CAP-30CI-12G

USB-C 12G-SDI Video Capture Box with Scaler, HDMI 2.0/12G-SDI loopout, Audio

User Manual

rev: 230424
Made in Taiwan

INTRODUCTION

The **CAP-30CI-12G USB-C 12G-SDI Video Capture Box with Scaler, HDMI 2.0/12G-SDI loopout, Audio** provides a professional way to capture SDI video signals. It adopts USB 3.1 Type-C Gen 1 (USB 3.0) interface, which can realize high-speed transmission. In addition, the SDI input & loopout can support up to 4K2K@60. Users can connect CAP-30CI-12G to 4K2K@60 source and capture Ultra HD(4K2K@30) video by this capture device. In addition, CAP-30CI-12G can capture and display original uncompressed SDI video with more realistic color rendition. CAP-30CI-12G also uses large volume image buffer technology which effectively avoids the video tearing. The high sampling rate and high sampling accuracy assure the captured videos with high sharpness, rich details, and less color edges.

FEATURES

- SDI video and audio streams over USB 3.1 Type-C Gen 1
- Supports UVC1.0/1.1/1.5
- Supports video resolution up to 4K2K@30/1080P@120 (Video stream over USB-C)*
- Supports HDMI up to 4K2K@60
- Supports SDI input & loopout resolution:
  720p@50,720p@59.94, 720p@60, 1080i@50, 1080i@59.94, 1080i@60, 1080p@23.97, 1080p@24, 1080p@25, 1080p@29.97, 1080p@30, 1080p@50, 1080p@59.94, 1080p@60, 4K2K@23.98, 4K2K@24, 4K2K@25, 4K2K@29.97, 4K2K@30, 4K2K@50, 4K2K@59.94, 4K2K@60,
  Bit Rate: 11.88 Gbps, 11.88/1.001 Gbps, 5.94 Gbps, 5.94/1.001 Gbps, 2.97 Gbps, 2.97/1.001 Gbps, 1.485 Gbps, 1.485/1.001 Gbps, 270 Mbps
- Auto 12G/6G/3G/HD-SDI detection
- Supports deinterlacer & scaler**
- Supports mic in mix with SDI audio
- Supports SDI audio extraction
- Volume control knobs to adjust the MIC/Headphone volume.
- Auto-detection on video format to ensure plug-play operations
- Recording Video Format: Software Compression
- Works on multiple operating system platforms (Windows 7/8.1/10,/11 Mac and Linux OS)
- Compatible with most 3rd party software such as OBS Studio and AMCap
- Supports USB 3.1 Gen 1 (RGB/YUY2/NV12) (capture up to 4K2K@30) and USB 2.0 (YUY2/NV12) (capture up to 1080@15)
- Low Latency (3~4ms at 1080P)
- USB-C reversible
- System Requirements (Recommanded)
  - Windows® 7(SP1) / Windows 8.1 / Windows 10 / Windows 11
  - PC: Intel® CoreTM i5-4440 3.10GHz + NVIDIA® GeForce® GTX 660 or higher
  - Laptop: Intel® Core i7-4810MQ + NVIDIA GeForce GTX 870M or higher
  - 4GB RAM or higher

(!)
1. Video quality is apparently related to the capability of computer and software setting.
2. Please use the included USB 3.0 cable in the box to protect the device and avoid further compatible issues.
3. Video resolution change may require to restart software.
4. Video output format is related to the software limitation. For example, the AMCap software does not support NV12 format.

(!)
For 12G/6G/3G/HD-SDI inputs
1. ONLY supports format converter. NOT support frame rate conversion & scaling.
2. ONLY supports two-sample interleave sampling scheme. NOT support Square Division method.
3. NOT support SD-SDI
4. NOT support 3G-SDI level B

