VEO-CAP4U

AV INTERFACES

Professional USB Video Capture
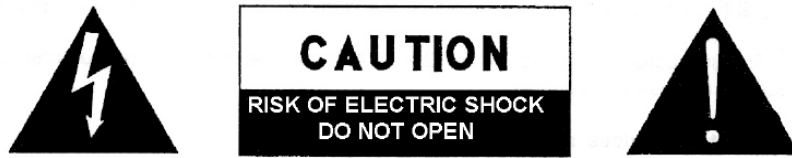
USER MANUAL

INDEX

1. IMPORTANT REMARK

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: SHOCK HAZARD - DO NOT OPEN
AVIS: RISQUE DE CHOC ÉLECTRIQUE - NE PAS OUVRIR

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING (If applicable): The terminals marked with symbol of " ⚡ " may be of sufficient magnitude to constitute a risk of electric shock. The external wiring connected to the terminals requires installation by an instructed person or the use of ready-made leads or cords.

WARNING: To prevent fire or shock hazard, do not expose this equipment to rain or moisture.

WARNING: An apparatus with Class I construction shall be connected to a mains socket-outlet with a protective earthing connection.

2. 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 polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are 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 at the point where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Unplug the apparatus during lightening sorts or when unused for long periods of time.

13. Refer all servicing to qualified 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. Disconnecting from mains: Switching off the POWER switch all the functions and light indicators of the amplifier will be stopped, but fully disconnecting the device from mains is done unplugging the power cord from the mains input socket. For this reason, it always shall remain readily operable.

15. Equipment is connected to a socket-outlet with earthing connection by means of a power cord.

16. The marking information is located at the bottom of apparatus.

17. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on apparatus.

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.

WARNING: This product must not be discarded, under any circumstance, as unsorted urban waste. Take to the nearest electrical and electronic waste treatment centre.

NEEC AUDIO BARCELONA, S.L. accepts no liability for any damage that may be caused to people, animal or objects due to failure to comply with the warnings above.

3. IMPORTANT NOTE

Thank you for choosing our Ecler **VEO-CAP4U interface**!

It is **VERY IMPORTANT** to carefully read this manual and to fully understand its contents before any connection in order to maximize your use and get the best performance from this equipment.

To ensure optimal operation of this device, we strongly recommend that its maintenance be carried out by our authorised Technical Services.

Ecler **VEO-CAP4U** comes with a **3 year warranty**.

4. INTRODUCTION

VEO-CAP4U is a plug-n-play HDMI to USB video capture device aimed for online media creators, educational and corporate market etc. that require a professional solution for capturing and streaming their audiovisual content. This product is designed to easily record video and audio from an HDMI source, and send it to a PC / MAC over USB 3.0 without the need of an external power supply or installation drivers. A balanced line input automatically mixes an external sound source into the main audio stream. This could be useful in a typical soft-codec application to add a microphone's conference system signal to an HDMI camera audio feed. VEO-CAP4U also includes an audio de-embedding feature for extracting the HDMI input's audio data into the stereo unbalanced output.

Features:

- Capture audio and video from HDMI sources

- HDMI pass-through video resolution is up to 4K@60Hz 4:4:4, HDR10

- Supports HDMI pass-through for display device connection

- Capture resolutions up to 1080p@60Hz through USB port

- Compatible with multiple third-party applications on Windows and Mac OS X

- Supports mono balanced line input and stereo unbalanced line output

- UAC, UVC compliant, no driver required

- Powered from USB port, no external power supply required

5. PACKAGE CONTENTS

- 1 x Interface
- 1 x USB 3.0 Cable
- 2 x 3 Pin Euroblock Connector
- 2 x Surface mount ears

