Support

At LEIGHTRONIX, every customer gets free support for the life of their product, 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 Stream HD/SD live streaming encoder. The IncodeX Stream™ live streaming encoder combined with the subscription-based VieBit™ streaming service allows you to create your own affordable, high quality live streaming channel.

The IncodeX Stream encoder captures a live video/audio signal from a LEIGHTRONIX server or other video source and converts the signal into an outbound, HD or SD H.264 digital video stream. The outbound stream is directed to the VieBit streaming service’s web servers and then simultaneously distributed to local and worldwide viewers.

**PACKING LIST**

- (1) IncodeX Stream HD/SD Live Streaming Encoder
- (1) IncodeX Stream HD/SD Live Streaming Encoder Manual
- (1) VieBit Streaming Solutions Manual
- (1) Part #10-0311, AC Power Cord, 6 ft.
- (1) Part #10-4856, CAT 5e Ethernet Cable, 7 ft.

**REQUIREMENTS**

- VieBit streaming service annual subscription
- Sustained outbound/upload bandwidth for transferring live stream to the Internet should roughly total the selected video bit rate plus the audio bit rate plus 64 kb/s for overhead
- See “Table 1, Firewall Port Numbers Needed for Streaming” on page 6 for port numbers that need to be opened between the IncodeX Stream encoder and domain names/IP addresses specified in the table

**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.

This apparatus must be connected to a MAINS socket outlet with a protective earthing connection.
The IncodeX Stream front panel indicators provide status on your encoder’s power connectivity and encoding activity. The red “Power” indicator lights up when your IncodeX Stream is connected to a power source and turned on. The green “Active” light turns on when the IncodeX Stream is encoding.

### Connectors
The IncodeX Stream 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 cord connector

### On/Off Switch
To turn on power to the IncodeX Stream, press the “−” symbol on the switch upward. The IncodeX Stream starts to encode when it is powered on. To turn off the IncodeX Stream, press the “o” symbol on the switch downward.
SETTING UP THE INCODEX STREAM

Once the IncodeX Stream encoder is installed, wired, and configured with network settings according to the steps in this section, the encoder will automatically start converting the incoming video/audio input signal into an H.264 video stream. As long as the IncodeX Stream is powered on and has a connected video input, the encoder will continually output a video stream.

1. Install it.

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

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

2. Plug it in.

Attach your network, power, and signal wiring to the IncodeX Stream according to the instructions below:

### IncodeX Stream 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 a straight-through RJ-45 Ethernet cable, connect the IncodeX Stream 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.

**NOTE:** For optimal performance, use a dedicated, DSL Internet business connection with your IncodeX Stream.

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.

CAUTION LEIGHTRONIX strongly recommends the use of an uninterruptible power supply (UPS) with the IncodeX Stream. Damage from power loss or spikes is not covered under warranty.
3. Configure Your Network Settings.

**Automatic Network Configuration**
The IncodeX Stream is shipped Dynamic Host Configuration Protocol (DHCP) enabled, meaning that if your network uses a DHCP server, your encoder will automatically obtain an IP, subnet mask, and gateway address when it is connected to a power source and your network. Skip to Step 4 on page 6.

**NOTE:** 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.

**Manual Network Configuration**
If your network does not use a DHCP server, you will need to obtain a static IP, subnet mask, and gateway address for your IncodeX Stream from your network administrator and then replace your IncodeX Stream's default static network addresses as follows:

a. Connect your IncodeX Stream’s Ethernet port to the Ethernet port on a laptop or PC with an Ethernet cable.

b. Change the IP address of your computer to a static 10.xx.xx.xx IP address that does not match the default static IP address of your IncodeX Stream, 10.11.31.2. A good rule of thumb is to just add one to the last value in the IncodeX Stream’s default static IP address, so you would use “10.11.31.3.”

c. Access the IncodeX Stream's browser-based interface as follows:
   i. Open an Internet browser on the computer connected to your IncodeX Stream.
   ii. In the URL address line, enter the IncodeX Stream’s default static IP address, 10.11.31.2, and press enter. You will be prompted to enter a username and password (see Illustration 1).

*Illustration 1, IncodeX Stream Interface Login Box*
iii. In lowercase, enter “admin” into the “User name” field and “stream” as the password. Click “Ok” to open the IncodeX Stream interface in your Internet browser window (see Illustration 2).

Illustration 2, IncodeX Stream Interface

iv. Stop the IncodeX Stream from encoding by clicking “Stop Encoder.”

v. Select the “Static” mode from the first “Network Settings” drop down field.

vi. Enter the IP, subnet mask, and gateway addresses you have obtained from your network administrator into the corresponding fields.