(!)
* ONLY NV12 supports 4K2K@30/1080P@120
** Scale-up supports up to 1080P@120

PACKAGE CONTENTS

- 1x CAP-30CI-12G
- 1x USB 3.0 A to C Cable (host to device)
- 1x User Manual

SPECIFICATIONS

Model Name	CAP-30CI-12G
Technical	
Role of usage	Video Capture Device
Input/loopout Video bandwidth	[SDI][11.88 Gbps, 11.88/1.001 Gbps]
Output bandwidth	Up to 5 Gbps (USB-C)
Video support(USB-C)	Up to 4K2K@30/1080P@120
Video support(Loopout)	Up to 4K2K@60
Input Video Support	[12G-SDI] 4K2K @50/59.94/60Hz [6G-SDI] 4K2K @23.98/24, 25, 29.97, 30Hz [3G-SDI] 1080p50/59.94/60 [HD-SDI] – 720p @50/59.94/60Hz,1080i @50/59.94/60Hz, 1080p @23.98/24/25/29.97/30Hz
Audio Input	SDI Embedded Audio & Stereo audio Input
Audio Support	HDMI output/ SDI loopout up to 7.1ch, Toslink up to 5.1ch, Stereo audio up to 2ch
Recording Mode	Software Compression
Recording Video Format	RGB/YUY2/NV12 (USB3.1 Gen 1), YUY2/NV12 (USB2.0)
ESD protection	Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]
PCB stack-up	4-layer board [impedance control — differential 100Ω; single 50Ω]
Cable equalization	[12G-SDI] Input up to 30m; Loopout up to 70m [6G-SDI] Input up to 70m; Loopout up to 120m [3G-SDI] Input up to 200m; Loopout up to 200m
Firmware update	Feasible via USB-C Port
Input	1x BNC(SDI)+ 1x 3.5mm
Output	1x USB-C + 1x HDMI+ 1x BNC(SDI) + 1x 3.5mm + 1x Toslink
HDMI connector	Type A [19-pin female]
USB connector	USB 3.1 Type C (SuperSpeed USB)
Software compatibility (not complete list)	OBS Studio (Windows, Linux, MAC), AMCap (Windows), Potplayer (Windows) , VLC (OS X, Linux), XSplit Broadcaster (Windows), Skype (Windows, OS X), Zoom (Windows), Hangout (Windows), TeamViewer (Windows)
OS Support	Windows 7 /8.1 /10/11, Mac and Linux OS

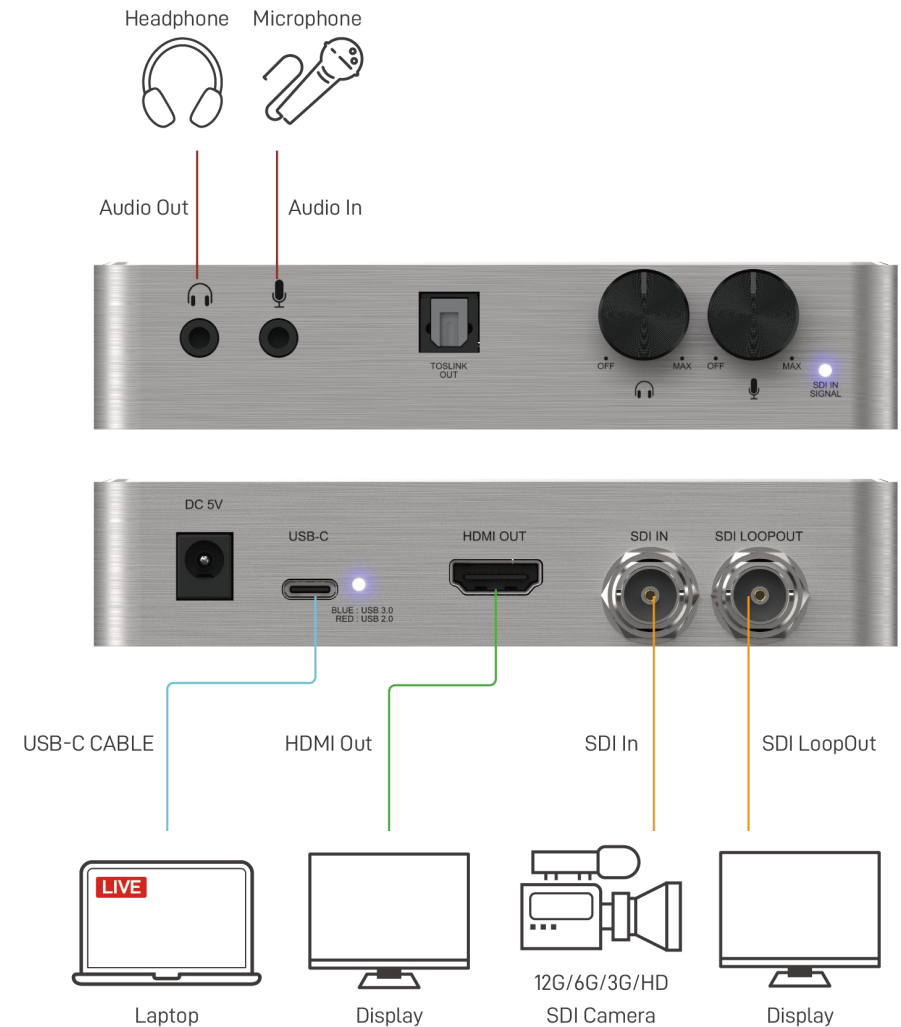| Mechanical		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	137 x 81 x 30mm [5.4" x 3.2" x 1.2"]
	Package	198 x 137 x 74mm [7.8" x 5.4" x 2.9"]
	Carton	420 x 400 x 300mm [1'4"x 1'3" x 11.8"]
Weight	Model	207g[7.3 oz]
	Package	492g[1 lbs]
Power supply		5V DC
Power consumption		8 Watts [max]
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

