Support

At LEIGHTRONIX, every customer of our standard product line receives technical support at no extra charge. There are no service contracts, no annual renewals, no allowances, no deductibles, and no exclusions.

In addition to a 5 year hardware warranty, benefits include access to:

- Priority Toll-Free telephone support
- Email Support
- Online support, desktop to desktop via Webex®
- Software updates
- Firmware updates
- Assistance with updates

Phone: (800) 243-5589
Email: support@leightronix.com
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Thank you for purchasing the IncodeX One Point-to-Point (P2P) broadcasting solution. The IncodeX One™ H.264 encoder combined with a LEIGHTRONIX approved HD decoder allows you to deliver a high quality video stream to another destination on your network in real time.

The IncodeX One encoder captures a live video/audio signal from a LEIGHTRONIX server or other video source and converts the signal into an outbound, H.264 digital video stream. The outbound stream is directed to the decoder for display to viewers on the same private local or wide area network.

**PACKING LIST**

(1) IncodeX One Manual

(1) IncodeX One H.264 Encoder with the following:

- (1) Part #10-0311, AC Power Cord, 6 ft.
- (1) Part #10-4856, CAT 5e Ethernet Cable, 7 ft.

(1) HD Decoder with the following:

- (1) of each: Ethernet, Power, HDMI, and Break-Out Cables
- (1) Infrared Remote Control with Batteries

**REQUIREMENTS FOR SYSTEMS**

- Laptop or PC
- If your IncodeX One P2P system was not configured with your network settings before it was shipped to you, you will also need the following:
  - Keyboard with USB attachment
  - Monitor

**IMPORTANT SAFETY INSTRUCTIONS**

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with 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 grounding-type plug. A grounding-type plug has two blades and a third grounding prong. 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 the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. When the apparatus is turned off, certain components in the power supply and system board remain energized. In order to remove all electrical power from the apparatus, unplug the power cord from the MAINS socket outlet.

**WARNING**

To reduce the risk of electric shock, do not expose this apparatus to rain or moisture.

**WARNING**

This apparatus must be connected to a MAINS socket outlet with a protective earthing connection.
INCODEX ONE FRONT PANEL
The IncodeX One front panel LED indicators provide status on your encoder’s power connectivity and encoding activity. The red "Power" indicator lights up when your IncodeX One is connected to a power source and turned on. The green "Activity" light turns on when the IncodeX One is encoding.

DECODER FRONT PANEL
The decoder's front panel includes an infrared sensor for receiving commands from the included remote control as well as a USB port that connect to a keyboard for configuration. There is also a power/IR command status LED that turns red when the decoder is powered on and flashes when an IR command is received from the remote control.
**BACK PANELS**

**INCODEX ONE BACK PANEL**
The IncodeX One back panel, includes, from left to right, top to bottom:

- A: 1 BNC HD/SD-SDI video input connector
- B: 1 BNC composite video input connector
- C: 2 RCA audio input connectors (left & right)
- D: 1 RJ-45, 10/100 BASE-T Ethernet port with LED status indicators
- E: On/Off switch
- F: Power connector

**On/Off Switch**
To turn on power to the IncodeX One, press the “–” symbol on the switch upward. The IncodeX One’s encoder starts encoding when the device is powered on. To turn off the IncodeX One, press the “o” symbol on the switch downward.

**DECODER BACK PANEL**
The decoder back panel, includes, from left to right, top to bottom:

- A: 1 RJ-45, 10/100 BASE-T Ethernet port with LED status indicators
- B: Power connector
- C: 1 HDMI output connector
- D: 1 10-way Mini-DIN analog audio/video output connector
SYSTEM INSTALLATION

INSTALLING THE INCODEX ONE

1. The IncodeX One encoder may be left as a standalone, tabletop unit or mounted into a rack as follows:
   a. Insert the IncodeX One into the rack, aligning the holes of the unit’s mounting bracket with those of the rack.
   b. Secure the IncodeX One to the rack with user-supplied rack screws.

   ! CAUTION

   Leave empty rack spaces above and below the IncodeX One. The IncodeX One should not have anything stacked on top of it.

