



ECHOLAB REMOTE AUX PANEL

USER GUIDE

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Important Information / Technical Support

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In order to obtain service under this warranty, you the Customer, must notify Echolab Inc. of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Echolab Inc. shall pay for the delivery of the replacement product to the Customer if the shipment is to a location within the country in which an Echolab Inc. service center is located. The Customer shall be responsible for paying all shipping charges, insurance, duties, taxes, and any other charges for products returned to any other locations. Upon receipt of replacement product, the Customer shall be responsible for packaging and shipping the defective product to a designated service center nominated by Echolab Inc., with shipping charges prepaid.

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Echolab Product Information Portal

<http://feedback.echolab.com/>

Echolab's new product information portal is the primary location for user guides, software updates, release notes, frequently asked questions, add-on options, and specifications.

Software Updates

Many Echolab products can be enhanced with new features and functionality with a simple software upgrade. The product information portal contains a list of the most popular downloads for each product. Simply enter your serial number to see if any updates are available for your product.

Release Notes

For each software update that is available, Echolab will provide release notes to explain which changes can be expected once the update has been applied.

Frequently Asked Questions

Within the Echolab product information portal, you have the ability to ask questions for the benefit of all Echolab users. When you ask a question, you will provide some contact information so that Echolab can follow-up if necessary. Once the question has been submitted, Echolab will review the question and provide an answer. Both the question and answer will be published for the benefit of all Echolab users.

Add-on Options

Within the Echolab product information portal, additional add-on products that work well with your product will be displayed. You can easily view more information about the add-ons and contact Echolab sales for purchase or dealer referrals.

Product Downloads

The product downloads section of the product information portal includes supporting materials that may be helpful when using your Echolab product. This may include template files, additional diagrams, software utilities, etc.

RSS Feed

Additionally the product information portal includes an RSS feed so you can be notified of any interesting news and product updates.

The RSS feed URL is <http://feedback.echolab.com/rss.aspx>.

You can subscribe to this feed from any popular RSS reader on your Mac or PC.

Introduction

This manual provides instructions for installing and operating the Echolab Remote AUX Panel. This manual is designed for use as a technical specifications guide as well as a training guide to better understand the product.

Product Summary

Key Product Usage Scenarios

In many production environments, the director, producer, and technical director are in the same room, and these three roles may in fact be filled by the same person in smaller environments. Often the technician responsible for ensuring that the equipment is connected and configured correctly is in another room, floor, or sometimes building. When the director asks the technician to adjust a particular source, it is difficult to monitor input devices without running cables through a distribution amplifier for input to the switcher and to the technician's monitor. Using a Remote AUX Panel, the technician simply selects the source that needs to be monitored and the routing is configured within the switcher for that particular AUX output. The technician can make the necessary adjustments and see the effect in real-time, before communicating back to the director and taking the source to air through the switcher.

In some production environments, the need arises for a non-technical operator to control a small number of outputs independent of the main program output. In this case, the operator would likely be controlling one or more secondary video presentation screens. Using the Remote AUX Panel, the operator can easily control which source video signal is routed to one or more auxiliary outputs to be displayed on secondary video presentation screens.

Product Features

- Control the routing for up to 12 auxiliary outputs in analog or digital format
- Select from up to 32 external video sources, and up to 15 internal switcher sources including black, color 1, color 2, frame buffer 1, frame buffer 2, alpha 1, alpha 2, ME2 preview, ME2 program, ME1 preview, ME1 program, ME0 clean feed 1, ME0 clean feed 2, ME0 preview, and ME0 program.
- Specific auxiliary outputs can be controlled exclusively by one or more Remote AUX Panels
- Each Echolab switcher will support multiple Remote AUX Panels

Product Package Contents

The **Echolab Remote AUX Panel** includes everything necessary for smooth operation with an Echolab video production switcher. Specifically, the package includes:

- Echolab Remote AUX Panel
- Power Supply and Power Cable
- 10' CAT-5 Ethernet Cable
- 10' NULL Modem Serial Cable
- Echolab Product DVD
- Echolab Remote AUX Panel Software Configuration Utility

- Echolab Remote AUX Panel Product Manual
- Access to the Echolab Product Information Portal

Regulatory Compliance

The Echolab Remote AUX Panel and power supply is FCC and CE compliant and UL listed.

Product Requirements

Remote AUX Panel

In order to use the Remote AUX Panel, an Echolab video production switcher with the following characteristics is required.

- The switcher must be an Echolab Opera series switcher
- The switcher's firmware must be greater than the following version number

Switcher	Version
Opera 3408/16	1.4.1
Opera 3716	1.4.1
Opera 3732	1.4.1
Opera 3932	1.4.1

Note:

- Please visit the [Echolab Product Information Portal](#) for updated firmware

Software Configuration Utility

In order to modify the advanced configuration options of the Remote AUX Panel, the Software Configuration Utility must be used on a PC with the following specifications.