6. PANEL DESCRIPTIONS

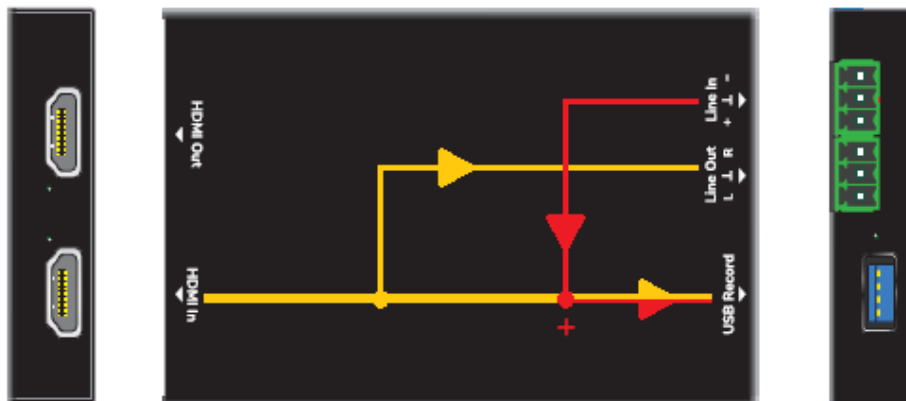**6.1 Interface Frontal Panel and Rear Panel**

1. **HDMI OUT:** Connect this output to a local display or to another HDMI distribution device

2. **HDMI OUT LED:** This LED will be lit green when the HDMI output is correctly connected

3. **HDMI IN LED:** This LED will be lit green when the HDMI input is correctly connected

4. **HDMI IN:** Connect this output to a HDMI Cam or to another HDMI source device

5. **USB 3.0:** Connect this USB port to a PC or Mac for capturing audio and video over third party software (OBS Studio, Skype©...)

6. **USB 3.0 LED:** This LED will be lit green when the device is correctly powered through the USB port

7. **LINE OUT:** Stereo unbalanced line output that provides the de-embedded audio signal from the HDMI input

8. **LINE IN:** Mono balanced line input that allow mixing an external audio source to the main audio stream

7. CONNECTION DIAGRAM AND INTERNAL AUDIO ROUTING

7.1 Internal audio routing

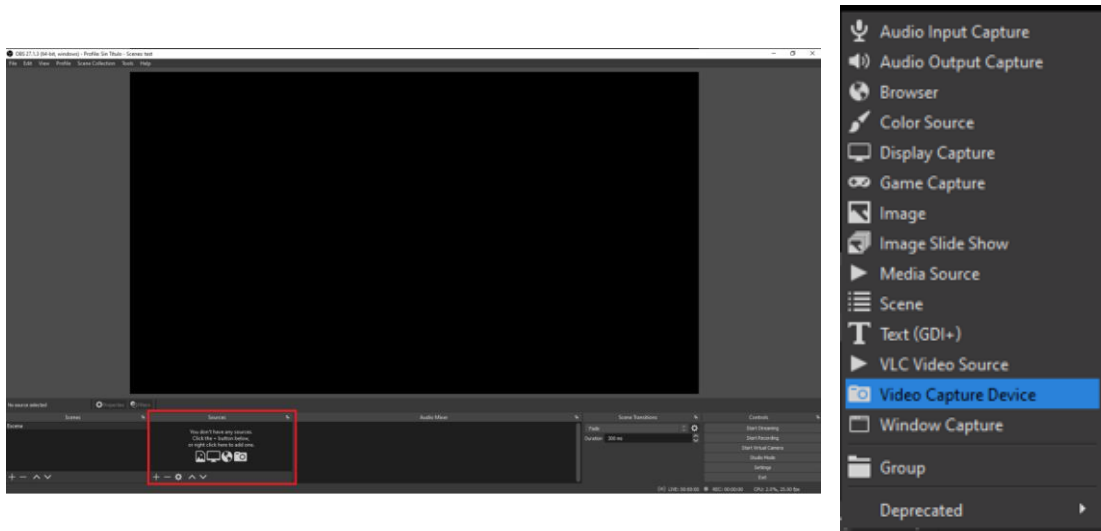The following scheme shows how the audio signals are internally routed:

- The HDMI audio is de-embedded into the unbalanced stereo Line Out connector. Downmix is not supported

