



IPEXCB Quick Install Guide



This guide is for quick installation only.
For complete Digitalinx IP Deployment Guide go to www.libav.com or use a QR reader to access the manual via QR code below.



Scan QR Code with your Smart-phone or Tablet

Product Overview

The Digitalinx IP IPEXCB is an IP based control interface used to configure, manage and control Digitalinx IP encoders and decoders on a 1Gb managed Ethernet switch. Configuration files for Digitalinx IP systems are stored directly on the IPEXCB and is designed to work in conjunction with the Digitalinx IP iPad and Windows control APP for basic system control. The IPEXCB offers a single point of connection and control for third party IP or serial control systems and is required for any Digitalinx IP system that requires a video matrix or video wall system layout.

The IPEXCB integrates two Ethernet ports and two RS232 ports, offering integration-friendly control features, including a web GUI. LAN1 port (AV/PoE) is connected directly to the A/V network where all Digitalinx IP devices reside. LAN2 port (CTRL) can be connected to a control system network allowing the entire Digitalinx IP matrix system to be controlled by a third party IP control system. With the ability to assign separate IP addresses and subnets for the two IPEXCB LAN ports, the A/V LAN traffic is not forced to reside on a shared LAN that may compromise bandwidth and data flow. The RS232 ports on the IPEXCB are also designed to offer a single point of control for serial based control systems.

The IPEXCB can be configured with either the web browser graphical user interface (GUI) or Digitalinx IP Configurator which is a software program that is used to configure Digitalinx IP encoders / decoders on a 1Gb managed Ethernet switch. The IPEXCB can automatically search and display encoders and decoders on the A/V network when using the configuration tool or web GUI. Digitalinx IP Configurator can be downloaded from our website at www.libav.com on the Digitalinx IP IPEXCB product page under the SOFTWARE tab. Instructions for using Digitalinx IP Configurator are included in this manual.

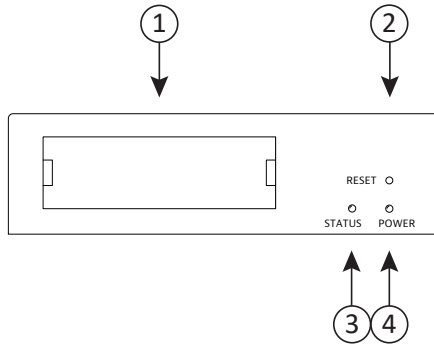
The IPEXCB is compatible with all Digitalinx IP 2000, 2100 and 5000 series IP devices.

Package Contents

- IPEXCB Control Interface
- Quick Install Guide
- Power Supply with US, UK, EU, and AU adapters
- 6-pin Removable Screw Terminal
- Device Labels

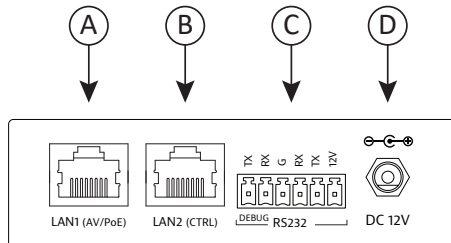
Front and Rear Panels

Front Panel



1. Label insert
2. Reset button
3. Status indicator
4. Power indicator

Rear Panel



- A. LAN1 (AV/PoE)
- B. LAN2 (CTRL)
- C. RS232 connections
- D. 12V DC power input

Reset Button

If a factory reset is required for the IPEXCB, press and hold the reset button for five seconds to restore the IPEXCB to factory settings. This reset will change the default IP address of the IPEXCB back to the factory default IP address.

LAN Connections

LAN1(AV/PoE) is used to connect the IPEXCB to the Ethernet switch. The default IP address for LAN1 of the IPEXCB is 169.254.1.1.

LAN2(CTRL) is used to connect the IPEXCB to a third party control system. The default IP address for LAN2 of the IPEXCB is 192.168.11.243.