- Windows with the .NET Framework 2.0 installed
- Ethernet card with drivers properly installed and configured
- COM Port with drivers properly installed and configured

Note:

- Please visit the [Echolab Product Information Portal](#) to download the Remote AUX Software Configuration Utility

Product Installation

Unpacking

The Remote AUX Panel is packaged in a single box with the contents as described above. Once you have carefully unpacked the Remote AUX Panel, check to make sure that all contents have been included. If any items are missing or damaged, please contact your sales representative or Echolab Technical Support as soon as possible.

Take note of the product model and serial numbers and record them in a convenient location. Should technical support or service be required, you will be expected to have access to this information.

Note:

- Serial and model numbers are located on the rear of the Remote AUX Panel
- Serial numbers are required to access the Echolab Product Information Portal

Software Configuration Utility

The Software Configuration Utility will allow the user to modify the following Remote AUX Panel settings using an Ethernet or Serial connection.

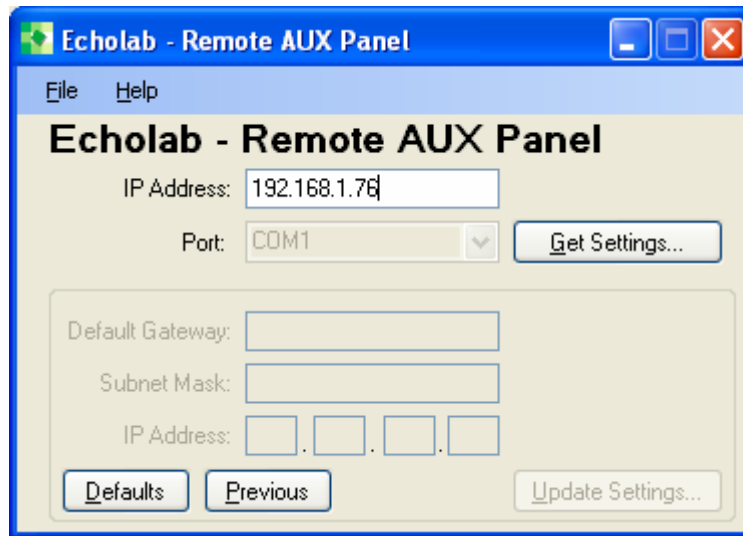
- Default gateway
- Three most significant bytes of the panel's IP address
- Subnet mask

Note:

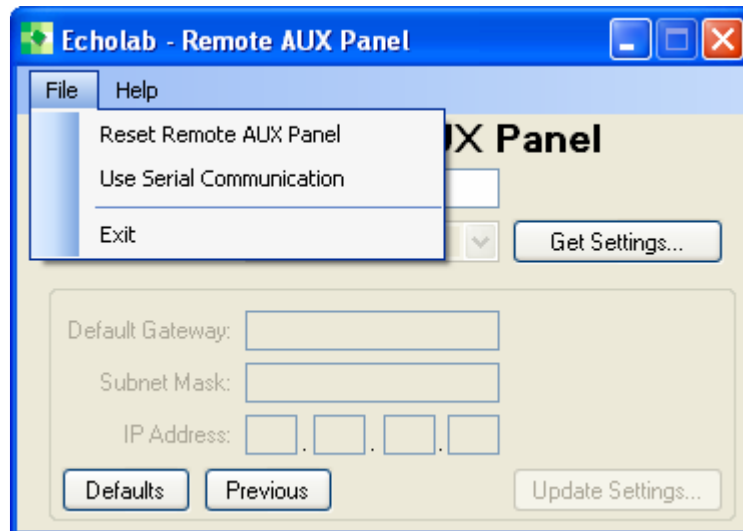
- When making these changes, it might be easier to connect the Remote AUX Panel directly to a laptop with the serial null modem cable since it will be difficult to establish a connection through the LAN when the LAN settings conflict with the Remote AUX Panel's default settings
- When the Software Configuration Utility is used to make the desired changes, the Remote AUX Panel must be reset using the configuration utility, the reset button on the back, or by disconnecting the power supply. This should be done prior to connecting the Remote AUX Panel to the production studio's LAN.
- The least significant byte of the Remote AUX Panel's IP address is configured using the rotary switches on the rear of the unit

Using the Software Configuration Utility

To use the Software Configuration Utility, you must know the IP address of the Remote AUX Panel you would like to connect to and modify, or connect to it directly using a serial null modem cable. To avoid network conflicts, it is best to connect directly to the Remote AUX Panel with the serial cable when changing these settings.



