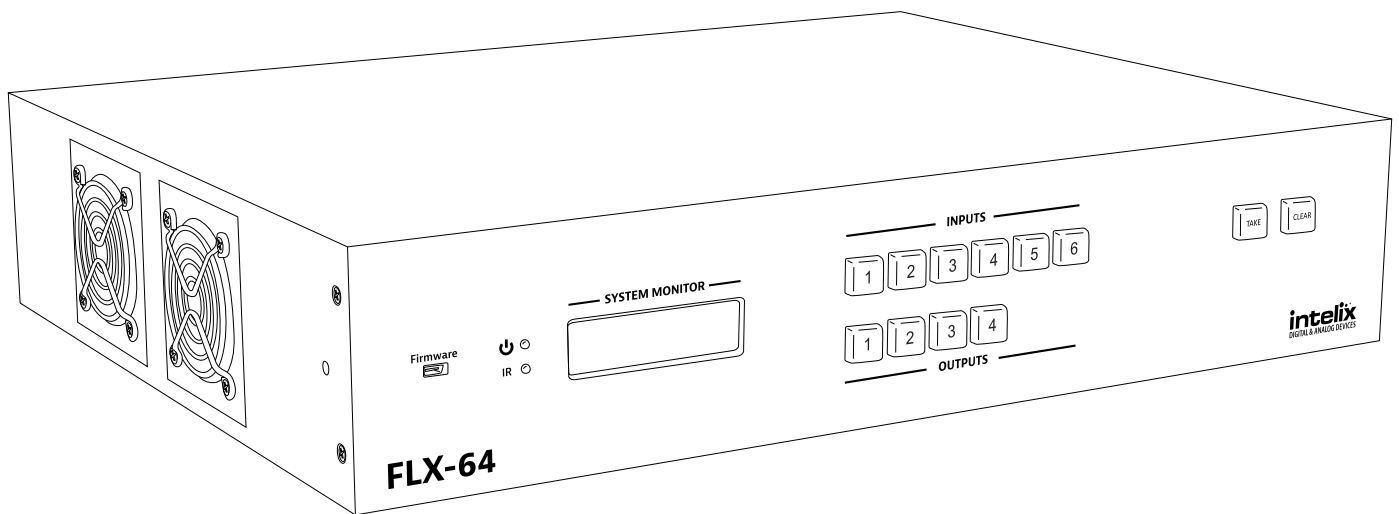



# FLX-64 Installation and Operation Guide






# Important Safety Instructions


1. Read these instructions – All the safety and operating instructions should be read before this product is operated.
2. Keep these instructions – The safety and operating instructions should be retained for future reference.
3. Heed all warnings – All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow all instructions – All operating and use instructions should be followed.
5. Do not use this apparatus near water – The appliance should not be used near water or moisture – for example, in a wet basement or near a swimming pool, and the like.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized plug. A polarized plug has two blades with one wider than the other. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and at the point where it exits from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart or rack is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over. 
13. Unplug the apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as; the power-supply cord or plug is damaged, liquid has been spilt or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. CAUTION: Servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.
16. Do not install this equipment in a confined or built-in space such as a book case or similar unit. The equipment must remain in well ventilation conditions. Ventilation should not be impeded by covering the ventilation openings with items such as newspaper, table-cloths, curtains etc.
17. WARNING: Only use attachments/accessories (such as the battery etc.) specified or provided by the manufacturer.
18. WARNING: Refer to the information on the underside of the enclosure for electrical and safety information before installing or operating the apparatus.
19. WARNING: To reduce the risk of fire or electric shock do not expose this apparatus to rain or moisture. The apparatus shall not be exposed to dripping or splashing and objects filled with liquids, such as vases, shall not be placed on apparatus.
20. CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.
21. WARNING: The battery shall not be exposed to excessive heat such as sunshine, fire or the like.
22. WARNING: The all-pole mains switch located on rear panel is used as the disconnect device, the switch shall remain readily operable.
23. WARNING: DO NOT INGEST BATTERY. CHEMICAL BURN HAZARD.
24. Keep new and used batteries away from children. If the battery compartment does not close securely, stop using the product and keep it away from children.
25. If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.


26. When the apparatus is not in use or during its relocation, take care of the power cord and plugs; e.g. tie up the power cord with cable tie or similar. The tie must be free from sharp edges and the like that might cause abrasion of the power cord. When put into use again ensure the power cord and plugs are not damaged. If any damage is found the power cord and plugs should be replaced by items either specified by the manufacturer or that have same characteristics as the original items.



 27. This lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of non-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

28. **WARNING:** To reduce the risk of electric shock, do not remove cover (or back) as there are no user-serviceable parts inside. Refer servicing to qualified personnel.

 29. The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the appliance.

 30. Protective earthing terminal. The apparatus should be connected to a mains socket outlet with a protective earthing connection.

31. **CAUTION:** To prevent electric shock hazard, replace grille. (CSA 60065, clause 5.3A)

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## Product Overview

The Intelix FLX-64 was designed for use in conference rooms that have two in-room inputs extended to the rack, a few local sources at the rack, two discrete displays, a VTC codec, and a recorder.

The FLX-64 features four HDMI inputs, of which two allow analog audio embedding on balanced inputs. Two HDBaseT inputs are also provided. The HDBaseT inputs support 1080p HDMI video with audio, wide-band IR tunneling (for IR control of sources), RS232 routing, and HDCP up to 60 meters (196 feet). Each HDBaseT input port supplies power to the attached extender, eliminating the need for a power supply at the source end. All inputs feature selectable HDCP compliance and advanced EDID handling to address challenging system design parameters.

The FLX-64 features HDBaseT twisted pair extension for each output, and simultaneous HDMI on the first two outputs, allowing the same signal to be routed to the HDMI connector and a remote destination with an HDBaseT receiver. The HDBaseT ports support 1080p HDMI video with audio, wide-band IR tunneling (for IR control of displays), RS232 tunneling and routing, and HDCP up to 60 meters (196 feet). Each output features a stereo audio de-embedder for balanced connection to amplifiers or DSPs. Audio outputs feature breakaway capabilities, allowing audio from the sources to be sent to any output. Each HDBaseT output port supplies power to the attached extender, eliminating the need for a power supply at the display end.

The FLX-64 can be controlled via front panel buttons, front panel IR, external IR, remote IR through HDBaseT extenders, RS232, and Ethernet. Clear button caps provide legible text on the front panel, which can be customized for each installation. The matrix includes a simple IR remote control to allow IR switching. This IR remote control can be learned into universal remotes and IR based control systems. An IR All In port is provided, which allows one IR connection to control all four remote displays.

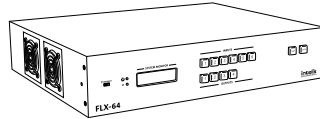
The matrix also features a full command set for RS232 and Ethernet control with third party control systems, plus control and system configuration via a web browser. RS232 commands to remote displays can also be embedded in the control stream through the matrix from both the RS232 and Ethernet control ports, which will reduce the number of serial ports required for the control system.



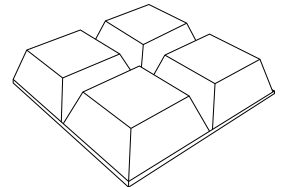
# Package Contents

Please verify the following items are in the shipping box prior to installation of the FLX-64.

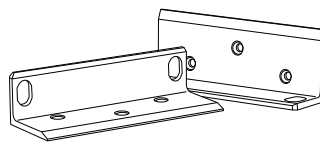
FLX-64 Matrix Switcher  
1 ea



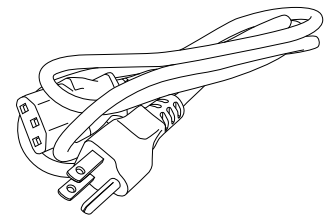
Shelf Feet with Screws  
4 ea



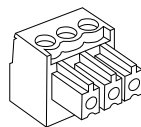
Rack Ears with Screws  
2 ea



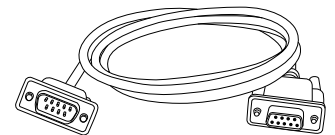
US Power Cable  
1 ea



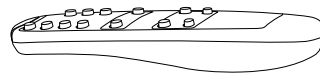
Removable 3-pole  
Terminal Blocks  
(installed on matrix)  
4 ea



