



USB Video Capture

# User Manual

Model : HUVC01-4K144

4K144Hz HDMI® to USB 3.2 Gen 2 Video Capture Box



## Table of Contents

Revision.....	3
HUVCO1-4K144.....	3
Introduction.....	4
Features.....	4
Application Diagram.....	5
Panel View.....	6
LED Indication.....	7
Power/Link LED.....	7
Functional Description.....	8
Video Input : .....	8
Video Capture (USB-C Output) : .....	8
HDMI® Loop Out : .....	8
Audio Out : .....	8
Microphone Input : .....	8
Status Indicators (LEDs) : .....	8
Technical Specification.....	9
System Requirement.....	11
Caution.....	13
Package Includes.....	14
Installation.....	15
Installed on a Platform.....	15
Installed on a DIN-rail.....	15
Installed on Wall.....	16
Installed on a Rack.....	16
Block Diagram.....	17
Engineering Notes.....	18
Resolution.....	18
Production.....	20

## Introduction

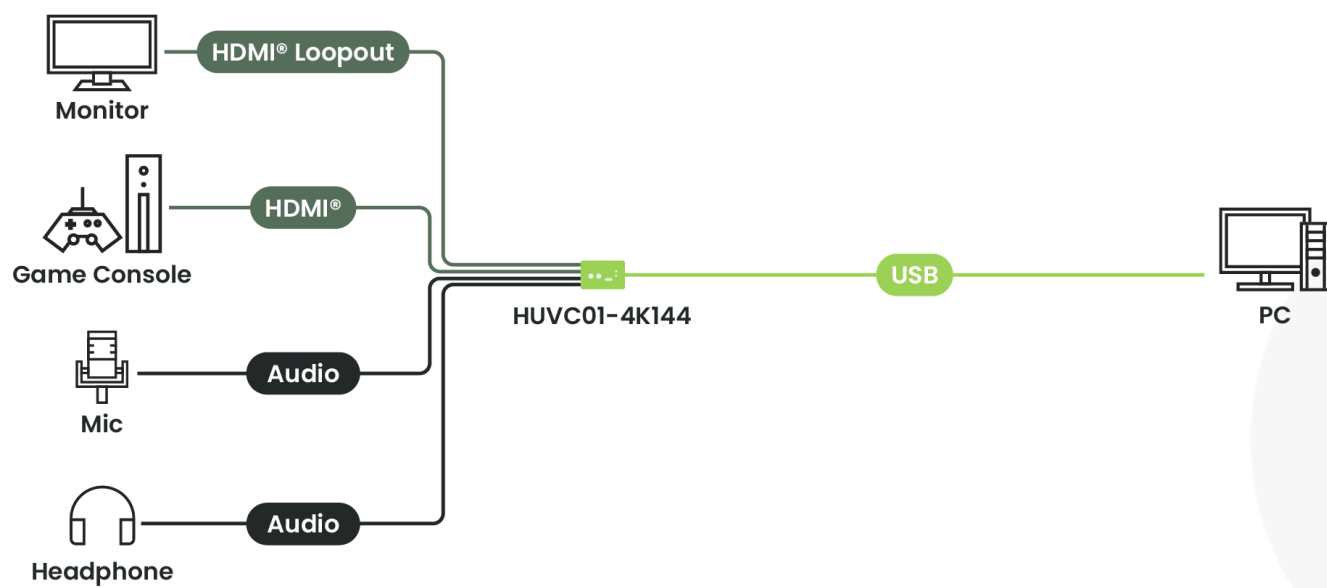
HUVC01-4K144 is a high-performance HDMI®2.1 to USB3.2 Gen 2 video capture device designed to seamlessly stream and record audiovisual content. Supporting resolutions up to 4K at 144Hz, it enables smooth and reliable content capture via a USB connection to personal computers or laptops. Ideal for capturing content from smart devices, game consoles, and other HDMI® sources, the device also features dedicated audio channels for microphone and headphone connectivity, ensuring enhanced audio management and flexibility.