NOTE: Be sure to write down your static IP address in a known location so that it is available if needed, as this information will be needed to access your IncodeX Stream’s interface in the future.

vii. When you have finished entering in your network settings, click the “Apply Settings” button. Your IncodeX Stream will automatically reboot to apply the network address changes. The IncodeX Stream will resume encoding once it restarts.

viii. Detach the IncodeX Stream’s Ethernet port from your computer or laptop and then connect the encoder to your network.
4. Configure Your Firewall.

In order for the VieBit service to receive a video stream from your IncodeX Stream, open the firewall ports shown in Table 1 between your IncodeX Stream’s media access control (MAC) address and the domain names and IP address also specified in Table 1.

**NOTE:** Your IncodeX Stream’s MAC address is its 12 character serial number.

<table>
<thead>
<tr>
<th>Port Number</th>
<th>Port Function</th>
<th>Domain Name/IP Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>HTTP for access of your VieBit subscription information</td>
<td>license.leightronix.com</td>
</tr>
<tr>
<td>53</td>
<td>DNS for domain name resolution</td>
<td>67.227.136.122</td>
</tr>
<tr>
<td>123</td>
<td>NTP for clock synchronization between the IncodeX Stream and VieBit servers</td>
<td>time.leightronix.com</td>
</tr>
<tr>
<td></td>
<td>UDP for the delivery of the IncodeX Stream’s video stream to the VieBit servers</td>
<td>harbor.pegstream.com</td>
</tr>
</tbody>
</table>

Check the IncodeX Stream’s web interface for the specific port number your encoder is using (see “Obtain UDP Port Number” on page 8) or open on all ports.
Flexible and convenient, the IncodeX Stream includes a browser-based interface that allows you to change your system settings and perform firmware updates.

To access the IncodeX Stream browser-based interface, perform the following:

1. You will need your IncodeX Stream’s IP address to access the encoder’s browser-based interface. If you are not sure what your IncodeX Stream’s IP address is, you can obtain it using the set of steps below that correspond to your network setup:
   • DHCP Mode: if your IncodeX Stream 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 Stream’s MAC address. The IncodeX Stream’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 Stream, 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 Stream the next time you need to access the encoder’s interface.
   • Static Mode: if your network does not use a DHCP server, use the IP address assigned by your network administrator to your IncodeX Stream to access the encoder’s interface. If your IncodeX Stream has not yet been configured with the static addresses for your network, perform the steps in “Manual Network Configuration” on page 4.

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

3. In the URL address line, enter your IncodeX Stream’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 “stream” as the password. Click “Ok” to open the IncodeX Stream interface in your Internet browser window.

5. Once you are logged in, you may perform the steps in any of the following subsections.

**Specify Audio/Video Input and Encoding Settings**

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.

- **Input Settings**

  The IncodeX Stream will accept either composite video with analog audio or HD/SD-SDI video with embedded or analog audio. Along with connecting your video/audio sources to the correct inputs on the IncodeX Stream’s back panel, you will also need to tell the IncodeX Stream which back panel input(s) to use during encoding as follows:

  1. Stop the IncodeX Stream from encoding by clicking “Stop Encoder.”
  2. Choose either “Composite” or “SDI” from the “Video Source” drop down menu to specify the type of video input signal you will be encoding.
  3. Use the “Audio Source” drop down menu to specify your audio encode source as follows:

   - If your setup uses the composite video input, the audio selection cannot be changed from “Analog Stereo.”
   - If you are choosing to encode a source connected to the HD/SD-SDI video input, you may select “Analog Stereo” to encode analog audio along with it or if there is audio embedded in your HD/SD-SDI video signal, select the corresponding embedded two-channel audio pair.

  4. Click the “Apply Settings” button to make the change(s).
  5. Restart the IncodeX Stream encoder by clicking the “Start Encoder” button.

- **Encoding Settings**

  The IncodeX Stream’s video encoding settings are changed within the VieBit Web interface’s control panel. Refer to the *VieBit Streaming Solutions Manual* for further instructions.
Change Network Settings
You may switch your IncodeX Stream’s network mode to either of the following:

- Static Mode: while the IncodeX Stream ships DHCP enabled, you have the option of entering in your own static
  network addresses. Perform steps iv–vii on page 5.
- DHCP Mode: perform the following steps:
  1. Stop the IncodeX Stream from encoding by clicking “Stop Encoder.”
  2. Select the “DHCP” mode from the first “Network Settings” drop down field.
  3. Click the “Apply Settings” button. Your IncodeX Stream will automatically reboot to apply the network mode
     change. The IncodeX Stream will resume encoding once it restarts.

Obtain UDP Port Number
The “Outgoing Port#” field shows you the VieBit service port that receives the IncodeX Stream’s video stream. This is
useful if you wish to only unblock one port on your firewall for UDP traffic between the IncodeX Stream encoder and VieBit
delivery service.

Update Firmware
Download the latest IncodeX Stream 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 to access the IncodeX Stream’s firmware update button (see Illustration
   4).