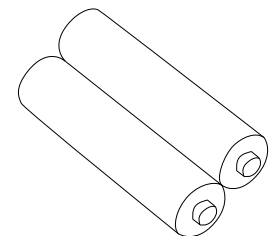
RS232 Cable  
1 ea



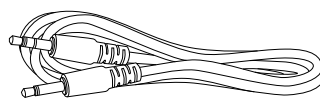
Infrared Remote Control  
1 ea



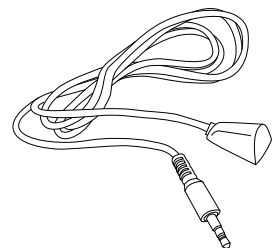
AAA Batteries  
2 ea



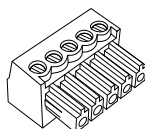
Infrared Remote Adapter  
Cables  
6 ea



Infrared Remote Receiver  
1 ea

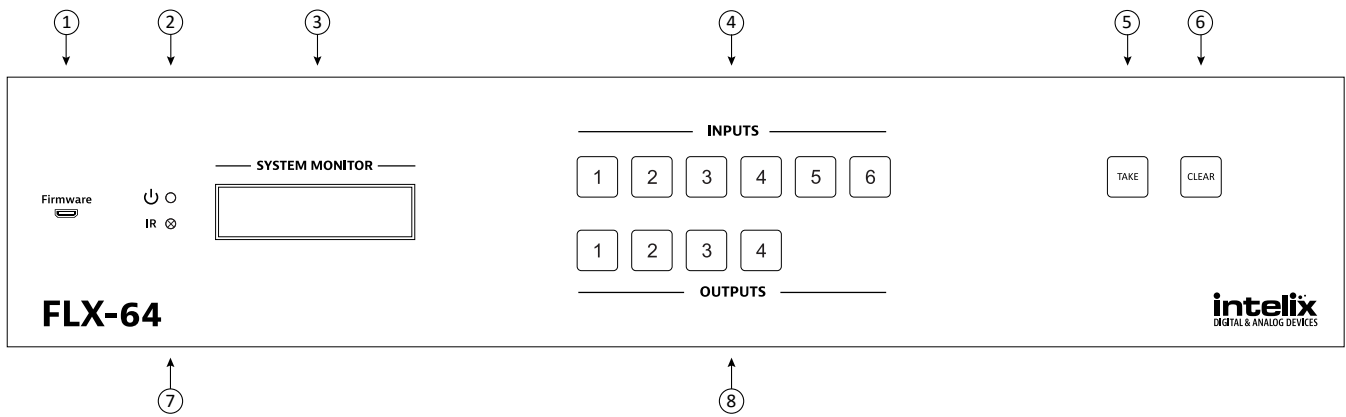


Removable 5-pole  
Terminal Blocks  
(installed on matrix)  
6 ea



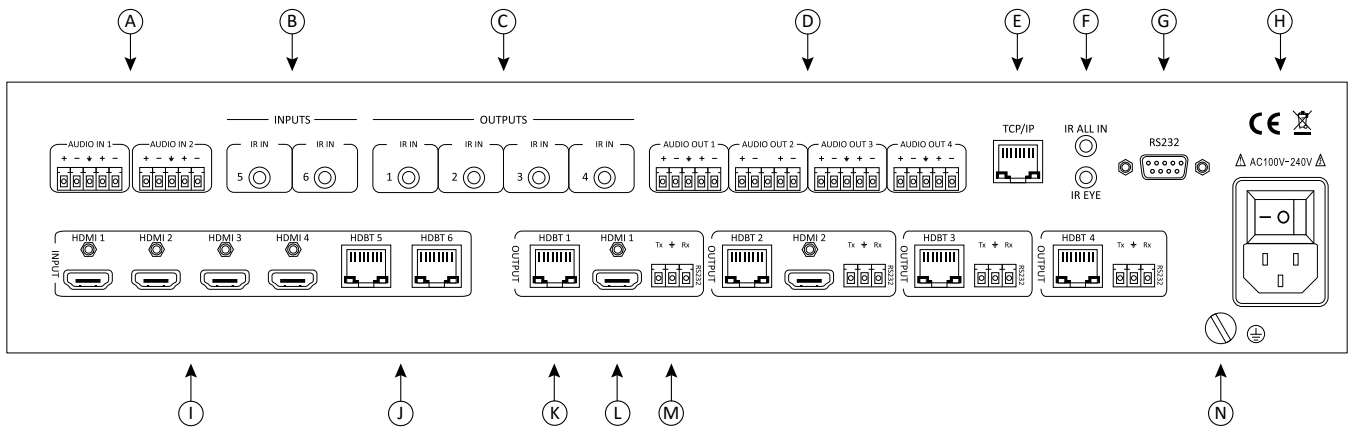
# Front and Rear Panels

## Front Panel



1. Micro USB port for firmware updating
2. Power indicator LED
3. LCD screen
4. Input select buttons
5. Take button – confirms route changes and applies new route
6. Clear button – cancels current routing selection before change is applied
7. IR receiver for matrix control via IR remote
8. Output select buttons

## Rear Panel

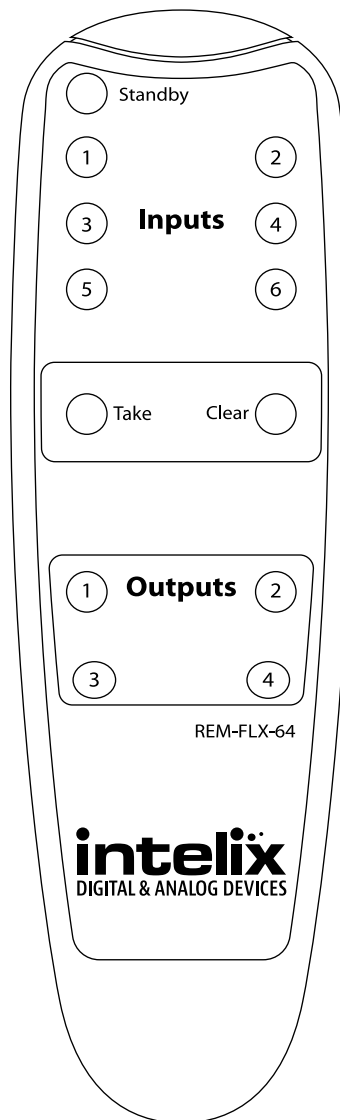


- A. Balanced analog audio inputs (paired to HDMI inputs 1 and 2 only)
- B. IR input ports for each HDBaseT input
- C. IR input ports for each HDBaseT output
- D. Balanced analog audio outputs
- E. TCP/IP (Ethernet) control input; also allows control via web browser
- F. IR input to send IR commands to all remote HDBaseT devices simultaneously (IR ALL IN); IR input for matrix when front is covered or matrix is located in a concealed location (IR EYE)
- G. RS232 control input
- H. Main power switch with AC power input
- I. HDMI inputs
- J. HDBaseT inputs with PoH support
- K. HDBaseT outputs with PoH support
- L. HDMI outputs (outputs 1 and 2 only)
- M. RS232 input for each HDBaseT output
- N. Ground screw

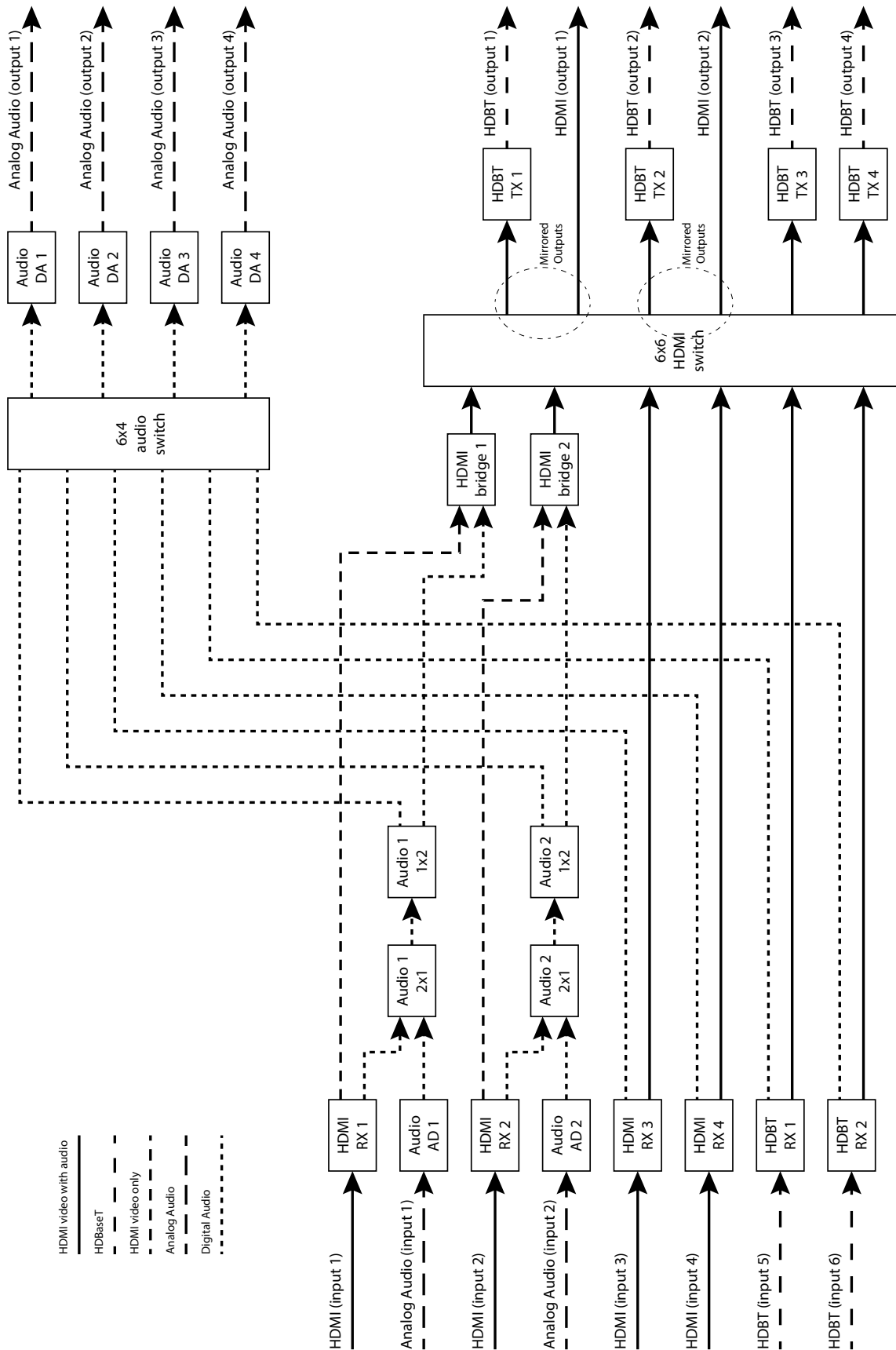
## IR Remote

The included IR remote performs all of the functions available on the front panel of the FLX-64. Please see page 23 for information on controlling the matrix from the front panel and the IR remote.

The remote control requires two AAA batteries, which are included.