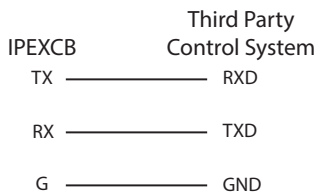
12V Connection

The 12V connection on the right side of the RS232 connector can provide up to 500 mA of 12V DC to an external device.

RS232 Connections

The IPEXCB features two RS232 connections: Debug and Control. The Debug connection will only communicate with the IPEXCB and will not control any encoders or decoders. The Control connection will communicate with Digitalinx IP devices on the A/V network switch.

To use the RS232 control transport capabilities of the IPEXCB, connect the TX, RX, and ground control signal wires to the middle RS232 connections on the removable 6-pole terminal block. Consult the manual of the control device to determine which pins the TX and RX signals are carried on. Be sure to always connect TX to RX and RX to TX.



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

- Debug connection: 115200 baud, 8 Data Bits, 1 Stop Bit, Parity = none
- Control connection: 9600 baud, 8 Data Bits, 1 Stop Bit, Parity = none

While the IPEXCB requires RS232 commands to be sent to it at 9600 baud through the control

Basic Installation

1. Configure a managed 1Gb Ethernet network switch for Digitalinx IP video operation.
NOTE: A Digitalinx IP network switch configuration guide has been built to assist with configuring network switches from a variety of manufacturers. The network switch configuration guides are located on the Digitalinx IP IPEXCB product page on the Liberty website (www.libav.com) under the DOCUMENTATION tab.
2. Turn off power and disconnect the audio/video equipment by following the manufacturer's instructions.
3. Turn off power to the configured network switch.
4. Connect Category 5E or greater twisted pair cable with the TIA/EIA-568B crimp pattern between the LAN1 port on the IPEXCB and the configured network switch.
NOTE: If the network switch cannot provide power or enough power to the IPEXCB, connect the included power supply to the 12V DC power input of the control box. If the gigabit switch cannot provide enough power, disable the PoE function of the connected LAN port on the switch.
5. Connect the Digitalinx IP encoder(s) and decoder(s) to the network switch using Category 5E or greater twisted pair cable with the TIA/EIA-568B crimp pattern and per the instructions for those device
6. Connect all sources and displays to the respective Digitalinx IP encoders and decoders.
7. Apply power to the configured network switch.
8. The IPEXCB will fully boot after five minutes.
9. Apply power to the attached audio/video devices.

To control the IPEXCB and Digitalinx IP devices by a third party IP control system, connect a Category cable between the LAN2 port on the IPEXCB to an IP based third party control system network. To control the IPEXCB and Digitalinx IP devices by a third party serial control system, connect to the RS232 connection on the IPEXCB. For proper serial connectivity to the IPEXCB please see *RS232 Connections* on previous page.

For a comprehensive list of system commands for the IPEXCB and Digitalinx IP systems, please refer to the *Digitalinx IP Programming Guide* which is located under the *DOCUMENTATION* tab on the IPEXCB product page online at www.libav.com

Pre-written control system drivers are also available online on the IPEXCB product page under the *DRIVERS* tab

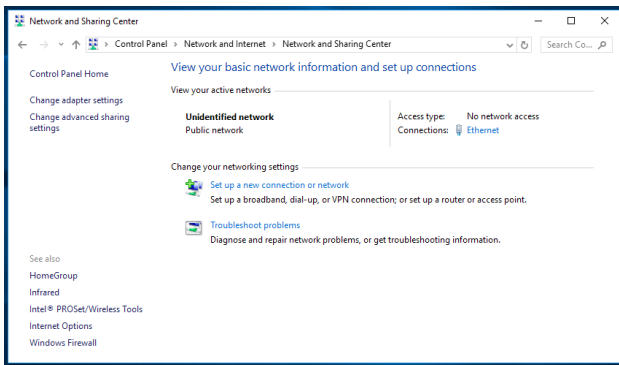
IPEXCB Web Browser Usage


Logging into the web browser Graphical User Interface (GUI)

Connect a Windows PC to an open port on the configured A/V network switch with a Cat 5e patch cable and set a static IP address for the Windows PC that is within the IP range of the Digitalinx IP IPEXCB Controller (169.254.1.xxx, where xxx = any number between 2-254) and set the subnet mask to 255.255.0.0.

