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HD-ENC-H264

H.264 Video Encoder

User Manual

Introduction

The H.264 HDMI Video Encoder streams 1080p video from an HDMI video source to a media streaming server (Wowza, Xtreme Codes, Nginx, etc) or online live broadcast platform (YouTube Live, FaceBook Live, IBM Cloud Video (Ustream), etc) over IP in real time. It encodes video using H.264 compression and AAC/MP3 audio.

Features:

- Accepts 1080p HD video at 60 frames per second and produces IP streams that can be sent on a standard Ethernet cable.

- Encode the same HDMI video source in two different formats and resolutions - unicast and multicast.

- Supports RTMP, RTSP, UDP, HTTP, HLS, FLV and ONVIF protocols

- Compatible with most Internet live broadcast platforms, such as YouTube Live, Facebook Live, Twitter Live, Twitch, and IBM Upstream.

- Broadcast to SmartTVs using a media streaming sever, such as Wowza, Xtreme Codes, Nginx, etc.

- Easy-to-use HTTP-based web interface.

   o Modify network and video quality settings such as IP address, bit rate, and fps.

- Add text and logos to the video stream.

- Supports 100Base-T Ethernet connection.

- Linux inside.

- Ideal solution for many applications, including:

   o Digital signage

   o IPTV/SmartTV

   o Hotel TV systems

   o Live broadcast

   o Classrooms - teaching online

   o IP video surveillance

   o Video conference

Factory Default Settings:
   IP: 192.168.1.168
   Username and Password: admin

When you first login, if the display is in Chinese, select English (lowermost choice) from the pull down menu located at the top right of the window.

Settings:

Upon Initial Login to the User Interface through your browser, you will be provided with a Status Display providing the following information:

Input Status :   shows the type of input signals that are attached
Running Time: Indicates how long the Encoder has been connected to the Input Source
CPU Usage: Typically 25% (if this value is more than 85%, there may be an excess drain on the resources of the source)
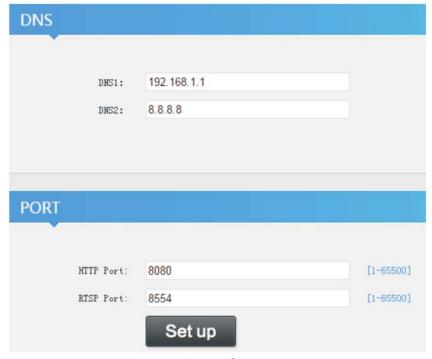**Input Size**: 1920x1080p@60Hz   (Default configuration for the source)
Collected Video Frames: 65116   (Indicates how many frames of video have been encoded from the source)
Lost Video Frames: Indicates how many frames have dropped by the encoder
Audio Sample Rate: 48000

Click on the "Network Settings" tab to view the current network settings and MAC address for the Encoder.

Internet access

DHCP:	Disable ▼
IP:	192.168.1.168
Netmask:	255.255.255.0
Gateway:	192.168.1.1
MAC:	00:13:14:15:3C:F0

DNS

DNS1:	192.168.1.1
DNS2:	8.8.8.8

PORT

HTTP Port:	8080	[1-65500]
RTSP Port:	8554	[1-65500]

Set up

Be sure to enter the proper DNS server and Gateway address.   Otherwise the Encoder will not be able to connect with the internet and stream video to your desired destination.

To set the destination, configure the video settings for one or more Mainstream addresses:

Main stream

FPS:	30	[5-60]
GOP:	30	[5-300]
Bitrate(kbit):	3500	[32-32000]
Encoded size:	1920x1080 ▼	
H.264 Level:	high profile ▼	
Bitrate control:	vbr ▼	
MIN_QP:	5	[1-35]
MAX_QP:	42	(MIN_QP-50]
TS URL:	/0.ts	Disable ▼
HLS URL:	/0.m3u8	Disable ▼
FLV URL:	/0.flv	Disable ▼
RTSP URL:	/0	Disable ▼
Multicast IP:	238.0.0.1	Disable ▼
Multicast port:	1234	[1-65535]
RTMP PUBLISH URL:	rtmp://192.168.1.50/live/1	Enable ▼

rtmp://ip/xxx/xxx or rtmp://user:pass@ip/xxx/xxx

Set up

Field	Description
FPS	Max. is 60fps, but when input is 1080i, fps will be halved (for deinterlacing)
GOP	Group of pictures (recommend using the same value as the FPS)
BITRATE (kbit)	Value depends on the video quality needed (suggestions: 1080p@3500kbs, 720p@2800kbs, SD@1500kbs)
Encoded size	Encoded Output Resolution.
H.264 Level:	Profile-baseline / main / high Profile High Profile is recommended
Bitrate control:	Vbr (Variable Bitrate) or Cbr (Constant bitrate)