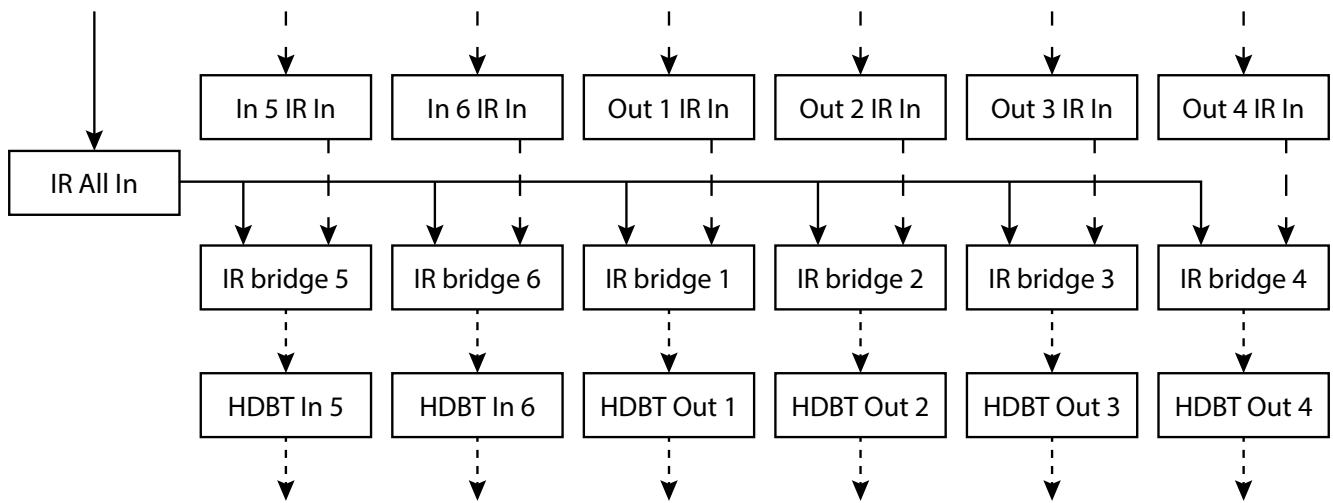


# Audio/Video Routing Diagram

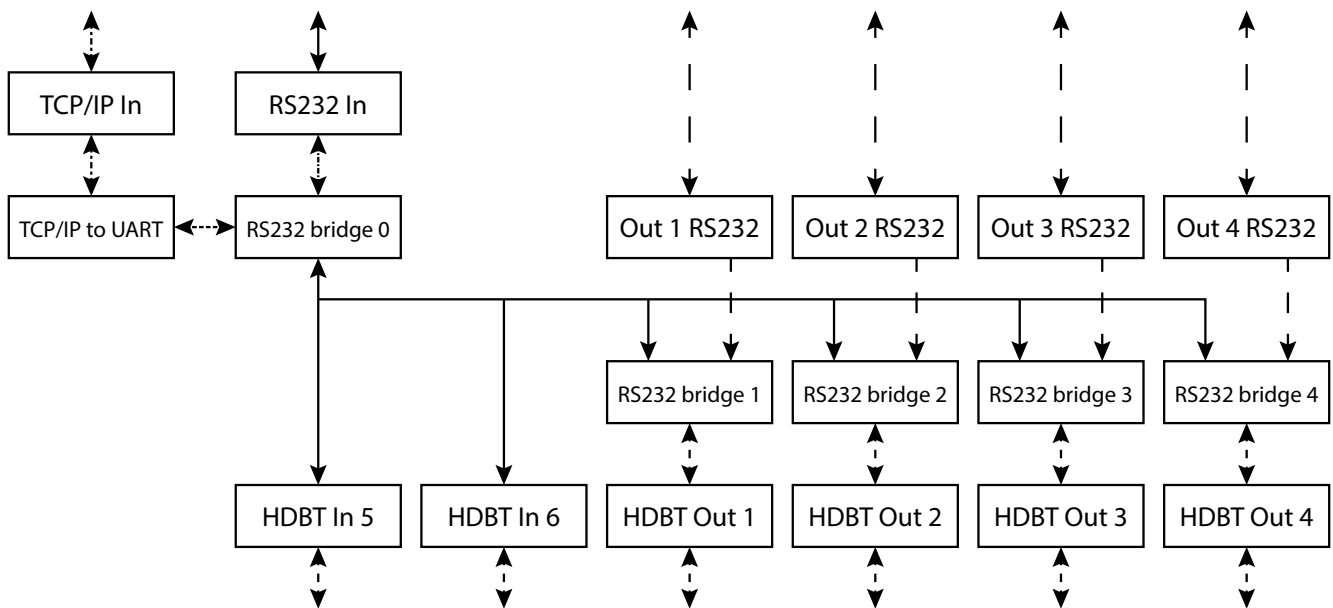


# Control Routing Diagrams

## IR Routing



## RS232 and TCP/IP to RS232 Routing



# Installation Instructions

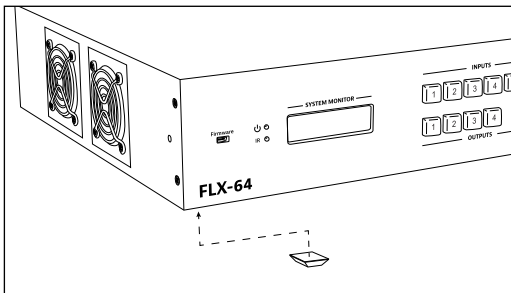
## Quick Start

1. Mount the matrix
2. Connect ground (optional)
3. Connect sources
4. Connect displays
5. Connect analog audio (optional)
6. Connect control (optional)
7. Apply power

## Mount the Matrix

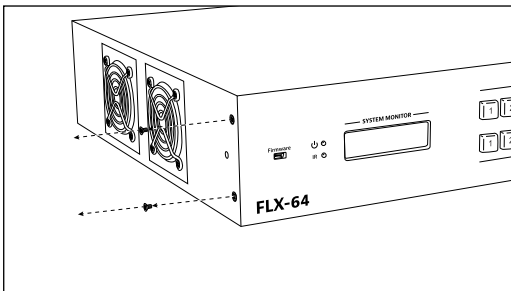
At least 2 inches of free air space is required on both sides of the FLX-64 for proper side ventilation. Avoid mounting the FLX-64 near a power amplifier or any other source of significant heat.

### Shelf Mounting Instructions

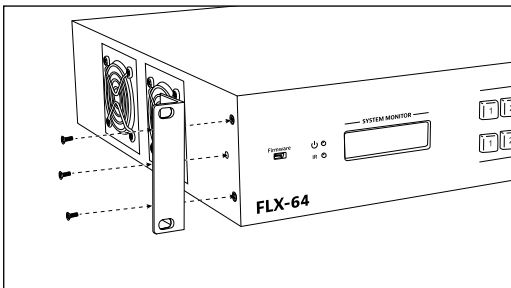


Attach the supplied shelf feet to the bottom of the FLX-64 matrix.

### Rack Mounting Instructions



Locate the two screws on each side of the FLX-64 closest to the front panel. Remove the four screws on the sides of the matrix closest to the front panel. These screws will not be used to mount the rack ears to the matrix.



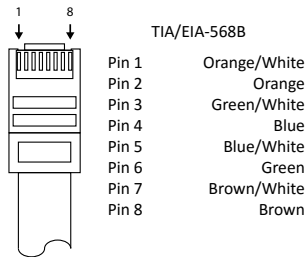
Attach the supplied rack ears to the sides of the FLX-64 matrix. The matrix requires two rack units (2 RU) of space. It is recommended that you leave an empty rack space above and below the FLX-64 for additional cooling.

### Connect Ground

A ground screw is located on the bottom right rear of the matrix to help eliminate static shock during installation of the matrix. Connect a wire from the matrix to an earth ground.

### HDBaseT Cabling Requirements

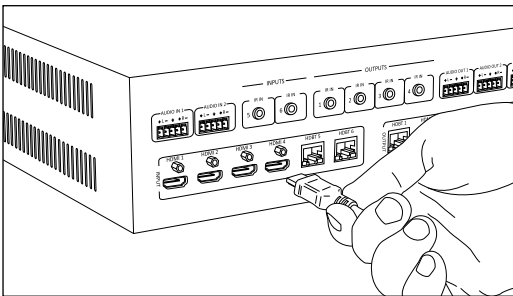
For all HDBaseT cabling, the EIA/TIA-568B crimp pattern must be used on Category 6 or greater cable. In areas with large amounts of electromagnetic (EM) or radio frequency (RF) interference, a shielded variety of Category 5e or greater cable is recommended with shielded connectors on both ends of the selected cable.



The HDBaseT ports provide 15 watts of Power over Ethernet to 48 volt based HDBaseT devices, which eliminates the need for a power supply with a compatible HDBaseT device. All Intelix branded HDBaseT transmitters and receivers that accept remote power are compatible with the FLX-64.

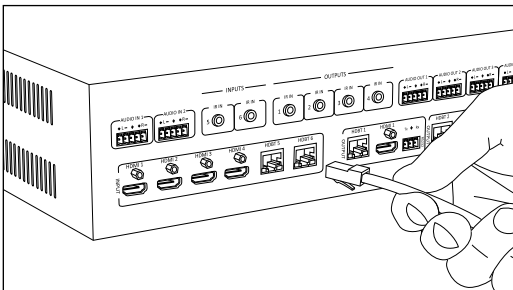
### Connect Sources

#### HDMI Inputs



Connect the source devices to HDMI inputs using HDMI cables that are less than or equal to 5 meters in length. For source devices that are further away, an HDMI extension device will be required to complete the connection.

#### HDBaseT Inputs

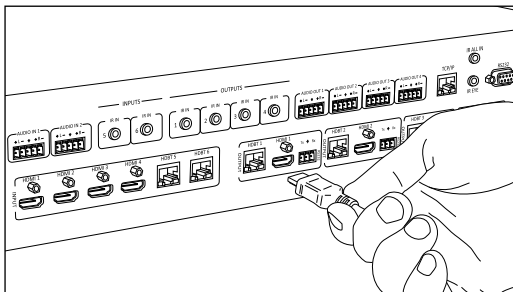


Connect the HDBaseT transmitter to the source device per the manufacturer’s instructions. Connect the HDBaseT cable to the matrix and the HDBaseT receiver.



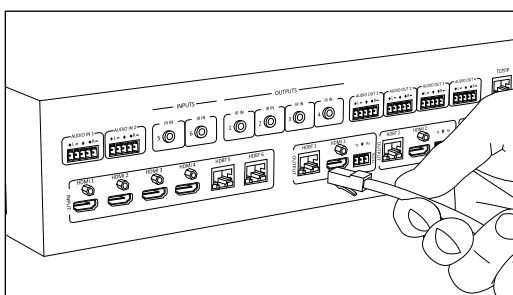
## Connect Displays

### HDMI Outputs



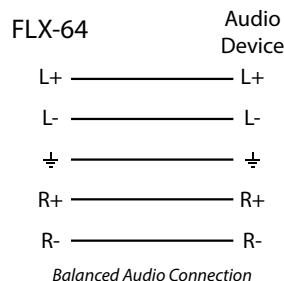
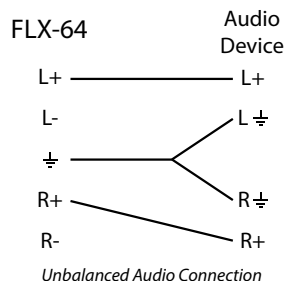
Connect the display devices to HDMI outputs using HDMI cables that are less than or equal to 5 meters in length. For display devices that are further away, it is highly recommended to utilize the HDBaseT outputs.

### HDBaseT Outputs



Connect the HDBaseT receiver to the display per the manufacturer's instructions. Connect the HDBaseT cable to the matrix and the HDBaseT receiver.

## Connect Analog Audio



If the analog audio ports are to be utilized in the installation, determine whether the audio device uses unbalanced audio, such as RCA connectors, or balanced audio, such as a professional audio distribution system.

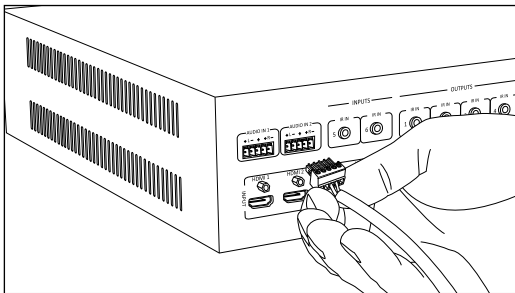
### Unbalanced Audio Wiring

Using the included removable 5-pole terminal blocks, make a cable to interface between the audio device and the FLX-64 as shown in the drawing above. Consult the documentation for the audio device to identify the left, left ground, right, and right ground audio signals.