Choose the Method of Communication



1. From the File menu, Use Serial Communication to connect to the Remote AUX Panel using serial null modem cable.

Note:

- The default is to use TCP/IP

Change the Default Gateway

2. Enter the IP address or select the COM Port of the Remote AUX Panel you would like to modify
3. Click **Get Settings...**
4. Enter the new Default Gateway address
5. Click **Update...**
6. Restart the Remote AUX Panel by disconnecting the power supply, or pressing the **Reset** button on the rear of the Remote AUX Panel

Change the Subnet Mask

1. Enter the IP address or select the COM Port of the Remote AUX Panel you would like to modify

2. Click **Get Settings...**
3. Enter the new Subnet Mask
4. Click **Update...**
5. Restart the Remote AUX Panel by disconnecting the power supply, or pressing the **Reset** button on the rear of the Remote AUX Panel

Change the IP Address

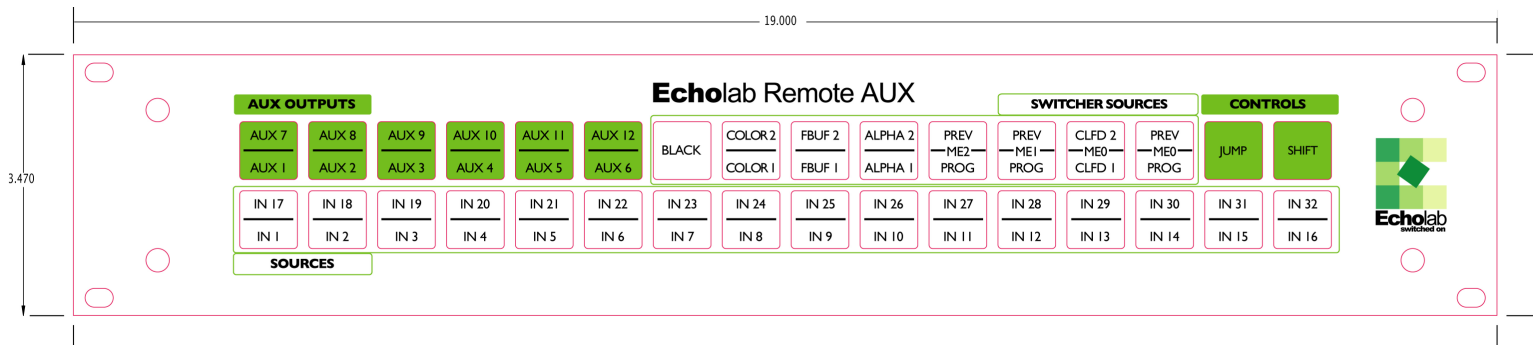
1. Enter the IP address or select the COM Port of the Remote AUX Panel you would like to modify
2. Click **Get Settings...**
3. Enter the new IP address
 - Note: In an IP address of the following form, XXX.XXX.XXX.YYY only the XXX.XXX.XXX portion of the address can be modified. Please ensure that the YYY portion is the same, since this is defined with the rotary switches on the rear of the Remote AUX Panel
 - To modify the YYY portion of the Remote AUX Panel's IP address, use the **IP Address** rotary switches on the rear of the Remote AUX Panel
4. Click **Update...**
5. Restart the Remote AUX Panel with the Software Configuration Utility, by disconnecting the power supply, or by pressing the **Reset** button on the rear of the Remote AUX Panel

Equipment Overview

Remote AUX Panel

The Remote AUX Panel has 32 buttons with the following mapping.

Front



Auxiliary Output Buttons

- The Auxiliary Output buttons provide direct access to 6 auxiliary outputs 1 through 6 and shifted access to auxiliary outputs 7 through 12.
- On switchers with fewer auxiliary outputs, the extra buttons will not be used

Switcher Source Buttons

- The Switcher Source buttons provide direct access to the following internal sources
 - Black
 - Color 1

- Frame Buffer 1
- Alpha 1
- ME2 Program
- ME1 Program
- ME0 Clean Feed 1
- ME0 Program
- The Switcher Source buttons also provide shifted access to the following internal sources
 - Color 2
 - Frame Buffer 2
 - Alpha 2
 - ME2 Preview
 - ME1 Preview
 - ME0 Clean Feed 2
 - ME0 Preview

Note:

- Frame Buffer 2 and Alpha 2 may not be available on all switchers
- ME1 and ME2 Program and Preview may not be available on all switchers

Jump Button

- The jump button is used to switch between the current and previously selected sources for a particular auxiliary output

