



**UCrypt<sup>®</sup>**  
Patent Pending

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## **UCrypt<sup>®</sup> Cable Gateways**

**HARDWARE INTERFACE MANUAL**

# General Guide Notes

<b>Document</b>	<b>ANW1216</b>
<b>Release Date</b>	<b>May 22 2017</b>

## Organization of This Manual

This manual is generally organized based on the main interface tabs with individual chapters dedicated to describing the configurable features. Further chapters outline activities related to installation and the UI operation and configuration.

## Cross Reference Usage

Hyperlinks are used throughout the guide to assist the reader in finding related information if the reader is viewing the PDF file directly. Hyperlinks may be identified by their blue text. Most links are to related pages within the document, but some may reference outside documents if the reader needs that additional information. The Table of Contents is entirely hyperlinked and bookmarks are available but the bookmark feature must be turned on in your Reader application.

## Symbol Usage

Throughout the manual, some symbols are used to call the readers attention to an important point. The following symbols are in use:



**WARNING:** *This symbol usage will call the reader's attention to an important operation feature of the equipment which may be safety related or may cause a service outage.*



**NOTE:** *This symbol indicates that there is helpful related information available in this note or elsewhere in the guide.*

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# SAFETY

## 1. Safety

**WARNING! FAILURE TO FOLLOW THE SAFETY PRECAUTIONS LISTED BELOW MAY RESULT IN PROPERTY DAMAGE OR PERSONAL INJURY. PLEASE READ AND COMPLY WITH THE FOLLOWING:**

**SAFETY GROUND:** The connection to earth of the supplementary grounding conductor shall be in compliance with the appropriate rules for terminating bonding jumpers in Part V of Article 250 of the National Electrical Code, ANSI/NFPA 70, and Section 10 of Part I of the Canadian Electrical Code, Part I, CSA C22.1.

**WATER AND MOISTURE:** Care should be taken to prevent entry of splashed or dripping water, other liquids, and physical objects through enclosure openings.

**DAMAGE:** Do not operate the device if damage to any components is suspected.

**POWER SOURCES:** Only connect the unit to a power supply of the type and capacity specified in the operating instructions or as marked on the device.

- NOTE:**
- a) For 120 VAC operation, use the power cord supplied for operation from a 120 VAC source.
  - b) For 230 VAC operation, use the power cord supplied for operation from a 230 VAC source.

**GROUNDING OR POLARIZATION:** Electrical grounding and polarization means must not be defeated.

**POWER CORD PROTECTION:** Care must be taken during installation to route or arrange the power supply cord to prevent and avoid the possibility of damage to the cord by external objects. Pay particular attention to the exit point from the device and plug.

**POWER SUPPLY CORD ROUTING:** The power supply cord shall not be attached to the building surface, nor run through walls, ceilings, floors and similar openings in the building structure.

**SERVICE:** Do not attempt to service the device beyond procedures provided the operating instructions. All other servicing should be referred to qualified service personnel.

**MODIFICATIONS:** Modifications should not be made to the device or any of its components for applications other than those specified in the operating instructions.

**SAFETY CODES AND REGULATIONS:** The device should be installed and operated in compliance with all applicable local safety by-laws, codes and regulations.

**REDUNDANT POWER SUPPLY REMOVAL:** Power must be disconnected from the BOTH power modules before removing for replacement or service. This is accomplished by removing both of the AC IEC plugs or operating the DC power disconnects.

**BATTERY REMOVAL AND REPLACEMENT:** Disconnect power (AC or DC) from the equipment before battery removal and replacement. This is accomplished by unplugging the power cord from the power outlet. Replace the battery with Sony part No. CR2032 or exact replacement only.

**CAUTION:** Use of a different battery type may present a risk of fire or explosion.

**BATTERY DISPOSAL:** Recycle or dispose of batteries in accordance with the battery manufacturer's instructions and local/national disposal and recycling regulations. Please call 1-800-8-BATTERY or go to the website at [www.call2recycle.org](http://www.call2recycle.org) for information on recycling or disposing of your used battery.

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# OVERVIEW

## 2. Overview

This installation manual covers all hardware and initial installation aspects of the following UCrypt models:

- QAM to QAM
- QAM to IP
- QAM to Analog
- IP to QAM
- IP to IP

The Rear Panels chapter, see “Rear Panels” on page 3-1, shows each individual model and their connection arrangements.

### 2.1 Chapter Contents

- “Front Panels”
- “Switch & Firewall Port Openings”

### 2.2 Front Panels

The front panels are common to Devices of the same Hardware Version. Version 3 Devices contain a set of controls and indicators to show the status of important operation parameters and allow some control over the device.

#### 2.2.1 Version 3 Front



Figure 2-1: Version 3 Front

The Version 3 UCrypt models have an integral control panel allowing some power functions and diagnostics as described in Table 2.2a. The products are designed to be plug and play and will be in a powered on state when the power cord is plugged in. There may be instances where it is desired to reboot or power down the devices manually and recessed switches to enable that are located on the front panel, a closeup view of which is shown in Figure 2-1. See Table 2.2a for functional descriptions of all front panel controls and indicators.

Table 2.2a: Front Panel Controls and Indicators (See Figure 2-1)

Label	Function	Description
PWR	Recessed Button	Power Switch. This is the main power switch and is used to apply or remove power to the Device. Activating this switch effectively turns the Device off but keeps standby power supplied to the system. You must unplug the system before servicing. Press again to power up. Functionally equal to a power button on a computer.
RST	Recessed Button	Reset Switch. Used to warm reboot the Device. Functionally equal to a reset button on a computer.
PWR	Indicator LED Green	Indicates power is being supplied to the system's power supply units. This LED should be illuminated when the system is operating.
HDD	Indicator LED Green	Indicates SSD/HDD drive activity when flashing.
ETH0	Indicator LED Green	Indicates network activity on ETH0 network port. On the rear panel, this refers to the labeled port eth1.
ETH1	Indicator LED Green	Indicates network activity on ETH1 network port. On the rear panel, this refers to the labeled port eth2.

Label	Function	Description
U	Indicator LED Blue	Universal Information LED: The Universal Information BLUE LED is used to indicate fan failure, power failure, overheat condition, or to identify the unit within a large rack installation. This may be activated by the front panel button. State Indication: <ul style="list-style-type: none"> <li>• Fast Blinking Red (1 per sec) - Fan Failure</li> <li>• Solid Red - CPU Overheated</li> <li>• Slow Blinking Red (1 per 4 sec) - Power Failure</li> <li>• Solid Blue - Local UID Button Depressed</li> <li>• Blinking Blue - IPMI Activated UID</li> </ul>
UID	Recessed Button	Universal Identifier: A switch that will turn on the adjacent “U” light.

### 2.2.2 Version 2 Front



Figure 2-2: Version 2 Front

### 2.2.3 Version 2 Front Inside

Figure 2-3 shows the interface modules behind the QAM to QAM Version 2 front panel. The QAM to IP will have just the CableCARD modules, the IP to QAM will have just the DQAM modules while the IP to IP will not have any modules behind the front panel.



Figure 2-3: Version 2 QAM to QAM Front Inside

### 2.2.4 Version 1.7 & 1.8 Front



Figure 2-4: Version 1.7 & 1.8 Front

## 2.3 Switch & Firewall Port Openings

Any Management Switch used between UCrypt Devices and the Management Computer will require the following ports to be opened both Inbound and Outbound.



