



# Lumens AI-Box1 CamConnect Pro Voice-Tracking Camera Solution User Manual

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# **Lumens<sup>®</sup>**

**Lumens AI-Box1 CamConnect Pro Voice-Tracking Camera Solution**



## Product Information

- **Product Name:** AI-Box1
- **User Manual Version:** 1.2.3
- **Manufacturer:** Lumens
- **Website:** <https://www.MyLumens.com/support>

## Product Usage Instructions

### System Connection and Application

#### System Connection

Please refer to the user manual for detailed instructions on how to connect to the AI-Box1 system.

#### AI-Box1 IO Interface

The AI-Box1 has an IO interface. Please refer to the user manual for more information on how to use it.

#### Support Devices

The AI-Box1 supports the following devices:

- Shure MXA310 Table Array Microphone
- Shure MXA910 Ceiling Array Microphone
- Shure MXA920 Ceiling Array Microphone
- Sennheiser TeamConnect Ceiling 2 (TCC2) Ceiling Microphone
- Nureva HDL300 Audio Conferencing System

- Nureva HDL310 Audio Conferencing System
- Nureva HDL410 Audio Conferencing System
- Yamaha RM-CG Ceiling Array Microphone

## **Operation Interface Description**

The user manual provides a detailed description of the operation interface for the AI-Box1. Please refer to it for more information.

## **Web Page Function**

The user manual provides information on the web page function of the AI-Box1. Please refer to it for more details.

## **Connect to a conference video software**

- Set the output mode of AI-Box1 to UVC and click the start streaming option
- Follow the instructions in the user manual to set the output mode of the AI-Box1 to UVC. Once set, click the start streaming option.
- Launch video software like Skype, Zoom, Microsoft Teams, or other similar software
- Open the desired video software such as Skype, Zoom, Microsoft Teams, or any other similar software on your computer.
- Choose the video source, to output camera images
- In the video software, select the AI-Box1 as the video source to output camera images. Refer to the user manual for specific instructions on how to choose the video source.

## **Troubleshooting**

If you encounter any issues with the AI-Box1, please refer to the troubleshooting section in the user manual for assistance.

## **Copyright Information**

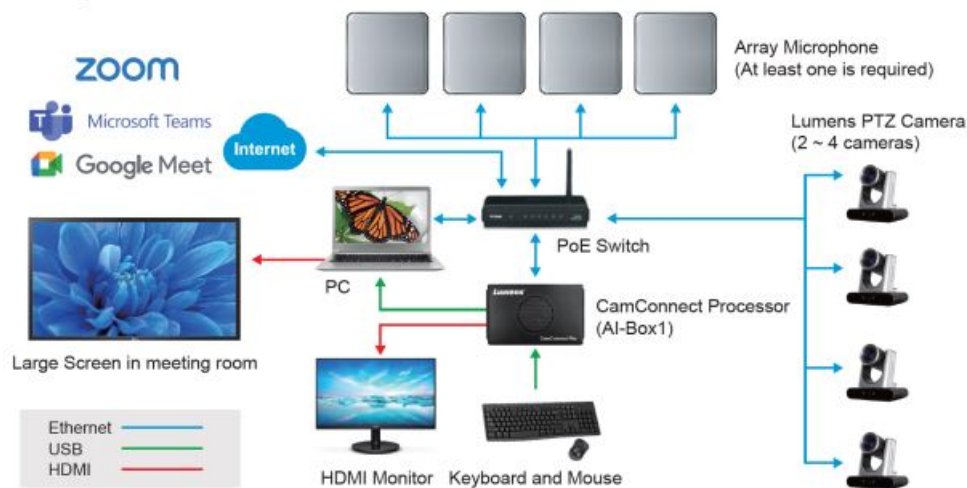
The user manual contains copyright information. Please refer to it for more details.