   Illustration 3, IncodeX Stream Interface Settings

   ![IncodeX Stream Interface Settings]

2. Click the “Update” button.
3. Click the “Choose file” button (see Illustration 5) and navigate to the location on your computer where you saved the IncodeX Stream firmware update file. Open the file to add it to the web interface screen and close the navigation window.

Illustration 4, IncodeX Stream Firmware Update Buttons

4. Click the “Upload and Update” button (see Illustration 5). Once the firmware file has been installed on the IncodeX Stream, the encoder will reboot.
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 Stream.

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
</tr>
<tr>
<td>1.75”H x 19”W x 8.5”D</td>
</tr>
<tr>
<td><strong>Weight, without carton or cables</strong></td>
</tr>
<tr>
<td>5 lbs.</td>
</tr>
<tr>
<td><strong>Front Panel Indicators</strong></td>
</tr>
<tr>
<td>Two light-emitting diodes (LEDs) provide status on power and encoding activity</td>
</tr>
<tr>
<td><strong>Power Input</strong></td>
</tr>
<tr>
<td>Three-position IEC power input with removable power cord</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
</tr>
<tr>
<td>Internal 200W power supply with active P.F.C., which accepts 90-264VAC @ 47-63Hz</td>
</tr>
<tr>
<td><strong>Configuration Storage</strong></td>
</tr>
<tr>
<td>• Internal memory</td>
</tr>
<tr>
<td>• Data integrity verified</td>
</tr>
<tr>
<td>• Elements:</td>
</tr>
<tr>
<td>▶ IP address</td>
</tr>
<tr>
<td>▶ Subnet mask</td>
</tr>
<tr>
<td>▶ Gateway</td>
</tr>
<tr>
<td>▶ Video/Audio Input Settings</td>
</tr>
<tr>
<td>▶ User Information</td>
</tr>
<tr>
<td><strong>Video Inputs</strong></td>
</tr>
<tr>
<td>The IncodeX Stream provides the following video inputs:</td>
</tr>
<tr>
<td>• 1 BNC female, composite video input, terminated 75 ohms</td>
</tr>
<tr>
<td>• 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</td>
</tr>
<tr>
<td><strong>Audio Inputs</strong></td>
</tr>
<tr>
<td>2 RCA female, stereo audio, unbalanced, line level</td>
</tr>
<tr>
<td><strong>Ethernet Network Host Management</strong></td>
</tr>
<tr>
<td>• Remote Support: Dial-Up Networking</td>
</tr>
<tr>
<td>• Network Support Interface:</td>
</tr>
<tr>
<td>▶ Eight-position, eight-conductor RJ-45 modular jack, 10/100 BASE-T, unshielded twisted pair, Ethernet</td>
</tr>
<tr>
<td>▶ Ethernet_II frame type</td>
</tr>
<tr>
<td>▶ Protocol: TCP/IP</td>
</tr>
<tr>
<td>▶ Services: Web</td>
</tr>
<tr>
<td><strong>Web Interface</strong></td>
</tr>
<tr>
<td>IncodeX Stream web interface provided for management of the encoder’s system settings and firmware updates; compatible with popular web browsers, including Chrome, Firefox, and Internet Explorer</td>
</tr>
<tr>
<td><strong>Video Standard</strong></td>
</tr>
<tr>
<td>NTSC, high definition, 16x9 aspect ratio, and standard definition, 4x3 aspect ratio</td>
</tr>
<tr>
<td><strong>HD Encoding</strong></td>
</tr>
<tr>
<td>H.264 High, Main, or Baseline Profile Level 4; 1080i or 720p; 1024, 1536, or 2048 kb/s bit rate encoding</td>
</tr>
<tr>
<td><strong>SD Encoding</strong></td>
</tr>
<tr>
<td>H.264 High, Main, or Baseline Profile Level 3; 480i or 360i; 512, 768, or 1024 kb/s bit rate encoding</td>
</tr>
<tr>
<td><strong>Audio Encoding</strong></td>
</tr>
<tr>
<td>MPEG-1 layer II; 48 kHz audio sampling rate; 64, 128, or 192 kb/s audio bit rate encoding</td>
</tr>
<tr>
<td><strong>Compliance/Certifications</strong></td>
</tr>
<tr>
<td>Certified and listed as:</td>
</tr>
<tr>
<td>• Audio, Video, and Similar Electronic Apparatus Safety Requirements ANSI/UL 60065, 7th edition</td>
</tr>
<tr>
<td>• Audio, Video, and Similar Electronic Apparatus Safety Requirements CAN/CSA C22.2 No. 60065:03, 1st edition</td>
</tr>
<tr>
<td>Digital Media Licensing</td>
</tr>
</tbody>
</table>
LEIGHTRONIX, INC. warrants this IncodeX Stream streaming media 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.

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.