PANEL DESCRIPTIONS

1. **STEREO AUDIO OUT:** Audio extracts from SDI input

2. **STEREO AUDIO IN:** Connect to analog stereo audio source

3. **TOSLINK OUT:** Audio extracts from SDI input

4. **STEREO AUDIO OUT VOLUME KNOB:** to adjust the stereo audio out sound level

5. **STEREO AUDIO IN VOLUME KNOB:** to adjust the stereo audio in sound level

6. **LED INDICATOR:** SDI input signal indicator LED

7. **+5V DC:** 5V DC power jack

8. **USB-C OUT:** Connect to a USB host (PC, NB, MAC…)

9. **LED INDICATOR:** USB-C signal indicator LED

   [Red]* Connect the device to the USB 2.0 port on the host

   [Blue] Connect the device to the USB 3.0 port on the host

10. **HDMI OUT:** Connect to a HDMI display

11. **SDI IN:** 12G/6G/3G/HD-SDI Input

12. **SDI LOOPOUT:** 12G/6G/3G/HD-SDI loopout

> (!) *If you plug the capture device into the USB 3.0 port on the host, but the LED indicator lights up red, it means that the current device is working according to the USB 2.0 specification. It could be an issue with the USB cable or USB Port.

CONNECTION DIAGRAM

Headphone   Microphone

Audio Out   Audio In

USB-C CABLE   HDMI Out   SDI In   SDI LoopOut

Laptop   Display   12G/6G/3G/HD SDI Camera   Display

VIDEO STREAMING

Create a Video Streaming

Users can create video streams on the streaming service platform. The below steps show how to complete the video streaming settings from Twitch and YouTube.
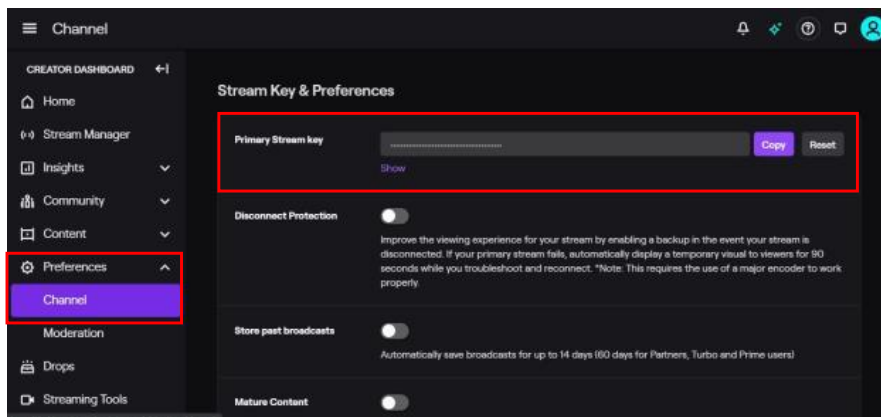
Twitch