MIN_QP	Minimum Quantization Parameter (Typically between 1-35) The larger the value, the more stable the bandwidth will be, but video quality will decrease. Recommend using the default value (5))
MAX_QP	Maximum allowable is 50, default is 42
TS URL	/0.ts Select to Enable or Disable
HLS URL	/0.m3u8 Select to Enable or Disable
FLV URL	/0.flv Select to Enable or Disable
RTSP URL	/0 Select to Enable or Disable
Multicast IP	238.0.0.1 Select to Enable or Disable
Multicast port	Port to use for multicasting video/audio (1-65535)
RTMP PUBLISH URL	Address of the real time media player to broadcast encoded video to.

RTMP Settings:

Wowza-   rtmp://serverIP:port/Application/stream name

   i.e. - **rtmp://192.168.1.50P:1935/live/oupree**

If Wowza requires Source Authentication, the source is username **oupree** , password is **123456**,   so the address will be:
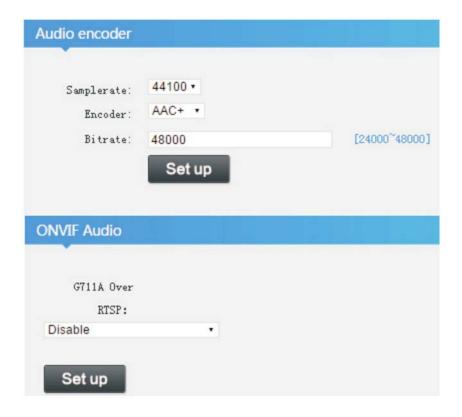   **rtmp://oupree:123456@192.168.1.50P:1935/live/oupree**

Xtream Codes- on its panel, write address as   **rtmp://127.0.0.1:8001/live/stream name**

OSD- to display the transparent logo, set the background color as 0xF1F1F1 or R-177 G-204 B-233,

See examples on pages 7 and 8.

Audio Encoding Settings:
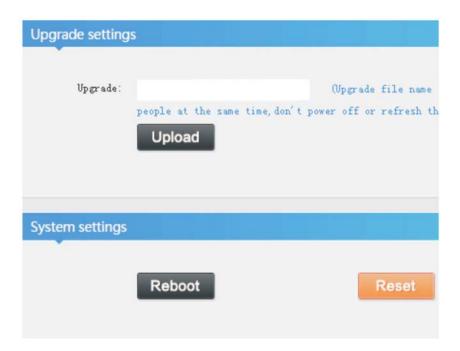
Generally, leave these set at the default (as shown below),   but if you feel comfortable changing the settings, set as needed.
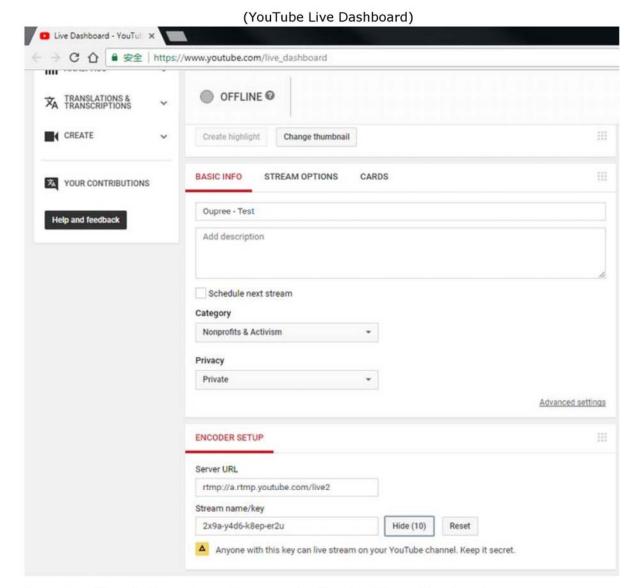

System Settings:

In this window you can change the password if desired.

