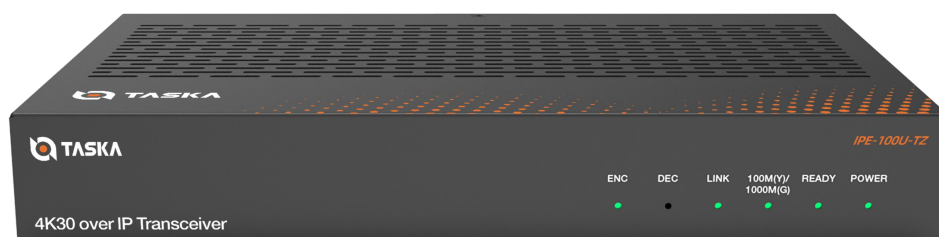




# IP Extender 100 Series UHD Lite Transceiver IPE-100U-TZ



## User Manual

## Thank you for purchasing this product.

Please read this manual carefully before use to ensure optimal performance and safety.

Please retain this manual for future reference.

## Copyright

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## Safety and Compliance

### FCC NOTICE (Class A)

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 in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### European Community Compliance Statement (Class A)

This product is herewith confirmed to comply with the requirements set out in the Council Directives on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive 2014/30/EU.

## Trademarks

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## What's in the box?

|                                            |     |
|--------------------------------------------|-----|
| IPE-100U-TZ .....                          | x 1 |
| 6pin-3.81mm Phoenix Connector (male) ..... | x 2 |
| 3pin-3.81mm Phoenix Connector (male) ..... | x 1 |
| Mounting Ear .....                         | x 2 |
| Machine Screw (M3*4) .....                 | x 4 |
| Thank you Card .....                       | x 1 |

## Notice

The contents of this manual are subject to change without prior notice as part of continuous product improvement. All updates will be incorporated into subsequent versions of this documentation, ensuring users have access to the most current information regarding product features and procedures.

## Overview

Taska IPE-100U-TZ is a professional-grade 4K30 H.264/H.265 all-in-one codec transceiver. Utilizing NeuroMesh Codec technology, it delivers uncompromised video quality with pixel-perfect color accuracy, making it ideal for color-critical applications. Designed for reliability in mission-critical environments, it features dual-network redundancy with auto-switching between Gigabit Ethernet and SFP ports (prioritizing Ethernet) to 100 meters.

This versatile unit integrates both encoder and decoder functions, providing flexible installation and setup options. It supports HDMI 1.4 I/O with 4:2:2 encoding and decoding, along with analog audio embedding/de-embedding for flexible audio routing. Beyond core encoding/decoding, the IPE-100U-TZ enables advanced video wall processing, multi-view display configurations, and KVM workstation management, making it a comprehensive solution for high-performance AV installations where precision, reliability, and low latency are essential.

## Features

- NeuroMesh Codec - Proprietary intelligent compression technology
- HDCP 1.4 compliant
- Support video resolutions up to 4K30Hz (4:2:2), 4.95Gbps video bandwidth, as specified in HDMI 1.4
- Support LPCM 2.0CH 48kHz audio format
- 4:2:2 encoding and decoding for true color restoration
- Integrated encoder and decoder design, compatible with both fiber and copper connections
- Window roaming function: a single decoder unit can process up to 16 signals, supporting arbitrary windowing, roaming, overlaying, and splicing
- KVM seat management (one-to-one & one-to-many), enabling one user to operate multiple PCs
- Universal H.264/H.265 protocol support, supporting IPC access and seamless integration with security camera products
- Supports high-definition background images (both video and static images) and multi-screen splicing display
- Support scrolling subtitles and character overlay
- Support point-to-point signal extension
- Support signal distribution, multicast mode, matrix switching, and video wall functions over a 1G Network Switch
- Support user rights management
- Flexible control via KVM, APP and Control Server (IPE-300C)
- Standard PoE supported (802.3af Class 3, PD mode)
- Encoder supports HDMI local loop out
- Encoder supports audio embedding and de-embedding function