1. Browse the Twitch website (https://www.twitch.tv/) and log in, then select **"Creator Dashboard"** from your account drop-down menu at the top right of the screen.
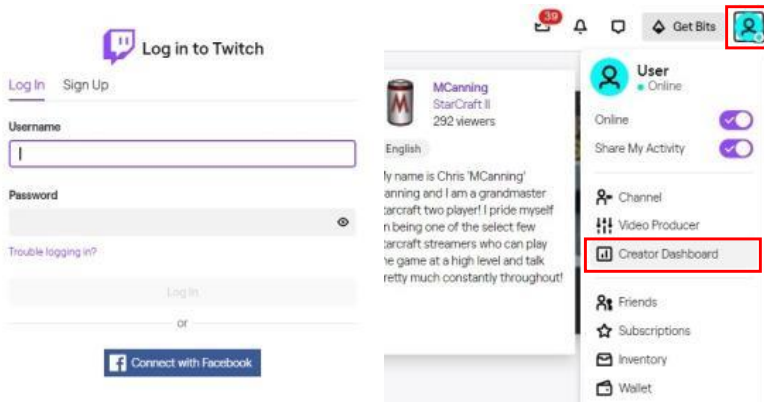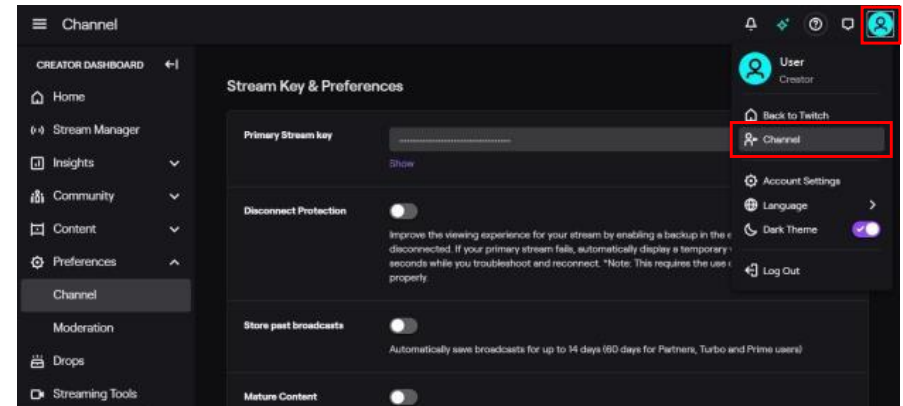

2. Find **"Preferences"** in the left menu, and click **"Channel"**, then you will see **"Primary Steam key"** on the screen. Copy the **"Primary Steam key"** and paste it into the **"Stream Key"** field in the OBS, then click **"Start Streaming"** in the software.
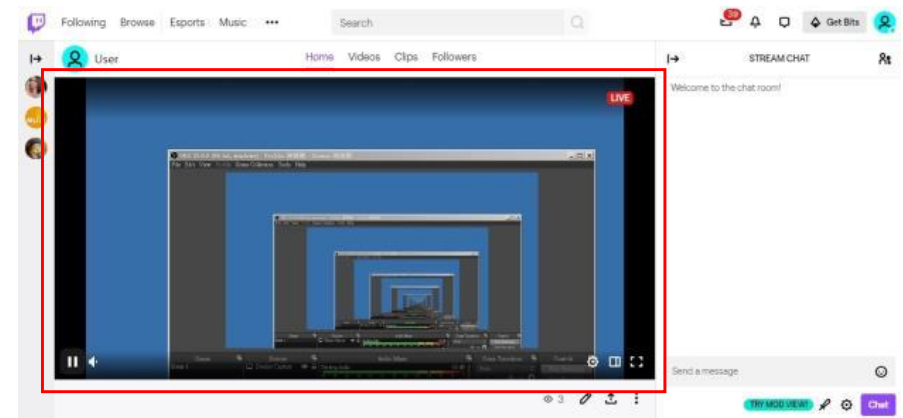
   * Please refer to steps 4-6 of the OBS software control program.

