Local Channel Insertion Guide using the HDIP-8000A into the COM3000

HDIP-8000A
Eight Input HD Encoder

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Safety Precautions

The presence of this symbol is to alert the installer and user to the presence of uninsulated dangerous voltages within the product’s enclosure that may be of sufficient magnitude to produce a risk of electric shock.

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE. DO NOT OPEN THE UNIT. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

- DO NOT apply power to the unit until all connections have been made, all components have been installed and all wiring has been properly terminated.
- DO NOT terminate, change or uninstall any wiring without first disconnecting the unit’s power adapter from the device.
- This device is supplied with the appropriately rated power supply. The use of any other power supply could cause damage and invalidate the manufacturer’s warranty.
- DO NOT connect the power cord to the device if the power cord is damaged.
- DO NOT cut the power cord.
- DO NOT plug the power cord into an AC outlet until all cables and connections to the device have been properly connected.
- The device should be installed in an environment consistent with its operating temperature specifications. Placement next to heating devices and ducts is to be avoided as doing so may cause damage. The device should not be placed in areas of high humidity.
- DO NOT cover any of the device’s ventilation openings.
- DO NOT cover or obstruct the device’s fan or fan openings.
- If the device has been in a cold environment allow it to warm to room temperature for at least 2 hours before connecting to an AC outlet.

Package Contents

This package contains:
- HDIP-8000A HD Encoder
- One power cable
- One installation / configuration manual

Inspect the package before starting installation to ensure there is no damage and all supplied contents are present.
Section 1  Introduction to HDIP-8000A

Product Description

ZyCast's HDIP-8000A HD Encoder allows the user to stream up to eight (8) HD / SD video sources over an IP Network to an unlimited number of PC’s or TVs using a STB like the RB-601 within the IP Network. The HDIP-8000A accepts 8 HDMI or 8 mini-DIN (Component/Composite) video inputs and the unit is designed to deliver a rich HD/SD Streaming experience for its users deploying MPEG-2 or H.264 standards. The HDIP-8000A HD Streaming server enables high-definition streaming with resolutions up to 1080p, providing the highest quality viewing experience for your customer. Each of the 8-encoders is MPEG-2 or MPEG-4 switchable and supports UDP/RTP Multicast or Unicast stream types. The 1RU high design saves space and is easily controlled via a web UI for rapid deployment.

- High Resolution up to 1080p
- MPEG2 or H.264 Video (Selectable) Output
- 8-input HDMI or (Component / Composite) via DIN cable
- Variable Bitrate Control
- MPEG-1 Layer II, AAC, AC-3
- Individual IP Stream Enable / Disable Control
- Closed Captioning Support
- Rack mountable 1RU height
### Specifications

<table>
<thead>
<tr>
<th>INPUTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HDMI</td>
<td>x8 1.4v</td>
</tr>
<tr>
<td>DIN</td>
<td>x8 (Component / Composite) via mini-DIN</td>
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<tr>
<th>AUDIO Inputs</th>
<th></th>
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<tbody>
<tr>
<td>Audio Input</td>
<td>Embedded PCM / Dolby Digital PassThrough / via DIN (Analog L/R)</td>
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<table>
<thead>
<tr>
<th>VIDEO Encoder</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution:</td>
<td>1080p (MPEG-4 Only), 1080i, 720p, 576p, 576i, 480p, 480i</td>
</tr>
<tr>
<td>Video Codecs MPEG-2</td>
<td>MP@HL</td>
</tr>
<tr>
<td>Video Codecs H.264 (HD)</td>
<td>&gt; 1080p30, HP@Level 4.2 / ≤1080p30, HP@Level 4 &gt;720p30, HP@Level 3.2 / ≤720p30, HP@Level 3.1</td>
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<tr>
<td>Video Codecs H.264 (SD)</td>
<td>Frame Rate &gt; 30, MP@Level 3.1 / ≤30, Level 3</td>
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</table>

<table>
<thead>
<tr>
<th>VIDEO Bitrate</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>MPEG-2</td>
<td>SD: 1 to 8Mbps / HD: 10 to 15.7Mbps</td>
</tr>
<tr>
<td>H.264</td>
<td>SD: 1 to 4Mbps / HD: 4 to 8Mbps</td>
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<tr>
<th>AUDIO Encoder</th>
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<tr>
<td>Audio Compression</td>
<td>MPEG-1 Layer II, AAC, AC-3</td>
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<thead>
<tr>
<th>Output</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector Type</td>
<td>1RJ-45, GbE</td>
</tr>
<tr>
<td>Streaming Protocols</td>
<td>UDP/RTP Unicast, Multicast</td>
</tr>
<tr>
<td>Stream Types</td>
<td>8 SPTS</td>
</tr>
<tr>
<td>Stream Control</td>
<td>Enable / Disable Control per Stream</td>
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</table>

<table>
<thead>
<tr>
<th>General</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Local Monitoring</td>
<td>LED System Indicators (Power &amp; 8 Encoder Status LEDs)</td>
</tr>
<tr>
<td>GUI Supported</td>
<td>FireFox, Chrome, Safari</td>
</tr>
<tr>
<td>Password Protected</td>
<td>GUI: Changeable</td>
</tr>
<tr>
<td>Fan Cooled</td>
<td>Internal</td>
</tr>
<tr>
<td>Power Supply</td>
<td>12VDC 6.66 Amp</td>
</tr>
<tr>
<td>Consumption</td>
<td>50W Typical, 52W Max</td>
</tr>
<tr>
<td>Dimensions</td>
<td>438mm x 276mm x 43.2mm / 1RU 19” EIA</td>
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</table>

*Subject to change without notifications*
Installation

System Installer must adhere to Article 820-40 of the NEC that provides guidelines for proper grounding and specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as possible.