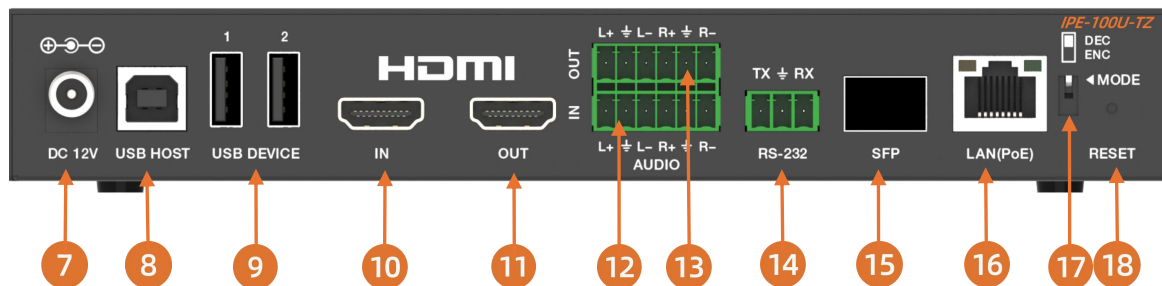
## Panel Description

### Front Panel



| No. | Name                     | Function Description                                                                                                                                                                                                                                                                                                                                                                           |
|-----|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | ENC LED                  | When the device is in Encoder mode, the ENC LED is on.                                                                                                                                                                                                                                                                                                                                         |
| 2   | DEC LED                  | When the device is in Decoder mode, the DEC LED is on.                                                                                                                                                                                                                                                                                                                                         |
| 3   | LINK LED                 | When the device is in Decoder mode, the DEC LED is on.                                                                                                                                                                                                                                                                                                                                         |
| 4   | 100M(Y)/<br>1000M(G) LED | Network connection speed indicator: <ul style="list-style-type: none"> <li>▪ When the device is connected to a 100M network, the indicator is yellow.</li> <li>▪ When the device is connected to a 1000M network, the indicator is green.</li> </ul>                                                                                                                                           |
| 5   | READY LED                | <ul style="list-style-type: none"> <li>▪ <b>Encoder mode:</b> When the encoder is powered on and not connected to the decoder, the green LED is off; When connected to the decoder, the green LED is on.</li> <li>▪ <b>Decoder mode:</b> When the decoder is powered on and not connected to the encoder, the green LED is off; When connected to the encoder, the green LED is on.</li> </ul> |
| 6   | POWER LED                | <ul style="list-style-type: none"> <li>▪ When the device is working normally, the POWER LED is on.</li> <li>▪ When the device is in standby mode or powered off, the POWER LED is off.</li> </ul>                                                                                                                                                                                              |

## Back Panel



| No. | Name           | Function Description                                                                                                                                                                                                                                                                 |
|-----|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7   | DC 12V         | DC 12V/2.5A power input port.<br>Note: The device supports two power supply modes:<br>① Local DC 12V power supply<br>② Power over Ethernet (PoE) from a network switch (PD mode)<br>When both power sources are connected, the device will prioritize the local DC 12V power supply. |
| 8   | USB HOST       | USB host port, connected to computer in ENC mode.                                                                                                                                                                                                                                    |
| 9   | USB DEVICE     | USB device ports, connected to keyboard and mouse in DEC mode.                                                                                                                                                                                                                       |
| 10  | HDMI IN port   | HDMI signal input port, connected to HDMI signal source device with HDMI cable.                                                                                                                                                                                                      |
| 11  | HDMI OUT port  | HDMI signal output port, connected to HDMI display device with HDMI cable.                                                                                                                                                                                                           |
| 12  | AUDIO IN port  | Stereo balanced line input port, connected to audio source device through 6pin-3.81mm Phoenix connector.                                                                                                                                                                             |
| 13  | AUDIO OUT port | Stereo balanced line output port, connected to audio playback device through 6pin-3.81mm Phoenix connector.                                                                                                                                                                          |
| 14  | RS-232 port    | RS-232 serial control port, used for bidirectional communication with a computer or control system through the 3pin-3.81mm Phoenix connector.                                                                                                                                        |
| 15  | SFP slot       | 1G SFP Port, connected to a network switch via an SFP optical module for audio and video transmission.                                                                                                                                                                               |
| 16  | LAN port (PoE) | 1G Network Port, connected to a network switch for audio and video transmission. It also supports Power over Ethernet (PoE) for device power supply.                                                                                                                                 |
| 17  | MODE switch    | Encoder/decoder mode switch.<br><b>Switching to DEC:</b> The unit is switched to the decoder mode.<br><b>Switching to ENC:</b> The unit is switched to the encoder mode.<br>Each switching requires rebooting the unit to take effect.                                               |
| 18  | RESET button   | System reset button.<br>▪ Long press for 5 seconds and manually reboot the device to restore the system to factory default settings.<br>▪ Long press for 15 seconds to restore the software to the factory default version.                                                          |

## Technical Capabilities

The IPE-200U-TZ sets new benchmarks in AV-over-IP performance with the following features:

### More Stable Architecture for AV over IP

- NeuroMesh codec

The IPE-200U-TZ incorporates our proprietary NeuroMesh codec, an intelligent video compression technology. This advanced solution delivers exceptional performance in professional AV transmission, offering ultra-low latency, high bandwidth efficiency, and superior visual fidelity—surpassing conventional codecs.