3. Go back to Twitch and select **"Channel"** from your account drop-down menu.
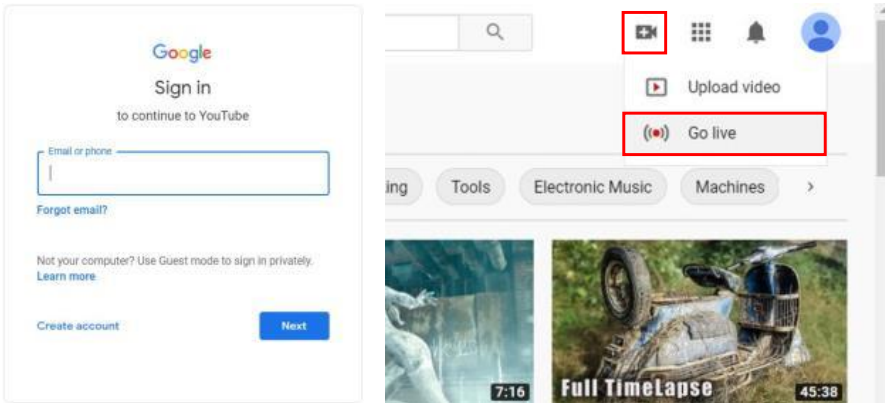

4. At this point, you will see the player start live streaming.

YouTube

1. Browse the YouTube website (https://www.youtube.com/) and log in, then lick **"Go live"** from the **"Create"** icon menu at the top right of the screen.

   * If your account is using YouTube for the first time to create a video stream, you need to wait 24 hours to enable the function.
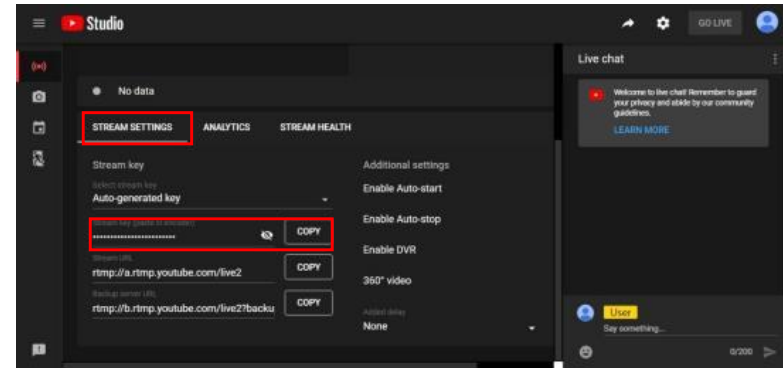

2. Click **"Stream"** in the left menu, and fill in the relevant information of the live video to create a new stream.
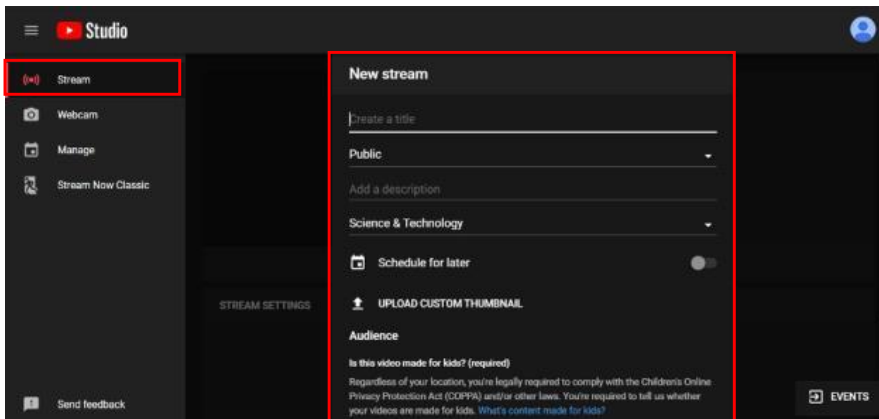