**NOTE:** Failure to open these ports may result in communications problems between the management computer and UCrypt Devices.

**Table 2.3a: Ports to Open on Switch**

Port Number	Transport	Protocol
80	TCP	HTTP
443	TCP	HTTPS

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## REAR PANELS

### 3. Rear Panels

This chapter describes rear panel connections as the port functions are not labeled on the panel.

#### 3.1 Chapter Contents

- “UCrypt QAM to QAM”
- “UCrypt QAM to IP”
- “UCrypt QAM to Analog”
- “UCrypt IP to QAM”
- “UCrypt IP to IP”

#### 3.2 UCrypt QAM to QAM

This section applies to Standard and Lite Versions.

##### 3.2.1 Version 3 UCrypt QAM to QAM

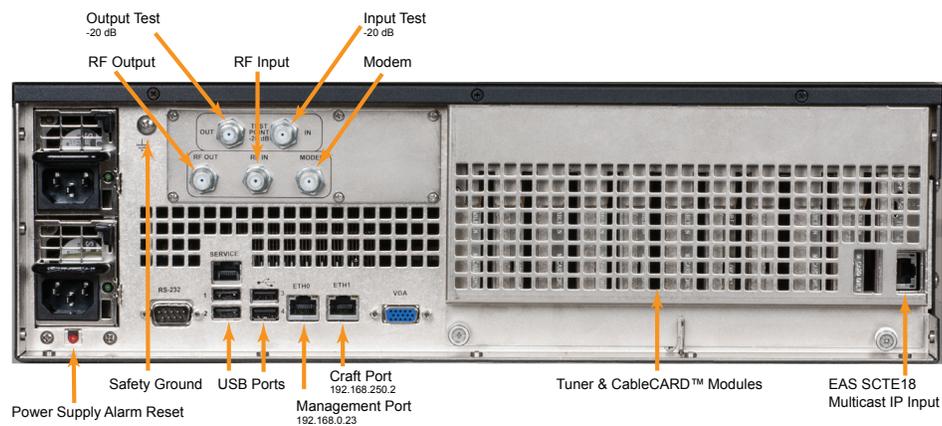


Figure 3-1: Version 3 QAM to QAM

##### 3.2.2 Version 2 UCrypt QAM to QAM

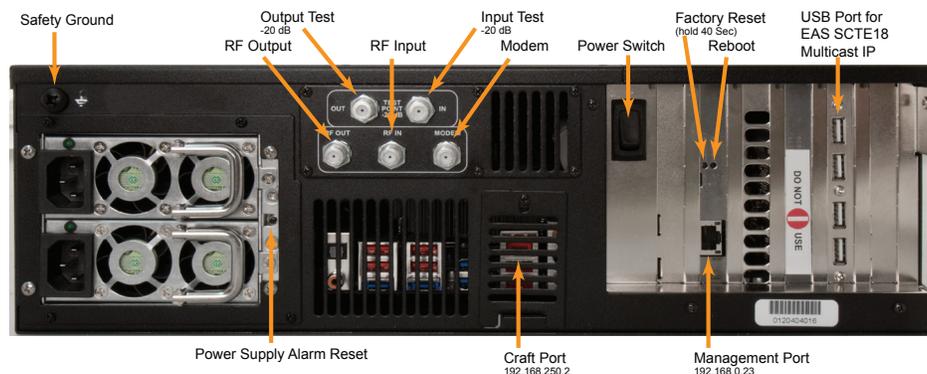


Figure 3-2: Version 2 QAM to QAM

### 3.2.3 Version 1.7 & 1.8 UCrypt QAM to QAM

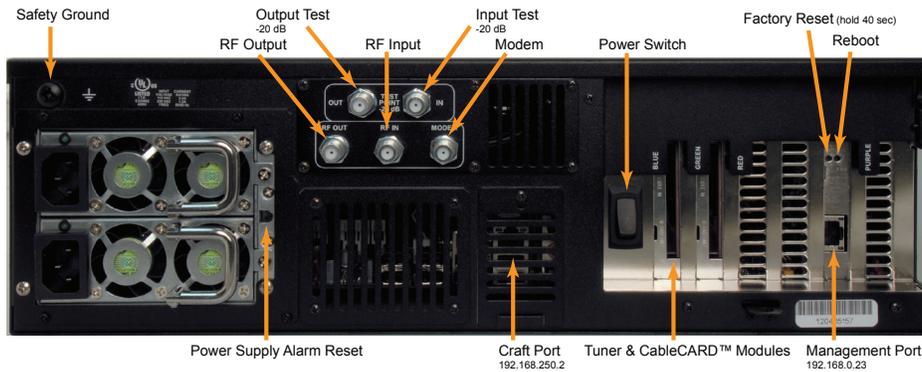


Figure 3-3: Version 1.7 & 1.8 QAM to QAM

Table 3.2a: Rear Panel Connections & Controls - QAM to QAM (See Figure 3-1, Figure 3-2 & Figure 3-3)

Port	Type	Applies to	Description
Management	GbE	All	The Management Port used to configure the encoder. Factory set to 192.168.0.23 address. On Version 3 this is labeled eth1.
Craft Port	GbE	All	Used to connect a computer for accessing the UI for device management if the management port is in use. Factory set to 192.168.250.2 address. On Version 3 this is labeled eth2.
Power Switch	Momentary Switch	All	Used to power up or power down the Device.
RF Input	"F" Female	All	RF input from the Cable System for incoming QAMs.
Input Test -20 dB	"F" Female	All	Used to connect an RF test meter to monitor RF Input 20 dB below the RF Input levels.
RF Output	"F" Female	All	RF Output from QAM Modulator.
Output Test -20 dB	"F" Female	All	Used to connect an RF test meter to monitor RF Output 20 dB below the RF Output levels.
Modem	"F" Female	All	Port to connect a cable modem for remote management and monitoring purposes.
Factory Reset	Recessed button	All	Allows the device to be returned to factory settings and erases all configuration. Hold for 40 seconds.
Reboot	Recessed button	All	Performs a warm reboot of device.
Power Supply Alarm Reset	Momentary Button	All	This is present only on dual redundant power supply option. Used to temporarily disable the audible power supply alarm when one power supply or its power source have failed.
Safety Ground	Screw	All	Provided to connect an Earth ground to the chassis for electrical safety.
EAS Ethernet	Ethernet	Ver2 & Ver3	Provides input connection to the Device for the EAS multicast from an EAS generator.
USB	USB 2.0	Ver2 & Ver3	Used in Version 2 devices to connect a USB network dongle to allow input of EAS multicast. This EAS input function for version 3 is an Ethernet input port. Not used on Version 3.
Console	DB9	Ver3	Not used in this application.
Service	GbE	Ver3	Not used in this application.
VGA	DE15	Ver3	Not used in this application.