- H.264/265 codec

The IPE-200U-TZ supports standard H.264/H.265 video streaming at resolutions up to 1080p30.

- Signal Distribution, Switching, Extension, and Matrix Mode

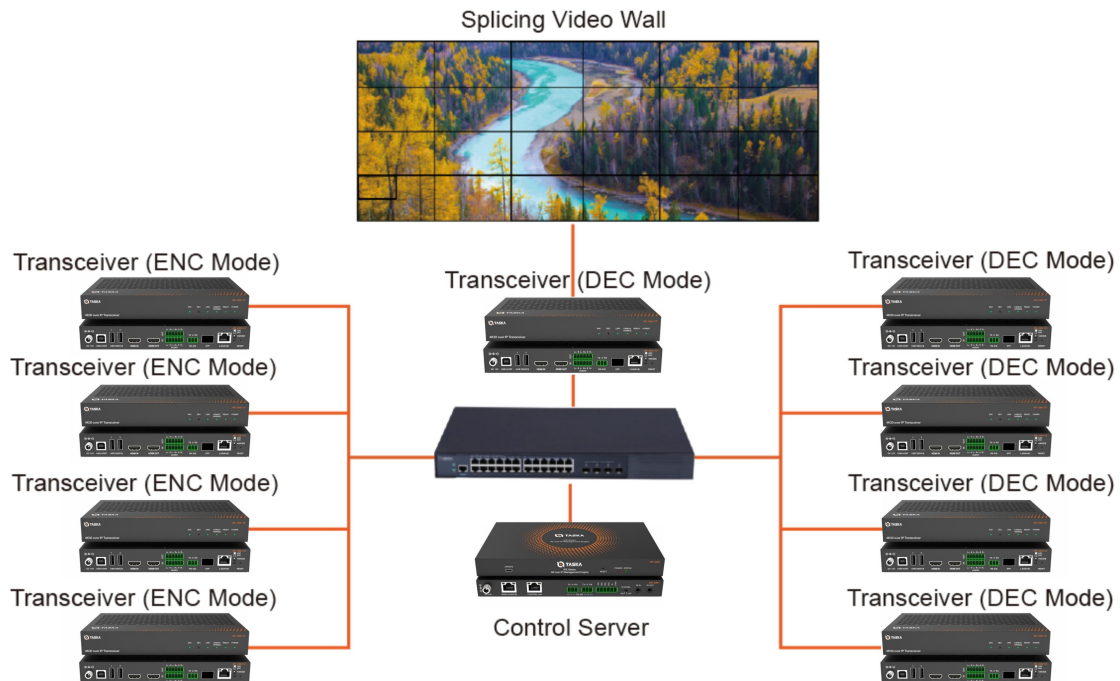
The system enables flexible video and audio routing. Any input can be freely assigned to any output, with independent audio switching available when required. Switching is seamless, without black screens or interruptions, and remains stable even over extended network distances. The system automatically corrects audio-video synchronization issues if they occur during switching.

- Works with Standard Gigabit Switches — No System Limits

The device operates with any standard gigabit network switch and imposes no limit on the total number of units within a single system.

- Seamless H.264/H.265 Encoding/Decoding for Security Camera Integration

The unit provides seamless compatibility and integration with security camera systems using universal H.264/H.265 protocols.



### High Quality Image

- 4K30 4:2:2 Visual Performance

Supports native 4K@30Hz and 1080P@60Hz image processing. Utilizes 4:2:2 encoding/decoding technology for precise color restoration and high-resolution pixel-to-pixel display.

- **HDMI 1.4 Compliance**

Fully compliant with HDMI 1.4 specification, delivering theater-grade 18Gbps bandwidth for cinematic large-screen viewing experiences.

- **Universal Display Compatibility**

Maintains sub-100 $\mu$ s synchronization across all display types including LCD video walls and fine-pitch LEDs, with customizable output resolutions and grouped output management for shared source distribution.

### Seamless Switching

- **Ultra Fast Seamless Switching**

Achieves flawless sub-millisecond source transitions with zero black screens, screen flashes, or image tearing, ensuring perfectly smooth visual performance for mission-critical applications.



Traditional switching with Black screen



Traditional switching with Freeze screen for 2-3 seconds



Ultra Fast Seamless switching

### Integrated Design, Excellent Performance

- **Integrated Encoder-Decoder Unit**

Combines encoding and decoding functions in a single device for simplified installation and maintenance.