HUVC01-4K144 is fully compatible with the native UVC (USB Video Class) and UAC (USB Audio Class) drivers, offering plug-and-play support across major systems, including Microsoft Windows, macOS, and Linux.

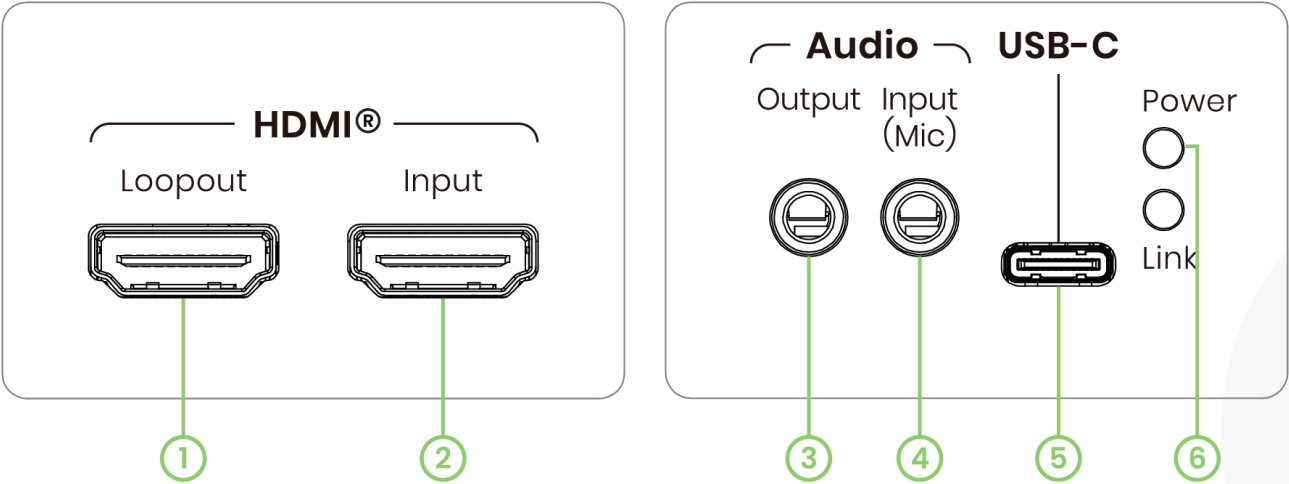
## Features

- Resolution up to 4K144Hz
- Built-in loop out, an extra local HDMI®2.1
- Video capture up to 3840x2160
- Support audio extraction via 3.5 phone jack for headphones
- Support audio embed via 3.5 phone jack for microphones
- Support Windows, macOS and Linux.

## Application Diagram



Panel View

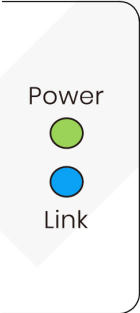


Item	Interface	Description
1	HDMI® Loopout	To connect to monitor or TV
2	HDMI® Input	To connect to HDMI® source
3	Audio Output	To connect to an audio receiver
4	Audio Input (Mic)	To connect to a microphone
5	USB-C	To connect to USB Host for Video Capture
6	Power/Link LED	Refer to LED Indication

LED Indication

Power/Link LED

LED Indication	Status	Description
Power (Green)	On	Power On
	Off	Power Off
Link (Blue)	On	Linked
	Off	Unlinked



## Functional Description

### High-Performance HDMI® Video Capture

HUVC01-4K144 is a high-performance video capture device designed for ultra-high definition (UHD) applications. It supports HDMI®2.1 input up to 3840×2160 at 144Hz, delivering uncompromised image quality with support for HDR10 and VRR (Variable Refresh Rate) technologies. This allows for smooth, high-dynamic-range video capture suitable for gaming, streaming, and professional content creation.

### USB-C Video Capture Interface

Captured video is output via a USB-C interface, supporting a wide range of video formats for broad compatibility with streaming software and operating systems. The capture engine offers the following encoding support:

Encoding Format	Max Resolution / Frame Rate
MJPEG	3840x2160 @ 144FPS
NV12	3840x2160 @ 60FPS
YUV2	3840x2160 @ 50FPS
P010	3840x2160 @ 30FPS
RGB24	3840x2160 @ 30FPS

These formats offer users flexibility in choosing between maximum quality or performance based on their setup and application requirements.