### Balanced Audio Wiring

Using the included removable 5-pole terminal blocks, make a cable to interface between the audio device and the FLX-64 as shown in the drawing above. Consult the documentation for the audio device to identify the left positive, left negative, right positive, right negative, and ground audio signals.

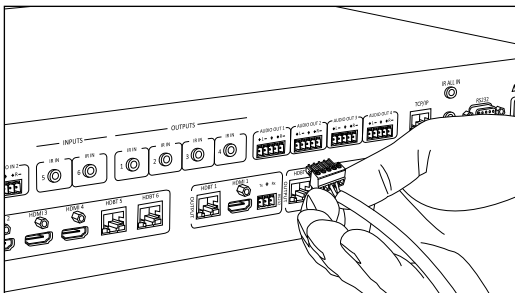
**Analog Audio Input**



Insert the removable 5-pole terminal block to the appropriate input terminal. Use the web GUI (see page 32) or the RS232 command (see page 35) to enable the use of the analog audio input.

The analog audio inputs are paired with the respective HDMI input.

**Analog Audio Output**



Insert the removable 5-pole terminal block to the appropriate output zone terminal.

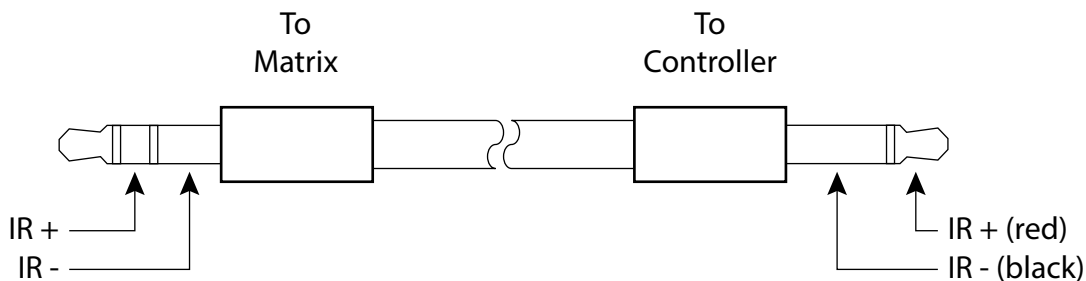
The audio that passes to the analog audio outputs is determined by either directly switching the source to the analog audio output in the web GUI (see page 25) or RS232 (see page 28) or by switching the paired digital video and analog audio output signals in the web GUI (see page 26) or RS232 (see page 28).

**Connect IR Control**

The FLX-64 features IR input connections for the remote devices connected to the HDBaseT inputs, IR input connections for the remote displays connected to the HDBaseT outputs, an IR input connection to control all remote HDBaseT devices, and an IR input connection to control the matrix. For remote sources that require IR control, Intelix recommends using the DIGI-HD60C-S. For remote displays that require IR control, Intelix recommends using the DIGI-HD60C-R.

Only use the included IR receiver or the included IR adapter cables with the FLX-64. The IR adapter cables allow third party controllers to connect directly to the IR input ports of the FLX-64. If addition IR receivers are required, the DIGIB-EYE is a compatible substitute. Third party 12V DC IR components are not compatible with the FLX-64.

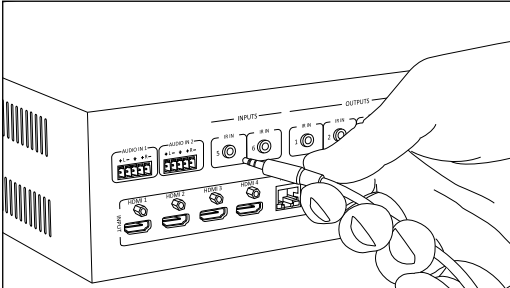
**IR Adapter Cable Pinout**



If the third party controller does not use a 3.5 mm TS plug, the included IR adapter may need to be modified. The tip is IR+ (red wire), and the ring is IR-/ground (black wire).

### Source Device Control via Remote IR

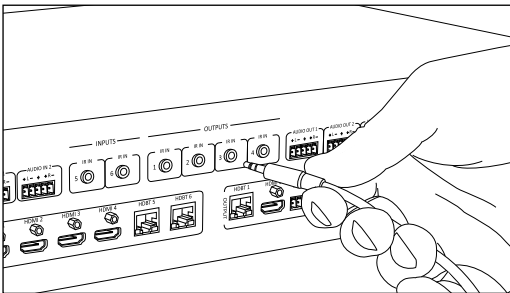
An IR signal passed directly from the matrix location or from a third party control system can provide control of the source device through the HDBaseT connection.



Insert a compatible IR receiver or the red TRS 3.5 mm plug labeled “This end to matrix” of the IR adapter cable into the IR input port (IR IN) of the matrix for the source device to control.

### Remote Display Control via IR

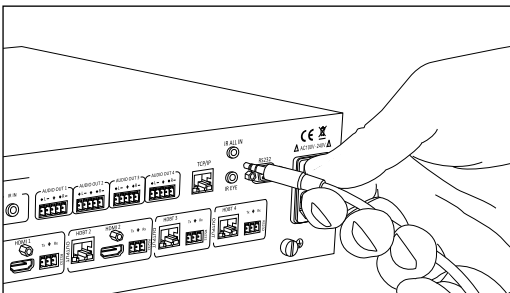
An IR signal passed directly from the matrix location or from a third party control system can provide control of the display device through the HDBaseT connection.



Insert a compatible IR receiver or the red TRS 3.5 mm plug labeled “This end to matrix” of the IR adapter cable into the IR input port (IR IN) of the matrix for the display device to control.

### Global Control via IR

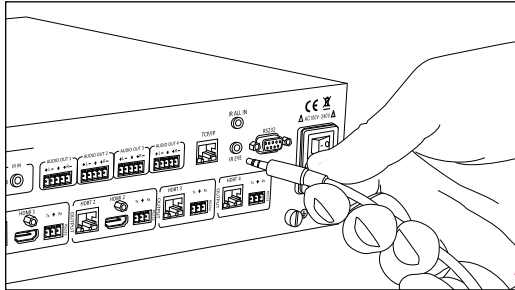
An IR signal passed directly from the matrix location or from a third party control system can provide control of all source and display devices through the HDBaseT connections.



Insert a compatible IR receiver or the red TRS 3.5 mm plug labeled “This end to matrix” of the IR adapter cable into the IR input port (IR ALL IN) of the matrix to control all remote devices.

### Concealed Matrix Control via IR

When the FLX-64 is installed in an equipment rack or other concealed location, access to the front panel for normal IR control may be difficult. The *IR EYE* input allows the IR remote to control the matrix.



Insert a compatible IR receiver or the red TRS 3.5 mm plug labeled “This end to matrix” of the IR adapter cable into the IR input port (IR EYE) of the matrix.

### Connect RS232 Control

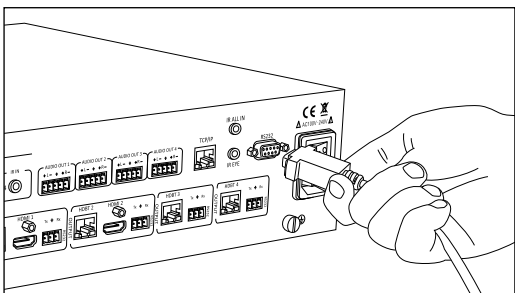
In addition to traditional RS232 control, the FLX-64 has an advanced RS232 control mechanism which allows RS232 tunneling and routing through the HDBaseT output port to control remote devices. Intelix recommends using the DIGI-HD60C-R for installations which require RS232 extension.

See page 28 for all available control commands for the FLX-64.

### Matrix Control via RS232

The RS232 control port requires a standard straight-through serial cable for operation. The default settings for the RS232 port are:

- 9600 baud
- 8 Data Bits
- 1 Stop Bit
- Parity = none

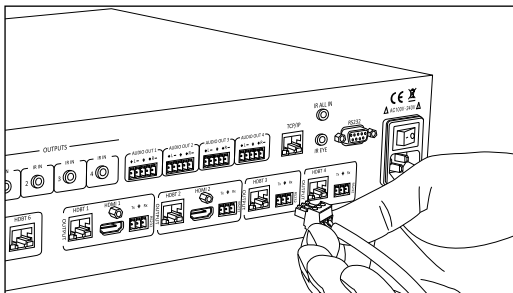
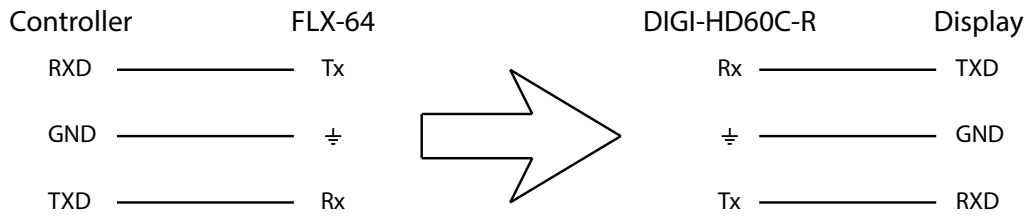


Connect a standard straight-through serial cable with DE9 connector between the RS232 port on the FLX-64 and the controller.

### Remote RS232 Control via Tunneling

Discrete control of remote display devices is possible by connecting an RS232 output of a control system to the 3-pole terminal block on the output of the matrix. A compatible HDBaseT with control receiver is required to pass the control signals to the display devices, such as the DIGI-HD60C-R.

To use the RS232 extension capabilities of the FLX-64, connect the TX, ground, and RX control signal wires to the removable 3-pole terminal block. Consult the manual of the control device(s) to determine which pins the TX/RX signals are carried on. Be sure to always connect TX to RX and RX to TX.



Insert the removable three-pole terminal block into the RS232 tunneling port for the output zone which requires remote RS232 control.

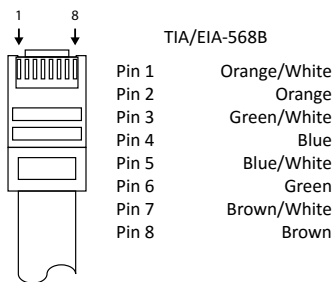
### Remote RS232 Control via RS232 Routing

The FLX-64 has the logic to pass RS232 commands to remote devices through the DE9 RS232 port. Please see page 36 for more information on how to implement this feature in an installation.

### Connect TCP/IP (Ethernet) Control

The FLX-64 may be controlled via Ethernet with a third party control system or through a web browser interface. Additionally, the FLX-64 has an advanced RS232 control mechanism which will transmit RS232 commands through the HDBaseT output port to control remote devices with a simple command string.