3. You will see **"Stream key"** from the **"STREAM SETTINGS"** below. Copy the **"Stream key"** and paste it into the **"Stream Key"** field in the OBS, then click **"Start Streaming"** in the software.
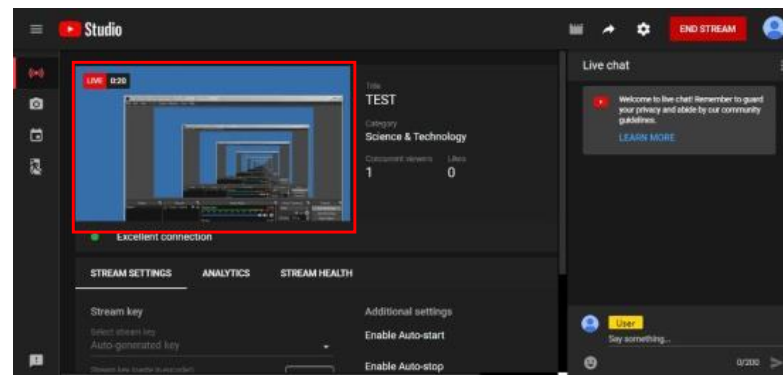   * Please refer to steps 4-6 of the OBS software control program.

4. Next, go back to YouTube, and then wait for 30-60 seconds, the player will display the live preview. At the same time, the "GO LIVE" button at the top right will turn blue, please press this button.
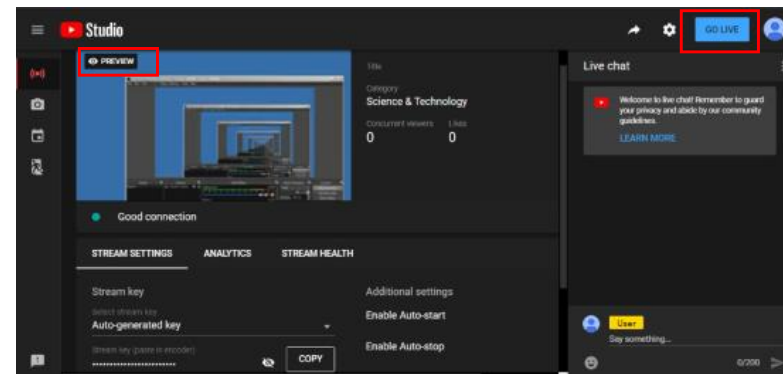
5. The player on YouTube will start live streaming.

Stream and record videos with OBS

OBS is popular USB capture freeware and has excellent compatibility. Please start with OBS if users are not familiar with USB capture device.
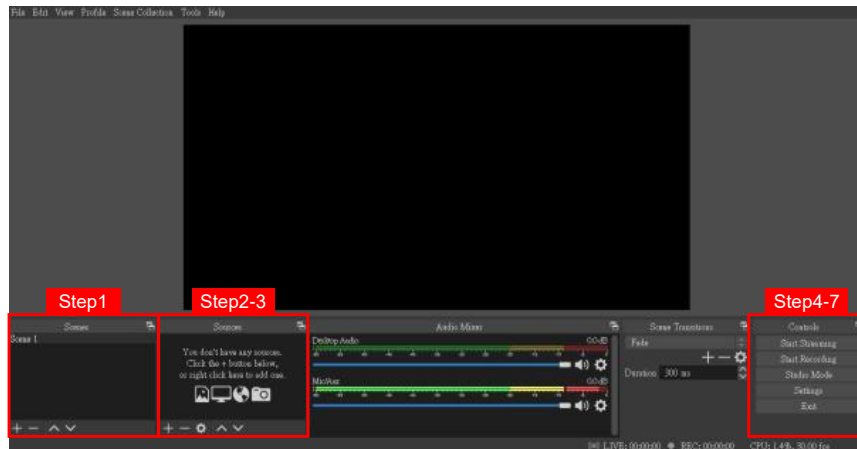
Download the software

