operate this equipment. The use of shielded cables for connection of the monitor to the card is required to meet FCC requirements.

CANADA

(English) Innovation, Science and Economic Development Canada

Remark for the Matrox hardware products supported by this guide These digital apparatus does not exceed the Class A limits for radio noise emission from digital devices set out in the Radio Interference Regulation of Innovation, Science and Economic Development Canada.

(Français) Innovation, Sciences et Développement économique Canada

Remarque sur les produits matériels Matrox couverts par ce guide Ce present appareil numérique n'émet aucun bruit radioélectrique dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par Innovation, Sciences et Développement économique Canada.

UNITED KINGDOM

United Kingdom user's information – Declaration of Conformity

Remark for the Matrox hardware products supported by this guide These devices comply with Directive UK SI 2016 No. 1091 relating to electromagnetic compatibility for a Class A digital device. They have been tested and found to comply with EN55032/CISPR32 and EN55035/CISPR35. In a domestic environment these products may cause radio interference in which case the user may be required to take adequate measures. To meet UK requirements, shielded cables must be used to connect the monitor and other peripherals to the card. These products have been tested in a typical class A compliant host system. It is assumed that these products will also achieve compliance in any class A compliant system.

JAPAN

VCCI Compliance Statement

Remark for the Matrox hardware products supported by this guide This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI－A

KOREA

A 급 기기 (업무용 방송통신기자재)

이 기기는 업무용 (A 급) 전자파적합기기로서 판 매자 또는 사용자는 이 점을 주의하시기 바라 며 , 가정 외의 지역에서 사용하는 것을 목적으 로 합니다 .

EUROPE

(English) European user's information – Declaration of Conformity

Remark for the Matrox hardware products supported by this guide These devices comply with EC Directive 2014/30/EU for a Class A digital device. They have been tested and found to comply with EN55032/CISPR32 and EN55035/CISPR35. In a domestic environment these products may cause radio interference in which case the user may be required to take adequate measures. To meet EC requirements, shielded cables must be used to connect the monitor and other peripherals to the card. These products have been tested in a typical class A compliant host system. It is assumed that these products will also achieve compliance in any class A compliant system.

(Français) Informations aux utilisateurs Européens – Déclaration de conformité

Remarque sur les produits matériels Matrox couverts par ce guide Ces unités sont conformes à la directive communautaire 2014/30/EU pour les unités numériques de classe A. Les tests effectués ont prouvé qu'elles sont conformes aux normes EN55032/CISPR32 et EN55035/CISPR35. Le fonctionnement de ces produits dans un environnement résidentiel peut causer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre les mesures appropriées. Pour respecter les impératifs communautaires, les câbles de connexion entre le moniteur ou autres périphériques et la carte doivent être blindés. Ces produits ont été testés dans un système hôte typique compatible classe A. On suppose qu'ils présenteront la même compatibilité dans tout système compatible classe A.

(Deutsch) Information für europäische Anwender – Konformitätserklärung

Anmerkung für die Matrox Hardware-Produktunterstützung durch dieses Handbuch Diese Geräte entsprechen EC Direktive 2014/30/EU für ein digitales Gerät Klasse A. Sie wurden getestet und entsprechen demnach EN55032/CISPR32 und EN55035/CISPR35. In einer Wohnumgebung können diese Produkte Funkinterferenzen erzeugen, und der Benutzer kann genötigt sein, entsprechende Maßnahmen zu ergreifen. Um EG-Anforderungen zu entsprechen, müssen zum Anschließen des Monitors und anderer Peripheriegeräte an die Karte abgeschirmte Kabel verwendet werden. Diese Produkt wurden in einem typischen, der Klasse A entsprechenden, Host-System getestet. Es wird davon ausgegangen, daß diese Produkte auch in jedem Klasse A entsprechenden System entsprechend funktionieren.

(Italiano) Informazioni per gli utenti europei – Dichiarazione di conformità

Nota per i prodotti hardware Matrox supportati da questa guida Questi dispositivi sono conformi alla direttiva CEE 2014/30/EU elativamente ai dispositivi digitali di Classe A. Sono stati provati e sono risultati conformi alle norme EN55032/CISPR32 e EN55035/CISPR35. In un ambiente domestico, questi prodotti possono causare radiointerferenze, nel qual caso all'utente potrebbe venire richiesto di prendere le misure adeguate. Per soddisfare i requisiti CEE, il monitor e le altre periferiche vanno collegati alla scheda grafica con cavi schermati. Questi prodotti sono stati provati in un tipico sistema host conforme alla classe A. Inoltre, si dà per scontato che questi prodotti acquisiranno la conformità in qualsiasi sistema conforme alla classe A.