### Encoding Format List according to Operating System

Windows	Linux	macOS
RGB24	24-bit BGR 8-8-8	
YUY2	YUYV 4:2:2	YUY2
NV12	Y/UV 4:2:0	NV12
P010		
MJPEG	Motion-JPEG	
	YUV12 (Emulated) YUI2 (Emulated)	

- YUY2 vs YUYV: Identical data layout; the difference lies only in naming conventions.
- NV12 vs YUI2/YV12:
  - NV12: Semi-planar format with Y and interleaved UV data.
  - YUI2/YV12: Planar format with separate Y, U, and V planes; the difference is in the order of U and V components.

- **P010:** A 10-bit YUV420 format commonly used in Windows. It has limited support on Linux/macOS and typically requires specific drivers.
- **macOS:** Format options are limited due to reliance on the AVFoundation framework..

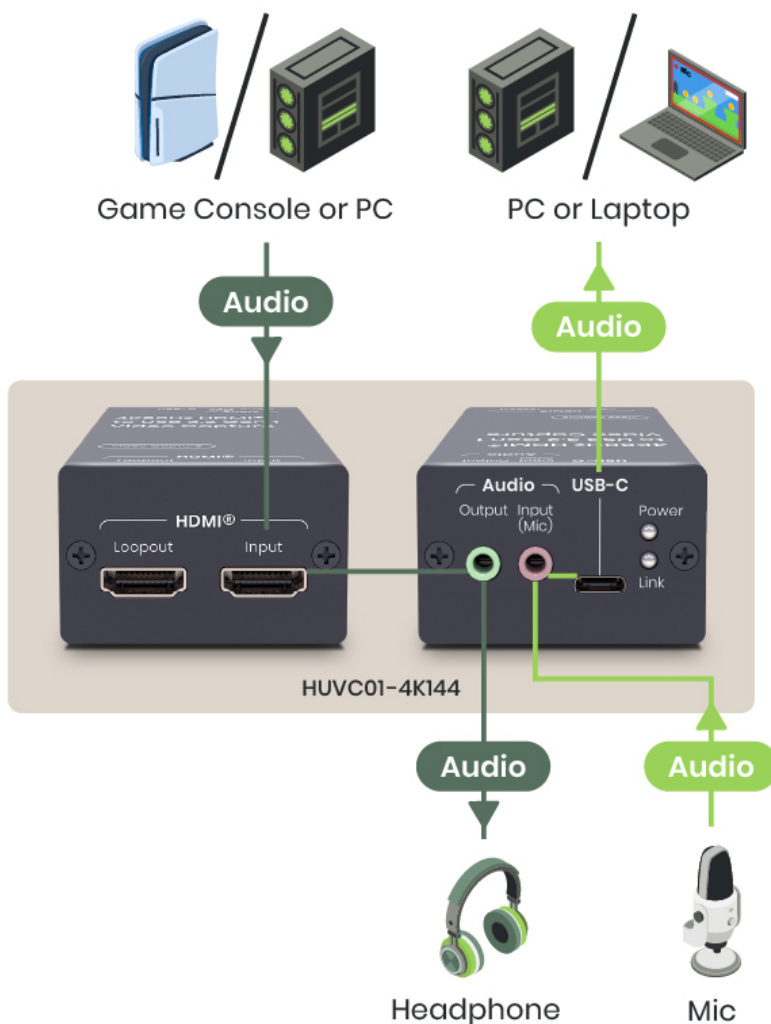
Note: Using OBS as an example of capture software, the default resolution is configured at 1920x1080p (Full HD, 1080p). To modify the resolution or related settings, go to the capture software settings and change the resolution and encoding format.

## HDMI® Loop-Out for Real-Time Monitoring

The device includes an HDMI® loop-out interface that allows for real-time video monitoring without latency. The loop-out supports pass-through of 3840×2160 at 144Hz with full HDR10 and VRR compatibility, ensuring that the output experience remains identical to the source signal, even during active capture.