- **Wide Camera Compatibility**

Directly connects to major IPC brands (Hikvision/Dahua/Uniview) with full PTZ control support.

### Video Wall

- **Video Wall Function**

The system delivers high-performance video wall processing with flawless horizontal and vertical splicing capabilities.

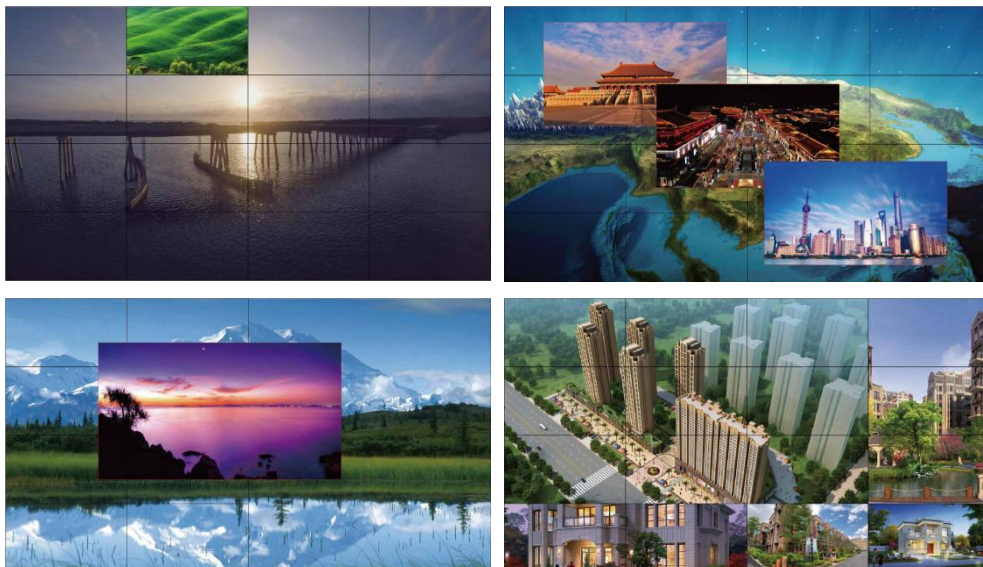
- **Video Signal Processing**

Utilizing advanced image processing technology, the system ensures perfect frame synchronization and smooth playback of fast-motion content without frame loss or lag. It provides end-to-end signal management—from acquisition to display—guaranteeing zero frame loss throughout encoding, transmission, and decoding. The system also supports high-definition background images and delivers consistent performance even under demanding video conditions.

### Free Window Display Output

- Flexible Multi-Window Output

A single screen can simultaneously process and display up to 36 input signals. It supports fully customizable window layouts, seamless roaming, multi-layer overlays, and arbitrary screen splicing.



### On-Screen Display Options

- Subtitle, Banner, and Logo Overlay

The system supports dynamic overlays—including scrolling subtitles, custom text banners, and corporate logos—on live video outputs. Users can freely customize font style, color, size, and precise positioning for all on-screen elements.

### KVM Collaborative Management

- Instant Signal Sharing

The system enables real-time sharing of current signals with selected users and large-screen displays, enhancing team coordination and dynamic scheduling efficiency.

- Visual Takeover Control

Quick-access shortcut keys and an intuitive on-screen display (OSD) menu allow immediate signal switching, distribution, and unified operational control.

- Flexible Seat Roaming

A single display supports 1/4/9/16 split-screen layouts, empowering operators to monitor numerous signal sources simultaneously for streamlined workflow management.

- Unified Workstation Control

Operators can control multiple computers using one keyboard and mouse setup. Individual PCs can also extend their display across several monitors for an expanded visual workspace.

- Human-Machine Separation

All computers are centrally installed and managed in equipment rooms, and can be controlled in real time from any connected workstation.

### Additional Practical Functions

- RS-232 Relay Control

The device supports RS-232 relay command integration for seamless connectivity with PCs and control systems, enabling precise external device management.

- HDMI™ Loop-Out Function

The built-in HDMI loop-out port facilitates easy signal cascading to additional displays or local monitoring equipment without signal degradation.