To download the latest versions of the Quick Start Guide, multilingual user manual, software, driver, etc., please visit Lumens

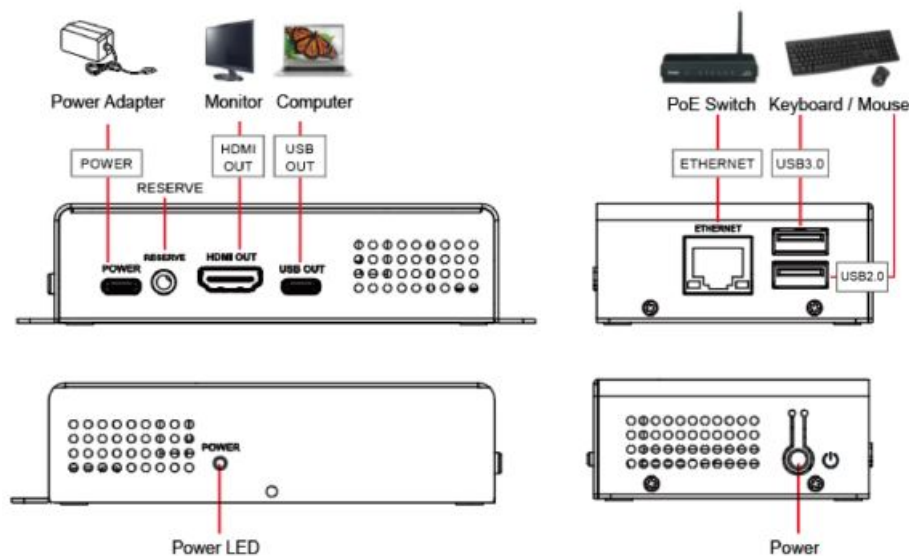
## **Support Devices**

## **System Connection and Application**

### **System Connection**



## AI-Box1 IO Interface



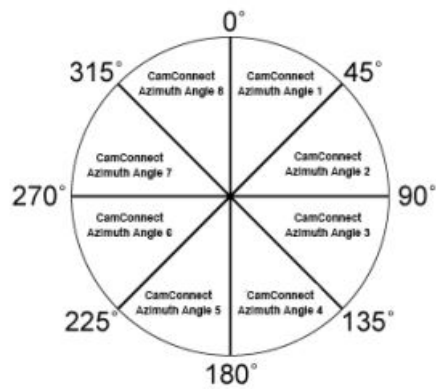
## Support Devices

### Shure

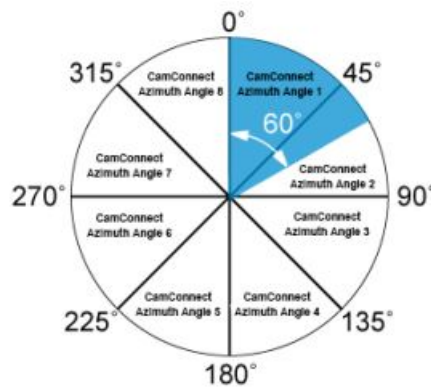
- Shure MXA310 Table Array Microphone
- Shure MXA910 Ceiling Array Microphone
- Shure MXA920 Ceiling Array Microphone

### Sennheiser

- Sennheiser TeamConnect Ceiling 2 (TCC2) Ceiling Microphone
- **<Note>** When using TCC2 with CamConnect, please set and configure the channels on the Sennheiser Control Cockpit software first.
- CamConnect is divided into 8 equal parts according to Sennheiser's horizontal angle of view. They correspond to CamConnect Azimuth Angle 1 to 8.



- If the forbidden area is enabled on the Sennheiser Control Cockpit software, the corresponding position of CamConnect will also be affected. Example: If the forbidden area is set to 0° to 60°, the audio signal from 0° to 45° of CamConnect Array Azimuth 1 and 45° to 60° of Array Azimuth 2 will be ignored.