## Audio Capabilities (Audio Embedded and Extraction)

HUVC01-4K144 supports direct audio monitoring from the HDMI® input source, allowing users to hear the incoming audio in real-time. It also features a dedicated analog microphone input, enabling live voice input during video capture. Hardware-level real-time audio mixing ensures the microphone input is blended seamlessly with the HDMI® source audio before transmission over USB.



## Technical Specification

Item No.	HUVC01-4K144
Compliance	
Standard	HDMI® 2.1
Max. Video Resolution	3840 x 2160 144 Hz
Capture Resolution	3840 x 2160 144 FPS
Analog Audio	MIC input : Signal-to-noise Ratio (SNR): -92.3dB (A-weighted), THD+N: -87dB HeadPhone output : Signal-to-noise Ratio (SNR): -95dB (A-weighted), THD+N: -89dB
Ports & Interfaces	
Video Input	1 x HDMI® Type-A
Video Output	1 x USB-C
Video Loop-out	1 x HDMI® Type A
Analog Audio Input	1 x 3.5mm Phone Jack
Analog Audio Output	1 x 3.5mm Phone Jack
Power	
Power Supply	via USB-C 5V
Power Consumption	2.9W
Power Saving	1.3W
Ambient Temperature	
Operation	0 to 55°C
Storage	-40 to 80°C
Operating Altitude	2000m
Humidity	Up to 95%
Physical Characteristics	
Dimension	93 x 51 x 32mm
Weight	126.8 g



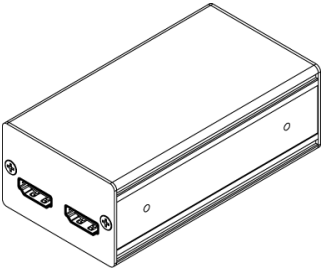


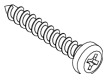
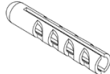


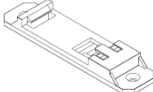

## System Requirement

Windows	
Version	Win10 or later
CPU	<p><i>4K60Hz or lower capture:</i> Intel Core i5-6xxx or better AMD Ryzen 3xxx or better</p> <p><i>4K144Hz MJPEG capture:</i> Intel Core i5-12xxx or better</p>
GPU	<p><i>4K60Hz or lower capture:</i> NVidia GTX1060 or better AMD RX5700 or better</p> <p><i>4K144Hz MJPEG capture:</i> NVidia RTX3060 or better</p>
RAM	<p><i>4K60Hz or lower capture:</i> 8GB Dual Channel or more</p> <p><i>4K144Hz MJPEG capture:</i> 16GB Dual Channel or more</p>
USB	<p><i>4K60Hz or lower capture:</i> USB 3.2 Gen1 5Gbps</p> <p><i>4K144Hz MJPEG capture:</i> USB 3.2 Gen2 10Gbps</p>
macOS	
Version	macOS 13 or later
CPU	Apple M1 or better 3.6GHz Quad-core Intel Core i7 or better
GPU	Apple M1 integrated graphics or better
RAM	16GB 2400 MHz DDR4 or more
USB	<p><i>4K60Hz or lower capture:</i> USB 3.2 Gen1 5Gbps</p> <p><i>4K144Hz MJPEG capture:</i> USB 3.2 Gen2 10Gbps</p>