Unpacking and Inspection

Each unit is shipped factory tested. Ensure all items are removed from the container prior to discarding any packing material. Thoroughly inspect the unit for shipping damage with particular attention to connectors and controls. If there is any sign of damage to the unit or damaged or loose connectors contact your distributor immediately. Do not put the equipment into service if there is any indication of defect or damage.

Hardware Installations and Connections

- It is highly recommended that quality cables and connectors be used for all video and audio source connections.
- The unit is designed to be rack mounted in a standard EIA 19” rack.
- The unit comes standard with HDMI and DIN inputs (Component and Composite video inputs). The HDIP-8000 streamer is intelligently designed to detect the video input from the video source. **HDMI Connection:** Connect the HDMI cable(s) from the video source(s) into the HDMI input(s). Or, Connect the DIN Cable to the back of the encoder as required using the DIN to DIN or DIN to breakout cable. Repeat this step for each video source connection required.
- Be sure the connections for each source are consistent with the unit’s inputs (IN1…IN8).
- When connecting to an IP network use an IGMP capable and enabled switch. (It is highly recommended an IT professional who is familiar with IGMP switches assists in setting up the IGMP Switch).
- Connect the included power cord to the unit’s POWER plug.
- Connect the power cord to an appropriately rated AC power outlet.

Section 2 Device Programming and Setup

Connecting to the GUI Interface:

Factory Default IP: 192.168.1.9

1. Connect an Ethernet cable directly from a PC/laptop to the Remote Setup Port on the rear panel of the HDIP-8000.
2. Modify your PC/Laptop IP address to 192.168.1.11.
3. Enter ‘192.168.1.9’ into your web browser.
4. Enter GUI and make required device changes.
5. Save all changes as required, upload and reboot changes.
6. Verify parameters then end web session.
LCI Overview

The Technicolor COM3000 system has the ability to insert Local Content into the COM3000 system using the HDIP-8000A or HDDB-8604A via Unicast addresses allowing Hotels, businesses, and other commercial COM3000 users to add splash pages and other content to the COM3000 channel line up.

The ZyCast HDIP-8000A or HDDB-8604A outputs Unicast formatted streams that are then inserted into the COM3000 System. The Technicolor QAM is used to assign a QAM channel to the IP stream and incorporates the local channel into the system.

The LC source (a media player or other source) is connected to the ZyCast Encoder via a Composite, Component, or HDMI connection. Using the ZyCast Encoder, a single or Multiple MPEG-2 SPTS (Single Program Transport Stream) is created and is output via a 1Gbe port. The Encoder sends the Audio and Video content via IP to the COM3000. The Integrator sets up a Unicast Stream via the Web management pages of the encoder. The IP output from the ZyCast Encoder is connected to the GbE1 or GbE2 port on the COM3000.
Step 1: COM3000 COM51 Card.

Adding LCI to COM3000 Steps

1. Log into a COM51 card.

2. Once you have entered into the COM51, navigate to the Overview tab.

3. At the top of the overview page you will find a QAM Summary.

4. Click on the IP address of the QAM listed in the summary. The link will navigate to the COM51 QAM tab.

5. Determine IP address and Port to setup in ZyCast Encoder.

From the QAM list determine the proper IP address and port to enter into the ZyCast Encoder.
Most COM3000 system will have one QAM in the lower QAM slot. The default IP address for this slot is 192.168.6.2.

For detailed COM3000 setup please refer to the Technicolor COM3000 Integrator’s manual.

**Port IP for UDP address is= QAMChannel *16 + subchannel number**

Port IP is= QAMChannel *16 +1(subchannel)

Example # 1: QAM1
Port # = 1 * 16= 16 +1 = Port #17
IP address would be: UDP://192.168.6.2:17
(this would be placed on QAM channel 23-1)

**ZyCast Encoder Stream address:**

Example # 2: QAM2
Port # = 2 * 16= 32 +2 = Port #34
IP address would be: UDP://192.168.6.2:34
(this would be placed on QAM channel 24-2)

**ZyCast Encoder Stream address:**
Port IP for UDP address is QAMChannel *16 +1

Example # 3: QAM3  
Port # = 3 * 16= 48+1 = Port #49  
IP address would be: UDP://192.168.6.2:49  
(this would be placed on QAM channel 48-2)

ZyCast Encoder Stream address:

Example # 4: QAM3  
Port # = 3 * 16= 48 +2 = Port #50  
IP address would be: UDP://192.168.6.2:50  
(this would be placed on QAM channel 69-2)

ZyCast Encoder Stream address:

(All examples shown below from Streaming Setup menu in HDIP-8000A)

Once the IP addresses are determined they can be entered into the Encoder on the Steaming Setup tab.
Encoder Programming and Setup via GUI Interface:
After connecting the device to the Remote Setup port located on the rear of the device and connecting to a PC / Laptop.