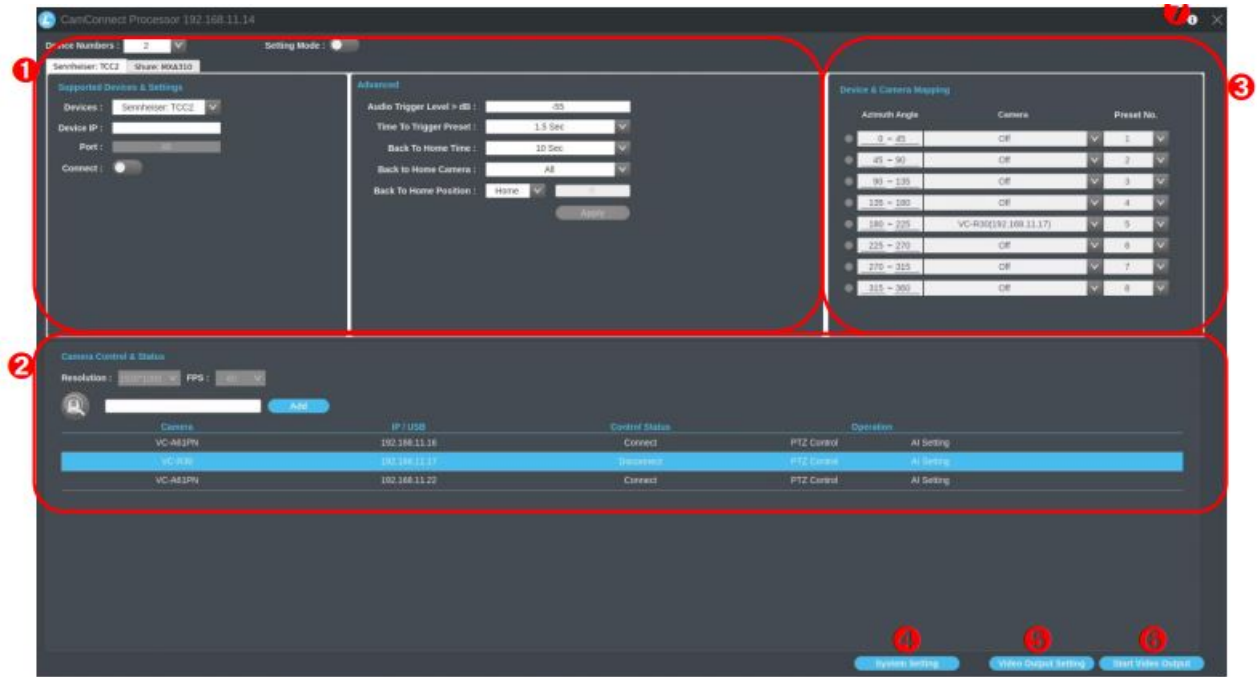
## Nureva

- HDL300 Audio Conferencing System
- HDL310 Audio Conferencing System
- HDL410 Audio Conferencing System

## Yamaha

- Yamaha RM-CG Ceiling Array Microphone

## Operation Interface Description

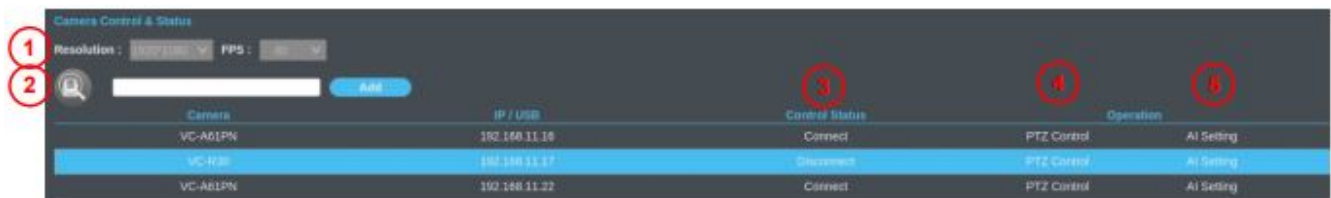



## Microphone Setting

No	Item	<p><b>Function Descriptions</b></p>
1	Device Number	Select the desired number of microphones to connect
2	Device List	Display the devices according to the Device Numbers
3	Devices	Select Microphone Device
4	Device IP	Enter the IP address of the microphone
5	Port	<p>Display based on the connected devices</p> <p>Shure 2202</p> <p>Sennheiser 45</p> <p>Nureva 8931</p> <p><b>&lt;Remark&gt;</b> Only Nureva allows customized input of PORT</p>
6	Connect	Enable/Disable microphone connection