- The audio signal coming from the balanced Line In is summed to the HDMI audio stream and routed to the USB Record port. VEO-CAP4U will be shown on the operating system as an external microphone peripheral
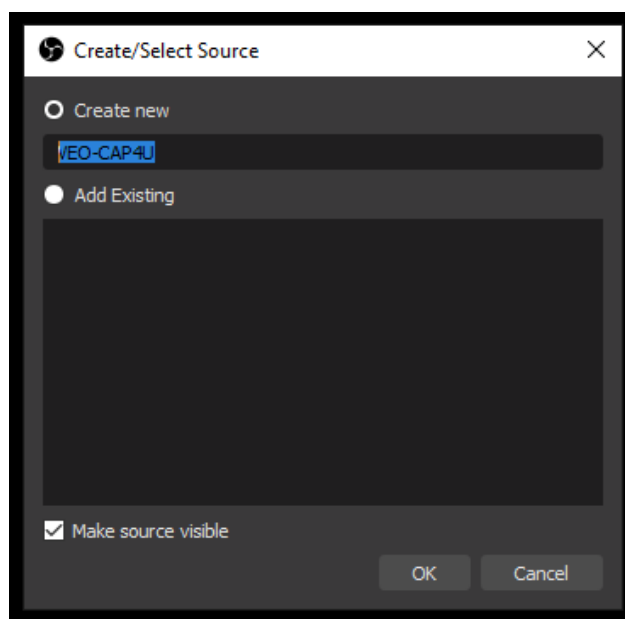
8. HOW TO RECORD AND STREAM WITH VEO-CAP4U AND OBS STUDIO

The Ecler's recommended platform for video capturing using VEO-CAP4U is OBS Studio, which is a free and open source video recording and live streaming software. Please visit https://obsproject.com/ to download the player for Windows, Mac OS X or Linux.
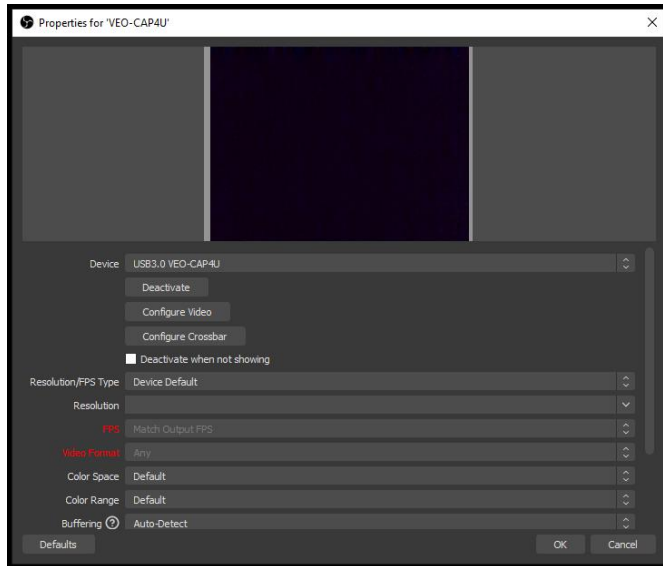
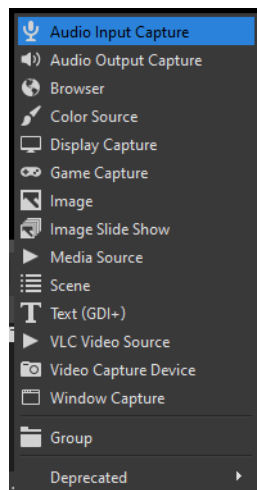1. Open the software and click on the "+" icon in the "Sources" area, and then click "Video Capture Device"

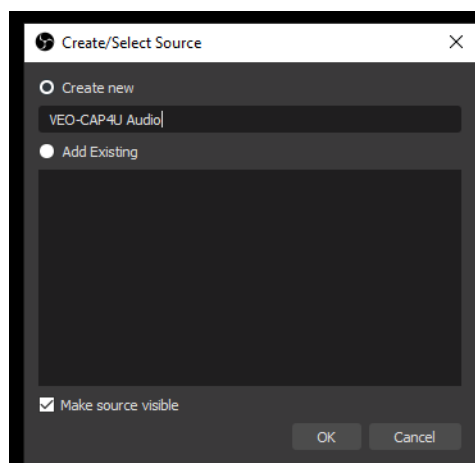2. Type the new device name and click "OK" to create the new video source

3. Select USB3.0 VEO-CAP4U as the device in use. Then configure the video parameters and click "OK"
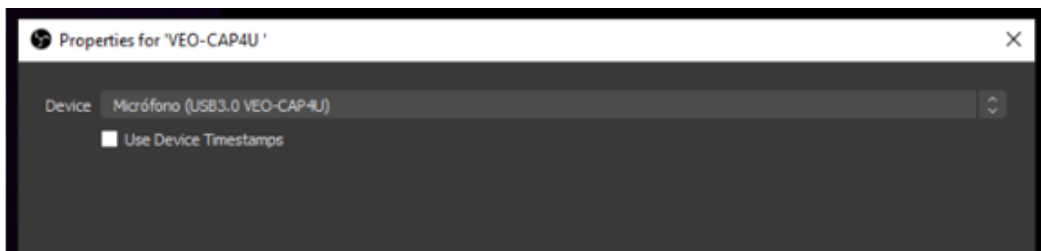