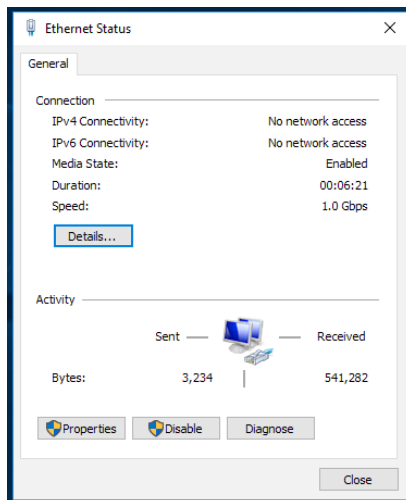
Please contact an IT administrator if the PC cannot be assigned a static IP address in this range.

To change your computers IP address in Windows, navigate to *Control Panel > Network and Internet* and then click on *Network and Sharing Center*. From there you will see the network that you are connected to. Typically the network will be labeled as Unidentified network.



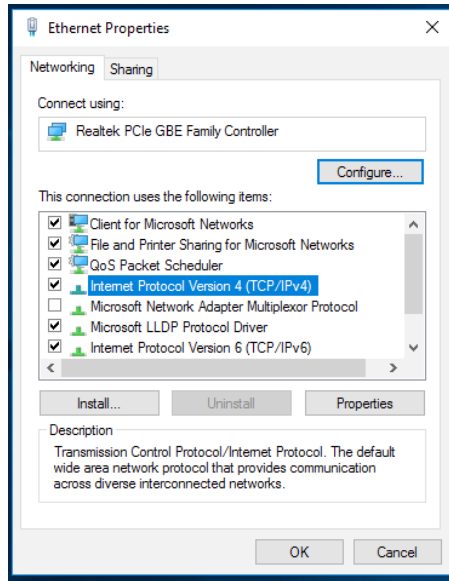
Click on **Connections:**  **Ethernet**

A pop window will appear labeled *Ethernet Status*



Click on 

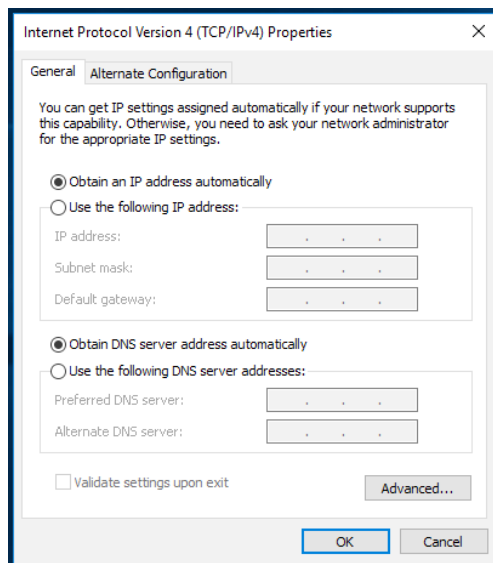
A pop window will appear labeled Ethernet Properties



Select Internet Protocol Version 4 (TCP/IPv4) from the item list and then click

Properties

A pop window will appear labeled Internet Protocol Version 4 (TCP/IPv4) Properties

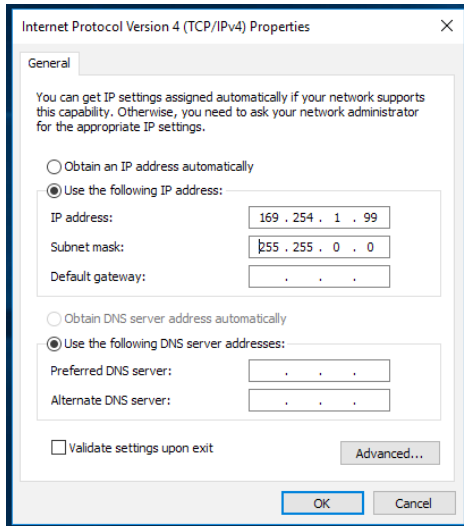


Select the button labeled Use the following IP address:

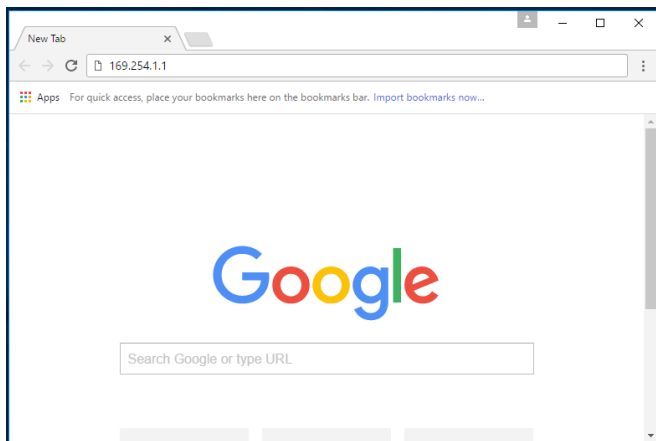
Enter in an IP address for the computer in the same range as the IPEXCB in the IP Address field, set the subnet mask to 255.255.0.0 and click

In this example we used the IP address of 169.254.1.99 with a subnet mask set at 255.255.0.0

Note: If you change the IP address of the IPEXCB or the DigitalinXIP devices that reside on the A/V network, be sure to reset your computers IP address to the correct IP range of the IPEXCB in order to access the control interface and the DigitalinXIP system components.



Close the *Ethernet Properties* and *Ethernet Status* windows and then open a web browser on the computer and enter the IP address of the IPEXCB into the address bar of the browser and hit the enter key on the keyboard. The default IP address of the IPEXCB is 169.254.1.1



The login window for the web GUI will then appear, enter in the user name and password for the portal and click LOGIN.

The default user name and password is admin



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IP
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Welcome to Digitalinx IP Control

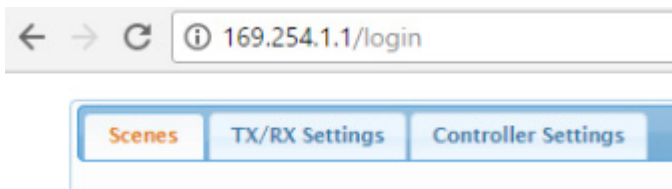
User Name:

Password:

Remember Name Remember Password

After logging into the web GUI, you will notice three tabs located at the top left of the page labeled;

SCENES, TX/RX SETTINGS and CONTROLLER SETTINGS



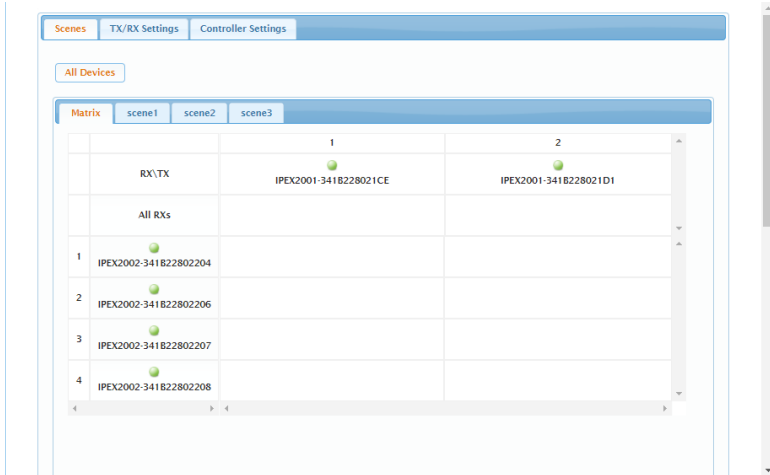
SCENES; allows you to route encoders to decoders, save up to three matrix scenes and test API commands.