7	Setting Mode	<p>Enable/Disable Setting mode</p> <p>When the Setting mode is enabled, the microphone can receive signals, but it will not trigger the camera to the preset position.</p> <p>Enabling this mode is recommended when setting the preset position, to prevent microphone from interference from other sounds, triggered to unintended positions.</p>
8	Audio Trigger Level > dB	<p>Triggered only if audio source exceeds the preset dB</p> <p><b>&lt;Remark&gt;</b>For Sennheiser/Nureva only</p>
9	Time To Trigger Preset	<p>Audio Reception Delay Settings</p> <p>When a second sound trigger occurs, there will be a delay in calling the preset position based on the configured duration in seconds.</p>
10	Back To Home Time	<p>Back To Home Time Settings</p> <p>If there is no audio input at the venue, it will trigger, after the set seconds, and return to Home</p>
11	Back to Home Camera	Back To Home Camera Setting
12	Back To Home Position	Home Position Setting
13	Apply	Setting completed; click Apply


## Camera Control & Status



No	Item	Function Descriptions												
1	Resolution/ FPS	Resolution/FPS Settings (must match the camera output settings)												
2	Refresh/ Add	<p>Click  to search for the device again or manually enter the specified IP, and click <b>[Add]</b> to add it</p> <p>※ Please ensure that the camera and AI-Box1 are on the same network segment.</p>												
3	Connect/ Disconnect	<p>Click <b>[Connect]</b> to establish a connection with the camera or / <b>[Disconnect]</b> to cancel the connection</p> <p>The connected camera will be highlighted in blue</p> <p>Disconnected:</p> <table border="1"> <thead> <tr> <th>Camera</th><th>IP / USB</th><th>Control Status</th></tr> </thead> <tbody> <tr> <td>VC-R30</td><td>192.168.11.14</td><td>Connect</td></tr> </tbody> </table> <p>Connected:</p> <table border="1"> <thead> <tr> <th>Camera</th><th>IP / USB</th><th>Control Status</th></tr> </thead> <tbody> <tr> <td>VC-R30</td><td>192.168.11.14</td><td>Disconnect</td></tr> </tbody> </table>	Camera	IP / USB	Control Status	VC-R30	192.168.11.14	Connect	Camera	IP / USB	Control Status	VC-R30	192.168.11.14	Disconnect
Camera	IP / USB	Control Status												
VC-R30	192.168.11.14	Connect												
Camera	IP / USB	Control Status												
VC-R30	192.168.11.14	Disconnect												
4	PTZ Control	<p>Click to enable PTZ control</p> <p>Refer to <b><u>3.2.1 PTZ Control</u></b> for function description</p>												
5	AI Setting	<p>Enable/Disable AI People Tracking</p> <p>§ Center Stage: After triggering to the preset position, the tracked person will be positioned in the center of view and tracking will stop after 5 seconds</p> <p>§ Continuous Tracking: The system will continuously track a person and keep them positioned in the center</p>												

## PTZ Control



				
No	Item	Function Descriptions		
1	Preview window	Display the screen currently captured by the camera		
2	L/R Direction	L/R Direction / Normal		
3	Mirror / Flip	Set image mirroring/ flip		
4	Pan/Tilt/Home	Adjust the Pan/Tilt position of the camera screen Click the <b>[Home]</b> button to return to its central position		
5	Preset setting	Click the number keys directly to call the preset ÿ Save preset: Click <b>Set</b> first and then a number key ÿ Clear preset: Click <b>Clear</b> first and then a number key		
6	AF/MF	Switch to Auto/Manual Focus. Focus can be adjusted in Manual		
7	Zoom	Zoom In/ Zoom Out ratio		
8	Exit	Exit the PTZ Control page		

### Microphone orientation and camera preset relationship setting

After the microphone device is connected, the camera can be controlled to turn to the corresponding preset position according to the microphone detection position.