- Power over Ethernet (PoE)

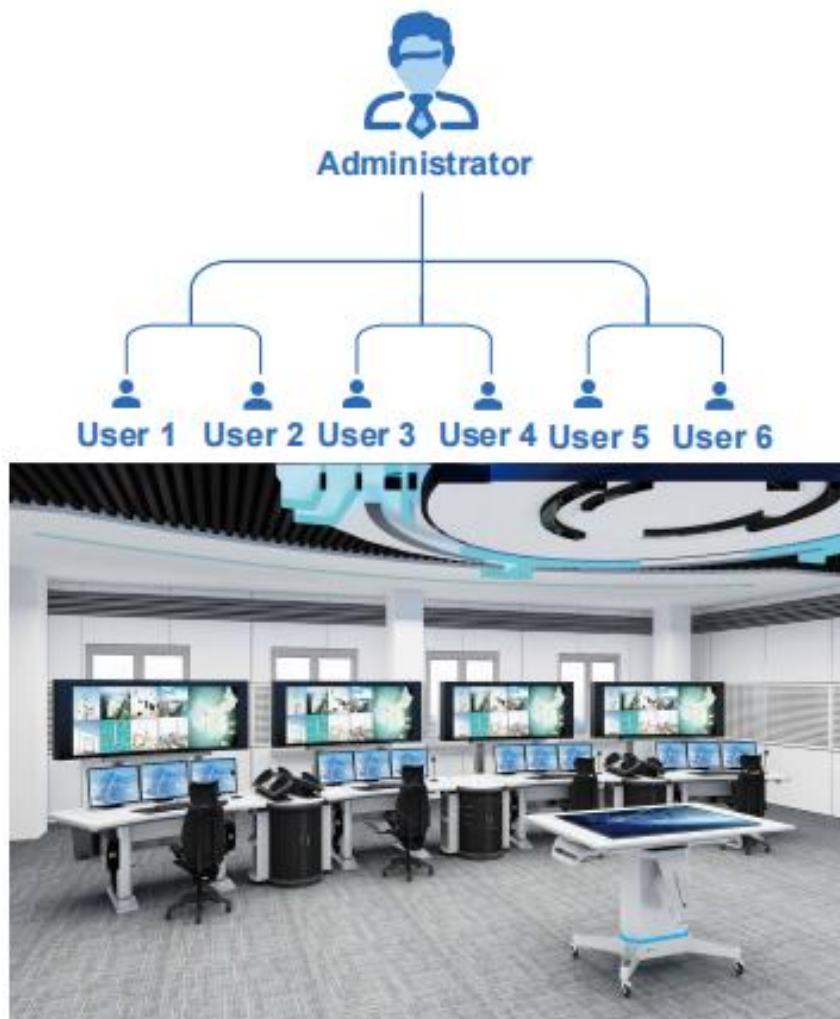
PoE support simplifies installation, reduces cabling complexity, and lowers deployment costs.

- Audio Embedding/De-embedding

The system provides flexible audio processing capabilities, allowing users to embed or extract audio signals for diverse application needs.

### Multi-level User Rights Management

The system supports hierarchical user rights management and simultaneous multi-user online access, fully addressing enterprise-level operational needs. It employs a scientifically designed authorization mechanism that enables precise assignment of rights by hierarchy and group, ensuring clear responsibility assignment and seamless alignment with business workflows. User accounts are personalized and follow individuals across login locations, guaranteeing that responsibilities remain assigned to the correct person.



## Streaming Operation Guide

The IPE-100U-TZ supports playback of Main Stream and Sub Stream on a computer using software such as VLC media player. Below is an example procedure using VLC:

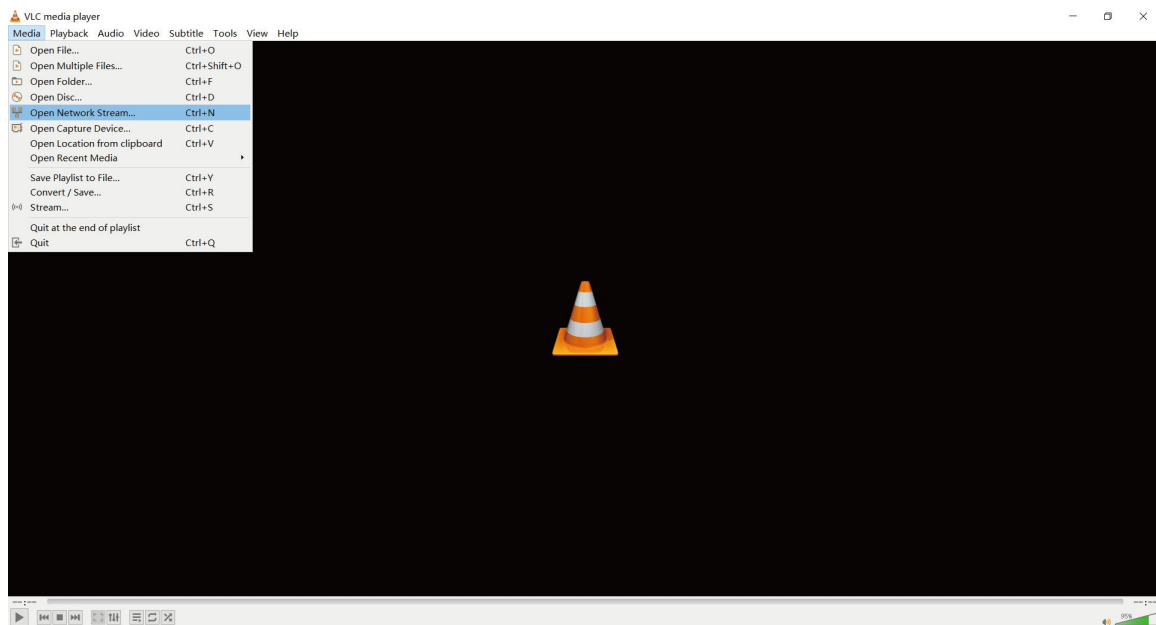
**Step 1:** Connect the transceiver (in encoder mode) to an HDMI source, a power supply, and to a PC—either directly or through a network switch.