2. Attach your network, power, and signal wiring to the IncodeX One according to the instructions below:

   **IncodeX One Ethernet LED Indicators**
<table>
<thead>
<tr>
<th>LED Position</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Off</td>
<td>Connection speed is 10Mb/s</td>
</tr>
<tr>
<td></td>
<td>Blinking amber</td>
<td>Connection speed is 100Mb/s</td>
</tr>
<tr>
<td>Right</td>
<td>Off</td>
<td>Ethernet link not established</td>
</tr>
<tr>
<td></td>
<td>Steady on green</td>
<td>Ethernet link established.</td>
</tr>
</tbody>
</table>

   Using the included straight-through RJ-45 Ethernet cable, connect the IncodeX One Ethernet port directly to a cable or DSL modem or to a 10/100 BASE-T switch on your TCP/IP network. To check your network connection, look at the Ethernet LEDs above the Ethernet port and compare to the table at left.

   ![Diagram of IncodeX One](image)

   If using an analog video source, connect your source to the composite video input.

   If using a digital video source, connect your source to the SDI video input.

   If using, connect your analog audio source to the audio inputs.

   Connect the included power cable to the power cord connector and then plug the other end into an AC power source.

   LEIGHTRONIX strongly recommends the use of an uninterruptible power supply (UPS) with the IncodeX One. Damage from power loss or spikes is not covered under warranty.

   ![Warning](image)
CHANGING THE INCODEX ONE’S FACTORY DEFAULT NETWORK SETTINGS

If you provided LEIGHTRONIX with your network settings, your IncodeX One was set up with this information before it shipped to you and you can skip this section. Otherwise, the IncodeX One is shipped in static network mode with a temporary IP address. Access and configure the encoder’s network settings as follows:

NOTES:  • From your network administrator, obtain the IP address and firewall port number for your decoder.
        • If you intend to configure your IncodeX One with static network addresses, obtain a static IP, subnet mask, and gateway address from your network administrator.

1. Use a straight-through Ethernet cable (such as one of the cables included with your Point-to-Point solution) to connect your IncodeX One’s Ethernet port to the Ethernet port on a laptop or PC.

2. Each IncodeX One’s temporary IP address is based on its own unique serial number, so you will need to determine the temporary static IP address assigned to your IncodeX One. All IP addresses contain four sets of numbers separated by periods. The first two sets of numbers in an IncodeX One’s static IP address will always be “169.254.” The last two sets in the temporary IP address can be determined as follows:
   a. Obtain the last four characters of your IncodeX One’s serial number from the sticker on the encoder’s back panel.
   b. Next, convert these four characters from their hexadecimal format into the decimal format used in your IncodeX One’s temporary static IP address. You will find many free, third party calculators that will do this for you by doing an Internet search on “hexadecimal to decimal calculator.” Enter the first two characters into the calculator to obtain the first decimal value and then the last two characters to obtain the last decimal value of your IncodeX One’s temporary IP address.

   For example, if the last four characters of your IncodeX One’s serial number is “02AC,” your temporary static IP address would be 169.254.2.172, where the hexadecimal “02” converts to decimal “2” and hexadecimal “AC” converts to decimal “172.”

3. Access the IncodeX One’s browser-based interface as follows:
   a. Open an Internet browser on the computer connected to your IncodeX One.
   b. In the URL address line, enter the IncodeX One’s temporary static IP address and press enter. You will be prompted to enter a username and password (see Illustration 1).

   NOTE: If your laptop or PC cannot find your IncodeX One, you may need to change the laptop/PC’s IP address so it is in the same range as the default IP address for your IncodeX One. Change the first two values of your computer’s IP address to “169.254” and ensure the fourth value is at least one off from the last value in IncodeX One’s default IP address. For example, if your IncodeX One’s default IP address is “169.254.2.172,” you could use “169.254.2.173” as the IP address for your computer.

Illustration 1, IncodeX One Interface Login Box

![Authentication Required](image-url)
c. Enter "admin" (all lowercase) into the "User Name" field. In the case sensitive password field, enter the **last six characters of your IncodeX One’s serial number** as shown on the encoder’s back panel sticker. Click “Ok” to open the IncodeX One interface in your Internet browser window (see Illustration 2).