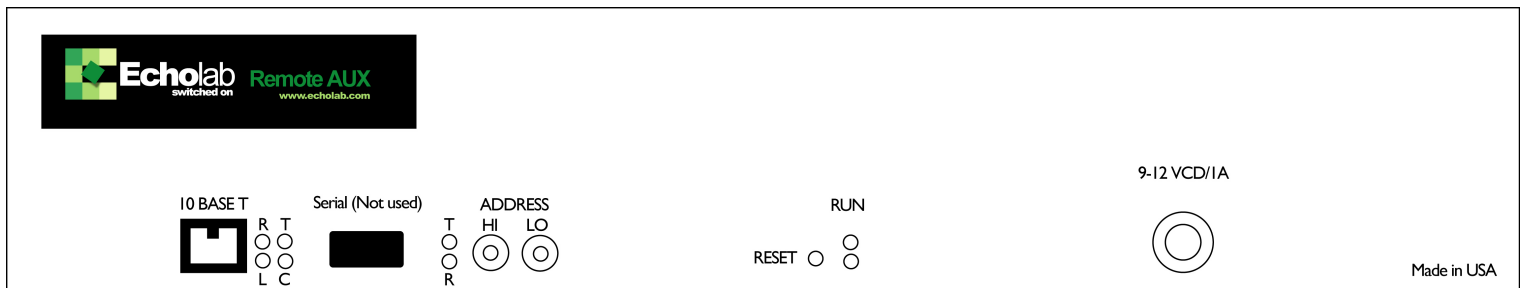
Shift Button

- The Shift button is held down to access the shifted sources and outputs

External Source Buttons

- The External Source buttons provide direct access to external sources 1 through 16 on the switcher
- On switchers with more than 16 external sources, the External Source buttons also provide shifted access to sources 17 through 32 on the switcher.

Rear View



10 BASE-T Ethernet Connection

- The 10 BASE-T Ethernet connection is used to connect the Remote AUX Panel to the studio's Local Area Network (LAN) using standard CAT-5 cables

Serial Port Connection

- The serial port connection is used to configure the Remote AUX Panel with the Software Configuration Utility

Ethernet Status Indicators

- The Ethernet Status Indicators represent activity related receiving and transmitting data between the panel and the LAN.

IP Address Rotary Switches

- The IP Address Rotary Switches are used to set the least significant byte of the Remote AUX Panel's IP address. If an IP address is of the form xxx.xxx.xxx.yyy, the rotary switches are used to specify the yyy portion of the address.
- The switches are used to specify the yyy portion in 2 hex digits YY to provide up to 256 possible addresses.
- To specify the three most significant bytes of the Remote AUX Panel's IP address, the Software Configuration Utility must be used. In addition to this portion of the IP address, the subnet mask, and default gateway can be specified as well.

Example: Using the Rotary Switches to specify the IP address of the Remote AUX Panel

The left rotary switch allows you to specify the 4 most significant bits of the byte and the right rotary switch allows you to specify the 4 least significant bits of the byte.

If you are unfamiliar with hexadecimal notation, please refer to the [Hexadecimal Conversion Table](#) section of this document.

DB9F Serial Connection

- Used for configuration purposes with the Software Configuration Utility

Serial Connection Status Indicators

- Used to indicate serial communication status

Reset Button

- The Reset button is used to reset the Remote AUX Panel after configuration changes have been made using the software configuration utility or using the IP Address Rotary Switches.
- **Note:** The Software Configuration Utility can reset the Remote AUX Panel as well

Power Supply

The power supply connects to the rear of the Remote AUX Panel and plugs into a standard 110-240V power outlet. It is recommended that a surge protection device be used with all electrical equipment, in much the same way as it is recommended for your Echolab switcher.

For additional power supply information, please refer to the [Power Specifications](#) section of this document.

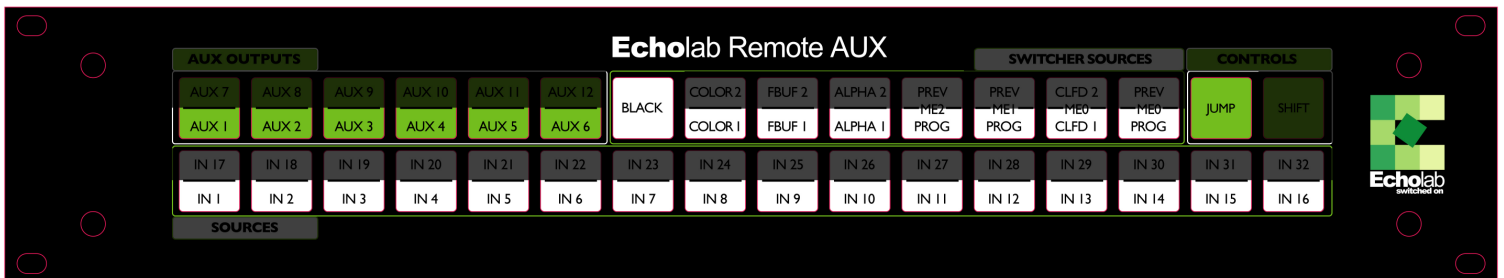
Product Usage

The Echolab Remote AUX Panel can be used to control a single auxiliary output, or multiple auxiliary outputs. The default configuration will support the control of multiple auxiliary outputs.