TX/RX SETTINGS; allows you to change IP addresses of individual encoders and decoders on the DigitalinxIP system as well as test API commands

CONTROLLER SETTINGS; allows you to change the default IP addresses of the LAN1 (AV/PoE) and LAN2 (CTRL) ports of the IPEXCB. You can also load system configurations, setup security access, change passwords for admin login, establish user name and password for up to 5 users, upgrade software version and test API commands.

Routing Video Signals

Using the web GUI, video signals can be routed from DigitalinxIP encoders (TX) to decoders (RX) using the *SCENES* menu. When the *SCENES* menu is highlighted, click on *ALL DEVICES*, this will show all of the active DigitalinxIP encoders and decoders on the A/V network switch as well as four submenus labeled *MATRIX*, *SCENE1*, *SCENE2*, and *SCENE3*.



NOTE: By default encoders (TX) and decoders (RX) aliases are assigned in the system based on the following;

[MANUFACTURER PART NUMBER-MAC ADDRESS]

Example; *IPEX2002-341B22802204*

IPEX2002 is the manufacturers model number

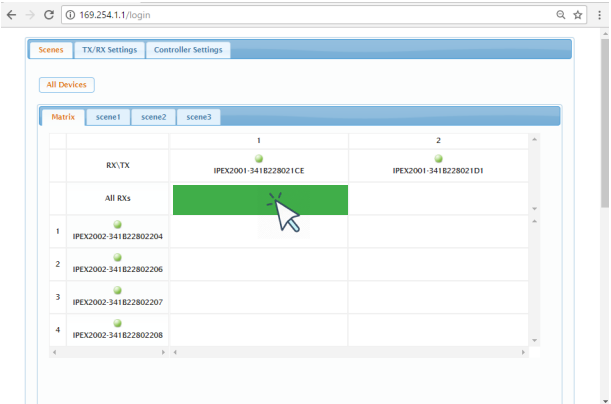
341B22802204 is the assigned MAC address of that device

These assigned aliases can be changed by using Digi IP Configurator so they can be more easily identified.

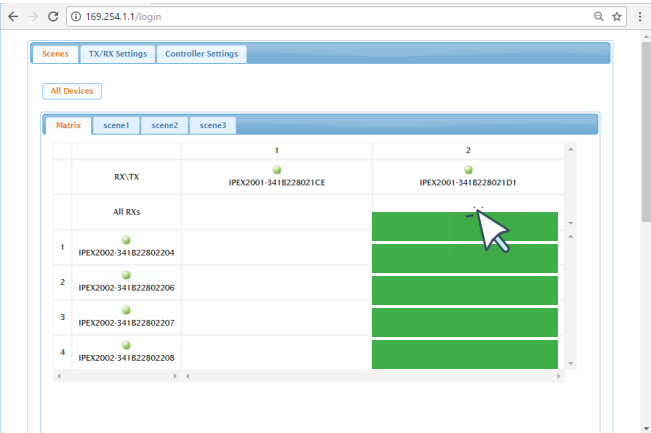
The *MATRIX* submenu allows you to route video signals from encoders to decoders in real time using a simple spread sheet layout.

Encoders (transmitters) are labeled as *TX* and located on the top row, decoders (receivers) are labeled as *RX* and located to far left column. Simply use your mouse and click on the appropriate cell that links the desired *TX* source to the desired *RX* location. Once your selection is made and video is successfully routed to the desired decoder, the cell will turn solid green. To remove that video source from the decoder, click the cell again and the cell will go blank indicating no video is present at that decoder location.

NOTE: If video is not successfully routed to the decoder location or the decoder is offline, the cell selected will turn solid RED.