## Caution

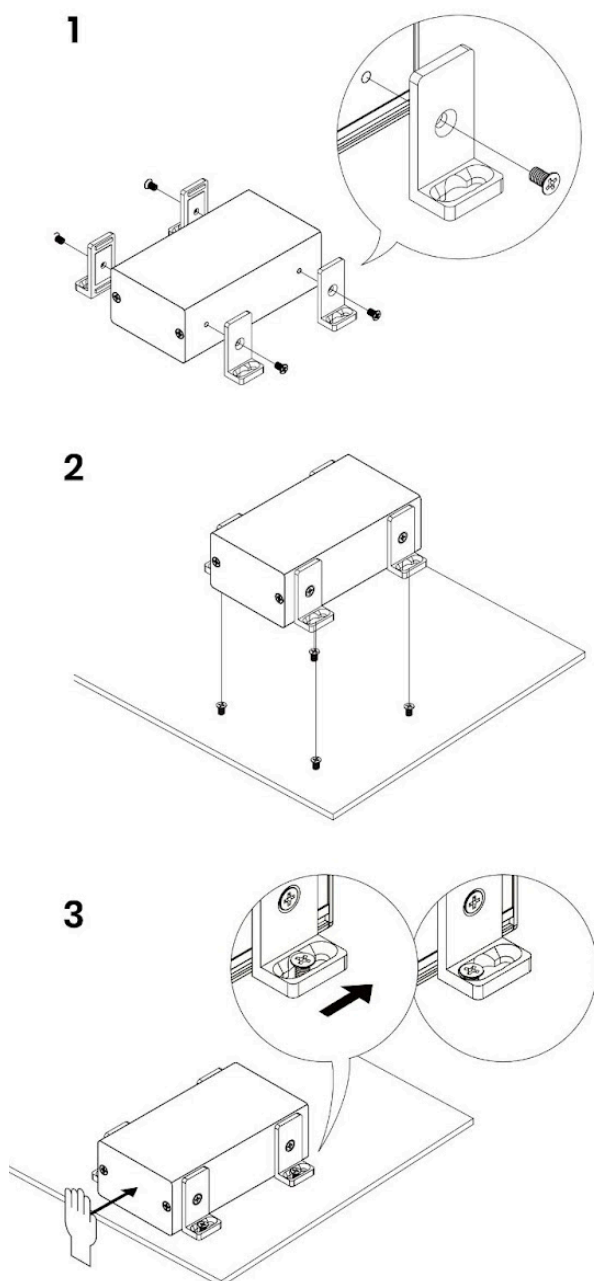
1. This product is designed for indoor applications. If you plan to use it outdoors, we recommend installing additional equipment for waterproof protection and surge protectors to prevent damage caused by lightning.
2. Do not put anything on the power and system cables, place them where they cannot be stepped on. Please be sure there is nothing resting on any cables.
3. Avoid using this product close to water places, or near high temperature devices such as radiators, stoves, etc.
4. Shut down the power supply and unplugged all equipment immediately if:
  - A. water or any kind of liquid has been spilled into the product;
  - B. the product has been damaged by external force;
  - C. the product does not operate normally as this manual indicates;
  - D. please contact us for further repair if above conditions happen.
5. HDMI® content with HDCP encryption is not supported.
6. Using certified Premium HDMI®2.1 cables/USB-C(10Gbps) to transfer high-resolution video is recommended, specially when working with 4K 144Hz resolution.
7. Neither video output nor capture resolution supports 4096x2160.