Device & Camera Mapping

1

2

3

4

1

Azimuth Angle

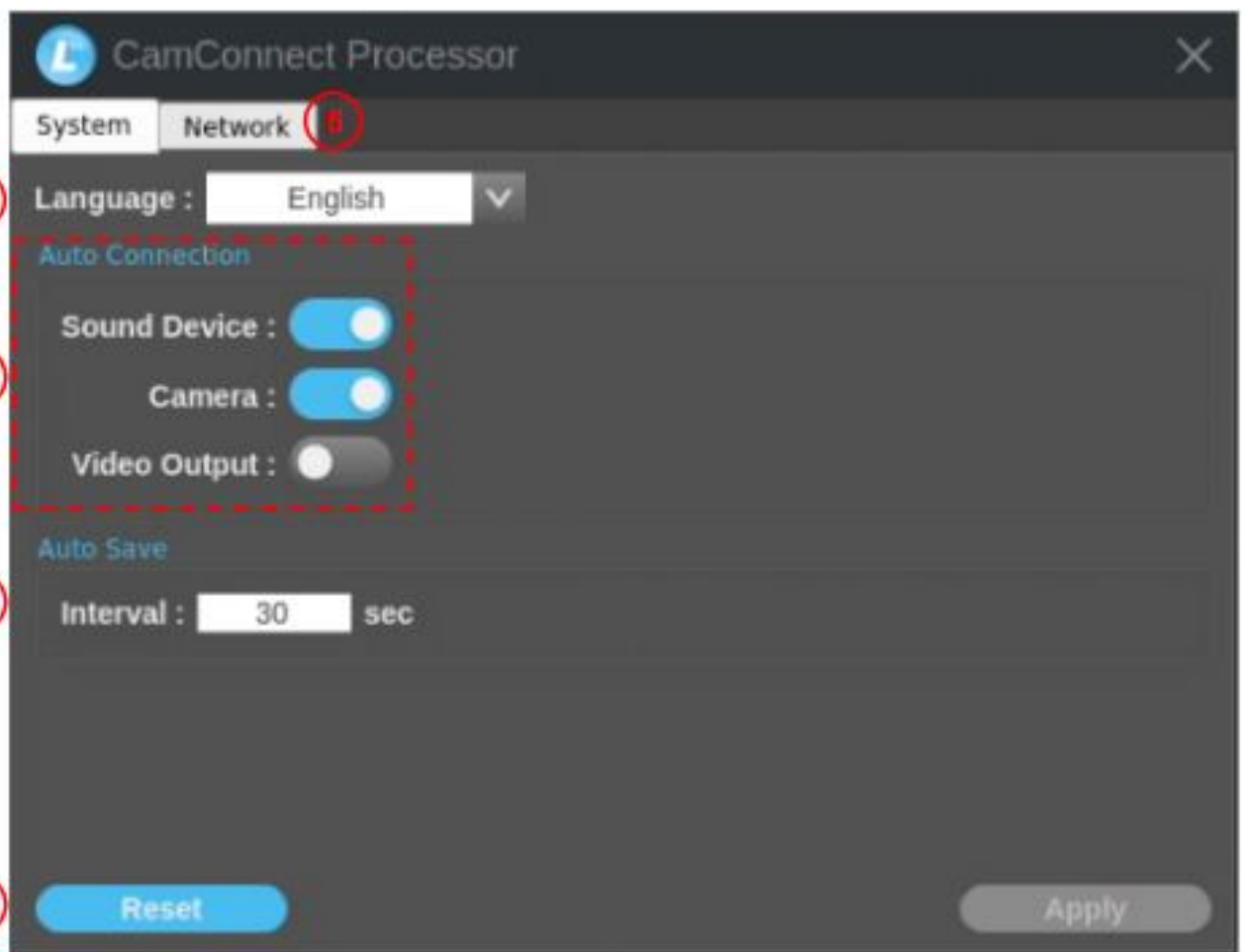
Camera

Preset No.