**Step 2:** Check the IP address of the transceiver (in encoder mode) on the front-panel OLED display.

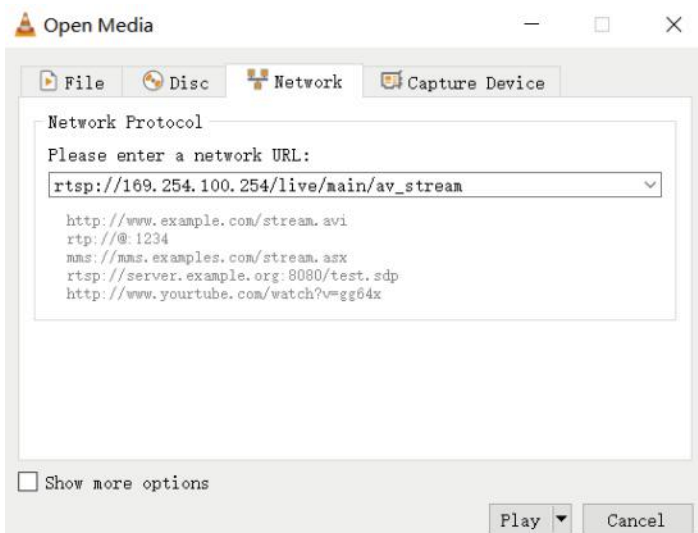
**Step 3:** Set the PC's IP address to the same network segment as the transceiver.

**Step 4:** Open VLC media player on the PC.

**Step 5:** Click “Media > Open Network Stream”



After clicking the “Open Network Stream” option, the following window will appear.

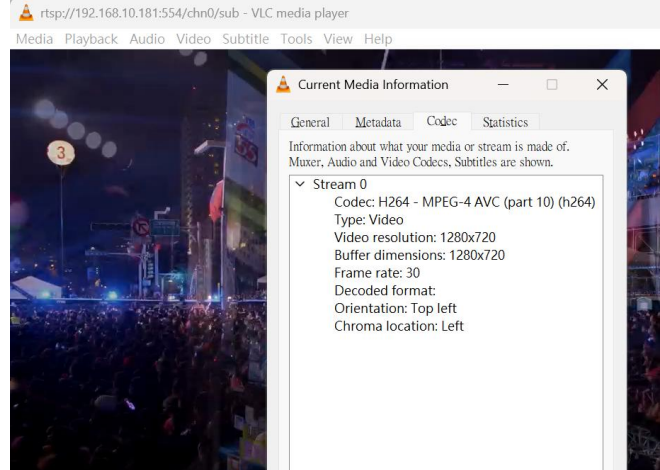
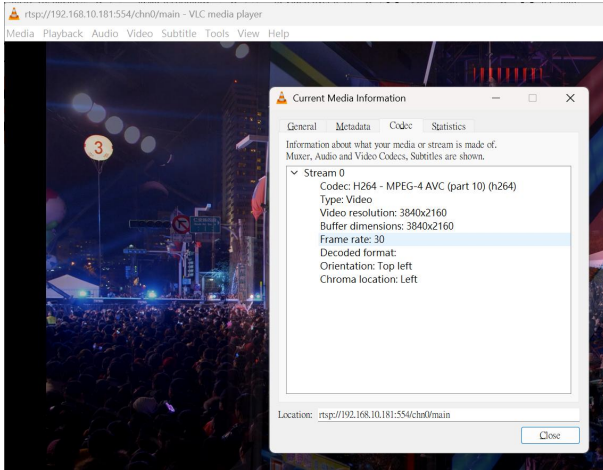