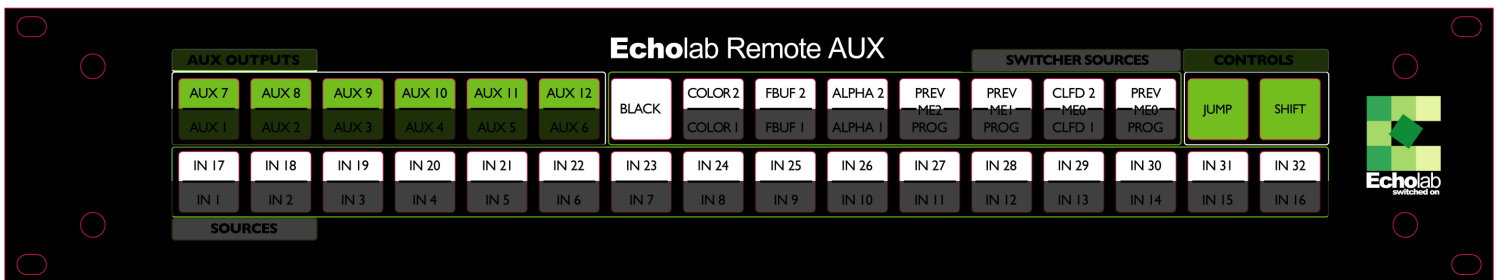
Note:

- It is a standard Echolab convention that shifted controls are always displayed above the line or to the left of the line when terms are side by side.

NON-SHIFTED



SHIFTED



Modify the Source Routing

To modify the source routing for the selected AUX output, the desired internal, external, shifted internal, or shifted external source is selected.

1. Select the desired auxiliary output or shifted auxiliary output
2. Select the desired internal, external, shifted internal, or shifted external source

Multiple AUX Panel Usage

The Remote AUX Panel will support the control of multiple auxiliary outputs in the default configuration.

Single AUX Panel Usage

In order for the Remote AUX Panel to control a specific auxiliary output, all other auxiliary outputs must be added as **deny** elements in the `remotaux.xml` configuration file. For additional information, please refer to the [Configuring Exclusive Access to Auxiliary Outputs](#) section of this document.

In this configuration, the button mapping on the Remote AUX Panel does not change. The remaining AUX output buttons and all shifted AUX output buttons are not used in this configuration.

Using AUX Output Restrictions

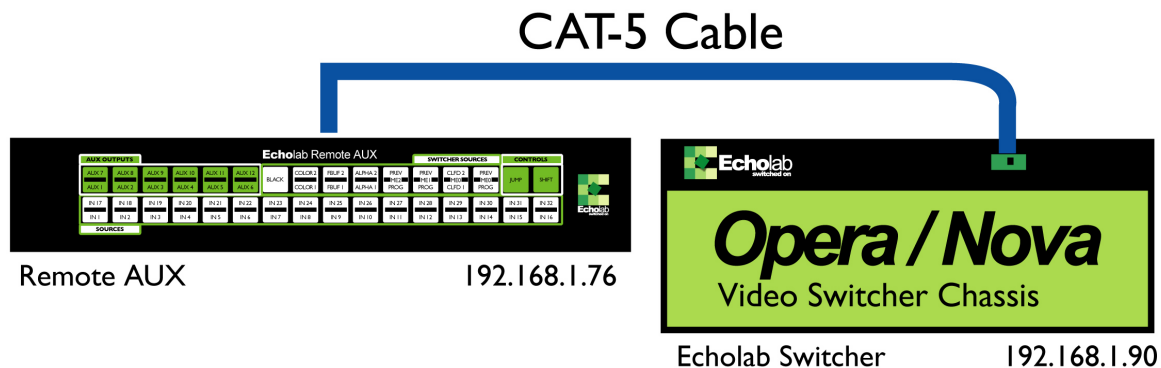
When one or more auxiliary output restrictions are specified for a particular Remote AUX Panel, selecting one of the restricted auxiliary outputs will display the currently mapped source for that auxiliary output. Although the routing is displayed, modifications to the routing will not be permitted.

Physical Installation

The Remote AUX Panel can be mounted in a rack with 2U of available space. Please refer to the [Physical Dimensions](#) section of this document for additional detail.

Power and Cabling

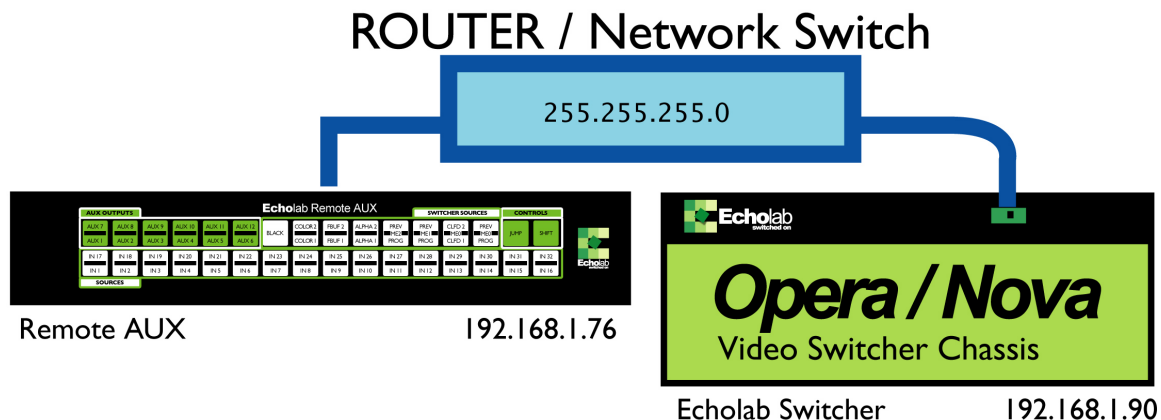
NO-ROUTER CONFIGURATION



Note:

- A CAT-5 cable can be used to connect the remote AUX panel directly to the switcher, but this will obviously limit the number of external devices that can be interfaced with the switcher.