Illustration 2, IncodeX One Main Screen

4. Obtain an IP address and port number for your decoder from your network administrator and then enter the network settings in the “Output Setup” section on the IncodeX One’s main screen (see Illustration 2) as follows:
   a. In the “Destination IP” field, type your decoder’s IP address.
   b. In the “Destination Port” field, type your decoder’s firewall port number.
   c. Click the “Save User” button to make your changes.
5. Click the “Settings” button (see Illustration 2) to access the IncodeX One’s network settings screen shown in Illustration 3 on page 7.

Illustration 3, IncodeX One Network Settings Screen

6. If you wish to keep your IncodeX One in static network mode, you will need to obtain a static IP and subnet mask address for your IncodeX One from your network administrator. On the network settings screen, enter the addresses you have obtained from your administrator into the corresponding fields. Alternatively, if your network uses a DHCP (Dynamic Host Configuration Protocol) server, you may want to select the “DHCP” network mode from the drop down box above the network address fields so that your IncodeX One automatically obtains an IP, subnet mask, and gateway address when it is connected to a power source and your network.

NOTES:  
- To quickly check if your network is connected to a DHCP server, go to a computer connected to your network and see if it has been set to use DHCP.
- If using a static IP address, be sure to write it down in a known location so that it is available if needed. You will use the IP address to access your IncodeX One’s web interface any time you wish to change the encoder’s settings.

7. When you have finished entering in your network settings, click the “Apply IP Settings” button. When prompted, click “Ok” to reboot the IncodeX One and apply the network address changes.
INSTALLING THE DECODER

1. The decoder may be left as a standalone, tabletop unit or secure to a flat surface with its three metal mounting tabs.

   **CAUTION**
   Do not block ventilation openings or stack electronic equipment on top of decoder.

2. Attach your network, power, and signal wiring to the decoder according to the instructions below:

   **TABLE: Decoder Ethernet LED Indicators**

<table>
<thead>
<tr>
<th>LED Position</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Off</td>
<td>Connection speed is 10Mb/s</td>
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<td>Right</td>
<td>Off</td>
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</tr>
<tr>
<td></td>
<td>Steady on green</td>
<td>Ethernet link established.</td>
</tr>
</tbody>
</table>

   **IMPORTANT NOTE!** To display the incoming video stream on the monitor/display device attached to your decoder, press the “STB” button twice on the decoder’s included remote control.

   - Using the included straight-through RJ-45 Ethernet cable, connect the decoder’s Ethernet port directly to a cable or DSL modem or to a 10/100 BASE-T switch on your TCP/IP network. To check your network connection, look at the Ethernet LEDs above the Ethernet port and compare to the table above.
   - Connect the included power cable to the power cord connector and then plug the other end into an AC power source. The decoder will automatically power on into standby mode, as indicated by the red LED on the front panel.
   - Attach a display monitor to the HDMI port using the included cable, or, if using an analog monitor, use the included break-out cable to connect the monitor to the “Audio/Visual” port.
ENTERING NETWORK/CONFIGURATION SETTINGS INTO THE DECODER

If you provided LEIGHTRONIX with your network settings, your decoder was configured with this information before it shipped to you and you can skip this section. Otherwise, you will need to obtain a static IP and subnet mask address as well as the firewall port number for your decoder from your network administrator and then assign the network settings to your decoder as follows:

1. Attach a keyboard to the USB port on the front of the decoder.
2. If you have not already done so, use the included HDMI or break-out cable to attach a monitor to the decoder’s back panel.
3. Access the decoder’s setup menu on the attached monitor as follows:
   a. Simultaneously press the left “Alt” key and “M” key on your keyboard to open the “Password Request” window.
   b. Type the decoder’s main password, “leaves,” and press the “Enter” key. The decoder’s setup menu will appear on the monitor.
4. Using the keyboard’s up/down arrow keys, navigate to the “Browser” menu option and then press the right arrow key to access the “Browser” settings. Perform the following:
   a. In the “Home page” field, use the backspace key to clear out the default information and type “udp://your decoder’s IP address/your decoder’s port number.”
   b. Press the keyboard “Enter” key twice to make the change.
   c. You will be prompted to save the change with the decoder’s save password. Type “snake” into the prompt window and press the “Enter” key.
   d. Press the left arrow keyboard key to return to the decoder’s setup menu.
5. Using the keyboard’s up/down arrow keys, navigate to the “Video” menu option and then press the right arrow key to access the “Video” settings. Perform the following:
   a. Use the up/down arrow keys to navigate to the “UDP end timeout” field.
   b. Press the “Enter” key to access the setting and then use the right/left arrow keys to change the end timeout value to “0.” Press the “Enter” key again to make the change. Keeping the end timeout value at 0 will prevent the decoder from timing out if you stop and restart the IncodeX One.
   c. Press the left arrow keyboard key to return to the decoder’s setup menu.
6. Using the keyboard’s up/down arrow keys, navigate to the “DHCP” menu option and then press the right arrow key to access the “DHCP” settings. Perform the following:
   a. Use the up/down arrow keys to navigate to the “DHCP” field and press the “Enter” key to access the setting. Use the right/left arrow keys to change the setting to “Disabled” and press the “Enter” key again.
   b. Use the up/down arrow keys to navigate to the “IP Address” field. Use the backspace key to clear the default address and type in your decoder’s IP address. Press the keyboard “Enter” key twice to make the change.
   c. Use the up/down arrow keys to navigate to the “Netmask” field. Use the backspace key to clear the default subnet and type in your decoder’s subnet mask address. Press the keyboard “Enter” key twice to make the change.
   d. Press the left arrow keyboard key to return to the decoder’s setup menu.
7. Restart the decoder to apply your setting changes by one of the following methods:
   • Monitor: use the up/down keyboard arrows to select “Restart” from the setup menu. Press the “Enter” key to access the setting and then use the right/left arrows to change the setting to “Yes.” Press “Enter” again to restart the decoder.
   • Remote Control: press the “STB” button on the decoder’s remote control.
8. Detach the keyboard from the decoder.
9. When you want to display your incoming video signal on the monitor/display device attached to your decoder, press the “STB” button on the remote twice.
If there is a firewall between your IncodeX One and decoder, you will need to open the decoder’s UDP port on your firewall between your IncodeX One’s media access control (MAC) address and the IP address of your destination device. This will allow your decoder to receive a video stream from your IncodeX One.

**NOTE:** Your IncodeX One’s MAC address is its 12 character serial number.
OPENING AND LOGGING INTO THE INCODEX ONE INTERFACE

1. You will need your IncodeX One’s IP address as it is the URL for the encoder’s browser-based interface. If you are not sure what your IncodeX One’s IP address is, you can obtain it using the set of steps below that correspond to your network setup:
   • Static Mode: if your IncodeX One has not been configured for DHCP, use the IP address assigned by your network administrator to your IncodeX One to access the encoder’s interface. If your IncodeX One has not yet been configured with the static addresses for your network, perform the steps in “Changing the IncodeX One’s Factory Default Network Settings” on page 5.
   • DHCP Mode: if your IncodeX One automatically gets its network addresses from a DHCP server on your network, you will need to install a third party program such as “Fast Resolver” on a PC connected to the same network and scan for your IncodeX One’s MAC address. The IncodeX One’s MAC address is the same as its serial number, which is identified on a sticker on the encoder’s back panel. Once the program finds your IncodeX One, it will provide you with the encoder’s IP address. DHCP assigned network addresses do expire, so you may need to re-scan your network for your IncodeX One the next time you need to access the encoder’s interface.

2. Open an Internet browser on a computer connected to the same network as your IncodeX One.

3. In the URL address line, enter your IncodeX One’s IP address and press enter. You will be prompted to enter a username and password.

4. Enter “admin” into the “User Name” field and the last six characters of your IncodeX One’s serial number as the password (this can be found on the encoder’s back panel sticker). Click “Ok” to open the IncodeX One interface in your Internet browser window.

5. Once you are logged in, you may perform the steps in any of the following sections:
   • “Saving/Changing Encoding and Output Settings” on page 11
   • “Stopping/Starting Encoder” on page 11
   • “Specifying Video/Audio Input and Bit Rate Settings” on page 12
   • “Adjusting Video/Audio Stream Quality with Advanced Encoding Controls” on page 12
   • “Selecting Stream Delivery and Destination Settings” on page 14
   • “Changing Network Settings” on page 14
   • “Updating Firmware” on page 15

SAVING/CHANGING ENCODING AND OUTPUT SETTINGS

The IncodeX One interface saves your current encoding and video output settings in a user profile every time you click the “Save User” button on the bottom of the main interface screen (see Illustration 2 on page 6), ensuring consistency in your encoding results. This convenient feature also enables you to try out different settings without affecting the encoding settings you have tested and used before. To adjust the encoding settings without changing your profile, make your changes and apply the new settings to your outgoing video stream by clicking the “Restart Encoder” button. If you like the changes, save them in your user profile by clicking the “Save User” button and if you don’t, reload your user profile settings by clicking the “Load User” button or return to the factory default settings by clicking the “Default Settings” button, and then click the “Restart Encoder” button again.