(Español) Información para usuarios europeos – Declaración de conformidad

Observación referente a los productos de hardware de Matrox apoyados por este manual Estos dispositivos cumplen con la directiva de la CE 2014/30/EU para dispositivos digitales de Clase A. Dichos dispositivos han sido sometidos a prueba y se ha comprobado que cumplen con las normas EN55032/CISPR32 y EN55035/CISPR35. En entornos residenciales, estos productos pueden causar interferencias en las comunicaciones por radio; en tal caso el usuario deberá adoptar las medidas adecuadas. Para satisfacer las disposiciones de la CE, deberán utilizarse cables apantallados para conectar el monitor y demás periféricos a la tarjeta. Estos productos han sido sometidos a prueba en un típico sistema anfitrión que responde a los requisitos de la clase A. Se supone que estos productos cumplirán también con las normas en cualquier sistema que responda a los requisitos de la clase A.

EUROPE

(English) European user's information – Directive on Waste Electrical and Electronic Equipment (WEEE)

Please refer to the Matrox Web site (https://video.matrox.com/en/environment/product-waste-management) for recycling information.

(Français) Informations aux utilisateurs Européens – Règlementation des déchets d'équipements électriques et électroniques (DEEE)

Se référer au site Web de Matrox (https://video.matrox.com/en/environment/product-waste-management) pour l'information concernant le recyclage.

(Deutsch) Information für europäische Anwender – Europäische Regelungen zu Elektro- und Elektronikaltgeräten (WEEE)

Bitte wenden Sie sich an der Matrox-Website (https://video.matrox.com/en/environment/product-waste-management) für Recycling-Informationen.

(Italiano) Informazioni per gli utenti europei – Direttiva sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE)

Si prega di riferirsi al sito Web Matrox (https://video.matrox.com/en/environment/product-waste-management) per le informazioni di riciclaggio.

FRANCE

Avertissement sur l'épilepsie

À lire avant toute utilisation d'un jeu vidéo par vous-même ou votre enfant Certaines personnes sont susceptibles de faire des crises d'épilepsie ou d'avoir des pertes de conscience à la vue de certains types de lumières clignotantes ou d'éléments fréquents dans notre environnement quotidien. Ces personnes s'exposent à des crises lorsqu'elles regardent certaines images télévisées ou qu'elles jouent à certains jeux vidéo. Ces phénomènes peuvent apparaître alors même que le sujet n'a pas d'antécédent médical ou n'a jamais été confronté à une crise d'épilepsie.

Si vous-même ou un membre de votre famille avez déjà présenté des symptômes liés à l'épilepsie (crise ou perte de conscience) en présence de stimulations lumineuses, veuillez consulter votre médecin avant toute utilisation.

Nous conseillons aux parents d'être attentifs à leurs enfants lorsqu'ils jouent avec des jeux vidéo. Si vous-même ou votre enfant présentez un des symptômes suivants: vertige, trouble de la vision, contraction des yeux ou des muscles, perte de conscience, trouble de l'orientation, mouvement involontaire ou convulsion, veuillez immédiatement cesser de jouer et consultez un médecin.

Précautions à prendre dans tous les cas pour l'utilisation d'un jeu vidéo Ne vous tenez pas trop près de l'écran. • Jouez à bonne distance de l'écran de TV et aussi loin que le permet le cordon de raccordement. • Utilisez de préférence les jeux de vidéo sur un écran de petite taille. • Évitez de jouer si vous êtes fatigué ou si vous manquez de sommeil. • Assurez-vous que vous jouez dans une pièce bien éclairée. • En cours d'utilisation, faites des pauses de dix à quinze minutes toutes les heures.

Disclaimers

(English) Disclaimer

THE INFORMATION IN THIS GUIDE IS SUBJECT TO CHANGE AT ANY TIME AND WITHOUT NOTICE.

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(Français) Responsabilité

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(Deutsch) Haftungsablehnungserklärung

DIE IN DIESEM HANDBUCH ENTHALTENEN ANGABEN UND DATEN KÖNNEN OHNE VORHERIGE ANKÜNDIGUNG GEÄNDERT WERDEN.

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(Italiano) Discrezionalità

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(Español) Renuncia

LA INFORMACION QUE CONTIENE EL PRESENTE MANUAL ESTA SUJETA A CAMBIOS SIN PREVIO AVISO EN CUALQUIER MOMENTO.

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Compliance Statements

USA

FCC Compliance Statement
Remark for the Matrox hardware products supported by this guide

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING

Changes or modifications to this unit not expressly approved by the party responsible for the compliance could void the user's authority to operate this equipment. The use of shielded cables for connection of equipment and other peripherals to the card is required to meet FCC requirements.