### 3.3 UCrypt QAM to IP

#### 3.3.1 Version 3 UCrypt QAM to IP

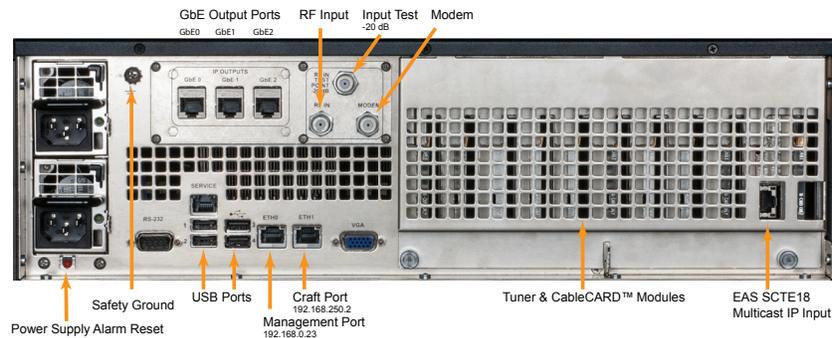


Figure 3-4: Version 3 QAM to IP

#### 3.3.2 Version 2 UCrypt QAM to IP

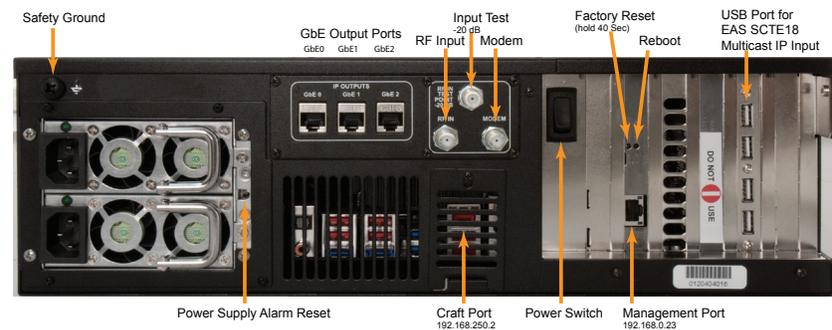


Figure 3-5: Version 2 QAM to IP

Table 3.3a: Rear Panel Connections - QAM to IP (See Figure 3-4 & Figure 3-5)

Port	Type	Applies to	Description
Management	GbE	All	The Management Port used to configure the encoder. Factory set to 192.168.0.23 address. On Version 3 this is labeled eth1.
Craft Port	GbE	All	Used to connect a computer for accessing the UI for device management if the management port is in use. Factory set to 192.168.250.2 address. On Version 3 this is labeled eth2.
GbE0	GbE	All	Output ports used exclusively for IP based streaming content.
GbE1	GbE	All	Output ports used exclusively for IP based streaming content.
GbE2	GbE	All	Output ports used exclusively for IP based streaming content.
RF Input	"F" Female	All	RF input from the Cable System for incoming QAMs.
Input TP -20 dB	"F" Female	All	Used to connect an RF test meter to monitor RF Input 20 dB below the RF Input levels.
Modem	"F" Female	All	Port to connect a cable modem for remote management and monitoring purposes.
Power Switch	Momentary Switch	All	Used to power up or power down the Device.
Factory Reset	Recessed button	All	Allows the device to be returned to factory settings and erases all configuration. Hold for 40 seconds.
Reboot	Recessed button	All	Performs a warm reboot of device.
Power Supply Alarm Reset	Momentary Button	All	This is present only on dual redundant power supply option. Used to temporarily disable the audible power supply alarm when one power supply or its power source have failed.
Safety Ground	Screw	All	Provided to connect an Earth ground to the chassis for electrical safety.

Port	Type	Applies to	Description
EAS Ethernet	Ethernet	Ver3 & Ver2	Provides input connection to the Device for the EAS multicast from an EAS generator.
USB	USB 2.0	Ver2 & Ver3	Used in Version 2 devices to connect a USB network dongle to allow input of EAS multicast. This EAS input function for version 3 is an Ethernet input port. Not used on Version 3.
Console	DB9	Ver3	Not used in this application.
Service	GbE	Ver3	Not used in this application.
VGA	DE15	Ver3	Not used in this application.

### 3.4 UCrypt QAM to Analog

#### 3.4.1 Version 3 UCrypt QAM to Analog

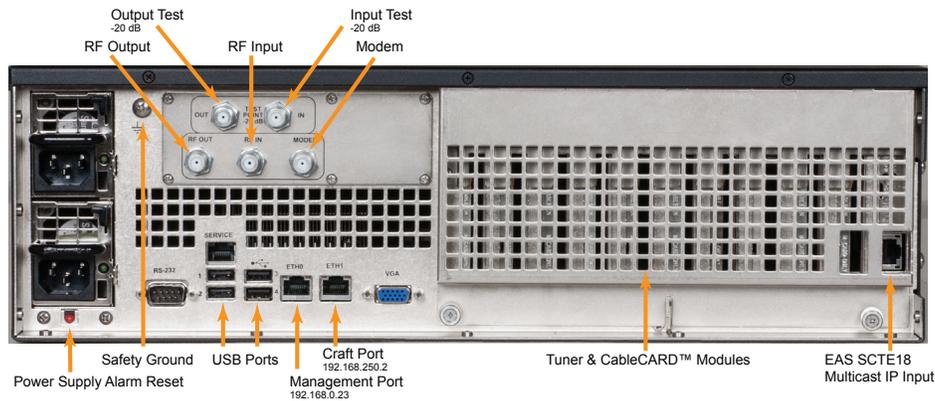


Figure 3-6: Version 3 QAM to Analog

Table 3.4a: Rear Panel Connections - QAM to Analog (See Figure 3-6)

Port	Type	Applies to	Description
Management Port	GbE	All	The Management Port used to configure the encoder. Factory set to 192.168.0.23 address. On Version 3 this is labeled eth1.
Craft Port	GbE	All	Used to connect a computer for accessing the UI for device management if the management port is in use.
Power Switch	Momentary Switch	All	Used to power up or power down the Device.
RF Input	"F" Female	All	RF input from the Cable System for incoming QAMs.
Input TP -20 dB	"F" Female	All	Used to connect an RF test meter to monitor RF Input. This test point is 20 dB below the RF In levels.
RF Output	"F" Female	All	RF Output from the Analog Modulator.
Output TP -20 dB	"F" Female	All	Used to connect an RF test meter to monitor RF Output. This test point is 20 dB below the RF Out levels.
Modem	"F" Female	All	Port to connect a cable modem for remote management and monitoring purposes.
Factory Reset	Recessed button	All	Allows the device to be returned to factory settings and erases all configuration. Hold for 40 seconds.
Reboot	Recessed button	All	Performs a warm reboot of device.
Power Supply Alarm Reset	Momentary Button	All	This is present only on dual redundant power supply option. Used to temporarily disable the audible power supply alarm when one power supply or its power source have failed.
Safety Ground	Screw	All	Provided to connect an Earth ground to the chassis for electrical safety.
EAS Ethernet	Ethernet	All	Provides input connection to the Device for the EAS multicast from an EAS generator.
USB	USB 2.0	All	Not used in this application.
Console	DB9	All	Not used in this application.
Service	GbE	All	Not used in this application.
VGA	DE15	All	Not used in this application.