Upgrade Firmware:

Upgrade settings

Upgrade: _____ (Upgrade file name

people at the same time, don't power off or refresh th

Upload

System settings

Reboot   Reset

If new firmware becomes available, we will provide a link to it on our website.   As of this publication, no new firmware is available.   If new firmware is available, browse for it, select the file, click "Upload",   when you get the message "Upload Success", click "Reboot".
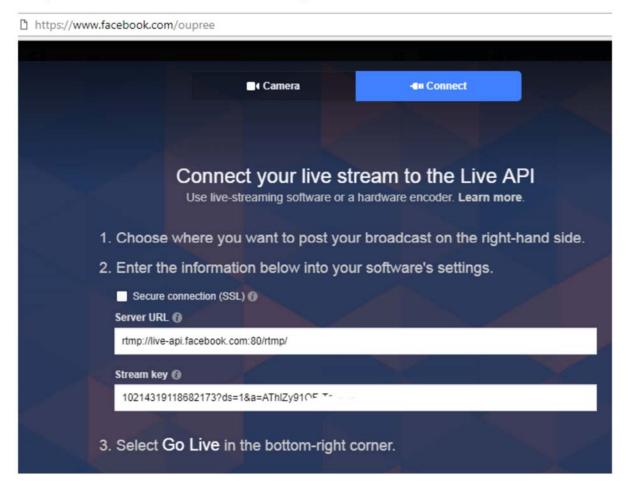
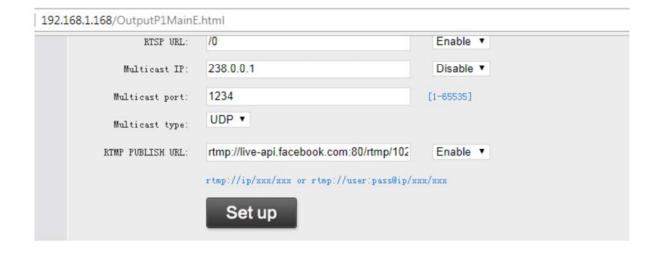**Example of HD-ENC-H264 Encoder Settings to connect to YouTube Live Stream**

(YouTube Live Dashboard)

Based on the window above, the encoder input address for rtmp is
rtmp://a.rtmp.youtube.com/live2/2x9a-y4d6-k8ep-er2u

Example of HD-ENC-H264 Encoder Settings to connect to Facebook Live Stream

▢ https://www.facebook.com/oupree

▪ Camera   ◀▪ Connect

Connect your live stream to the Live API
Use live-streaming software or a hardware encoder. **Learn more**.

1. Choose where you want to post your broadcast on the right-hand side.

2. Enter the information below into your software's settings.

▢ Secure connection (SSL) ⓘ

Server URL ⓘ

rtmp://live-api.facebook.com:80/rtmp/

Stream key ⓘ

10214319118682173?ds=1&a=AThlZy910⁵ ⋯

3. Select **Go Live** in the bottom-right corner.

Based on the window above, the encoder input address for rtmp is rtmp://live-api.facebook.com:80/rtmp/10214319118682173?ds=....

192.168.1.168/OutputP1MainE.html		
RTSP URL:	/0	Enable ▾
Multicast IP:	238.0.0.1	Disable ▾
Multicast port:	1234	[1~65535]
Multicast type:	UDP ▾	
RTMP PUBLISH URL:	rtmp://live-api.facebook.com:80/rtmp/102	Enable ▾
	rtmp://ip/xxx/xxx or rtmp://user:pass@ip/xxx/xxx	
	Set up	

SPECIFICATIONS

Video
- One female HDMI-A port for source connection.
- Supported resolutions: 720p/1080i/1080p @50/60Hz and below.
- Codec: H.264/AVC High/Main/Baseline
- Bit rate: 0.1 to 32 Mbps, adjustable
    - Bit rate control: VBR/CBR
- Frames per second: 5 to 60 FPS

Audio
- HDMI embedded audio.
- Sample rates: 44.1 kHz, 48.0 kHz
- Codec: AAC/AAC+/AAC++/MP3
- Bit rate: 0.1 to 32 Mbps, adjustable

Ethernet Port
- One female RJ45 connector.
- 100 Base-T Ethernet interface.

Protocols
- HTTP, HLS, FLV, RTSP, UDP, RTMP, ONVIF
    - ONVIF: G.711

Dimensions
WxDxH: 5.16x6.57x1.14 in. (131x167x29mm)

Power
- Input: 110 or 240 VAC at 50 or 60 Hz via AC adapter (US AC adapter included).
- Optional universal power plug adapters available (not included).
- Output: 12VDC, 1A

Environmental
- Operating temperature: 32 to 104°F (0 to 40°C).
- Storage temperature: -4 to 158°F (-20 to 70°C).
- Operating and storage relative humidity: 5 to 90% non-condensing RH.

Regulatory Approvals
CE, FCC, RoHS

Warranty
Two years.

Cables
- Use HD-xx-MM cable to connect an HDMI video source (not included).
- Use CAT5e/6 solid or stranded straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors (not included).