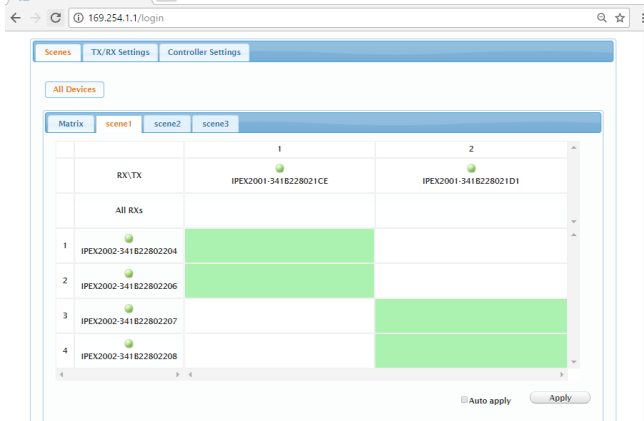


To route video from one *TX* to *ALL RX*'s, click on the desired *ALL RX*'s cell located underneath the *TX* of choice. All cells underneath the *TX* will turn solid green indicating that video is successfully being routed to all decoders.



SCENE1, *SCENE2* and *SCENE3* submenus allows you to build and save pre-set scenes that routes video from encoders to decoders in a particular order. These adjustments are not made in real time unless *Auto apply* box is checked.

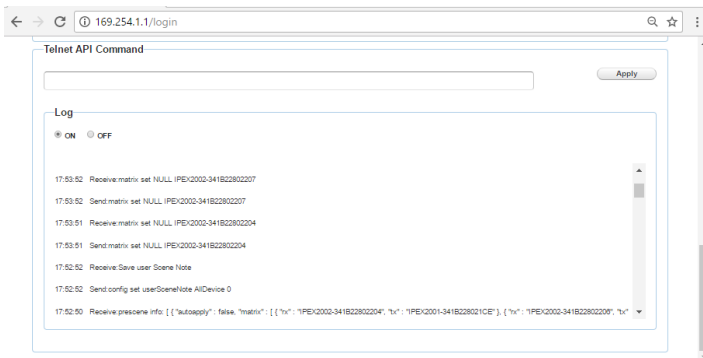
To apply the scene to the system click *APPLY*



Testing Telnet API Commands

API telnet commands can be sent to the DigitalinXIP system from the web GUI under the *SCENES*, *TX/RX SETTINGS* and *CONTROLLER SETTINGS* menu tab. This is a useful tool to determine if telnet commands sent to the system invokes the appropriate system response. An API command log is also available to monitor system responses which can be turned ON or OFF. If you want a comprehensive list of telnet and serial commands please refer to the *DigitalinXIP Programming Guide* which can be downloaded from the IPEXCB product page under the *DOCUMENTATION* tab online at www.libav.com

To test a command enter the command into the blank form under *Telnet API Command* and click *Apply*.

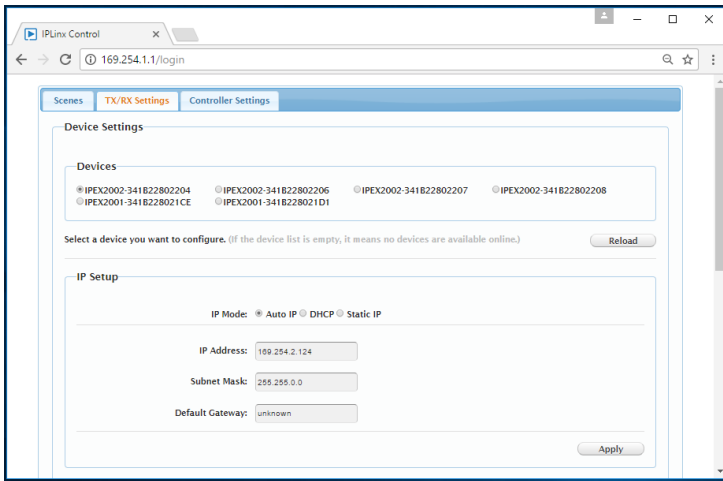


Changing DigitalinxIP Encoder and Decoder IP Addresses

The DigitalinxIP IPEXCB control interface automatically assigns IP addresses to encoders and decoders in an DigitalinxIP system when they are discovered by the IPEXCB. You can change these auto assigned IP addresses to an address scheme of your choice by accessing the *TX/RX SETTINGS* menu.