### 3.5 UCrypt IP to QAM

#### 3.5.1 Version 3 UCrypt IP to QAM

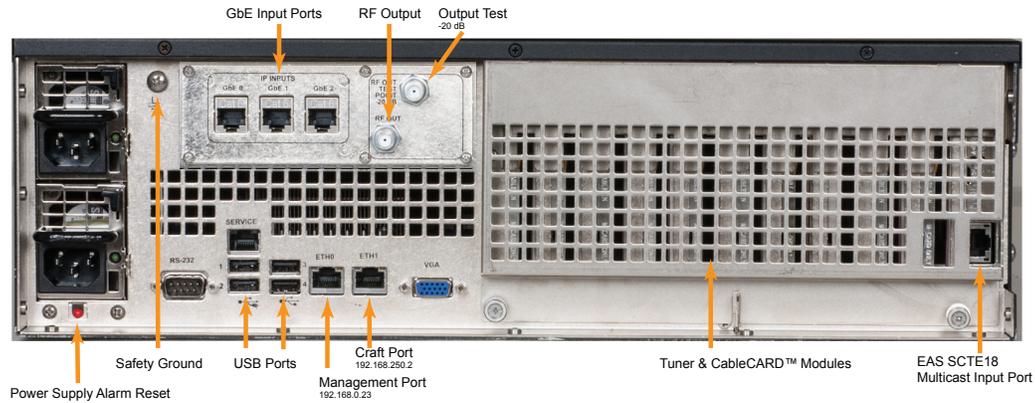


Figure 3-7: Version 3 IP to QAM

#### 3.5.2 Version 2 UCrypt IP to QAM

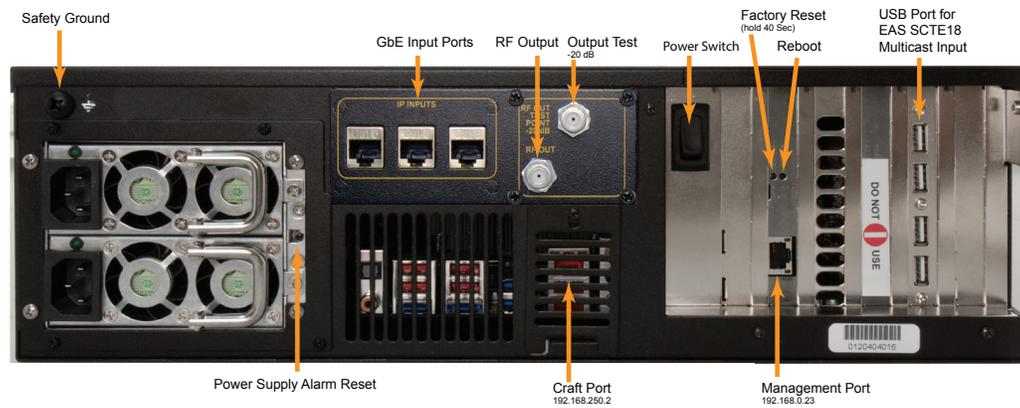


Figure 3-8: Version 2 IP to QAM

#### 3.5.3 Version 1.7 & 1.8 UCrypt IP to QAM

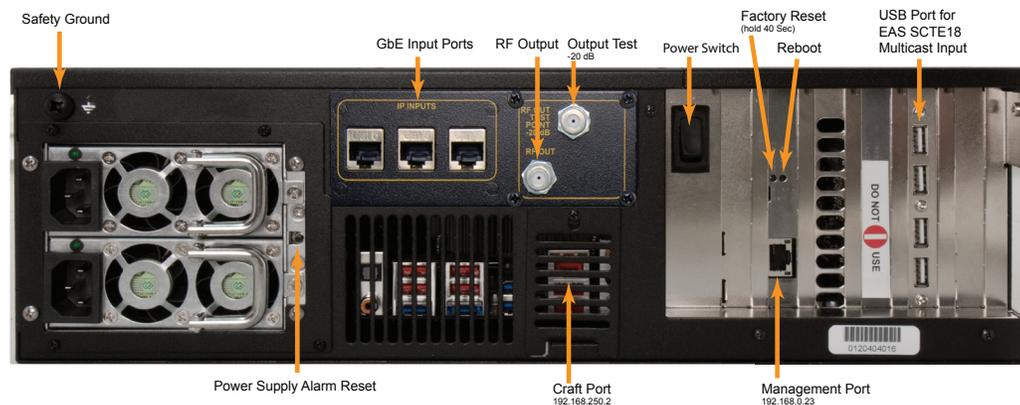


Figure 3-9: Version 2 IP to QAM

**Table 3.5a: Rear Panel Connections - IP to QAM (See Figure 3-7, Figure 3-8 & Figure 3-9)**

Port	Type	Applies to	Description
Management	GbE	All	The Management Port used to configure the encoder. Factory set to 192.168.0.23 address. On Version 3 this is labeled eth1.
Craft Port	GbE	All	Used to connect a computer for accessing the UI for device management if the management port is in use. Factory set to 192.168.250.2 address. On Version 3 this is labeled eth2.
GbE0	GbE	All	Input ports used exclusively for IP based streaming content.
GbE1	GbE	All	Input ports used exclusively for IP based streaming content.
GbE2	GbE	All	Input ports used exclusively for IP based streaming content.
RF Out	“F” Female	All	RF Output from QAM Modulator.
TP -20 dB	“F” Female	All	Used to connect an RF test meter to monitor RF Output. This test point is 20 dB below the RF Out levels.
Power Switch	Momentary Switch	All	Used to power up or power down the Device.
Factory Reset	Recessed button	All	Allows the device to be returned to factory settings and erases all configuration. Hold for 40 seconds.
Reboot	Recessed button	All	Performs a warm reboot of device.
Power Supply Alarm Reset	Momentary Button	All	This is present only on dual redundant power supply option. Used to temporarily disable the audible power supply alarm when one power supply or its power source have failed.
Safety Ground	Screw	All	Provided to connect an Earth ground to the chassis for electrical safety.
EAS Ethernet	Ethernet	Ver2 & Ver3	Provides input connection to the Device for the EAS multicast from an EAS generator.
USB	USB 2.0	Ver2 & Ver3	Used in Version 2 devices to connect a USB network dongle to allow input of EAS multicast. This EAS input function for version 3 is an Ethernet input port. USB not used on Version 3.
Console	DB9	Ver3	Not used in this application.
Service	GbE	Ver3	Not used in this application.
VGA	DE15	Ver3	Not used in this application.