STOPPING/STARTING ENCODER

The main IncodeX One interface screen’s “Stop Encoder” button allows you to stop the IncodeX One from encoding any incoming video signal, while the “Restart Encoder” button causes encoding to start again. The “Restart Encoder” button also applies any changes you have made to the encoding and output settings on the main IncodeX One interface screen to the encoder’s outgoing video stream.
Additionally, the IncodeX One interface provides you with the ability to choose whether or not the IncodeX One automatically starts encoding on power up and reboot. Just click the stop or restart encoder button and then click the “Save User” button to save a user profile with the encoder in a stopped or active state. As long as your user profile remains loaded, the IncodeX One will power on/reboot in your state of choice.

**SPECIFYING VIDEO/AUDIO INPUT AND BIT RATE SETTINGS**

The IncodeX One will accept either composite video with analog audio or HD/SD digital video with embedded or analog audio. Along with connecting your video/audio sources to the correct inputs on the IncodeX One’s back panel, you will also need to tell the IncodeX One which back panel input(s) to use during encoding as follows (see Illustration 2 on page 6 and Illustration 4):

1. In the “Encoder Setup” section of the IncodeX One’s main interface window, select your video settings as follows:
   - Specify the video input you will use for encoding by choosing either “Composite” or “SDI” from the “Video Source” drop-down menu.
   - Choose a video bit rate for encoding with the “Video Bit Rate” slider.

2. In the “Encoder Setup” section of the IncodeX One’s main interface window, select your audio settings as follows:
   - Specify your audio encode source as follows:
     ▶ If your setup uses the composite video input, the audio selection cannot be changed from “Analog Jacks.”
     ▶ If you are choosing to encode a source connected to the HD/SD-SDI video input, you may select “Analog Jacks” to encode analog audio along with it or if there is audio embedded in your digital video signal, select the corresponding embedded two-channel audio pair.
   - Choose an audio bit rate for encoding from the “Audio Bit Rate” drop-down box.

3. Apply your changes to the IncodeX One’s outgoing video stream by clicking the “Restart Encoder” button.
4. If you wish to save the change(s) in your user profile, click the “Save User” button.

**ADJUSTING VIDEO/AUDIO STREAM QUALITY WITH ADVANCED ENCODING CONTROLS**

Throughout this section, refer to Illustration 2 on page 6 and Illustration 5. After you have made your changes, apply your new settings to the outgoing video stream by clicking the “Restart Encoder” button. If you like the result of the changes, click the “Save User” button to add them to your user profile.

Illustration 4, Closeup of “Encoder Setup” Screen Section

Illustration 5, Closeup of “Advanced Controls” Screen Section

- **“Rate Control”**
  Further control the IncodeX One’s data encoding bit rate with the “Rate Control” selector. The size and overall quality of your video stream is directly related to the bit rates the IncodeX One uses for encoding as well as how much bandwidth will be required to deliver the stream to your viewers. Choose from constant bit rate (“CBR”) or variable bit rate (“VBR”) as described below:
  - **“CBR” (Constant Bit Rate) Encoding**
    The IncodeX One’s default bit rate control is “CBR” or constant bit rate encoding, meaning the IncodeX One encodes all of your data at the rates specified on the interface’s “Encoder Setup” panel. CBR allows you to directly...
control the encoding quality of your video stream, but it is better suited for encoding video that does not contain a lot of movement to prevent an overly large data stream.