ROUTER CONFIGURATION



Network Installation

When installing the Remote AUX Panel on the network, it is important to ensure that the network configuration is suitable for the LAN in which the device will operate.

Specifically, please ensure the following

- The DHCP server and the Remote AUX Panel are configured so that the Remote AUX Panel has a valid static IP address for use on the LAN
- The Remote AUX Panel's IP address is not currently assigned or otherwise specified for any other devices on the LAN.
- The appropriate TCP/IP ports are open between the switcher and the Remote AUX Panel within the LAN
 - **Defaults:** 5050 and 23
- The Remote AUX Panel's default gateway address and subnet mask is configured correctly for use on the LAN
- The CAT-5 network cable does not exceed the length recommended in the Specifications section of this document

Configuration

Default Configuration

Remote AUX Panel Configuration

To use the Remote AUX Panel with an Echolab switcher, the `remoteaux.xml` file is used by the switcher to locate the Remote AUX Panel on the network and specify which, if any auxiliary outputs are under exclusive control. By default all auxiliary outputs are in non-exclusive control and can be controlled using any Remote AUX Panel.

`remoteaux.xml` (default file contents)

```
<?xml version="1.0" encoding="utf-8" ?>
<remoteAUXConfiguration>
  <remoteAUX>
    <name>RemoteAUX1</name>
    <ip>192.168.1.76</ip>
  </remoteAUX>
</remoteAUXConfiguration>
```

Note:

- All element names in the xml file are case sensitive
- A **remoteAUX** element is required for each Remote AUX Panel that will be used with an Echolab switcher
- The **ip** and **name** elements must always be included within the **remoteAUX** element
- The **ip** node is used by the switcher to establish communication with the Remote AUX Panel
- The **name** attribute is primarily included for readability purposes
- The **deny** element (not shown) is optional and not used in the standard configuration. For more information about exclusive auxiliary output configurations, see the [Custom Configuration](#) section of this document.

Network Configuration

The default network configuration for the Remote AUX Panel is the following.

- Default IP Address: 192.168.1.76
- Default Gateway: 192.168.1.1
- Subnet Mask: 255.255.255.0
- Communication Ports: Port 23 is used for console communication 5050 is used for communication between the Echolab switcher and the Remote AUX Panel.

Custom Configuration

To customize the Remote AUX Panel for use in specific LAN topologies the `remoteaux.xml` file is modified as necessary and copied to the switcher's compact flash card. In order for the changes to take effect, the switcher must be restarted with the updated compact flash card inserted in the chassis' card slot.

Location of `remoteaux.xml`

The `remoteaux.xml` file must be included on the compact flash card in the **configs** folder of the desired mode.

(ie. `echolab/mode0/configs/`)

Adding Additional Remote AUX Panels

To add an additional Remote AUX Panel to your video production environment, an additional **remoteAUX** xml element should be added to the `remoteaux.xml` configuration file within the **remoteAUXConfiguration** element start and end tags.

Example: Add Remote AUX Panel 2 with a Unique IP Address and Name

```
<?xml version="1.0" encoding="utf-8" ?>
<remoteAUXConfiguration>
  <remoteAUX>
    <name>RemoteAUX1</name>
    <ip>192.168.1.76</ip>
  </remoteAUX>
  <remoteAUX>
    <name>RemoteAUX2</name>
    <ip>192.168.1.77</ip>
  </remoteAUX>
</remoteAUXConfiguration>
```

Note:

- Be sure to change the **ip** and **name** elements when copying and pasting the additional **remoteAUX** element to avoid conflicts on your network
- Be sure to adjust the IP Address Rotary switches accordingly on the Remote AUX Panel
- Be sure the case of the elements is exactly as shown above
- Add or remove **deny** elements (not shown) as necessary

Configuring Exclusive Access to Auxiliary Outputs

In many cases, the director would like to ensure that one or more specific auxiliary outputs are exclusively controlled by one or more operators. In some cases, the director will designate some auxiliary outputs as additional program outputs and as such, they shouldn't be modified by technicians for monitoring and signal quality purposes. To achieve this, the `remoteaux.xml` configuration file is modified to specify this restriction. By default none of the auxiliary outputs are configured for exclusive access.

Note:

- The operator at the switcher can always override the auxiliary output routing.

To configure exclusive access for a particular Remote AUX Panel, **deny** elements are added to the corresponding **remoteAUX** element.