4. Click on the "+" icon in the "Sources" area and then click "Audio Input Capture"
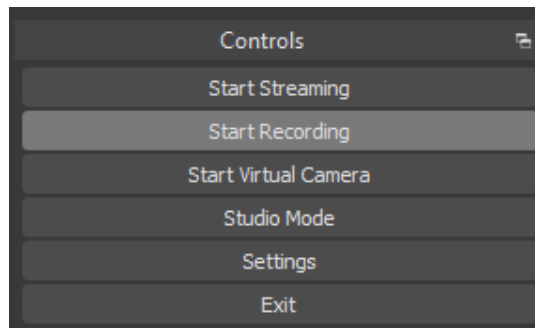

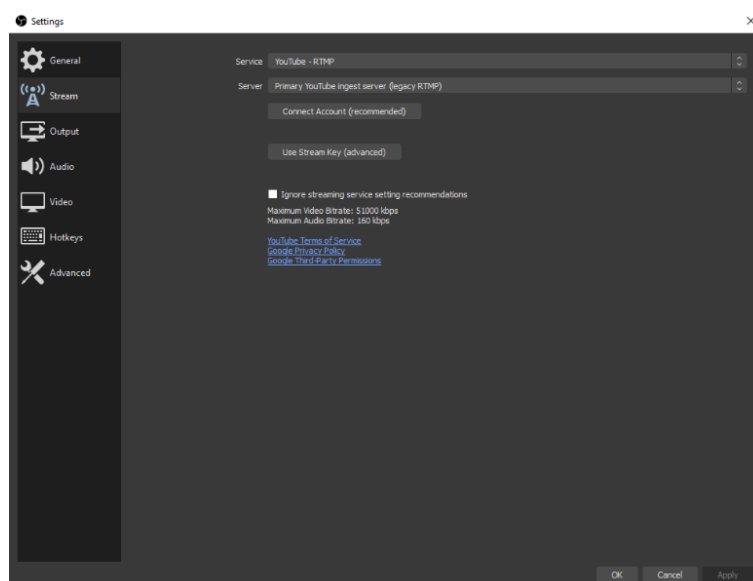**5.** Type the new device name, and then click "OK" to create new source

6. Select "Microphone (USB3.0 VEO-CAP4U)" as device in use, configure the video parameters and then click "OK"

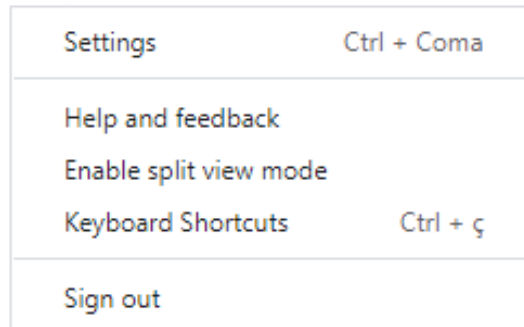**7.** Click on "Start Recording" in the "Controls" area to begin the video and audio recording.

8. To stop recording simply click on the "Stop Recording" button. By clicking on "File" and selecting "Show Recordings" at the top down menu, the folder with the recorded video files can be opened.