► “VBR” (Variable Bit Rate) Encoding and “Video Burst Size”
Alternatively, you may choose “VBR” or variable bit rate encoding by clicking on the lefthand side of the “Rate Control” selector. VBR automatically adjusts your selected video bit rate during encoding, using higher bit rates during times of high motion within your incoming video signal while encoding the lower movement portions at lower video bit rates. Your selected video bit rate is treated by the IncodeX One as a target that the adjusted bit rates end up averaging over a period of time. VBR encoding for high motion video results in a data stream that is overall smaller in size and requires less bandwidth than if the video had been encoded at a constant bit rate. To prevent your IncodeX One from sending a data stream larger than your network can handle during encoding at the higher VBR bit rates, use the “Video Burst Size” drop down box to limit the amount of bits sent during the selected number of milliseconds.

NOTE: The “Video Burst Size” only pertains to variable bit rate encoding and is hidden in “CBR” mode.

• “Video Resolution”
Specify the size and pixel density of your video stream’s picture with the “Video Resolution” drop down box. By default, the IncodeX One is set to “Follow Input,” which encodes your video stream at the same resolution as the video signal going into your IncodeX One’s video input. Alternatively, you may choose 480i (720x480) for a standard definition video quality at a 4:3 aspect ratio or one of the high definition video resolutions (720p [1280x720] or 1080i [1920x1080]) with aspect ratios of 16:9.

• “Video Profile”
The IncodeX One interface also gives you the ability to choose your H.264 encoding compression capabilities with the “Video Profile” drop down box. The “Baseline” profile uses the fewest compression features while the “High” profile offers the highest quality video stream requiring the least amount of bandwidth. However, more features mean more complex encoding and decoding is required for the higher level profiles. When choosing an H.264 profile, the main thing to consider is the devices your viewers will be using to decode your stream. The decoders provided with IncodeX One Point-to-Point solutions support the “High” profile, so LEIGHTRONIX recommends this setting for use with the included decoders. Many mobile devices and older and/or less powerful computers are only able to decode streams encoded with the “Baseline” profile.

• “GOP Size”
When choosing the GOP or group of pictures size from the “GOP Size” drop down, you are telling the IncodeX One how many partial picture frames you want between full picture frames. A full, starting frame, known as an I-frame, contains all of the data needed to display that particular point in the video stream. The remaining frames in the GOP only contain data that differs from the I-frame while reusing the I-frame data that doesn’t change. Choosing a larger GOP will result in some compression of stream size as less of the same information is repeated in the stream. As a trade off, though, your video stream may play back less smoothly if your network connection has issues or the stream becomes corrupted and your decoder has to search further into the video stream for I-frame reference points.

• “Frame Decimation”
The “Frame Decimation” drop down allows you to reduce the number of frames per second (fps) in your incoming video signal. Either choose “None” to leave the frame rate as is or reduce by one half, one third, or one fourth. Reducing the frame rate results in higher quality images, but the stream display may be jerky, especially in the case of high motion video.

• “Audio Delay (ms)”/“Video Delay (ms)”
The audio and video delay fields allow you to enter the number of milliseconds you want the IncodeX One to wait before beginning to encode your incoming audio and/or video. These settings allow you to compensate for any audio/video sync issues in your source signal.

• “D1 Sharpness”
If you chose a composite video source for encoding, the “D1 Sharpness” drop down box will be displayed in the “Advanced Controls” panel. Use this setting to increase the crispness of the edges in the incoming video signal for a more focused look, with the option to increase sharpness by factors of .5, 1, or 2. Leaving the option set to 0 will
cause the IncodeX One to do nothing. This setting produces a subjective result, so it is recommended that you try the different settings before making your selection for your actual streaming event.

SELECTING STREAM DELIVERY AND DESTINATION SETTINGS

1. Use the “Output Setup” panel (see Illustration 6) to specify the format of your outgoing data stream as well as give your IncodeX One the IP address and port of your decoder as follows:
   - “Output Format”: leave this field set to “MPEG-2 TS” for a Point-to-Point application.
   - “Destination IP”: enter the IP address of your decoder.
   - “Destination Port”: enter the firewall port number between your IncodeX One and decoder.
   - “TS Bit Rate”: displays the combined bit rates you selected to encode the incoming video and audio signals plus the overhead data in your outgoing stream.

2. Click the “Save User” button to save the change(s) in your user profile.
3. Apply your changes by clicking the “Restart Encoder” button.

CHANGING NETWORK SETTINGS

You may set up your IncodeX One in either of the following network modes:

NOTE: If your IncodeX One is still configured with the factory default network settings, refer to “Changing the IncodeX One’s Factory Default Network Settings” on page 5.