Step 2: Enter Device's IP address in web browser.

Overview Page of HDIP-8000A
Overview Page of HDIP-8000A

Welcome page showing overview status of the HDIP-8000A when fully functioning showing Video Source Setting, Video Output Codec, Audio Output type, Video Mode, Bitrate, Status of Stream, Stream Destination IP address/Port, and if the stream is Active or Inactive, as well as other device information.

Step 3: Enter User Name/Password

GUI Login Password:

Default User Name: admin
Default Password: Admin123

Select Encoder Setup from the top menu and the Login window will appear
Enter the default user name and password.

Note: To change the Password for the GUI go to the Administration Tab.

Section 3 Encoder Setup

Use the Encoder Setup page to set each encoder.
Select the blue edit icon next to each encoder and change/modify all parameters as required.
Step 4: Set the Encoder Parameters

Click the Edit Icon for the Encoder.

Select Video Output to ‘MPEG-2 CBR.

Set Audio Output to AC3

Close the Edit function by clicking the Edit Icon again.

Select Save and Confirm to save all modified parameters.

Note: Although the BitRate of the ZyCast Encoder can be adjusted from 10-20Mbps (HD) per encoder, we recommend adjusting the BitRate from 10-15Mbps per stream when inserting the streams into COM3000 system. Adjust the BitRate as needed.
Section 4  
IP Streaming Setup

Step 5: IP Streaming

Stream Types and Selecting Port values for the COM3000:

5a. Enable the Stream by selecting the check box 1-8.  
(All streams can be enabled at the same time by using the “master” checkbox)

5b. Enter the stream Destination IP | Port ID  
The COM3000 requires a **Unicast address** (example: 192.168.6.18:754 | [ ip_address (unicast): port_ID] )  
The installer will determine from the COM3000 which Unicast address to use from the COM3000 system

5c. Set the TTL value.

5d. Select ‘Save and Confirm’ once all the streams are setup.

5e. Re-Scan the TV’s for the added channels.

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**Port IP for UDP address is= QAMChannel *16 + subchannel number**  
*(see examples on page 9-10)*
Section 5: Network Configuration

Step 6: Network Configuration

Management IP Setup:

Set the management port to your desired IP scheme.

Use the Network Setup to configure the device’s Management Port’s IP address (GUI address) of the device, Subnet Mask, Gateway, Enable/Disable DHCP, and set Host Name.

Use the Management IP setup page to allow remote support by setting up the Default gateway for offsite management

Step 7: Save and Confirm
Streaming IP Setup:

**Step 8:** Modify (as required) Streaming IP address. 
Select Save and Confirm to save all changes.

*Streaming IP address is the IP address of the IP port sending out the IP Streams.*
Step 9: Administration

Section 6: Administration

Reboot:
Use the Reboot command button to reboot the device.
Note: Any unsaved changes will be lost.

Reset to Default:
Use the Reset to Default button to reset all parameters to original factory settings.

Backup:
We highly recommend saving your device’s setting.
1. Select Administration tab.
2. Select backup from the menu.
3. Locate and name file for future use.

Restore/Upload saved file configurations:
1. Select Administration tab.
2. Select “Choose file” menu.
3. Locate the required file to be imported.
4. Select “Upload” to import the selected file into the device.
   Remember to save and backup any and all changes.
Change Password:

Use the Change Password section to change or modify the device’s password as desired.

![Change Password Form]

**Save and Confirm** new password.

Private Address Ranges, IPv4

Private IPv4 addresses are addresses set aside by the IANA (Internet Assigned Numbers Authority) for use within networks that will not directly communicate or not be seen by the internet. These private addresses cannot be used on the Internet or be used to communicate with the Internet. ISP’s filter out and delete packets using private IP addresses. Any organization that uses private IP addresses on devices that communicate with the internet must use a device that performs Network Address Translation.

Anyone can use private addresses and they are not required to seek permission to use them. Again, networks using private IP addresses cannot communicate directly with the internet.

There are three blocks of addresses that are set aside by IANA for use in private internets and are not publicly routable on the global internet:

- **Private Class A Range:** 10.0.0.0 - 10.255.255.255
- **Private Class B Range:** 172.16.0.0 - 172.31.255.255
- **Private Class C Range:** 192.168.0.0 - 192.168.255.255

It is important to note that only some of the 172.xx.xx.xx and the 192.xx.xx.xx address ranges are designated for private use. The remaining addresses are public and can be routable via the global Internet.

More information regarding private addresses can be found at [http://www.iana.org](http://www.iana.org) and [https://www.arin.net](https://www.arin.net).