Example: Configure Auxiliary Output 2 as Exclusive for Remote AUX Panel 1, and Auxiliary Output 3 as Exclusive for Remote AUX Panel 2

```
<?xml version="1.0" encoding="utf-8" ?>
<remoteAUXConfiguration>
  <remoteAUX>
    <name>RemoteAUX1</name>
    <ip>192.168.1.76</ip>
    <deny>1</deny>
    <deny>3</deny>
    <deny>4</deny>
  </remoteAUX>
  <remoteAUX>
    <name>RemoteAUX2</name>
    <ip>192.168.1.77</ip>
    <deny>1</deny>
    <deny>2</deny>
    <deny>4</deny>
  </remoteAUX>
</remoteAUXConfiguration>
```

Note:

- In this example, only the switcher can modify the auxiliary output routing for AUX1 and AUX4. Remote AUX Panel 2 can modify the routing for AUX3 and Remote AUX Panel 1 can modify the routing for AUX 2.
- To configure exclusive access for a particular output, the **deny** element for that output should be added to all other **remoteAUX** elements

Hexadecimal Conversion Table

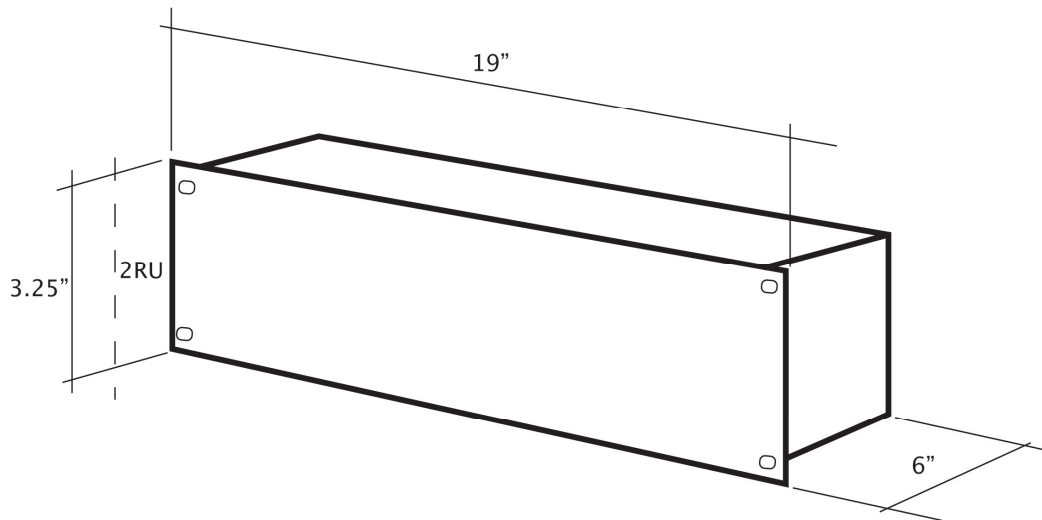
The following table can be used to obtain the decimal equivalent of the least significant byte specified with the IP Address Rotary switches.

Rotary	Decimal	Rotary	Decimal	Rotary	Decimal	Rotary	Decimal
00	Not used	40	64	80	128	C0	192
01	1	41	65	81	129	C1	193
02	2	42	66	82	130	C2	194
03	3	43	67	83	131	C3	195
04	4	44	68	84	132	C4	196
05	5	45	69	85	133	C5	197
06	6	46	70	86	134	C6	198
07	7	47	71	87	135	C7	199
08	8	48	72	88	136	C8	200
09	9	49	73	89	137	C9	201
0A	10	4A	74	8A	138	CA	202
0B	11	4B	75	8B	139	CB	203
0C	12	4C	76	8C	140	CC	204
0D	13	4D	77	8D	141	CD	205
0E	14	4E	78	8E	142	CE	206
0F	15	4F	79	8F	143	CF	207
10	16	50	80	90	144	D0	208
11	17	51	81	91	145	D1	209
12	18	52	82	92	146	D2	210
13	19	53	83	93	147	D3	211
14	20	54	84	94	148	D4	212
15	21	55	85	95	149	D5	213
16	22	56	86	96	150	D6	214
17	23	57	87	97	151	D7	215
18	24	58	88	98	152	D8	216
19	25	59	89	99	153	D9	217
1A	26	5A	90	9A	154	DA	218
1B	27	5B	91	9B	155	DB	219
1C	28	5C	92	9C	156	DC	220
1D	29	5D	93	9D	157	DD	221
1E	30	5E	94	9E	158	DE	222
1F	31	5F	95	9F	159	DF	223
20	32	60	96	A0	160	E0	224
21	33	61	97	A1	161	E1	225
22	34	62	98	A2	162	E2	226
23	35	63	99	A3	163	E3	227
24	36	64	100	A4	164	E4	228
25	37	65	101	A5	165	E5	229
26	38	66	102	A6	166	E6	230
27	39	67	103	A7	167	E7	231
28	40	68	104	A8	168	E8	232
29	41	69	105	A9	169	E9	233
2A	42	6A	106	AA	170	EA	234
2B	43	6B	107	AB	171	EB	235
2C	44	6C	108	AC	172	EC	236
2D	45	6D	109	AD	173	ED	237
2E	46	6E	110	AE	174	EE	238
2F	47	6F	111	AF	175	EF	239
30	48	70	112	B0	176	F0	240
31	49	71	113	B1	177	F1	241
32	50	72	114	B2	178	F2	242
33	51	73	115	B3	179	F3	243
34	52	74	116	B4	180	F4	244
35	53	75	117	B5	181	F5	245
36	54	76	118	B6	182	F6	246
37	55	77	119	B7	183	F7	247
38	56	78	120	B8	184	F8	248
39	57	79	121	B9	185	F9	249
3A	58	7A	122	BA	186	FA	250
3B	59	7B	123	BB	187	FB	251
3C	60	7C	124	BC	188	FC	252
3D	61	7D	125	BD	189	FD	253
3E	62	7E	126	BE	190	FE	254
3F	63	7F	127	BF	191	FF	Not used