Canada

(English) Innovation, Science and Economic Development Canada
CAN ICES-3 (A)/NMB-3 (A)
Remark for the Matrox hardware products supported by this guide

These digital devices do not exceed the Class A limits for radio noise emission from digital devices set out in the Radio Interference Regulation of Innovation, Science and Economic Development Canada.

(Français) Innovation, Sciences et Développement économique Canada
CAN ICES-3 (A)/NMB-3 (A)
Remarque sur les produits matériels Matrox couverts par ce guide

Ces appareils numériques n'émettent aucun bruit radioélectrique dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par Innovation, Sciences et Développement économique Canada.

Europe

CE

(English) European user's information – Declaration of Conformity
Remark for the Matrox hardware products supported by this guide

These devices comply with EC Directive 2014/30/EU for a Class A digital device. They have been tested and found to comply with EN55032/CISPR32 and EN55024/CISPR24. In a domestic environment these products may cause radio interference in which case the user may be required to take adequate measures. To meet EC requirements, shielded cables must be used to connect equipment and other peripherals. These products have been tested in a typical Class A compliant host system. It is assumed that these products will also achieve compliance in any Class A compliant system.

(Français) Informations aux utilisateurs Européens – Déclaration de conformité
Remarque sur les produits matériels Matrox couverts par ce guide

Ces unités sont conformes à la directive communautaire 2014/30/EU pour les unités numériques de classe A. Les tests effectués ont prouvé qu'elles sont conformes aux normes EN55032/CISPR32 et EN55024/CISPR24. Le fonctionnement de ces produits dans un environnement résidentiel peut causer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre les mesures appropriées. Pour respecter les impératifs communautaires, les câbles de connexion entre l'équipement et ses périphériques doivent être blindés. Ces produits ont été testés dans un système hôte typique compatible classe A. On suppose qu'ils présenteront la même compatibilité dans tout système compatible classe A.

(Deutsch) Information für europäische Anwender – Konformitätserklärung
Anmerkung für die Matrox Hardware-Produktunterstützung durch dieses Handbuch

Diese Geräte entsprechen EG Direktive 2014/30/EU für ein digitales Gerät Klasse A. Sie wurden getestet und entsprechen demnach EN55032/CISPR32 und EN55024/CISPR24. In einer Wohnumgebung können diese Produkte Funkinterferenzen erzeugen, und der Benutzer kann genötigt sein, entsprechende Maßnahmen zu ergreifen. Um EG-Anforderungen zu entsprechen, müssen zum Anschließen des ausrüstung und anderer Peripheriegeräte abgeschirmte Kabel verwendet werden. Diese Produkt wurden in einem typischen, der Klasse A entsprechenden, Host-System getestet. Es wird davon ausgegangen, daß diese Produkte auch in jedem Klasse A entsprechenden System entsprechend funktionieren.

(Italiano) Informazioni per gli utenti europei – Dichiarazione di conformità
Nota per i prodotti hardware Matrox supportati da questa guida

Questi dispositivi sono conformi alla direttiva CEE 2014/30/EU relativamente ai dispositivi digitali di Classe A. Sono stati provati e sono risultati conformi alle norme EN55032/CISPR32 e EN55024/CISPR24. In un ambiente domestico, questi prodotti possono causare radiointerferenze, nel qual caso all'utente potrebbe venire richiesto di prendere le misure adeguate. Per soddisfare i requisiti CEE, l'apparecchiatura e le altre periferiche vanno collegati con cavi schermati. Questi prodotti sono stati provati in un tipico sistema host conforme alla Classe A. Inoltre, si dà per scontato che questi prodotti acquisiranno la conformità in qualsiasi sistema conforme alla Classe A.

(Español) Información para usuarios europeos – Declaración de conformidad
Observación referente a los productos de hardware de Matrox apoyados por este manual

Estos dispositivos cumplen con la directiva de la CE 2014/30/EU para dispositivos digitales de Clase A. Dichos dispositivos han sido sometidos a prueba y se ha comprobado que cumplen con las normas EN55032/CISPR32 y EN55024/CISPR24. En entornos residenciales, estos productos pueden causar interferencias en las comunicaciones por radio; en tal caso el usuario deberá adoptar las medidas adecuadas. Para satisfacer las disposiciones de la CE, deberán utilizarse cables apantallados para conectar el equipo y demás periféricos. Estos productos han sido sometidos a prueba en un típico sistema anfitrión que responde a los requisitos de la Clase A. Se supone que estos productos cumplirán también con las normas en cualquier sistema que responda a los requisitos de la Clase A.

Korea

A 급 기기 (업무용 방송통신기자재)
이 기기는 업무용 (A 급) 전자파적합기기로서 판 매자 또는 사용자는 이 점을 주의하시기 바
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