### 3.6 UCrypt IP to IP

#### 3.6.1 Version 3 UCrypt IP to IP

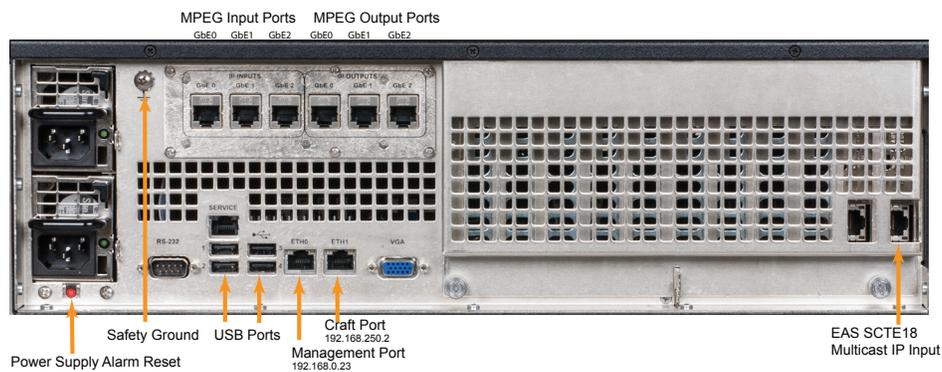


Figure 3-10: Version 3 IP to IP

### 3.6.2 Version 2 UCrypt IP to IP

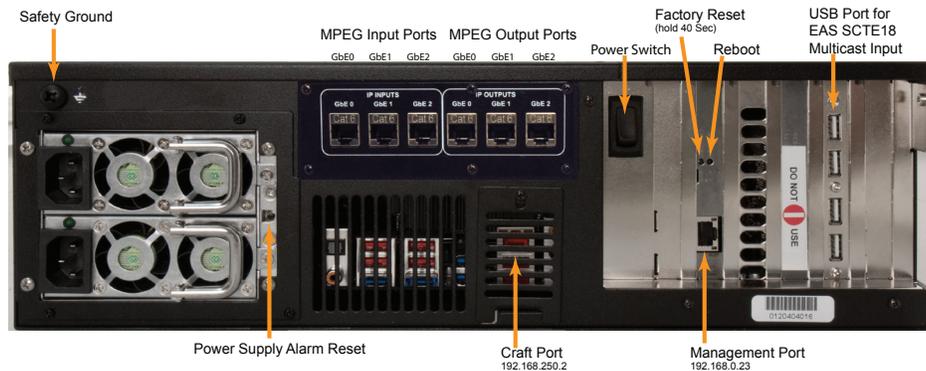


Figure 3-11: Version 2 IP to IP

### 3.6.3 Version 1.7 & 1.8 UCrypt IP to IP

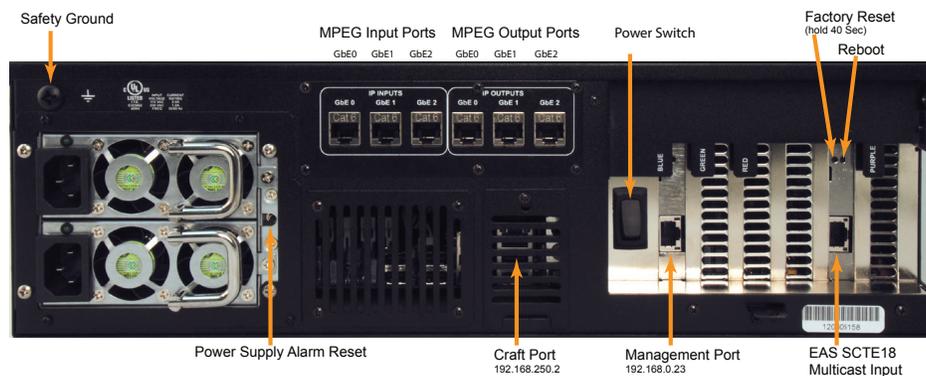


Figure 3-12: Version 1.7 & 1.8 IP to IP

Table 3.6a: Rear Panel Connections - IP to IP (See Figure 3-10, Figure 3-11 & Figure 3-12)

Port	Type	Applies to	Description
Management	GbE	All	The Management Port used to configure the encoder. Factory set to 192.168.0.23 address. On Version 3 this is labeled eth1.
Craft Port	GbE	All	Used to connect a computer for accessing the UI for device management if the management port is in use. Factory set to 192.168.250.2 address. On Version 3 this is labeled eth2.
GbE0	GbE	All	Input or output ports used exclusively for IP based streaming content.
GbE1	GbE	All	Input or output ports used exclusively for IP based streaming content.
GbE2	GbE	All	Input or output ports used exclusively for IP based streaming content.
Power Switch	Momentary Switch	All	Used to power up or power down the Device.
Factory Reset	Recessed button	All	Allows the device to be returned to factory settings and erases all configuration. Hold for 40 seconds.
Reboot	Recessed button	All	Performs a warm reboot of device.
Power Supply Alarm Reset	Momentary Button	All	This is present only on dual redundant power supply option. Used to temporarily disable the audible power supply alarm when one power supply or its power source have failed.
Safety Ground	Screw	All	Provided to connect an Earth ground to the chassis for electrical safety.
EAS Ethernet	Ethernet	Ver3, 1.7 & 1.8	Provides input connection to the Device for the EAS multicast from an EAS generator.
USB	USB 2.0	Ver2	Used in Version 2 devices to connect a USB network dongle to allow input of EAS multicast. This EAS input function for version 3 is an Ethernet input port. USB not used on Version 3.
Console	DB9	Ver3	Not used in this application.

Port	Type	Applies to	Description
Service	GbE	Ver3	Not used in this application.
VGA	DE15	Ver3	Not used in this application.

# INSTALLATION

## 4. Installation

This chapter provides a guide to get your Device installed in a rack and connected safely.

### 4.1 Chapter Contents

- “Preparation for Installation”
- “Precautions”
- “General Mechanical”
- “General Electrical”
- “General Environment”
- “Gigabit Ethernet Ports”
- “Install the Device”
- “Equipment Safety Grounding”
- “AC Power Supplies”
- “DC Power Supplies”
- “Power Supply Redundancy”

### 4.2 Preparation for Installation

Carefully unpack the equipment from the shipping box. If the box or equipment is damaged, notify the freight company to make a damage claim. If you suspect that there is a problem with the equipment that may preclude safe operation, do not install or operate it. Contact ATX Networks immediately for instructions.



**WARNING:** This equipment is intended for installation in a **RESTRICTED ACCESS LOCATION** only.



**WARNING:** This equipment is **NOT** for use in a computer room as defined in the Standard for Protection of Electronic Computer/Data Processing Equipment, ANSI/NFPA 75.



**WARNING:** This equipment is intended for use in a fixed position and should be installed securely before operation is initiated.

### 4.3 Precautions

#### 4.3.1 Electrical Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the Device chassis from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.
- Power should always be disconnected from the system when servicing. When disconnecting power, you should first power down the operating system first and then unplug the power cords. The unit has more than one power supply cord. Disconnect two power supply cords before servicing to avoid electrical shock.
- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power if necessary.
- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.
- Do not use mats designed to decrease static electrical discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.
- The power supply power cords must include a grounding pin and must be plugged into grounded electrical outlets.

- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.
- This product may be connected to an IT power system. In all cases, make sure that the unit is also reliably connected to Earth (ground).

### 4.3.2 General Precautions



**WARNING:** The RF connections provided with this equipment are not intended for direct connection to any outside telecommunications network or outside cable distribution plant.



**WARNING:** When the equipment is lifted by the front handles, always use both front handles for security. Never lift this equipment using only a single front handle due to the weight of the equipment.

- The Device weighs up to approximately 30 lbs (13.5kg). When lifting the system, two people should lift slowly with their feet spread out to distribute the weight. Always keep your back straight and lift with your legs.
- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.
- After accessing the inside of the Device, close the chassis back up and secure it to the rack unit with the retention screws and ensure that all connections have been made.

### 4.3.3 Chassis Precautions

- Determine the placement of each component in the rack before you install the rails.
- Install the heaviest components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the Device from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow any power supply modules to cool before touching them.

### 4.3.4 Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

## 4.4 General Mechanical

- The equipment will require 3RU of vertical rack space and may be mounted directly above or below other equipment without providing space between, however, 1RU space is recommended to be maintained from other equipment which generates significant heat.
- Leave enough clearance in front of the rack to enable you to work on the chassis (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease of servicing.



**NOTE:** More general information about equipment ambient temperature requirements may be found in this document from ATX Networks: [http://www.atxnetworks.com/pdf/ANW1066\\_MDU\\_UCrypt\\_Environment\\_Temp\\_Considerations\\_InfoSheet.pdf](http://www.atxnetworks.com/pdf/ANW1066_MDU_UCrypt_Environment_Temp_Considerations_InfoSheet.pdf)

- Rear support of the unit is mandatory and rails for attachment to rear supports are provided. Do not use the unit chassis to support other equipment. Alternately, if rear support rails are unavailable or impractical, install the unit on a well supported shelf.