Specifications

Physical Dimensions

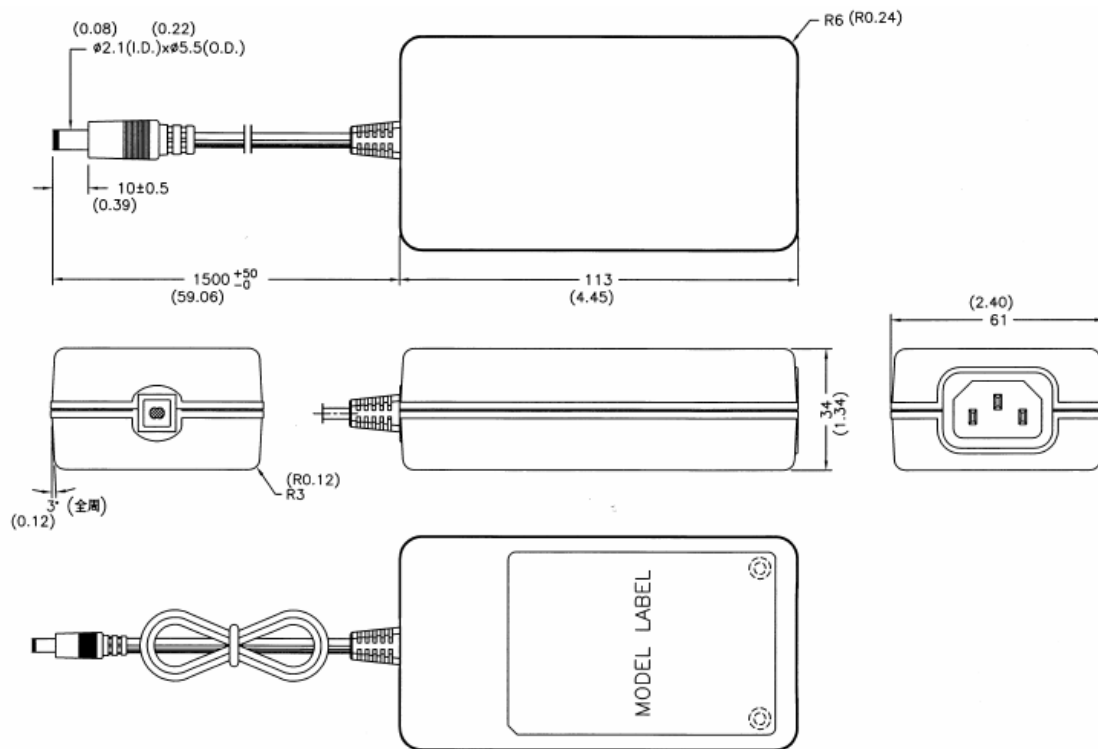
- HxWxD = 19.0"x6.0"x3.25"
- 2 Rack Units



Power

Power Supply

- Input Voltage Rating: 110V - 240V AC
- Input Voltage Range: 90V - 264V AC
- Input Current: 1A (RMS) at 115V AC, 0.5A (RMS) at 230V AC
- Power Rating: 30W
- AC Input Frequency: 47 - 63Hz
- Operating Temperature: 0 - 45 °C
- Humidity: 8 - 90%
- DC Output Connector: 2.1mm, 5.5mm center positive
- Over Voltage Protection: 130% over voltage protection (shut down above)



Remote AUX Panel

- Input Voltage Rating: 12V DC
- Input Current: 1.25A
- Power Rating: 15W
- Operating Temperature: 0 - 45 °C
- Humidity: 8 - 90%
- DC Input Connector: 2.1, 5.5 mm center positive

Cables

Serial DB9 M/F Null Modem Cable

- 10' cable included
- 9-pin Male to 9-pin Female Connectors

CAT-5 Cable

- 10' cable included
- Maximum length: 300' (100m)
- Connectors: Standard RJ-45 8P8C Ethernet Connector

Power Cable

- 6' NEMA 5-15 cable included
- Connectors: Type B (American 3-pin)