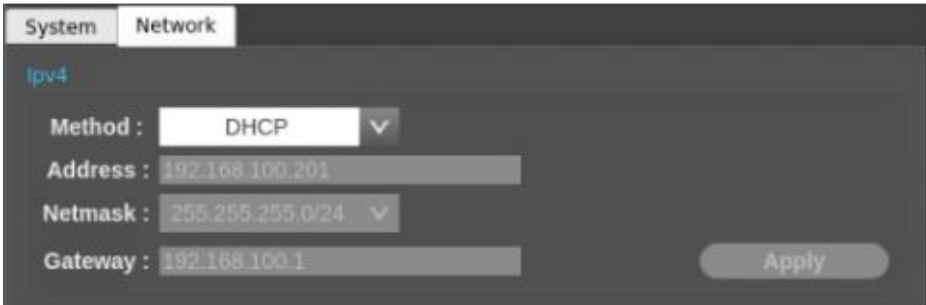
<input type="radio"/>	0 ~ 45	VC-A61P(192.168.4.29)	▼	1	▼
<input type="radio"/>	45 ~ 90	VC-A51PN(192.168.4.114)	▼	2	▼
<input type="radio"/>	90 ~ 135	Off	▼	3	▼
<input type="radio"/>	135 ~ 180	Off	▼	4	▼
<input type="radio"/>	180 ~ 225	Off	▼	5	▼
<input type="radio"/>	225 ~ 270	Off	▼	6	▼
<input type="radio"/>	270 ~ 315	Off	▼	7	▼
<input type="radio"/>	315 ~ 360	Off	▼	8	▼

No	Item	Function Descriptions
1	Indicator	This indicator shows the status of microphone signal reception. (A green light indicates successful reception)
2	Array No. Azimuth Angle	§ Array No.: For Shure models: § Azimuth Angle: Applicable to Sennheiser, Nureva, and Yamaha models. The angle can be manually adjusted
3	Camera	Select the desired camera from the dropdown menu
4	Preset No.	Select the preset position for the camera from the dropdown menu