## 4.5 General Electrical

- Consideration should be given to the connection of the equipment to the mains power and the effect that any possible overloading of circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings of all connected equipment should be used when addressing this concern.
- Reliable earthing of rack-mounted equipment should be maintained in addition to any grounding conductor provided in the power cord. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

## 4.6 General Environment

- Be sure to maintain freedom of air movement around equipment to ensure safe operation.
- Installation of the equipment in enclosed racks is not recommended due to possibility of restricted air flow.
- Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- The equipment is designed to operate to specification in an ambient temperature of +0°C to +40°C (+35°F to +104°F), however, normal room temperature is recommended to ensure long term operation of the equipment.
- If equipment is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T<sub>ma</sub>) of +40°C (+104°F).

## 4.7 Gigabit Ethernet Ports

The input ports are auto MDI-MDIX and intended to be connected to a network distribution switch using straight through wired Cat5e or better quality cable. The rear panel Management Interface port allows connection to a notebook or desktop PC for managing and configuring the system. The port may be connected to directly, or in the case of a headend with many devices to manage, may be connected to a management network (recommended) or the distribution switch containing the video stream content. Connections should be made with Cat5e or better network cables. The GigE management port is auto MDI-MDIX and may be connected to a switch or router with a straight through wired cable.

### 4.7.1 Management Port (eth1)

The rear panel Management Interface port eth1 allows connection to a notebook or desktop PC for managing and configuring the GUI. The port may be connected to directly, or in the case of a headend with many devices to manage, may be connected to a management network (recommended) or the distribution switch containing the video stream content. Connections should be made with Cat5e or better network cables. The 10/100 Base-T management ports is auto-negotiating and should be connected to a switch or router with a straight through wired cable. Direct connection to a PC may be made with the supplied crossover cable.

### 4.7.2 Ethernet Streaming Ports (GbE0, GbE1, GbE2)

The ports are auto-negotiating and intended to be connected to a network distribution switch using straight through wired Cat5e or better quality cable. The 10/100/1000 Base-T ports negotiate an appropriate connection speed dependant on the type of external port it is connected to.

## 4.8 Install the Device

This section provides information on installing the Device chassis in a rack unit with the rails provided. There are a variety of rack units on the market, which may mean that the assembly procedure will differ slightly from the instructions provided. You should also refer to the installation instructions or adapt these instructions to suit the rack unit you are using.



**NOTE:** The illustrations in Figure 4-1 and Figure 3-7 are for general guidance purposes only. Always install the Device chassis to the bottom of the rack first to avoid the rack becoming top heavy.

### 4.8.1 Mount the Chassis

1. Confirm that you have the four mounting screws required to mount the chassis into a rack.
2. Align the thru holes of the chassis with the thru holes of the rack.
3. Insert the mounting screws into the thru holes in the front of the chassis and through the thru holes in the rack as shown in Figure 4-1 and Figure 4-2.

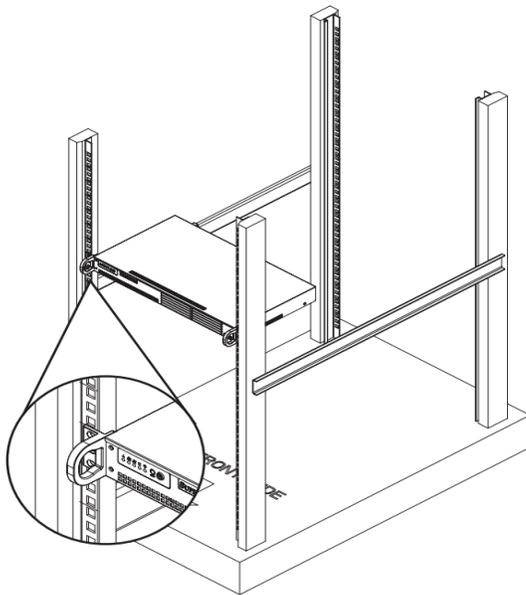


Figure 4-1: Install Chassis to Standard Rack

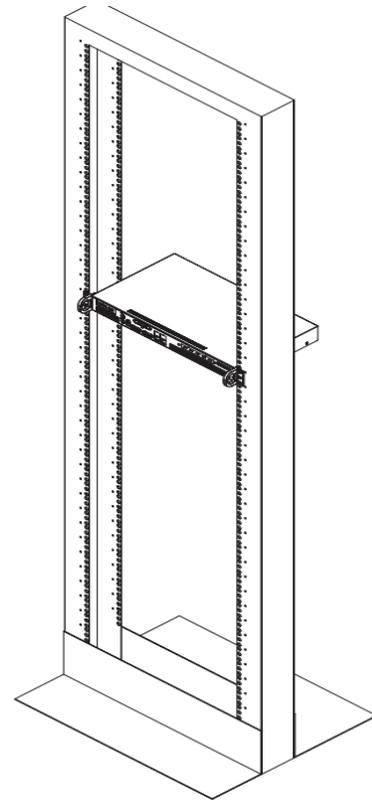


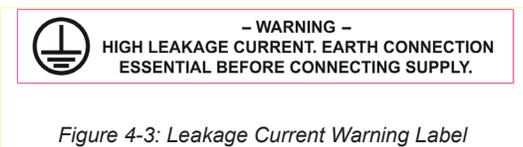
Figure 4-2: Install Chassis to Telco Rack

## 4.9 Equipment Safety Grounding

Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips). The following guidelines are provided to clarify the requirements for the installation to meet UL, CUL and CB standards. The use of the words “Ground” and “Earth” as well as “Grounding” and “Earthing” may be used interchangeably and in this context, have the same meaning.



**WARNING:** To comply with standards it is imperative that the chassis be connected to a permanent building ground before connecting any power supply conductors due to high leakage currents present in redundant power supply configurations. A warning label, shown in Figure 4-3, is attached to all affected products.



The Device housing and power supplies must be connected to a permanent building ground in a manner that will ensure that the exposed metal parts are constantly connected to ground through independent means even when the power supply cord or wires may be disconnected temporarily. A ground connection screw terminal is provided on the rear panel to conveniently effect such a connection.

### 4.9.1 Ground Connection

The supplementary equipment grounding conductor is to be installed between the rear panel ground screw and earth, that is, in addition to the equipment ground conductor in the power supply cord or wires. The screw terminals provided for this connection are located on the rear panel. Refer to the rear panel layout for your model (see “[Rear Panels](#)” on page 3-1) to locate the safety ground connection.

### 4.9.2 Ground Conductor Size

The supplementary equipment grounding conductor may not be smaller in size than the branch-circuit supply conductors or a minimum #14 AWG. The supplementary equipment grounding conductor is to be connected at the rear panel terminal provided, and connected to earth in a manner that will retain the earth connection when the power supply cord is unplugged. The connection to earth of the supplementary grounding conductor shall be in compliance with the appropriate rules for terminating bonding jumpers in Part V of Article 250 of the National Electrical Code, ANSI/NFPA 70, and Section 10 of Part I of the Canadian Electrical Code, Part I, CSA C22.1.

### 4.9.3 Ground Conductor Termination

Termination of the supplementary equipment grounding conductor may be made to building steel, to a metal electrical raceway system, or to any grounded item that is permanently and reliably connected to the electrical service equipment earth.

### 4.9.4 Ground Conductor Type

Bare, covered or insulated grounding conductors are acceptable. A covered or insulated grounding conductor shall have a continuous outer finish that is either green, or green with one or more yellow stripes.