Browse the download page of the OBS official website (https://obsproject.com/download), then select the suitable computer operating system and start downloading.
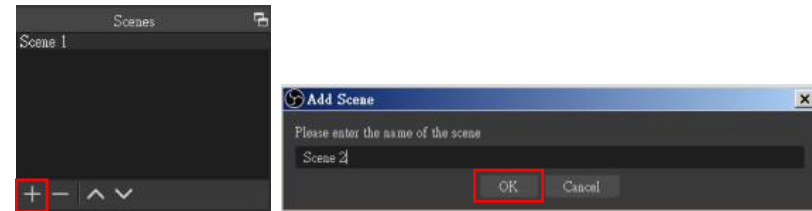

### Start the software control program

After downloading the software, please open it and follow the below steps to complete the video streaming settings.


1. First, find the **"Scenes"** window, click **"+"** in the lower left corner, and then enter the name of the scene to create a new scene.

2. Find the **"Source"** window, click **"+"** in the lower left corner, and then select **"Display Capture"** or **"Video Capture Device"** to create a new source.
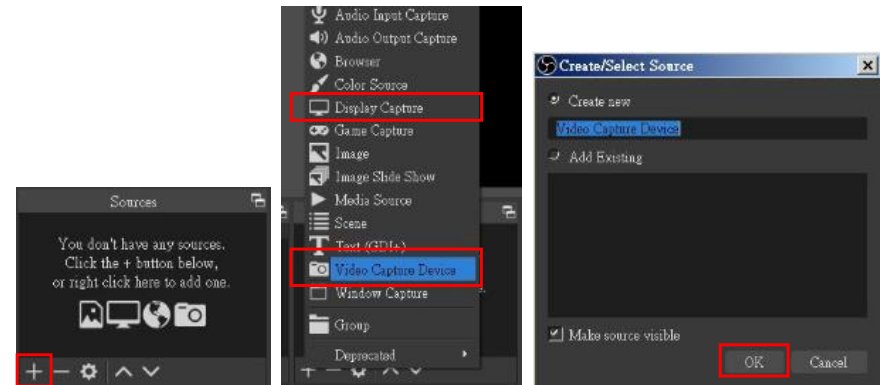
3. Next, you can set display capture properties. If you select **"Display Capture"** in step 2, you can select the primary monitor or other extended monitor as the display source. If you select **"Video Capture Device"** in step 2, you can select USB video device as the display source. After all settings are completed, click **"OK"**.
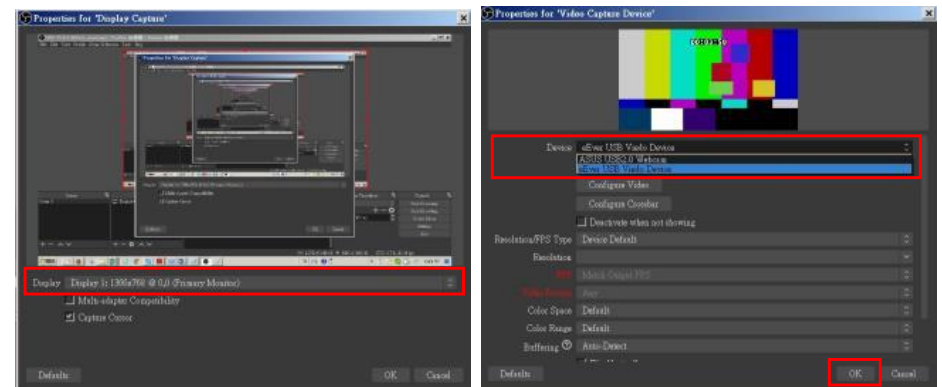
4. Click **"Settings"** and then select **"Stream"** to perform streaming settings. Users can choose service providers, including Twitch, YouTube, etc.
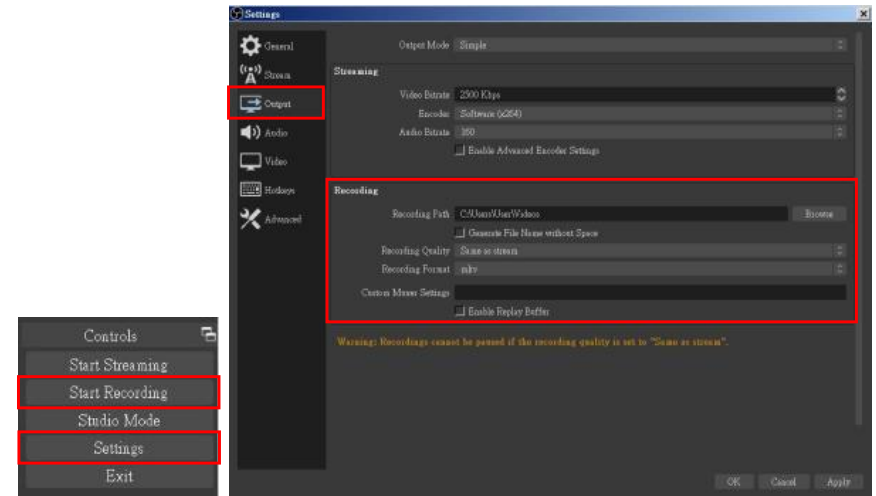