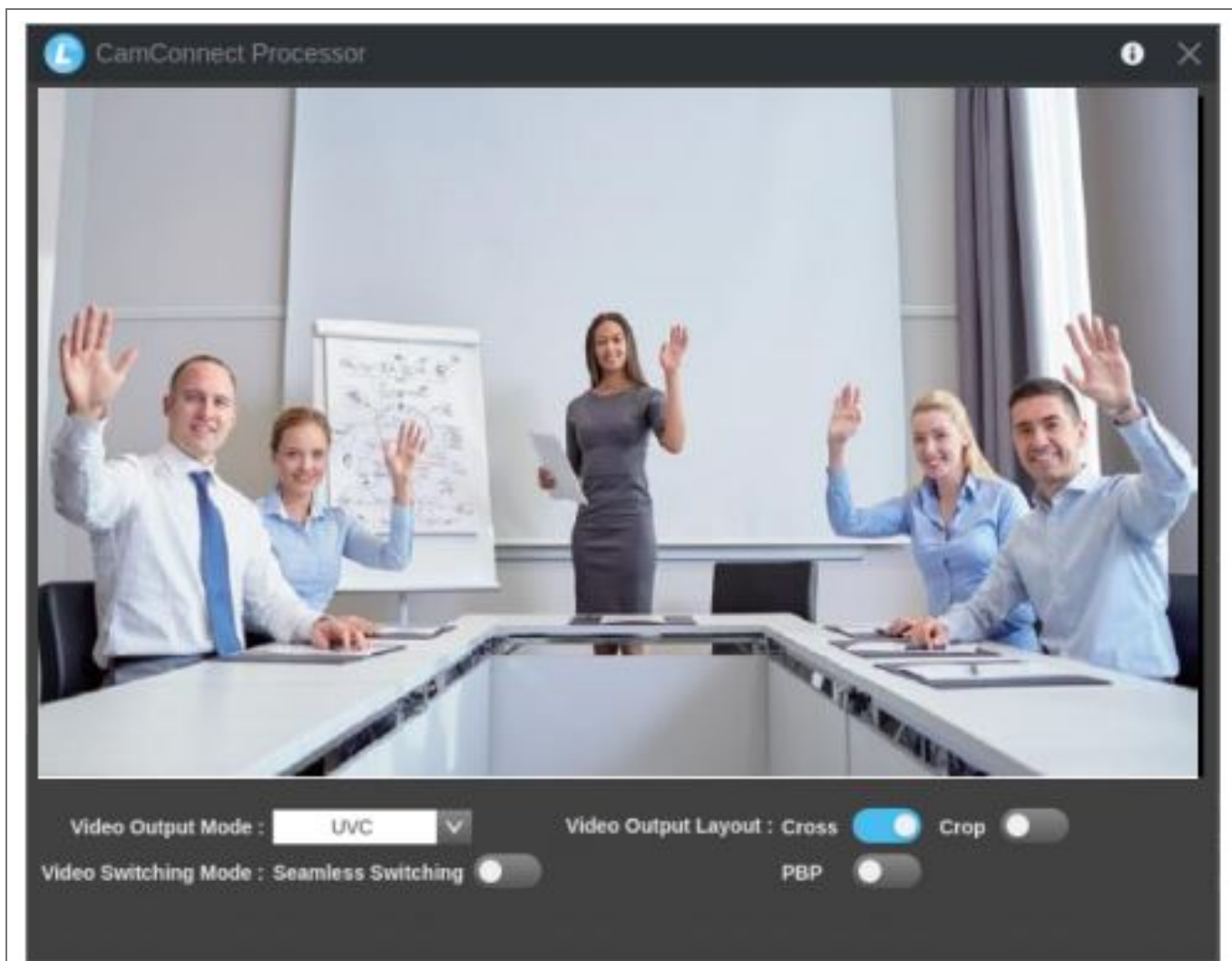
## System Setting



No	Item	Function Descriptions
1	Language	English
2	Auto Connection	Auto connection settings § Sound Device: Microphone








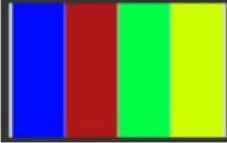
		§ Camera: Camera § Video Output: Automatic image output
3	Auto Save	Set automatic save interval in seconds
4	Reset/ Apply	Reset/Apply your settings
5	Network	 <p>Ethernet Setting. When it is set to Static IP, the setting can be modified. Once the settings are completed, click Apply.</p>

## Video Output Setting



No	Item	Function Descriptions
1	Video Output Mode	Set the Output Mode to either UVC or HDMI
2	Video Output Layout	<p>Configure the layout of the video output according to the provided reference in section <b><u>3.5.1 Video Output Layout</u></b></p> <p>§ Cross: 4-split screen</p> <p>§ PBP: Picture by Picture screen</p> <p>§ Crop: Screen cropping function</p> <p><b>&lt;Remark&gt;</b> Choose either Cross/PBP only</p>
3	Seamless Switching	<p>Enable/disable the microphone connection function</p> <p>The system is set up for single screen output, and the screen switching is triggered by the microphone signal.</p>

## Video Output Layout


	1 camera in connection	2 cameras in connection	3 cameras in connection	4 cameras in connection
Cross				
PBP				

## Start Video Output

Click to output the camera images to HDMI or UVC devices

**<Note>** Choose only either HDMI/UVC output. For setting the Output Mode, please refer to 3.5 Video Output Setting

## Information



The screenshot shows the 'CamConnect Processor' application window. The title bar includes the Lumens logo and the text 'CamConnect Processor'. The main area features the 'Lumens' logo and the website 'https://www.mylumens.com'. Below this, it displays 'CamConnect Processor Version : 1.2.3' and a 'Software Update : Check' button. A 'Get Help ?' section with a QR code is on the right. The footer states 'Copyright © Lumens Digital Optics Inc. All rights reserved.'

### Function Descriptions

This window displays the software version information of AI-Box1. Click on this to confirm the latest version and updates

For technical support, please scan the QR code on the right.