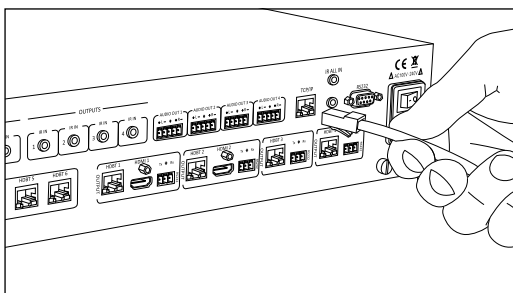
See page 28 for all available control commands for the FLX-64.



The TCP/IP port requires a standard straight-through Category 5 or greater cable with the TIA/EIA-568B crimp pattern for operation.

The default settings for the TCP/IP port are:  
 IP address: 192.168.0.178  
 Port: 8080

### Matrix Control via TCP/IP (Ethernet)



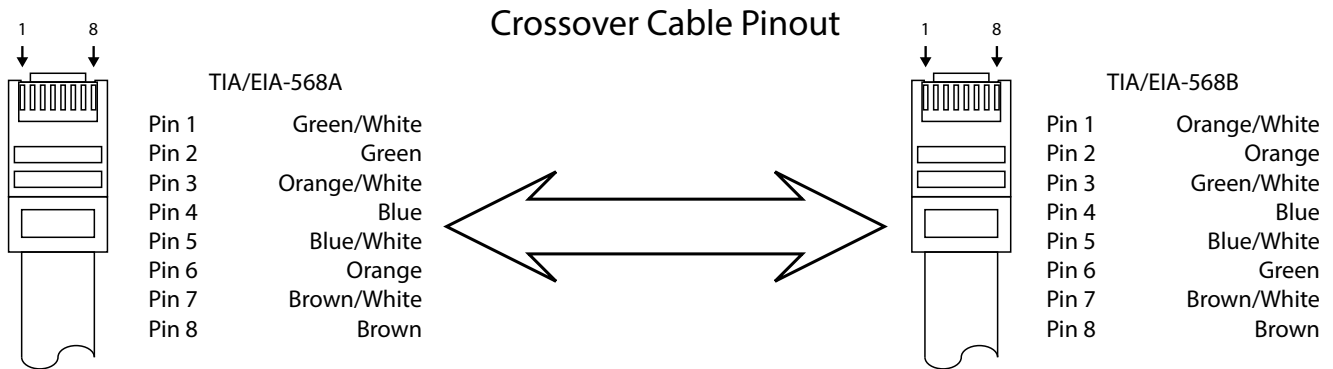
Connect the Ethernet cable between to the matrix and a router with a straight-through cable or between the matrix and a computer with a crossover cable.

**Router Connection**

1. Configure the router to use the same IP range as the matrix, such as 192.168.0.1.
2. Connect the computer to the router.
3. Connect the FLX-64 to the router

**Crossover Cable Connection**

1. Configure the computer to use the same network prefix as the IP address assigned to the matrix. *For example, the IP address of the matrix is 192.168.0.178. Set the computer to use a static IP address within the same network range, such as 192.168.0.42.*
2. Connect the network crossover cable to the computer and to the TCP/IP port on the FLX-64.



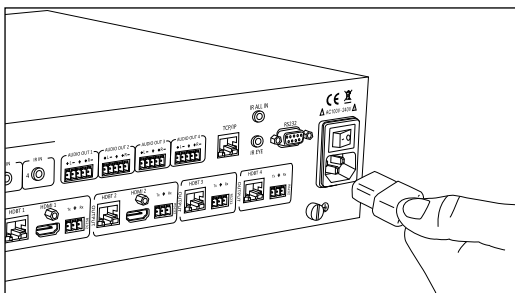
**Web Browser Control**

The FLX-64 includes a web portal to allow control of the matrix via a standard web browser. The IP address is the same address that is used for TCP/IP control. See page 25 for detailed information regarding the web browser interface, including customization.

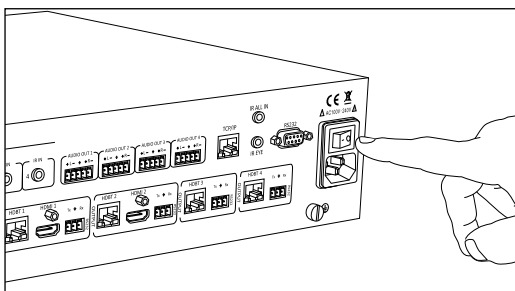
**Remote RS232 Control via TCP/IP Routing**

The FLX-64 has the logic to pass RS232 commands to remote devices through the TCP/IP port. Please see page 36 for more information on how to implement this feature in an installation.

**Apply Power**



Connect the IEC power cable into the power input on the rear of the matrix.



Press the power on side (I) of the power switch to apply power.

# Front Panel and IR Remote Operation

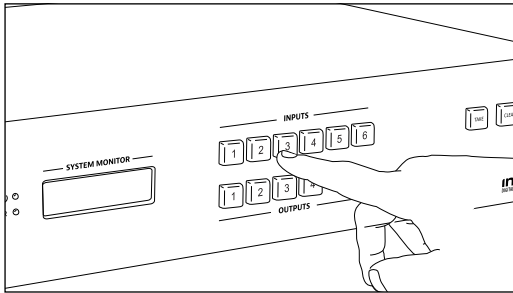
## Basic Routing

Setting a route using the front panel of the matrix will only route the input signal to the digital video output. There is no change to the analog audio output route.

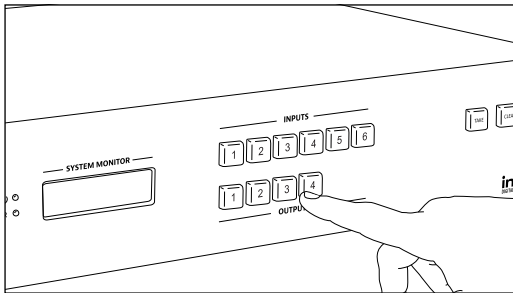
To set a route using the front panel of the FLX-64:

1. Press the desired input button (source).
2. Press the desired output button (display).
3. Press the TAKE button. All the selected buttons will flash then go dark indicating a routing change.

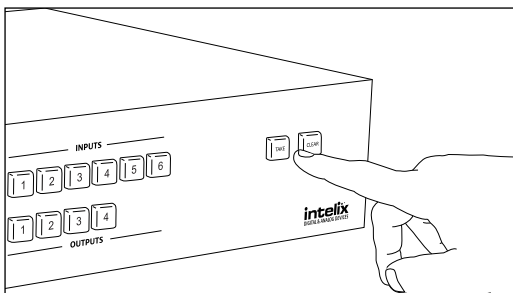
To route video and audio from input 2 to output 3:



Press input 2.



Press output 3.



Press TAKE.

## Advanced Routing

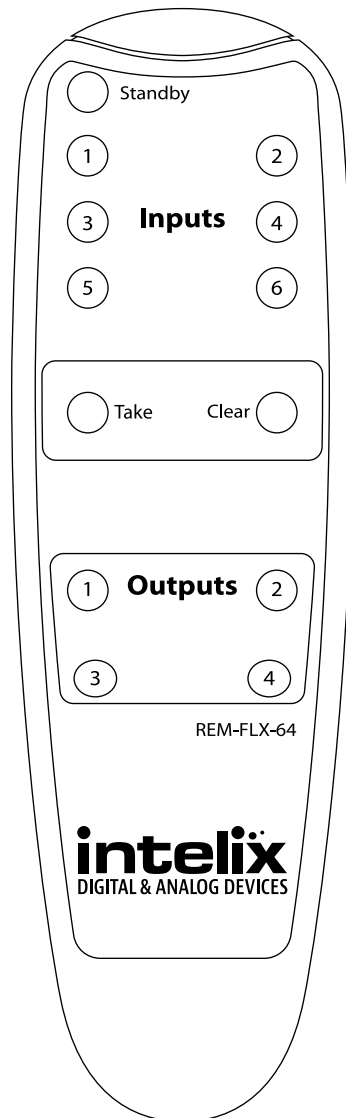
To route video and audio from input 3 to all outputs:

1. Press input 3.
2. Press outputs 1, 2, 3, and 4.
3. Press TAKE.

### ***IR Remote Operation***

The buttons on the IR remote are identical to the buttons on the front panel of the FLX-64. The IR routing command sequences are identical to the front panel command sequences.

The Standby button will send the matrix to a low power state. Pressing the Standby button a second time will restore the FLX-64 to full power.





# Web Browser Control

## User Login

Open a web browser and go to the IP address of the FLX-64. The default IP address is 192.168.0.178.

Select User from the UserName drop-down.

Enter the password to gain control of the matrix. The default password is "123456".

Press the Enter key on your keyboard or tablet to go to the matrix control screen.

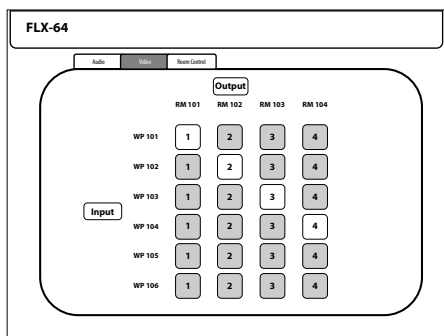
## Matrix Routing - Audio Follows Video

If the matrix is configured for audio follows video in the web GUI, the analog audio output and the corresponding digital video with audio outputs will be paired together. To change this behavior, please see page 31.

Click the input to output route and the button will turn green once the route has been changed.

### Matrix Routing - Audio Separate from Video

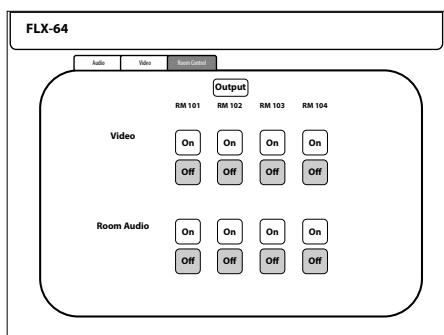
If the matrix is configured for the analog audio output to be separate from the corresponding digital video and audio output, there will be separate switching screens available to select the routes for the analog audio outputs and digital video with digital audio outputs. To change this behavior, please see page 32.



Select the Audio tab to change the output audio source, or the Video tab to change the output video with digital audio source. Click the input to output route and the button will turn green once the route has been changed.

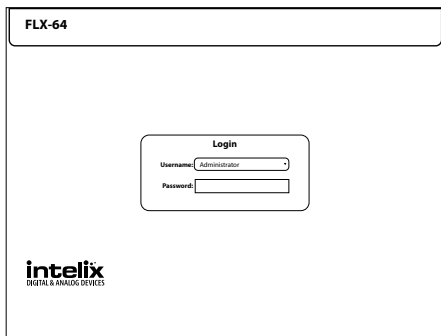
### Room Control

The FLX-64 has a Room Control tab, which can turn on and off the video output or the analog audio output for each output zone. If the connected displays have RS232 control, power off and power on commands for the displays may be transmitted when the Display off and on commands are activated. To define the RS232 commands to the displays or change this behavior, please see page 33.