**Step 6:** Enter a MainStream or SubStream network URL, then click “Play” button.

Example:

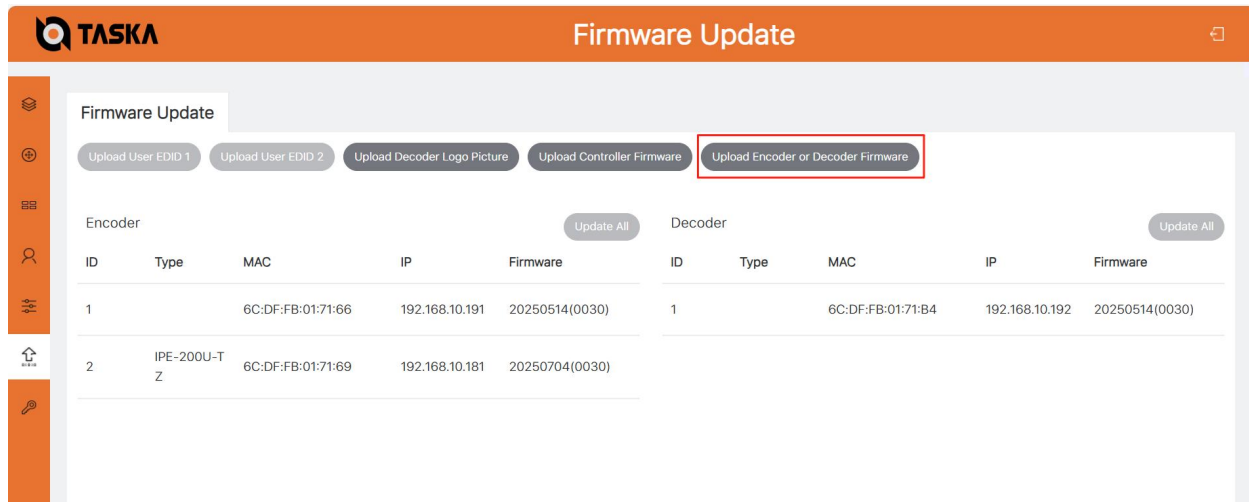
| Video Stream | Network URL                     | Resolution |
|--------------|---------------------------------|------------|
| MainStream   | rtsp://192.168.10.181/chn0/main | 2160P30    |
| SubStream    | rtsp://192.168.10.181/chn0/sub  | 720P30     |

On VLC media player, you can review the settings of the Main Stream or Sub Stream. Go to “Tools > Codec Information”, or use the keyboard shortcut “Ctrl + J”, to display detailed stream information—including current codec and resolution—as illustrated in the figure below.



## Firmware Update

The IPE-100U-TZ firmware update process is managed through the IPE-300C controller's web interface, which serves as a centralized platform for all firmware maintenance activities.



For detailed operational guidelines and technical specifications, please consult the official IPE-300C User Manual documentation.

## Protocol

The IPE-100U-TZ device supports configuration via IPE-300C controller using a simplified API protocol. For the latest protocol specifications, please download the technical documentation from: <https://www.taska-tech.com>