5. Paste the stream key provided by the service provider into the **"Stream Key"** field, then click **"Apply"** and **"OK"** after setting. In addition, users can lick **"Get Stream Key"** at this step to open the service provider website.

6. Please click **"Start Streaming"**. At this time, the screen after clicking **"Start Streaming"** will be displayed in the live video.

7. On the other hand, users can also click **"Start Recording"** to record videos with OBS. Besides, you can click **"Settings"** and then select **"Output"** to set **"Recording Path"** and **"Recording Format".**

> ⚠ The procedures the manual demonstrates are based on the interface that each website provides at the time when the manual is written. The most recent way to make live streaming happen is supposed to be very likely as the above procedures but subject to change by the website interface update from the social media.

TROUBLESHOOTING

Our USB device has done comprehensive tests before shipment. Most of the incompatibilities we have experienced are not from the USB capture device itself, but from the sophisticated software and hardware combination of PC or laptop. Please follow the following suggestions to see any helps.

1. OBS is popular USB capture freeware and has excellent compatibility. Please download it and start with OBS if users are not familiar with USB capture device.

    https://obsproject.com/download

2. Due to the complexities of OS and computer hardware, different USB ports on PC or laptop may have different performance or limitation. Please try all USB ports to see if there are any differences.

3. Please must use the USB cable in box. We do not guarantee the overall performance when the USB capture box works with some other USB cables.

4. HDMI/SDI cable quality may also play an essential role when capturing. Please be sure of that HDMI/SDI cable can do 4K2K@60 HDMI/SDI signal transmission or better. Try different cables when the device is not able to work as expected.

5. If audio has noise when using the PotPlayer software, please adjust the audio renderer to WaveOut on the software. The setting path is:

    PotPlayer ▾ → Audio → Audio Output → Audio Renderer → WaveOut

6. If there are problems such as video flipping or wrong direction when using VLC software, please rotate, flip or transpose the video in the VLC software to correct the video. The setting path is:

    Tool → Effects & Filters → Video Effects → Geometry → Transform

USB PIN DEFINITION

	P1		P2	
VBUS	A4, B4, A9, B9	⟷	1	VBUS
Dn1	A7	⟷	2	D-
Dp1	A6	⟷	3	D+
GND	A1, B1, A12, B12	⟷	4	GND
SSTxn1	A3	⟷	5	SSRX-
SSTxp1	A2	⟷	6	SSRX+
GND	A1, B1, A12, B12	⟷	7	GND
SSRxn1	B10	⟷	8	SSTX-
SSRxp1	B11	⟷	9	SSTX+

WARRANTY

The SELLER warrants the **USB-C 12G-SDI Video Capture Box with Scaler, HDMI 2.0/12G-SDI loopout, Audio** to be free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surges.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables are limited to a 30 day warranty and cable must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. **Also, the technical information contained herein regarding the CAP-30CI-12G features and specifications is subject to change without further notice.**