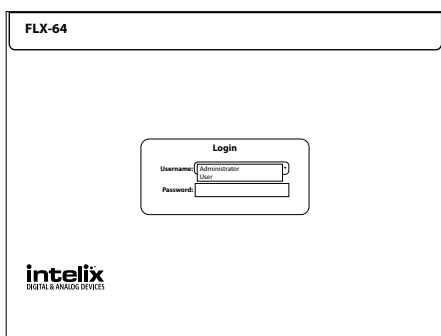


Clicking the On or Off button will turn the button green and disable the video or audio output for that zone.

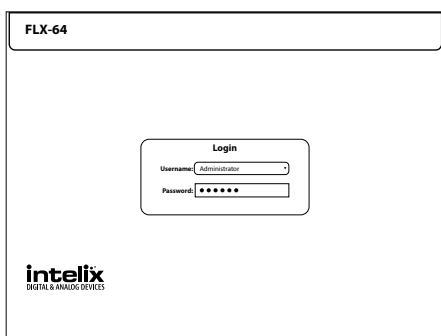
## Administrator Login



Open a web browser and go to the IP address of the FLX-64. The default IP address is 192.168.0.178.



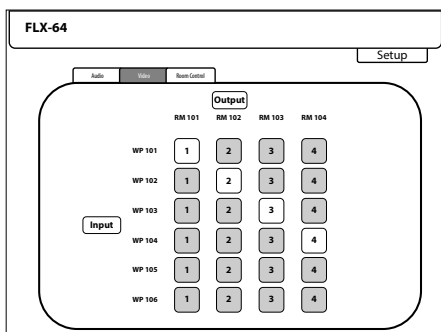
Select Administrator from the UserName drop-down.



Enter the password to gain control of the matrix. The default password is "admin".

Press the Enter key on your keyboard or tablet to go to the matrix control screen.

## Matrix Switching and Room Control



Matrix switching and Room Control in the Administrator view is identical to the User functionality. The only difference is a Setup button in the upper right corner to enter to configuration screens. Please see page 25 on how to control switching through the web GUI.

## RS232 and TCP/IP Control

RS232 Settings: 9600 baud, 8 Data bits, 1 Stop bit, Parity = None

TCP/IP Settings: User defined IP address (default IP address: 192.168.0.178), port 8080

There is either a period (.) or a semicolon (;) at the end of each command. These characters must be present for the command to process correctly.

There are no spaces between any of the characters in the command string.

xx = Input Number (input 2 would be 02)

yy = Output Number (output 3 would be 03)

<CR> = Carriage return (Hex 0D)

<LF> = Line Feed (Hex 0A)

### Routing Commands

Description	Command	Response
Route input xx to audio and video output yy	xxByy.	xxByy<CR><LF>
Route input xx to audio output yy	xxAyy.	xxAyy<CR><LF>
Route input xx to video output yy	xxVyy.	xxVyy<CR><LF>
Route input xx to all video outputs	xxAll.	xx To All<CR><LF>
Route inputs to corresponding video outputs	All#.	All Through.<CR><LF>
Turn off all video outputs	All\$.	All Closed.<CR><LF>
Turn on all video outputs	All@.	All Open.<CR><LF>
Turn off specific video output yy	yy\$.	yy Closed. <CR><LF>
Turn on specific video output yy	yy@.	yy Open. <CR><LF>
Turn off all audio outputs	AudioSwitch\$.	Audio All Closed.<CR><LF>
Turn on all audio outputs	AudioAll@.	Audio All Open.<CR><LF>
Turn off specific audio output yy	yyAudio\$.	yy Audio Closed. <CR><LF>
Turn on specific audio output yy	yyAudio@.	yy Audio Open. <CR><LF>

Examples:

02All.	Route Video and Audio from input 2 to all outputs
04\$.	Turn off Video and Audio for output 4
02B03.	Route Video and Audio from input 2 to output 3
03B02,04.	Route Video and Audio from input 3 to outputs 2 and 4

## Preset Commands

The FLX-64 can store up to 10 presets of audio and video routes. These routes can be configured to be audio follows video and/or audio and video are separate.

Description	Command	Response
Save the current routing as a preset. Values range from 0 through 9	Save $x$ .	Save to F $x$ <CR><LF>
Recall preset $x$	Recall $x$ .	Recall From F $x$ <CR><LF>
Clear preset $x$	Clear $x$ .	

Examples:

Save4.	Save the current routing as preset 4.
Recall4.	Recall preset 4
Clear4.	Clear preset 4

## Power Management

The FLX-64 features two Standby modes. One Standby mode will leave power on to the HDBaseT ports. The other Standby mode will turn off power to the HDBaseT ports, which will also prevent passing RS232 commands via HDBaseT until the Power on command is transmitted to the FLX-64.

Description	Command	Response
Power on	PWON.	PWON <CR><LF>
Standby Mode (power on to HDBaseT)	STANDBY.	STANDBY <CR><LF>
Standby Mode (power off to HDBaseT)	PWOFF.	PWOFF <CR><LF>

## EDID Settings

The stock EDID for the inputs of the FLX-64 is 1080p with stereo audio. In order to change the EDID information for an input, the EDID copy command will need to be sent to the matrix via RS232 or TCP/IP or managed through the web browser setup interface (see page 32).

EDIDMyyBxx.	Copy video and audio EDID of output yy to input xx
EDIDHyxBxx.	Copy video EDID of output yy and specify 2 channel PCM to input xx
EDIDMInit.	Restore factory EDID information

### **Full EDID Copy**

To copy the video and audio EDID information from output 3 to input 1, transmit the following command:

```
EDIDM03B01.
```

### **Hybrid EDID Copy**

Hybrid EDID copy is the preferred command to use when the audio is going to be routed to an analog audio output of the matrix. To copy the video EDID information from output 2 and specify two channel PCM audio output to input 4, transmit the following command:

```
EDIDH02B04.
```

## Input HDCP Settings

HDCP is enabled on all inputs of the FLX-64. If the video output of the matrix is going to a video recorder, video conferencing system, or other non-HDCP compliant device, the HDCP input compliance will need to be disabled to view non-encrypted content. Showing encrypted content on a non-compliant display will output a black video image. In order to change the HDCP compliance for an input, the HDCP on/off commands will need to be sent to the matrix via RS232 or TCP/IP or managed through the web browser setup interface (see page 32).

/%I/xx:0.	Turn off HDCP Compliance for input xx
/%I/xx:1.	Turn on HDCP Compliance for input xx

To turn off HDCP compliance for input 6, transmit the following command:

```
/%I/06:0.
```

# Web Browser Configuration

When changes are made on a setup tab, the Save button must be pressed for the changes to take effect.

## Users Tab

The Users setup screen provides options to change the Administrator and User passwords. The front panel can also be locked to prevent tampering from this screen.

The screenshot shows the 'Users' configuration page for the FLX-64 device. The page has a header with 'FLX-64' on the left and the 'intelix DIGITAL & ANALOG DEVICES' logo on the right. Below the header is a navigation bar with tabs: 'Users', 'Interface', 'Configuration', 'Network', 'Display Control Out', and 'Display Control In'. The 'Main' tab is also visible. The main content area is titled 'Credentials:' and contains two password input fields: 'Admin password:' with the value 'admin' and 'User password:' with the value '123456'. Below this is a section titled 'Front Panel:' with two radio button options: 'Unlocked' (selected) and 'Locked'. At the bottom of the form are 'Save' and 'Cancel' buttons.

## Interface Tab

The Interface setup screen features options to customize the end user's experience with the matrix.

- » Title Bar Label
  - ◇ This changes the title that is shown on the Matrix Control screen.
- » LCD Readout
  - ◇ The LCD panel can be customized with a limit of 16 characters per line.
  - ◇ Apostrophe ('), comma (,), and backslash (\) are not supported characters.
- » Button Labels
  - ◇ Input and output labels can be changed to make routing signals easier for the end user.
- » AV Control Screens
  - ◇ Selects which routing screens are available to access through the web GUI.
  - ◇ Turning all screens off will show an empty screen for routing.
  - ◇ The Audio+Video option cannot be On when the Audio Only or Video Only options are also On.

The screenshot shows the 'Interface' configuration page for the FLX-64 device. The page has a header with 'FLX-64' on the left and the 'intelix DIGITAL & ANALOG DEVICES' logo on the right. Below the header is a navigation bar with tabs: 'Users', 'Interface', 'Configuration', 'Network', 'Display Control Out', and 'Display Control In'. The 'Main' tab is also visible. The main content area is divided into several sections:
 

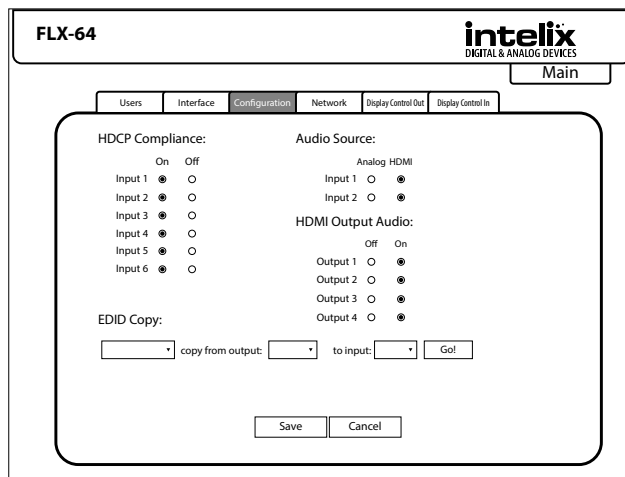
- Title Bar Label:** A text input field containing 'FLX-64'.
- LCD Readout:** Two text input fields, the first containing 'intelix' and the second containing 'FLX-64'.
- Button Labels:** Six pairs of input fields labeled 'Input 1' through 'Input 6' and 'Output 1' through 'Output 6'. The input fields contain 'WVP 101' through 'WVP 106', and the output fields contain 'RM 101' through 'RM 104'.
- AV Control Screens:** A list of options with radio buttons: 'Audio + Video' (selected), 'Audio Only', 'Video Only', and 'Room Control'.

 At the bottom of the form are 'Save' and 'Cancel' buttons.

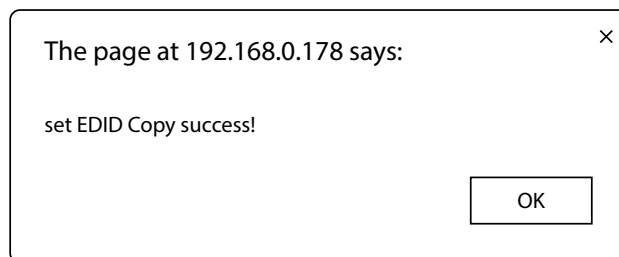
### HDCP, EDID, and Audio Configuration Tab

The Configuration setup screen has options to turn on and off the HDCP compliance flag for an input, select the audio input source for inputs 1 and 2, enable or disable the digital audio output, and copy the EDID from an output to an input. For more information on HDCP compliance, please see page 30.