Note: The web browser GUI only offers manual changes to encoder and decoder IP addresses individually. If you have several encoders and decoders on an A/V network that need to be changed, it would be advised to make a batch change in DigitalinxIP Configurator.

To select an encoder or decoder on the A/V network check the button next to the appropriate device under *DEVICE SETTINGS*. To refresh this list click *RELOAD*.

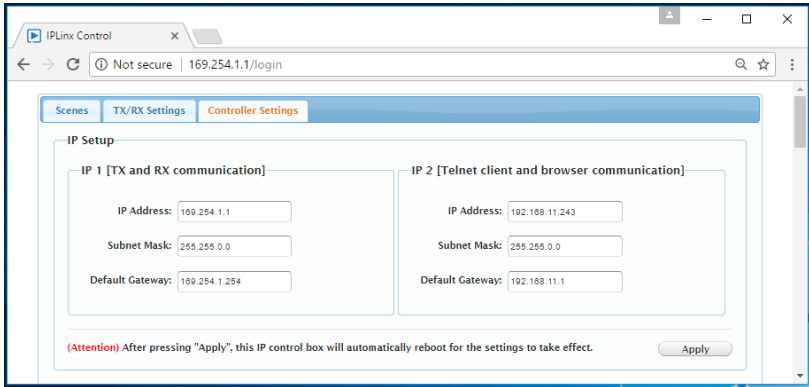


To change the IP address of the selected device, check the appropriate *IP MODE* option then enter in the *IP address*, *Subnet Mask* and *Default Gateway* as desired, then click *APPLY*

BEST PRACTICE: It is a best practice to physically label the DigitalinxIP encoder or decoder with the newly changed IP address so it can be located easily on an A/V network for future use and service. If you do not remember the newly changed IP address of the DigitalinxIP device and cannot find it on the A/V network, you will have to perform a factory reset on the device.

Changing IPEXCB IP Addresses

The DigitalinixIP IPEXCB control interface is assigned with two default IP addresses; one for encoder (TX) / decoder (RX) communication and one for telnet client / browser communication. To access the IP information for the IPEXCB click on the *CONTROLLER SETTINGS* menu tab.



To change the IP address of either *IP 1 [TX and RX communication]* and *IP 2 [Telnet client and browser communication]*, enter in the desired *IP Address*, *Subnet Mask* and *Default Gateway* then click *APPLY*. After pressing *APPLY* the IPEXCB will reboot.

Best Practice: It is a best practice to reboot the network switch after IP addresses have been changed on the IPEXCB.

Loading DigitalinXIP Configurator Files

Configuration files that have been built with *DigitalinXIP Configurator* can be uploaded to the DigitalinXIP system by using *Load Configuration* option under *CONTROLLER SETTINGS* menu.

To load a configuration file, select *BROWSE* to locate the file located on your computer or hard disk. Click *APPLY* to initialize. Once a configuration file has been loaded the previous configuration file will be removed.

Load Configuration

Config file:

(Attention) This action will initialize the system, the previous configuration will be completely removed.

User Management

The *User Management* section of the *CONTROLLER SETTINGS* menu will allow you to change your administrative password as well as establishing up to five user logins that can only access the DigitalinXIP video system matrix. This is ideal for users that need to route video signals from encoders to decoders but don't need administrative login to change system parameters.

User Management

Administrator User

User Name: admin

Password:

(Attention) Password must be alphanumeric characters only!