## Package Includes

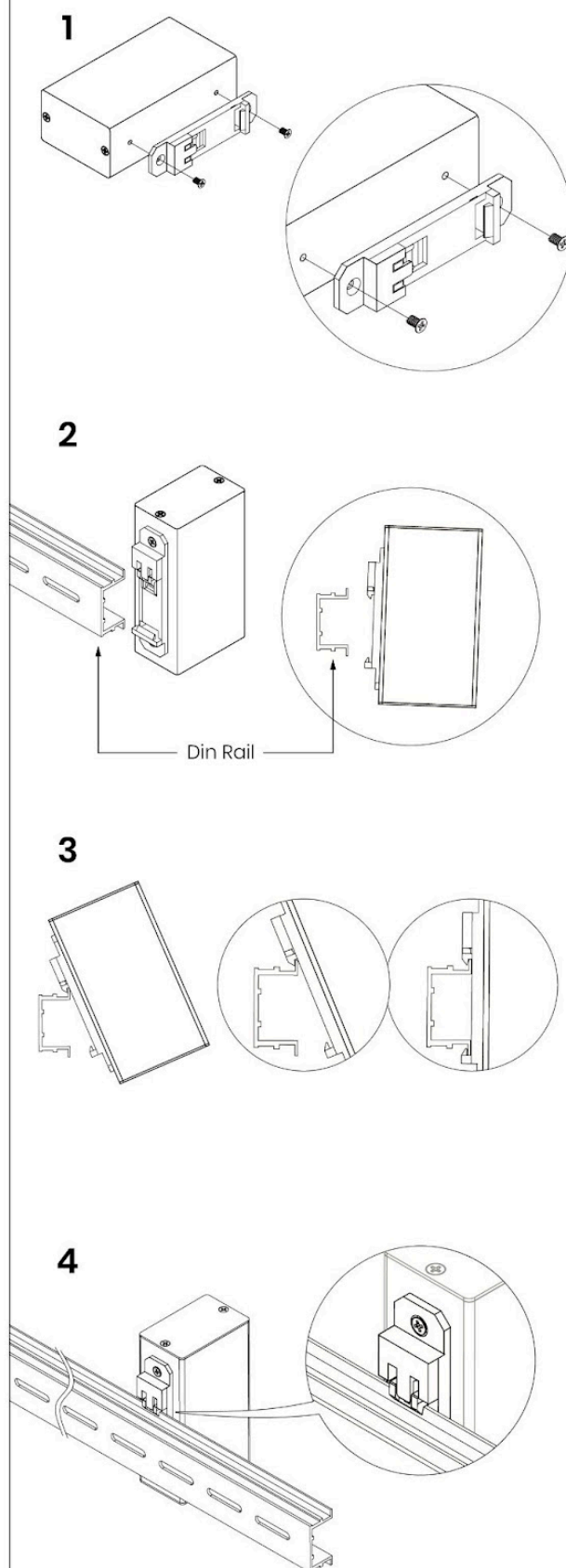
Item	Amount	Image
HUVC01-4K144	1 pce	
HDMI® 2.1 Cable	1 pc	
USB-C 10G Cable	1 pc	
Mounting Screw Pack	1 bag	     4 pcs (bag)    4 pcs (bag)    4 pcs (bag)    4 pcs (bag)    1 pcs (bag)
Rubber gasket Pack	1 bag	 4 pcs (bag)

## Installation

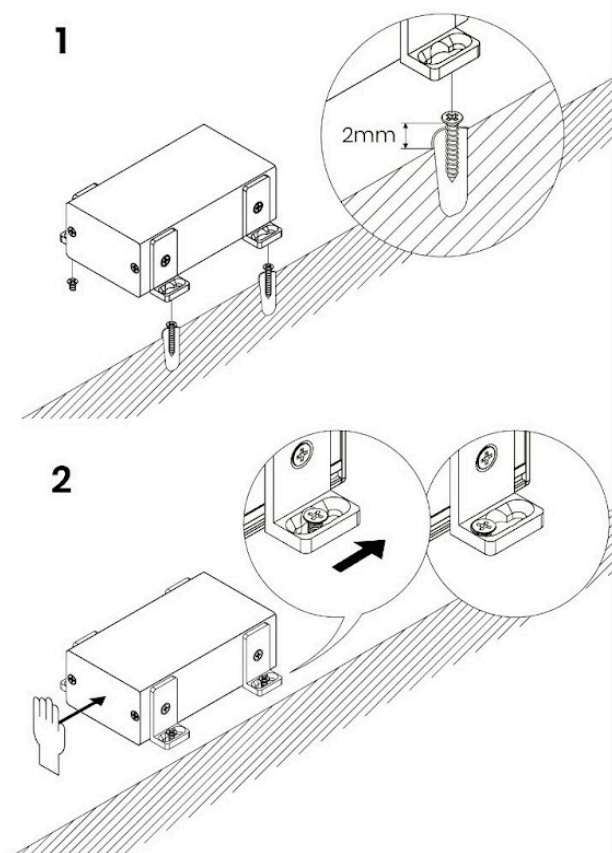
### Installed on a Platform



### Installed on a DIN-rail



## Installed on Wall



RoHS 

## Installed on a Rack