## 4.10 AC Power Supplies

Both the redundant and non-redundant AC power supplies are auto-sensing switching type power supply systems which may be operated on input voltages from 115 VAC to 230 VAC. There is no need to configure the power supplies to operate on any voltage in this range.

### 4.10.1 AC Power Cord Protection

Measures must be taken during installation to route or arrange the power supply cords or wires to prevent physical damage and to avoid the possibility of future damage occurring. The cords shall be installed and routed such that, throughout its length, the cord and its points of connection are not strained in any way.

### 4.10.2 AC Power Cord Attachment

The unit AC power supply cords shall not be attached to a building surface, bundled with audio, video or RF coaxial cables, nor run through walls, ceilings, floors and similar openings in the building structure.

### 4.10.3 Provision of Electrical AC Power Outlet

An AC electrical power outlet of appropriate type and rating shall be provided near the location where the unit is installed and easily accessible such that the provided power supply cords may be routed in an appropriate manner, without the use of extension cords, between the receptacle and the chassis. Alternately, the chassis shall be installed in close proximity to an existing AC electrical outlet such that the requirements of this paragraph are achieved.

### 4.10.4 IEC C13 Power Input Cord for AC

The AC power input receptacle is a standard IEC C14 socket connector similar to that commonly used on computers and monitors. The power cords provided with the IP2A product is a North American configuration with a NEMA 5-15 grounded plug for 115 VAC. If it is necessary to operate the product on 230 VAC, the installer must obtain IEC C13 cords with a NEMA 6-15 grounded plug for use in North America. This may be obtained at time of order from ATX Networks or locally. If shipped outside of North America, the Device will be supplied with an IEC C13 cord set appropriate for the locale to which it is shipped.

### 4.10.5 AC Input Power Requirements

When installing the equipment, it is the responsibility of the installer to determine that sufficient capacity is available in the electrical circuit feeding the unit to avoid overloading the supply circuit. The AC model will require power to be supplied from a properly grounded AC outlet. The installer shall determine that the AC power outlet, its wiring and receptacle is in compliance with local and/or national electrical codes as applicable. The AC input power requirement is constant over the range of input voltages. At higher input voltages, the current consumption is lower than it is at lower voltages where the input current is higher.

## 4.11 DC Power Supplies

Applies to IP2IP Models Only

### 4.11.1 DC Power Supply Connections

The optional redundant DC power supply system is intended to operate on nominal -48 VDC power systems but functions between -40 and -57.2 VDC. A pair of **insulated #12 AWG** DC power wires must be field installed for each of the two modules using permanent wiring methods. Wire insulation colors must be different for each of the two conductors clearly indicating the polarity of the voltage. It is recommended that stranded conductors be used and that RED colored wire be used for the 0V conductor and BLACK for the -48V conductor. Crimped on style Ring or Spade terminals may be used and it is also permissible to strip the wire 8mm, twist the stranded conductors tightly and clamp the wire in the provided wire clamp as illustrated in Figure 4-4.

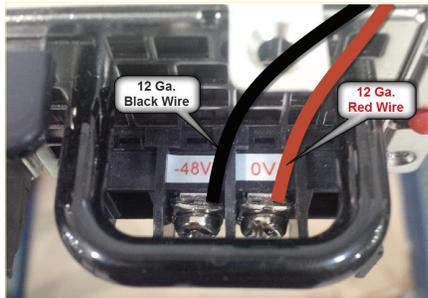


Figure 4-4: DC Power Module Connections

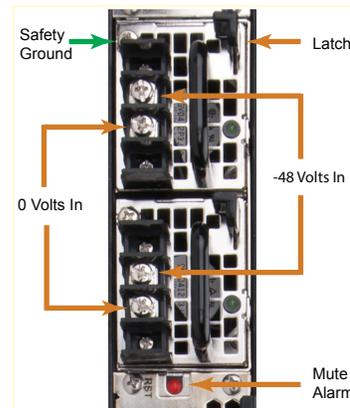


Figure 4-5: DC Power Supply

### 4.11.2 DC Disconnect and Fusing

Each DC power module should be externally fused or otherwise adequately protected at no more than 20 Amperes and must be provided with its own external readily accessible disconnect device. Each disconnect must be prominently labeled indicating the units being powered and with adequate instructions for the removal of all power from the unit being serviced. The disconnect must be turned off for BOTH power modules before removing supply wires from the module terminal blocks when replacing a power supply module or otherwise servicing the unit.

## 4.12 Power Supply Redundancy

Redundant power supplies are each able to provide the required power safely if one fails. To retain the redundancy feature, replace a failed power module as soon as possible. A power module failure or the failure of the supply current or protection fuse will be indicated by an audible alarm within the power modules and the green power status LED on the power module will be extinguished. Silence the audible alarm with the red rear panel **Alarm Reset** switch adjacent to the power supply modules.

### 4.12.1 Redundant Power Module Replacement

#### AC Version



**WARNING:** *The power cords for **BOTH** power modules must be disconnected before attempting to remove the power modules or otherwise servicing the unit.*

Power module failure will be indicated by the alarm being sounded and the green status light on the module will no longer be lit. This power module may be replaced by first disconnecting the AC power cord from the input socket of BOTH power modules, then release the module by pressing on the thumb latch at the bottom of each module. Extract the module and replace with an identical replacement module only.

#### DC Version

##### Applies to IP2IP Models Only



**WARNING:** *The external disconnect for **BOTH** power modules must be turned off before attempting to disconnect the DC wiring from the power module terminals or otherwise servicing the unit.*

Power module failure will be indicated by the alarm being sounded and the green status light on the module will no longer be lit. This power module may be replaced by first disconnecting the DC power at the external disconnect device for BOTH power modules then use a #2 Phillips screw driver to remove the DC wires from the failed module terminals. Release the module by pressing down on the thumb latch on each module and extract the module using the integral handle. Replace with an identical replacement module only.

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# INITIAL STARTUP

## 5. Initial Startup

We provide a brief summary of the steps to get logged in to the Device UI. See the UCrypt Operation manual for UI configuration guidance.

### 5.1 Connecting to the Management Computer

The device is provided with a Gigabit Ethernet port on the rear panel for connecting to the Management Interface for initial configuration and ongoing monitoring and maintenance. The location of the port varies with hardware versions. Refer to the rear panel illustration for your model, see “Rear Panels” on page 3-1, to locate the Management Port.

If the equipment is to be connected to a local cable modem for remote configuration or monitoring, a standard Ethernet cable will be required for the connection to the modem. The modem will be connected in place of the Management Computer. In this case if a local computer is also required connect it to the Craft port. The craft port has a static IP address of 192.168.250.2.