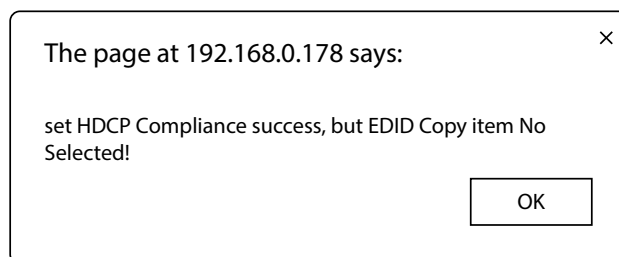
- » HDCP Compliance
  - ◇ Turns on or off HDCP compliance for each input.
- » Audio Source
  - ◇ Selects Analog or HDMI audio for inputs 1 and 2
- » HDMI Output Audio
  - ◇ Turns on or off HDMI output audio for each output.
- » EDID copy
  - ◇ Copies the EDID from an output to an input.
  - ◇ Hybrid copy will substitute 2 channel PCM for the audio settings of the copied display
  - ◇ Full copy will copy the entire EDID table of the display



After the “EDID copy mode”, “output to copy from”, and “input to copy to” are selected, click the Go! button. You will be presented with an EDID copy success window after the changes are successfully applied to the matrix.



After making changes to any settings other than EDID copy, the following message will appear:





## Network Tab (IP Address)

The Network setup screen features DHCP or Static IP settings for the matrix. This screen also shows the current version of software in the matrix.

FLX-64 intelix DIGITAL & ANALOG DEVICES

Main

Users Interface Configuration Network Display Control Out Display Control In

Network Settings:

MAC address: AC:A2:13:AE:0A:9B

DHCP:

Static IP:

IP address: 192.168.0.178

Subnet Mask: 255.255.255.0

Gateway: 192.168.0.1

GUI Version: V1.0.1

HW Version: V1.0.2

Save Cancel

## Display Control Out Tab

The FLX-64 has the ability to turn on and off the HDBaseT connected displays via RS232 when the matrix is powered on or off and when the video output is turned on and off through the Room Control tab on the main routing screen. The baud rate is selectable from the dropdown list on the right side next to each output command setting (2400, 4800, 9600, 19200, 38400, 57600, and 115200 baud). Data bits (8), stop bits (1), and parity (none) are fixed values.

- » Matrix ON and Matrix OFF
  - ◇ Transmits the corresponding power on and power off commands when the matrix goes into or comes out of a standby state (controlled via RS232 or TCP/IP; see page 29).
- » Power On Cmd and Power Off Cmd
  - ◇ Power on and power off RS232 commands for the connected displays.
- » Room ON and Room OFF
  - ◇ Transmits the corresponding power on and power off commands when the video output is turn on or off through the Room Control tab (see page 26) or via RS232 or TCP/IP (see page 28).

FLX-64 intelix DIGITAL & ANALOG DEVICES

Main

Users Interface Configuration Network Display Control Out Display Control In

Display Control Out: Matrix ON  Matrix OFF

Output 1

Power On Cmd  Room ON  Power Off Cmd  Room OFF  Baud Rate 9600

Output 2

Power On Cmd  Room ON  Power Off Cmd  Room OFF  Baud Rate 9600

Output 3

Power On Cmd  Room ON  Power Off Cmd  Room OFF  Baud Rate 9600

Output 4

Power On Cmd  Room ON  Power Off Cmd  Room OFF  Baud Rate 9600

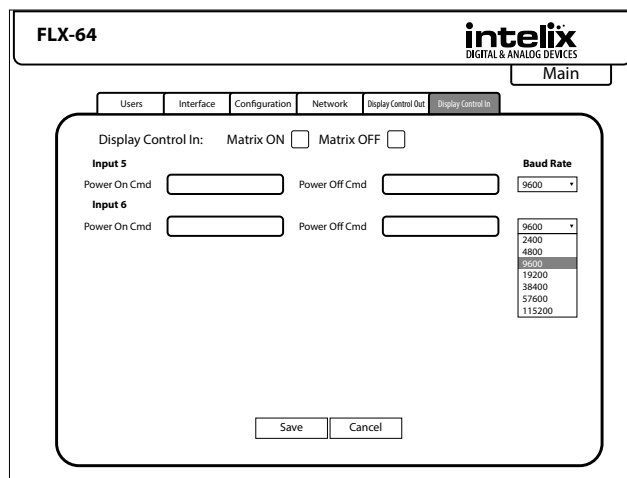
Save Cancel

9600  
2400  
4800  
9600  
19200  
38400  
57600  
115200

### Display Control In Tab

The FLX-64 has the ability to turn on and off the HDBaseT connected sources via RS232 when the matrix is powered on or off. The baud rate is selectable from the dropdown list on the right side next to each output command setting (2400, 4800, 9600, 19200, 38400, 57600, and 115200 baud). Data bits (8), stop bits (1), and parity (none) are fixed values.

- » Matrix ON and Matrix OFF
  - ◇ Transmits the corresponding power on and power off commands when the matrix goes into or comes out of a standby state (controlled via RS232 or TCP/IP; see page 29).
- » Power On Cmd and Power Off Cmd
  - ◇ Power on and power off RS232 commands for the connected displays.



## RS232 and TCP/IP Configuration

### Front Panel Lock

The front panel lock prevents digital video switching from being activated via the front panel.

Description	Command	Response
Lock the front panel keys	/%Lock;	System Locked!<CR><LF>
Unlock the front panel keys	/%Unlock;	System Unlock!<CR><LF>

### HDCP Compliance

Description	Command	Response
Turn HDCP Compliance off for input <i>xx</i>	/%I/ <i>xx</i> :0.	/%I/ <i>xx</i> :0.<CR><LF>
Turn HDCP Compliance on for input <i>xx</i>	/%I/ <i>xx</i> :1.	/%I/ <i>xx</i> :1.<CR><LF>

Example:

/%I/04:0.	Turn HDCP Compliance off for input 4
-----------	--------------------------------------

### Input Audio Source

Select between using either the digital audio feed from the HDMI input or the balanced analog audio input. These options are only available for HDMI inputs 1 and 2.

Description	Command	Response
HDMI In 1 Digital Audio	Audio/1:0.	Audio/01:00.<CR><LF>
HDMI In 1 Analog Audio	Audio/1:1.	Audio/01:01.<CR><LF>
HDMI In 2 Digital Audio	Audio/2:0.	Audio/02:00.<CR><LF>
HDMI In 2 Analog Audio	Audio/2:1.	Audio/02:01.<CR><LF>

### Digital Audio Output

Turn on and off the audio feed coming from the digital audio outputs. Disabling the digital audio feed on outputs 1 and 2 affect the HDBaseT and HDMI outputs. Values for *y* correspond to outputs 1 through 4, 5 is for all outputs.

Description	Command	Response
Turn on digital audio for output <i>y</i>	DigitAudioON <i>y</i> .	DigitAudio ON with Output <i>y</i> <CR><LF>
Turn off digital audio for output <i>y</i>	DigitAudioOFF <i>y</i> .	DigitAudio OFF with Output <i>y</i> <CR><LF>

### EDID Configuration

Description	Command	Response
Copy EDID of output <i>yy</i> to input <i>xx</i>	EDIDMyyBxx.	EDIDMyyBxx.<CR><LF>
Copy Hybrid EDID of output <i>yy</i> to input <i>xx</i>	EDIDHyBxx.	EDIDHyBxx.<CR><LF>
Restore factory EDID information	EDIDMInit.	EDIDMInit<CR><LF>

Example:

EDIDM02B01.	Copy EDID of output 2 to input 1
-------------	----------------------------------

### Messaging via HDBaseT

Matrix switching commands and responses may be transmitted to the RS232 ports of the HDBaseT connected devices. When this option is disabled, only device on and off commands will pass to the HDBaseT ports.

Description	Command	Response
Turn off matrix command feedback	/:MessageOff;	/:MessageOff;<CR><LF>
Turn on matrix command feedback	/:MessageOn;	/:MessageOn;<CR><LF>

### Immediate RS232 Routing to HDBaseT

The FLX-64 has the logic to pass RS232 commands to remote devices through the TCP/IP or DE9 RS232 ports. The destination command string is embedded in a command which includes the destination HDBaseT port and baud rate. This is a bidirectional communication method. The maximum string length is 48 bytes (characters).

The format of the RS232 routing string is: /+<Y>/<B>:<\$>. (The period at the end of the string is required.) <Y> is the HDBaseT port code, <B> is the baud rate, and <\$> is the RS232 string.

HDBaseT Port	Port Code	Baud	Baud Code
Output 1	1	2400	1
Output 2	2	4800	2
Output 3	3	9600	3
Output 4	4	19200	4
Input 5	5	38400	5
Input 6	6	57600	6
ALL	7	115200	7

Examples:

/+3/4:GoToInput1.	Send the string GoToInput1 to output 3 at 19200 baud
-------------------	--

### Power On RS232 Routing to HDBaseT

In addition to immediate transmission, the FLX-64 can store commands to be broadcast when the matrix is powered on through the standby commands (`PWON.`, `STANBY.`, and `PWOFF.`).

The format of the RS232 routing string is: `/+<Y>/<B>:<$>.` (The period at the end of the string is required.) `<Y>` is the output code, `<B>` is the baud rate, and `<$>` is the RS232 string. Output codes and baud rate codes are in the tables below.

HDBaseT Port	Port Code	Baud	Baud Code
Output 1	A	2400	1
Output 2	B	4800	2
Output 3	C	9600	3
Output 4	D	19200	4
Input 5	E	38400	5
Input 6	F	57600	6
		115200	7

### Power Off RS232 Routing to HDBaseT

In addition to immediate transmission, the FLX-64 can store commands to be broadcast when the matrix is powered off through the standby commands (`PWON.`, `STANBY.`, and `PWOFF.`).

The format of the RS232 routing string is: `/+<Y>/<B>:<$>.` (The period at the end of the string is required.) `<Y>` is the output code, `<B>` is the baud rate, and `<$>` is the RS232 string. Output codes and baud rate codes are in the tables below.

HDBaseT Port	Port Code	Baud	Baud Code
Output 1	G	2400	1
Output 2	H	4800	2
Output 3	I	9600	3
Output 4	J	19200	4
Input 5	K	38400	5
Input 6	L	57600	6
		115200	7

### Factory Reset

The factory reset command will reset every setting to the factory defaults. EDID, HDCP, routing, presets, IP address, web GUI customization, and more will all be reset to the original settings. Use extreme caution when the matrix is used in a live environment.