Common User List

1. User Name:	<input type="text"/>	Password:	<input type="text"/>	<input data-bbox="521 1023 581 1043" type="button" value="Delete"/>	<input data-bbox="586 1023 646 1043" type="button" value="Save"/>
2. User Name:	<input type="text"/>	Password:	<input type="text"/>	<input data-bbox="521 1059 581 1080" type="button" value="Delete"/>	<input data-bbox="586 1059 646 1080" type="button" value="Save"/>
3. User Name:	<input type="text"/>	Password:	<input type="text"/>	<input data-bbox="521 1099 581 1120" type="button" value="Delete"/>	<input data-bbox="586 1099 646 1120" type="button" value="Save"/>
4. User Name:	<input type="text"/>	Password:	<input type="text"/>	<input data-bbox="521 1139 581 1160" type="button" value="Delete"/>	<input data-bbox="586 1139 646 1160" type="button" value="Save"/>
5. User Name:	<input type="text"/>	Password:	<input type="text"/>	<input data-bbox="521 1179 581 1200" type="button" value="Delete"/>	<input data-bbox="586 1179 646 1200" type="button" value="Save"/>

(Attention) Name and password must be alphanumeric characters only and name must be not admin or null

To change the administrative password, type in the desired password in the *PASSWORD* field under *Administrative User* and click *SAVE*.

To create a user login, type in desired user name and password in the *User Name and Password* fields under *Common User List* and click *SAVE*.

API and Security Settings

To enable alias programming with either Telnet or RS232 check the *enable* button for both *Telnet Alias Programming* and *RS232 Alias Programming* and click *Apply*.

Using this setting will allow you to use the alias names assigned to DigitalinxIP devices that were established in the Digi IP Configurator software. If you choose not to use alias names and prefer to use the default identifier for each device check the *disable* button and click *Apply*.

To establish a password for Telnet communication, enter the password in the *Telnet* field and click *Save*.

API & Security Settings

Telnet Alias Programming

enable disable

RS-232 Alias Programming

enable disable

Telnet

Password:

(Attention) Password must be 1~10 characters. (alphanumeric only).

SSH Service

enable disable

To enable SSH service for the IPEXCB, check the *enable* box in the *SSH Service* section and click *Apply*.

To disable SSH service for the IPEXCB, check the *disable* box in the *SSH Service* section and click *Apply*.

Technical Specifications

Input/Output Connections	
LAN	Two (2) 8P8C port (Shielded RJ45)
Power	One (1) 5.5 mm OD, 2.6 mm ID Threaded Barrel
RS232 Port	One (1) 6-pin Removable Terminal Block Connector
Reset Button	One (1) Recessed Microswitch
Supported Control	
Supported Baud Rates	9600 (control) and 115200 (debug)
Ethernet	100BaseT
LAN Maximum Distance	100 m (328 ft)
LAN Cable Requirements	Category 5e or greater with TIA/EIA-568B crimp pattern
Chassis and Environmental	
Construction	Black Steel
Dimensions (H x W x D)	26 mm x 93.2 mm x 138.7 mm (1.02 in x 3.67 in x 5.46 in)
Operating Temperature	0° to +40° C (+32° to +104° F)
Operating Humidity	20% to 90%, Non-condensing
Storage Temperature	-10° to +60° C (+14° to +140° F)
Storage Humidity	20% to 90%, Non-condensing
Power and Regulatory	
Power Input	12V DC 1A or 48V DC PoE (Power over Ethernet)
Power Output (RS232 port)	12V DC 0.5A
Power over Ethernet (PoE) Compatibility	802.3af Alternative B
Power Consumption	4.5 watts (10.5 watts when using 12V on RS232 port)
ESD Protection	8kV air, 4kV contact
Regulatory	FCC, CE, RoHS
Other	
Warranty	5 years
Diagnostic Indicators	Status and Power
Included Accessories	Installation Guide, Power Supply, 6-pin Removable Screw Terminal
Compatible Encoders	IPEX2001, IPEX2101, IPEX5001, IPEX5001-D, IP-EX5001-WP-W
Compatible Decoders	IPEX2002, IPEX2101, IPEX2102MV, IPEX5002

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