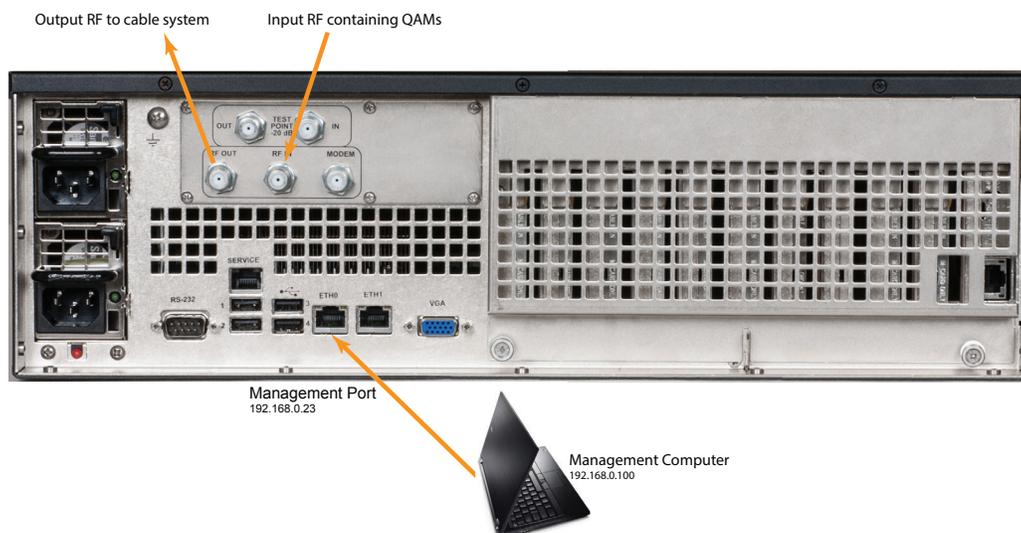


Figure 5-1: Connect Management Computer

### 5.2 Factory Default IP Address

The Management Interface is a secure web server and will require a locally connected PC to complete the configuration. The network port through which access to the web server is available has been factory pre-configured with the following network settings.

Table 5.2a: Factory Default IP Addresses

IP Address	192.168.0.23
Subnet Mask	255.255.255.0

### 5.3 Computer Requirements

It is recommended that the Management Computer meet these minimum requirements.

#### 5.3.1 Minimum Computer Requirements

- Computer running your choice of OS
- Ethernet Network port available
- Web browser for Management Interface

## 5.4 Configure Your Computer

Set your computer’s wired network IP address and subnet to be on the same subnet as the UCrypt Device. For example use 192.168.0.50/24.

## 5.5 Use a Browser to Login

1. Open any browser and enter the Device factory default IP address, **192.168.0.23**, see Figure 5-2.



Figure 5-2: Enter IP Address 192.168.0.23

2. If this is the first time you have connected to this unit with this Management Computer, you may get a browser security warning, see Figure 5-3, however, depending on the browser you used, your message may look different than this. This warning is due to the UCrypt Device having a self signed security certificate. It is not a security threat but your browser identifies it as such due to the certificate being self signed. Click through to accept the warning. You may later add your own security certificate during configuration.

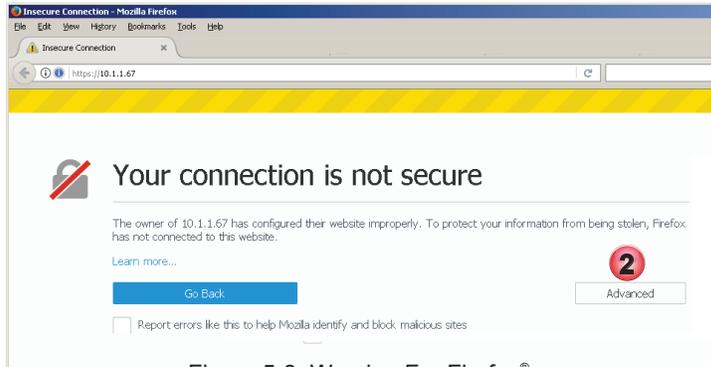


Figure 5-3: Warning For Firefox®

3. The login page is presented, Figure 1-2. Enter the Master **User Name** and **Password** from Table 5.5a.
4. Click **Login**.

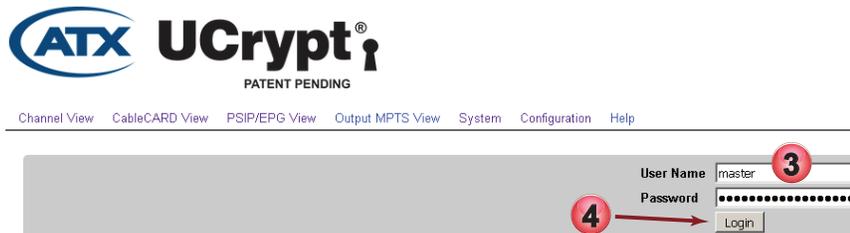


Figure 5-4: Login with Credentials

Table 5.5a: Factory Default User Names and Passwords

Account User	Default Password	Modify Settings	Install Updates	Change Passwords
master	atx_ucrypt_master_password	Yes	Yes	Yes
admin	atx_ucrypt_admin_password	Yes	No	No
user	atx_ucrypt_user_password	No	No	No



**FYI:** If the device has previously been configured with a different User Name and Password, use the appropriate values for this unit. When the User Name and Password are changed in the unit, the factory default values are lost. There is no “back door” User Name and Password

- Following login, the default page is presented, Figure 5-5. Your screen may differ slightly from the illustration depending on the model and whether the device has previously applied configuration settings or if it is factory new.

The screenshot shows the ATX UCrypt web interface. At the top left is the ATX UCrypt logo with 'PATENT PENDING' below it. A navigation menu includes 'Channel View', 'CableCARD View', 'PSP/EPG View', 'Output MPTS View', 'System', 'Configuration', and 'Help'. In the top right corner, it says 'User: master' and 'Logout'. The main content area is titled 'Add new channels' and contains a search bar, a list of channels with their program names and frequencies, and a table of channels currently in use. The table has columns for 'In Use', 'Program', 'Frequency', 'Name', 'Routing', 'Status', and 'Board/Tuner'. The 'Status' column shows green dots, and the 'Board/Tuner' column shows various combinations like 'Red #2 - Tuner #5', 'Green #1 - Tuner #0', etc. There are 'Add' and 'Remove' buttons for each row in the table.

Figure 5-5: Login to Main Page

- Now, refer to the UCrypt Operation Manual for details about configuration.

## 5.6 Reset Device to Factory



**WARNING:** Using this reset feature erases all configuration database to factory settings. Be sure you have a backup taken before proceeding.

It is still possible to access the device if the master password is forgotten or was changed. On the rear panel is a recessed switch labeled **Factory**. Depressing this switch and holding for at least 40 seconds will restore the entire Device and all internal configuration to factory defaults; Management Interface network address will be reset to 192.168.0.23. **The Factory reset erases any and all programming configurations in effect.** The position of the switch depends on the hardware version so refer to the rear panel layout for your model. See “Rear Panels” on page 3-1 to locate the factory reset switch.

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## SERVICE & SUPPORT

### 6. Service & Support

#### 6.1 Contact ATX Networks

Please contact ATX Technical Support for assistance with any ATX products. Please contact ATX to obtain a valid RMA number for any ATX products that require service and are in or out-of-warranty before returning a failed module to ATX.

##### TECHNICAL SUPPORT

Tel: 289.204.7800 – press 1  
Toll-Free: 866.YOUR.ATX (866.968.7289) USA & Canada only  
Email: [support@atx.com](mailto:support@atx.com)

##### SALES ASSISTANCE

Tel: 289.204.7800 – press 2  
Toll-Free: 866.YOUR.ATX (866.968.7289) USA & Canada only  
Email: [insidesales@atx.com](mailto:insidesales@atx.com)

##### FOR HELP WITH AN EXISTING ORDER

Tel: 289.204.7800 – press 3  
Toll-Free: 866.YOUR.ATX (866.968.7289) USA & Canada only  
Email: [orders@atx.com](mailto:orders@atx.com)  
Web: [www.atx.com](http://www.atx.com)

#### 6.2 Warranty Information

All of ATX Networks' products have a 1-year warranty that covers manufacturer's defects or failures.



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Rev. 11/19 (ANW1216)



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