Description	Command	Response
Factory Reset	<code>%0911.</code>	<code>Factory Default&lt;CR&gt;&lt;LF&gt;</code>

## RS232 and TCP/IP System Query

### Routing Queries

Description	Command	Response
Output <i>yy</i> routing status (only 1 digit)	Status <i>y</i> .	xxVyy<CR><LF> xxAyy<CR><LF>
Routing status of all outputs.	Status.	xxVyy<CR><LF> xxAyy<CR><LF> <i>(Repeating sequence starting with output 1, output 2, etc.)</i>
Get analog audio output routing	%9965.	Out 1 2 3 4<CR><LF> ExtAudio 6 5 1 1<CR><LF>
Get input 1 and 2 audio source	%9966.	Channel 01 is Analog Audio<CR><LF> Channel 02 is HDMI Audio<CR><LF>

### Signal Status Queries

Description	Command	Response
Get input connection status	%9971.	In 1 2 3 4<CR><LF> Connect Y N N Y<CR><LF> In 5 6<CR><LF> Connect Y Y<CR><LF>
Get input device HDCP status	%9973.	In 1 2 3 4<CR><LF> HDCP Y N N N<CR><LF> In 5 6<CR><LF> HDCP N Y<CR><LF>
Get output connection status	%9972.	Out 1 2 3 4<CR><LF> Connect Y Y N N<CR><LF>
Get active output resolutions	%9976.	Resolution <CR><LF> Out 1 1920x1080<CR><LF> Out 2 1920x1080<CR><LF> Out 1 0000x0000<CR><LF> Out 1 0000x0000<CR><LF>
Get output digital audio state	%9977.	Out 1 2 3 4<CR><LF> Audio Y Y Y Y<CR><LF>
Get HDCP enabled list	%9978.	In 1 2 3 4<CR><LF> HDCPEN Y Y Y Y<CR><LF> In 5 6<CR><LF> HDCPEN Y Y<CR><LF>

## Matrix Status Queries

Description	Command	Response
Get model number	/ *Type;	FLX-64 <CR><LF>
Check the software version	/ ^Version;	V1.0.2 <CR><LF>
Query system lock state	%9961.	System Locked!<CR><LF> <i>or</i> System Unlock!<CR><LF>
Query standby state	%9962.	PWON <CR><LF> <i>or</i> STANDBY <CR><LF> <i>or</i> PWOFF <CR><LF>
Query the IP address	%9964.	IP:192.168.0.178<CR><LF>

## Display Control Queries

If there are no PWON or PWOFF commands defined for an HDBaseT port, the response string will be: Port #: NO Data<CR><LF> for the single command queries and Port #: NO Data when PWON<CR><LF> or Port #: NO Data when PWOFF<CR><LF> for the Get All query.

Description	Command	Response
Get input 1 PWON command	%9951.	Port 1:<code> when PWON<CR><LF>
Get input 2 PWON command	%9952.	Port 2:<code> when PWON<CR><LF>
Get input 3 PWON command	%9953.	Port 3:<code> when PWON<CR><LF>
Get input 4 PWON command	%9954.	Port 4:<code> when PWON<CR><LF>
Get input 5 PWON command	%9955.	Port 5:<code> when PWON<CR><LF>
Get input 6 PWON command	%9956.	Port 6:<code> when PWON<CR><LF>
Get input 1 PWOFF command	%9941.	Port 1:<code> when PWOFF<CR><LF>
Get input 2 PWOFF command	%9942.	Port 2:<code> when PWOFF<CR><LF>
Get input 3 PWOFF command	%9943.	Port 3:<code> when PWOFF<CR><LF>
Get input 4 PWOFF command	%9944.	Port 4:<code> when PWOFF<CR><LF>
Get input 5 PWOFF command	%9945.	Port 5:<code> when PWOFF<CR><LF>
Get input 6 PWOFF command	%9946.	Port 6:<code> when PWOFF<CR><LF>
Get all PWON and PWOFF commands	%9979.	Port 1 Baud x:<code> when PWON<CR><LF> Port 2 Baud x:<code> when PWON<CR><LF> Port 3 Baud x:<code> when PWON<CR><LF> Port 4 Baud x:<code> when PWON<CR><LF> Port 5 Baud x:<code> when PWON<CR><LF> Port 6 Baud x:<code> when PWON<CR><LF> Port 1 Baud x:<code> when PWOFF<CR><LF> Port 2 Baud x:<code> when PWOFF<CR><LF> Port 3 Baud x:<code> when PWOFF<CR><LF> Port 4 Baud x:<code> when PWOFF<CR><LF> Port 5 Baud x:<code> when PWOFF<CR><LF> Port 6 Baud x:<code> when PWOFF<CR><LF>

# Troubleshooting

## ***Matrix does not power on***

- » Verify power outlet is active.
- » Verify continuity in power cable.

## ***Cannot view 4K (UHD) content***

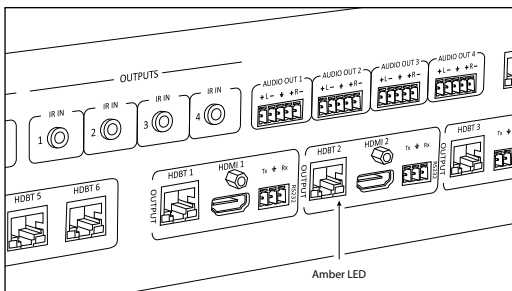
- » Copy EDID from output to input.
- » Verify display is 4K (UHD) compatible.
- » Verify source device can output 4K (UHD) content.
- » Verify twisted pair cable does not exceed 40 meters.

## ***Cannot hear surround sound audio***

- » Copy EDID from output to input.
- » Verify output can broadcast surround sound audio.
- » Verify source device is configured to output surround sound audio.

## ***No video from HDBaseT output***

- » Verify the amber link LED on the HDBaseT output is lit solid.
- » Verify video output is not disabled.





# Technical Specifications

<b>Input/Output Connections</b>	
HDMI Inputs (Inputs 1 through 4)	Four (4) HDMI Type A Receptacle
HDBaseT Inputs (Inputs 5 and 6)	Two (2) 8P8C Port (Shielded RJ45 Female)
Balanced Analog Audio Inputs (Inputs 1 and 2 only)	Two (2) 5-Pole/3.5mm Euroblock
IR Input Tunnel (Inputs 5 and 6, Outputs 1 through 4)	Six (6) 3.5mm TRS
HDMI Outputs (Outputs 1 and 2 only)	Two (2) HDMI Type A Receptacle
HDBaseT Outputs	Four (4) 8P8C Port (Shielded RJ45 Female)
Balanced Analog Audio Outputs	Four (4) 5-Pole/3.5mm Euroblock
RS232 Output Tunnel	Four (4) 3-Pole/3.5mm Euroblock
IR All In	One (1) 3.5mm TRS
IR Eye	One (1) 3.5mm TRS
TCP/IP	One (1) 8P8C Port (Shielded RJ45 Female)
RS232	One (1) DE9 Port Female
AC Power Inlet	IEC C14
<b>Supported Audio, Video, and Embedded Control</b>	
Maximum Video Compatibility at 60 m	Deep Color 36/30/24 Bit at 1080p
Maximum Video Compatibility at 35 m	Deep Color 48 Bit at 1080p and 3D
Maximum Passive HDMI Cable Distance	5 m (16.4 ft)
Video Compliance	HDMI and HDCP
Embedded Audio	Up to PCM 8 channel, Dolby Digital TrueHD, and DTS-HD Master Audio
Input DDC Signal	5.0 volts p-p (TTL)
Input Video Signal	0.5 to 1.0 volts p-p
Analog Audio Pinout	Left +, Left -, Ground, Right +, Right -
Embedded RS232 Baud Rate	2400, 4800, 9600, 19200, 38400, and 115200 baud
IR Carrier Frequency Range	33-55kHz at 5 volts
<b>HDBaseT Signal Characteristics</b>	
Maximum Distance	60 m
Cable Requirements	Solid core shielded Category 5e, Category 6 or greater with TIA/EIA-568B crimp pattern
Bandwidth	10.2 Gbps
Gain	0 dB – 10 dB at 100 MHz
Signal to Noise Ratio (SNR)	> 70 dB at 100 MHz over 100 m
Return Loss	< -30 dB at 5 KHz
Total Harmonic Distortion (THD)	< 0.005% at 1 KHz
Min-Max Signal Level	< 0.3 V – 1.45 Vp-p
Differential Phase Error	±10° at 135 MHz over 100 m

<b>Device Control Parameters</b>	
IR Carrier Frequency Range	33-55kHz at 5 volts
Ethernet	100BaseT
RS232 Baud Rate	9600 baud
<b>Chassis and Environmental</b>	
Enclosure	Painted Aluminum
Dimensions	89 mm x 437 mm x 332 mm (3.5 in x 17.2 in x 13.1 in) – 2 RU
Shipping Weight	6.5 kg (14.4 lbs.)
Operating Temperature	0° to +48° C (+32° to +120° F)
Operating Humidity	10% to 90%, Non-condensing
Storage Temperature	-20° to +70° C (+14° to +158° F)
Storage Humidity	10% to 85%, Non-condensing
<b>Power, ESD, and Regulatory</b>	
Power Input	100V-240VAC / 50-60 Hz / 0.8A
Power over HDBaseT	15 watts per port, 48V available at remote device
Power Consumption	200 watts (max)
ESD Protection	15kV air, 8kV contact
Product Regulatory	UL, FCC, CE, RoHS
<b>Other</b>	
Standard Warranty	2 years
Diagnostic Indicators	Power LED, System LCD
Included Accessories	Installation Guide, IR Remote, IR Eye, Rack Mounting Ears with Screws, Rubber Feet, US Power Cable, Straight-Through DE9 Male to Female RS232 Cable, Six (6) 3.5 mm TRS to 3.5 mm TR IR Adapter Cables, Four (4) 3-pole Removable Terminal Blocks, Six (6) 5-pole Removable Terminal Blocks
Compatible Transmitters (AV and Control)	DIGI-P52, DIGI-P123
Compatible Transmitters (AV and Power)	DIGI-HD60-S
Compatible Transmitters (AV, Control, and Power)	AS-1H1DP, AS-1H1DP-WP, AS-1H1V, AS-1H1V-WP, AS-2H, AS-2H-WP, DIGI-HD60C-S, DIGI-HDX-S
Compatible Receivers (AV and Power)	DIGI-HD60-R
Compatible Receivers (AV, Control, and Power)	DIGI-HD60C-R, DIGI-HDX-R

Distances and picture quality may be affected by cable grade, cable quality, source and destination equipment, RF and electrical interference, and cable patches.



Thank you for your purchase.

Please contact us with your questions and comments.

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