1. Click the “Settings” button on the menu bar (see “IncodeX One Main Screen” on page 6) to access the IncodeX One’s network settings (see Illustration 7).
2. From the first “IP Config” drop down field, choose one of the following (see Illustration 7):
   - “Static”: enter in your new static IP, subnet, and gateway network addresses into the corresponding fields.
   - “DHCP”
3. Click the “Apply IP Settings” button (see Illustration 7). When prompted, click “Ok” to reboot the IncodeX One and apply the network address changes.
UPDATING FIRMWARE

Download the latest IncodeX One firmware file from the LEIGHTRONIX Support Center website onto your network connected computer and install the file as follows:

1. Click the “Settings” button on the menu bar (see “IncodeX One Main Screen” on page 6) to access the IncodeX One’s firmware update button.
2. Click the “UPDATE” button.
3. Click the “Choose file” button (see Illustration 8) and navigate to the location on your computer where you saved the IncodeX One firmware update file. Open the file to add it to the web interface screen and close the navigation window.
4. Click the “Upload and Update” button (see Illustration 8). Once the firmware file has been installed on the IncodeX One, the encoder will reboot.

Illustration 8, IncodeX One Firmware Update Buttons
In no event shall LEIGHTRONIX be liable for any damages whatsoever resulting from loss of use, data, or profits, whether or not advised of the possibility of damage, and on any theory of liability, arising out of or in connection with the use or performance of the IncodeX One.

<table>
<thead>
<tr>
<th><strong>Dimensions</strong></th>
<th>1.75”H x 19”W x 8.5”D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight, without carton or cables</strong></td>
<td>5 lbs.</td>
</tr>
<tr>
<td><strong>Front Panel Indicators</strong></td>
<td>Two light-emitting diodes (LEDs) provide status on power and encoding activity</td>
</tr>
<tr>
<td><strong>Power Input</strong></td>
<td>Three-position IEC power input with removable power cord</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>Internal 200W power supply with active P.F.C., which accepts 90-264VAC @ 47-63Hz</td>
</tr>
</tbody>
</table>
| **Product Safety** | Certified and listed as:  
  - Audio, Video, and Similar Electronic Apparatus Safety Requirements ANSI/UL 60065, 7th edition  
  - Audio, Video, and Similar Electronic Apparatus Safety Requirements CAN/CSA C22.2 No. 60065:03, 1st edition |
| **Compliance** | FCC Part 15, Subpart A |
| **Configuration Storage** |  
  - Internal memory  
  - Data integrity verified  
  - Elements:  
    - IP address  
    - Subnet mask  
    - Gateway  
    - Video/Audio Input Settings  
    - User Information |
| **Video Inputs** | The IncodeX One provides the two following video inputs:  
  - 1 BNC female, composite video input, terminated 75 ohms  
  - 1 BNC female, HD/SD-SDI video input (SMPTE 259M-C) with support for 2 channels of embedded digital audio (SMPTE 272M, audio pair selectable), terminated 75 ohms |
| **Audio Inputs** | 1 pair (2 channel) of RCA female, stereo audio, unbalanced, line level |
| **Ethernet Network Host Management** |  
  - Remote Support: Dial-Up Networking  
  - Network Support Interface:  
    - Eight-position, eight-conductor RJ-45 modular jack, 10/100 BASE-T, unshielded twisted pair, Ethernet  
    - Ethernet_II frame type  
    - Protocol: TCP/IP  
    - Services: Web |
| **Video Standard** |  
  - NTSC  
  - High definition, 16x9 aspect ratio  
  - Standard definition, 4x3 aspect ratio |
Digital video encoding results are based on a combination of the encoding bit rate and the quality of the input source. Video being fed to the encoder must have stable sync. The IncodeX One encoder supports the following:

<table>
<thead>
<tr>
<th>Video Encoding</th>
<th>Digital video encoding results are based on a combination of the encoding bit rate and the quality of the input source. Video being fed to the encoder must have stable sync. The IncodeX One encoder supports the following:</th>
</tr>
</thead>
</table>
| HD Video Encoding| • H.264 High, Main, and Baseline profiles  
► 1080i and 720p video resolutions  
► 128 kb/s–10 Mb/s variable and constant bit rate encoding |
| SD Video Encoding| • H.264 High, Main, and Baseline profiles  
► 480i video resolution  
► 128 kb/s–10 Mb/s variable and constant bit rate encoding |
| Audio Encoding   | • AAC-LC ADTS  
• 64, 96, 128, and 192 kb/s bit rates |
Inno event shall LEIGHTRONIX be liable for any damages whatsoever resulting from loss of use, data, or profits, whether or not advised of the possibility of damage, and on any theory of liability, arising out of or in connection with the use or performance of the IncodeX One Point-to-Point HD decoder.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>1.46”H x 4.02”W x 3.8”D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight, without carton or cables</td>
<td>.66 lbs.</td>
</tr>
<tr>
<td>Front Panel Indicator</td>
<td>One LED provides status on power and reception of IR commands</td>
</tr>
<tr>
<td>Power Input</td>
<td>Three-position IEC power input with removable power cord</td>
</tr>
<tr>
<td>Power Supply</td>
<td>5V DC at 1.5A via external power supply, less than 8 W typical usage, accepts 100-240VAC @ 50-60Hz 3A max</td>
</tr>
<tr>
<td>Product Safety</td>
<td>CAN/ CSA-C22.2 No. 60950-1-03 EN60950</td>
</tr>
<tr>
<td>Compliance</td>
<td>FCC Part 15 class B. 2004/108/EC EN55022</td>
</tr>
<tr>
<td>Operating Environment</td>
<td>ETS 300-019-1-3 Class 3.1</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C (32°F) to 40°C (104°F)</td>
</tr>
<tr>
<td>Memory</td>
<td>128MB Flash, 256MB RAM</td>
</tr>
<tr>
<td>Input</td>
<td>1 Ethernet 10/100 BASE-T via RJ-45 shielded connector</td>
</tr>
<tr>
<td>Outputs</td>
<td>HDMI 1.3a. with HDCP and CEC. 10-way Mini-DIN for Composite video, Component (YPrPb), RGB, S-Video and analog audio. S/PDIF (optical). 2x USB2.0. RS232 serial connector</td>
</tr>
<tr>
<td>Video Decoding</td>
<td>The IncodeX One Point-to-Point decoder supports the following:</td>
</tr>
<tr>
<td></td>
<td>• Codecs:</td>
</tr>
<tr>
<td></td>
<td>► MPEG-2 MP@HL</td>
</tr>
<tr>
<td></td>
<td>► MPEG-4 pt10 AVC/H.264 HP@L4</td>
</tr>
<tr>
<td></td>
<td>• Video Resolution: up to 1080i and 720p</td>
</tr>
<tr>
<td>Audio</td>
<td>Analog stereo audio out. Stereo via S-PDIF and HDMI. Dolby</td>
</tr>
</tbody>
</table>
## PRODUCT WARRANTY

LEIGHTRONIX, INC. warrants this IncodeX One H.264 encoder against defective workmanship or materials for a period of five (5) years from the original date of purchase.

During this warranty period, any parts found to be defective will be replaced at no charge. Labor to repair or replace defective parts will also be performed at no charge during the warranty period.

This warranty does not cover abuse, shipping damage, neglect, tampering by unauthorized personnel, acts of God, damage inadvertently caused by the user, preventive maintenance, or any product whose serial number is removed or defaced.

The sole responsibility of LEIGHTRONIX shall be to repair or replace in accordance with this warranty. The seller’s and manufacturer’s only obligation shall be to repair or replace such quantity of the product proved to be defective.

The customer shall bear the cost of shipping products returned to LEIGHTRONIX for warranty repair. The cost for return shipment to the customer will be assumed by LEIGHTRONIX and shipped via an equal priority service shipper prepaid and insured.

Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use of, or the inability to use the product. Before using, the user shall determine the suitability of the product for his/her intended use, and user assumes all risk and liability whatsoever in connection therewith.

The warranty and the obligations and liabilities thereunder shall replace all other warranties or guarantees, express or implied.

## DECLARATION OF STANDARDS CONFORMITY

### FCC NOTICE

**NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**CAUTION** Changes or modifications to this device not expressly approved by LEIGHTRONIX, INC. could void the user’s authority to operate this device.

This equipment is intended to be installed in a controlled environment with restricted access.