9. It will be possible to start and stop the streaming of captured content just after adjusting the "Stream" parameters in the "Settings" window.
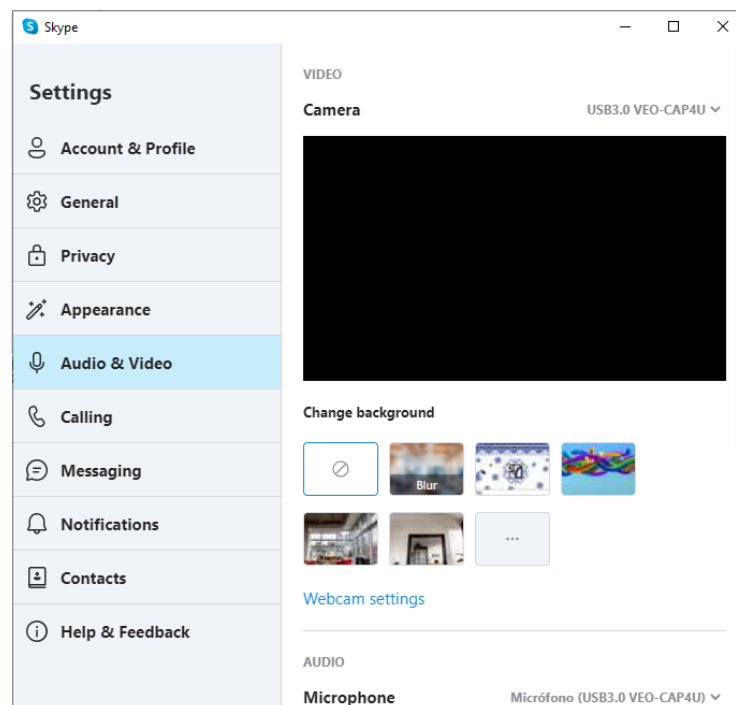
9. HOW TO USE VEO-CAP4U WITH SKYPE® FOR VIDEOCONFERENCING

Skype© is one of the most popular soft-codec platforms for audio and video conferencing.

1. In order to use Skype© or any other soft-codec platforms with VEO-CAP4U (and once the hardware is correctly connected as stated in Chapter 7), just open the settings window in the main menu:

2. Open the "Audio & Video" section. Then select "USB3.0 VEO-CAP4U" as the current camera and microphone

Now your Skype© camera will be the device connected to the VEO-CAP4U HDMI input and your microphone will be the device connected to the VEO-CAP4U Line In.

NOTE: Each videoconferencing softcodec (Skype©, Zoom©, Google Meets© etc…) manages the AV compression differently and this may change the results in terms of audio and video transmission quality. The AV experience is strongly related to the softcodec platform in use and it does not depend on the VEO-CAP4U performances.

10. TECHNICAL SPECIFICATIONS

VEO-CAP4U

Video Performances

Supported Pass-through Resolutions	Up to 4Kx2K@60Hz 4:4:4 HDR10, Dolby Vision
Supported Capture Resolution	Up to 1080p@60Hz
Colour space	RGB, YCbCr
Chroma Subsampling	4:4:4, 4:2:0
Color Depth	8-bit, 10-bit, 12-bit,
Signal Bandwidth	18Gbps
HDCP	2.2
Video Input Connectors	1 x Type-A Female HDMI
Video Output Connectors	1 x Type-A Female HDMI

Audio Performances

Audio Formats	Dolby Atmos, Dolby TrueHD, Dolby Digital Plus, Dolby Digital, DTS-X, DTS-HD Master Audio, DTS 5.1, PCM;
Sample Rate	32 KHz, 44.1 KHz, 48 KHz, 88.2 KHz, 96 KHz, 176.4 KHz, 192 KHz
PCM Bit Depth	up to 24-bit
Frequency Response	20Hz–20KHz, ±3dB
Max Output Level	2.0Vrms± 0.5dB
SNR	>85dB, 20Hz - 20KHz bandwidth
Audio Input Connectors	1 x 3pins Euroblock Connector for Mono Balanced Input (Mixed)
Audio Output Connectors	1 x 3pins Euroblock Connector for Stereo Unbalanced Output (USB PCM 2.0)

Control

USB Interface	UAC, UVC	1 x Type-A USB 3.0 connector
LED indicators	Power ON	1 x LED for USB power supply
	HDMI Input	1 x LED for HDMI Active
	HDMI Output	1 x LED for HDMI Active

General

HDMI Distance	up to 10 meters / 33 ft with Ecler VEO cables
Latency	80ms – 2500mS depending by PC/MAC hardware and software platforms

Environmental

Operation Temperature	-5 to +55°C (+23 to +131 °F)
Humidity	10 - 90% RH (no condensation)

Power Supply

Mains voltage	5VDC via USB 3.0 Type-A Port
Rated power consumption	Max 3W

Mechanical

Dimensions	102mm × 68mm × 12mm (4.02" x 2.68" x 0.59")
Weight	75g / 0.165 lbs

11. MECHANICAL DIAGRAM