## Technical Specifications

| Technical                            |                                                                                                                                                                                                             |                                                                                                                                                                          |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HDMI Compliance                      | HDMI 1.4                                                                                                                                                                                                    |                                                                                                                                                                          |
| HDCP Compliance                      | HDCP 1.4                                                                                                                                                                                                    |                                                                                                                                                                          |
| Video Compression Standard           | H.264/H.265                                                                                                                                                                                                 |                                                                                                                                                                          |
| Video Bandwidth                      | 4.95Gbps                                                                                                                                                                                                    |                                                                                                                                                                          |
| Video Resolution                     | 3840x2160p30Hz, 3840x2160p25Hz, 3840x2160p24Hz, 1920x1080p60Hz, 1920x1080p50Hz, 1920x1080p30Hz, 1920x1080p25Hz, 1920x1080p24Hz, 1280x720p60Hz, 1280x720p50Hz, 1360x768p60Hz; 1680x1050p60Hz; 1920x1200p60Hz |                                                                                                                                                                          |
| Color Space                          | RGB 4:4:4, YCbCr 4:4:4/4:2:2/4:2:0                                                                                                                                                                          |                                                                                                                                                                          |
| Color Depth                          | 8/10/12bit                                                                                                                                                                                                  |                                                                                                                                                                          |
| Encoding Sampling Rate               | 48KHz                                                                                                                                                                                                       |                                                                                                                                                                          |
| HDMI Audio Formats                   | LPCM 2.0CH, 16bit, 48k                                                                                                                                                                                      |                                                                                                                                                                          |
| Analog Audio Formats                 | Left and right stereo analog audio                                                                                                                                                                          |                                                                                                                                                                          |
| Analog Input/Output Audio Parameters | Input/Output Impedance                                                                                                                                                                                      | >=10k ohms/330 ohms                                                                                                                                                      |
|                                      | Line Input/Output Level (Max)                                                                                                                                                                               | 1Vrms/1Vrms                                                                                                                                                              |
|                                      | Frequency Response                                                                                                                                                                                          | (+0.5dB, -1dB) 20Hz ~ 20kHz                                                                                                                                              |
|                                      | Audio S/N Ratio                                                                                                                                                                                             | >90dB@ HDMI 0dB, 1kHz A-weighted                                                                                                                                         |
|                                      | Audio THD+N                                                                                                                                                                                                 | <0.05%@ HDMI 0dB, 1KHz                                                                                                                                                   |
| Network Port                         | 1000Base-T (supporting PoE)                                                                                                                                                                                 |                                                                                                                                                                          |
| Video Stream                         | Encoder mode                                                                                                                                                                                                | Main Stream: 4096x2160p60 (NeuroMesh codec)<br>Sub Stream: 1920x1080p30 (NeuroMesh codec)<br>KVM Preview: 352x288p30<br>RTSP Main: 1920x1080p30<br>RTSP Sub: 1280x720p30 |
|                                      | Decoder mode                                                                                                                                                                                                | Maximum decode streams:<br>2 x 4096x2160p60 or<br>1 x 4096x2160p60 + 8 x 1920x1080p30 or<br>1 x 4096x2160p60 + 18 x 1280x720p30 or<br>16 x 1920x1080p30                  |

## Technical Specifications

| Connections           |                                                                               |
|-----------------------|-------------------------------------------------------------------------------|
| Input                 | 1 x HDMI IN [Type A, 19-pin female]                                           |
|                       | 2 x AUDIO IN [3pin-3.81mm Phoenix connector, stereo balanced line interface]  |
| Output                | 1 x HDMI OUT [Type A, 19-pin female]                                          |
|                       | 2 x AUDIO OUT [3pin-3.81mm Phoenix connector, stereo balanced line interface] |
| Control               | 1 x LAN [RJ45, supporting PoE]                                                |
|                       | 1 x RS-232 [3pin-3.81mm Phoenix connector]                                    |
|                       | 1 x USB HOST [Type B, 4-pin female]                                           |
|                       | 2 x USB DEVICE [Type A, 4-pin female]                                         |
|                       | 1 x SFP [Optical Fiber Module slot]                                           |
| Mechanical            |                                                                               |
| Color                 | Black                                                                         |
| Dimensions            | 204mm [W] × 132mm [D] × 30mm [H]                                              |
| Weight                | 760g                                                                          |
| Electrical            |                                                                               |
| Power Consumption     | Encoder mode: 10.22W (Max)                                                    |
|                       | Decoder: 7.04W (Max)                                                          |
| Power Supply          | Locking 5.5mm x 2.5mm jack: DC 12V/2.5A                                       |
|                       | PoE (IEEE802.3af Class 3, PD mode)                                            |
| Environment           |                                                                               |
| Operating Temperature | 0°C ~ 40°C / 32°F ~ 104°F                                                     |
| Storage Temperature   | -20°C ~ 60°C / -4°F ~ 140°F                                                   |
| Operating Humidity    | 20~80% RH (Non-condensing)                                                    |
| Storage Humidity      | 10~90% RH (Non-condensing)                                                    |

## Warranty

Taska Technology Limited warrants that the IPE-200U-TZ is free from defects in materials and workmanship under normal use for a period of 60 months (5 years) from the original date of purchase. To obtain warranty service, customers must contact their local authorized Taska distributor.

**This warranty does not apply under the following conditions:**

- A. Damage resulting from negligence, accident, lightning, water, acts of God, or improper handling;
- B. Failure to operate the equipment in accordance with the procedures specified in the official user manual;
- C. Repairs, modifications, or alterations performed by unauthorized service centers;
- D. Removal, alteration, or defacement of the original product serial number;
- E. Damage caused by the use of unauthorized external equipment that affects performance, safety, or reliability;
- F. Products for which replacement parts or components are discontinued and no longer available.

**Proof of purchase is required for all warranty claims.**



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