Web Page Function

Device Setting

Device & Setting

Network

Video Output Setting

Maintenance

About

Device & Setting

Sennheiser TOC2

Device: Sennheiser TOC2

Device IP: 192.168.11.4

Device Port:

Connect: ☐ Apply

Advanced

3

Azimuth Angle		Camera	Preset No.
0	45	Off	1
45	90	Off	2
90	135	Off	3
135	180	Off	4
180	225	VC-R30(192.168.11.17)	5
225	270	Off	6
270	315	Off	7
315	360	Off	8


Apply

2

Resolution: FPS:

Camera	IP	Control Status	Operation	Operation
VC-A61PN	192.168.11.16	Connect	PTZ Control	AI Setting
VC-R30	192.168.11.17	Disconnected	PTZ Control	AI Setting
VC-A61PN	192.168.11.22	Connect	PTZ Control	AI Setting

No	Item	Function Descriptions
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<p>1</p>	<p>Device &amp; Setting</p> 	<p>§ Select the desired number of microphones to connect</p> <p>§ Devices: Select Microphone Device</p> <p>§ Device IP: Enter the IP address of the microphone</p> <p>§ Port: Display based on the connected devices</p> <p>Ø Shure: 2202</p> <p>Ø Sennheiser: 45</p> <p>Ø Nureva: 8931</p> <p><b>&lt;Remark&gt;</b> Only Nureva allows customized input of PORT</p> <p>§ Connect: Enable/Disable microphone connection</p> <p>§ Advanced: Advanced Function Settings</p> <p>§ Audio Trigger Level &gt; dB: Triggered only if the audio source exceeds the preset dB</p> <p><b>&lt;Remark&gt;</b> For Sennheiser/Nureva only</p> <p>§ Time To Trigger Preset: Audio Reception Delay Settings. When a second sound trigger occurs, there will be a delay in calling the preset position based on the configured duration in seconds.</p> <p>§ Back To Home Time: Back To Home Time Settings. If there is no audio input at the venue, it will trigger, after the set seconds, and return to Home.</p> <p>§ Back To Home Position: Home Position Setting</p>
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2	Camera & Control Status	<p>§ Resolution/FPS: Resolution/FPS Settings (must match the camera output settings)</p> <p>§ Refresh: Perform a device search again</p> <p>§ Add: Manually enter the specified IP address and click on <b>Add</b> it to add</p> <p>&lt;Remark&gt; Please ensure that the camera and AI-Box1 are on the same network segment.</p> <p>§ Connect/Disconnect: Click <b>[Connect]</b> to establish a connection with the camera or / <b>[Disconnect]</b> to cancel the connection</p> <p>The connected camera will be highlighted in white</p> <table><tr><th>Disconnected</th><th>Connected</th></tr><tr><td><div>Control Status</div><div>Connect</div></td><td><div>Control Status</div><div>Disconnect</div></td></tr></table> <p>§ PTZ Control: Click to access the camera's webpage settings Default username and password: admin/999</p> <p>Please refer to the camera user manual for the function description</p> <p>AI Setting: Enable/Disable AI People Tracking</p> <p>Center Stage: After triggering to the preset position, the tracked person will be positioned in the center of view and tracking will stop after 5 seconds</p> <p>Continuous Tracking: The system will continuously track a person and keep them positioned in the center</p>	Disconnected	Connected	<div>Control Status</div> <div>Connect</div>	<div>Control Status</div> <div>Disconnect</div>
Disconnected	Connected					
<div>Control Status</div> <div>Connect</div>	<div>Control Status</div> <div>Disconnect</div>					
3	Device & Camera Mapping	<p>Indicator: This indicator shows the status of microphone signal reception. (A green light indicates successful reception)</p> <p>Array No. / Azimuth Angle:</p> <p>Array No.: For Shure models:</p> <p>Azimuth Angle: Applicable to Sennheiser, Nureva, and Yamaha models. The angle can be manually adjusted</p> <p>Camera: Select the desired camera from the dropdown menu</p> <p>Preset No.: Select the preset position for the camera from the dropdown menu</p>				

## Network

Device & Setting

Network

Video Output Setting

Maintenance

About

Network

Method

DHCP

IP Address

192.168.100.201

Netmask

255.255.255.0/24

Gateway

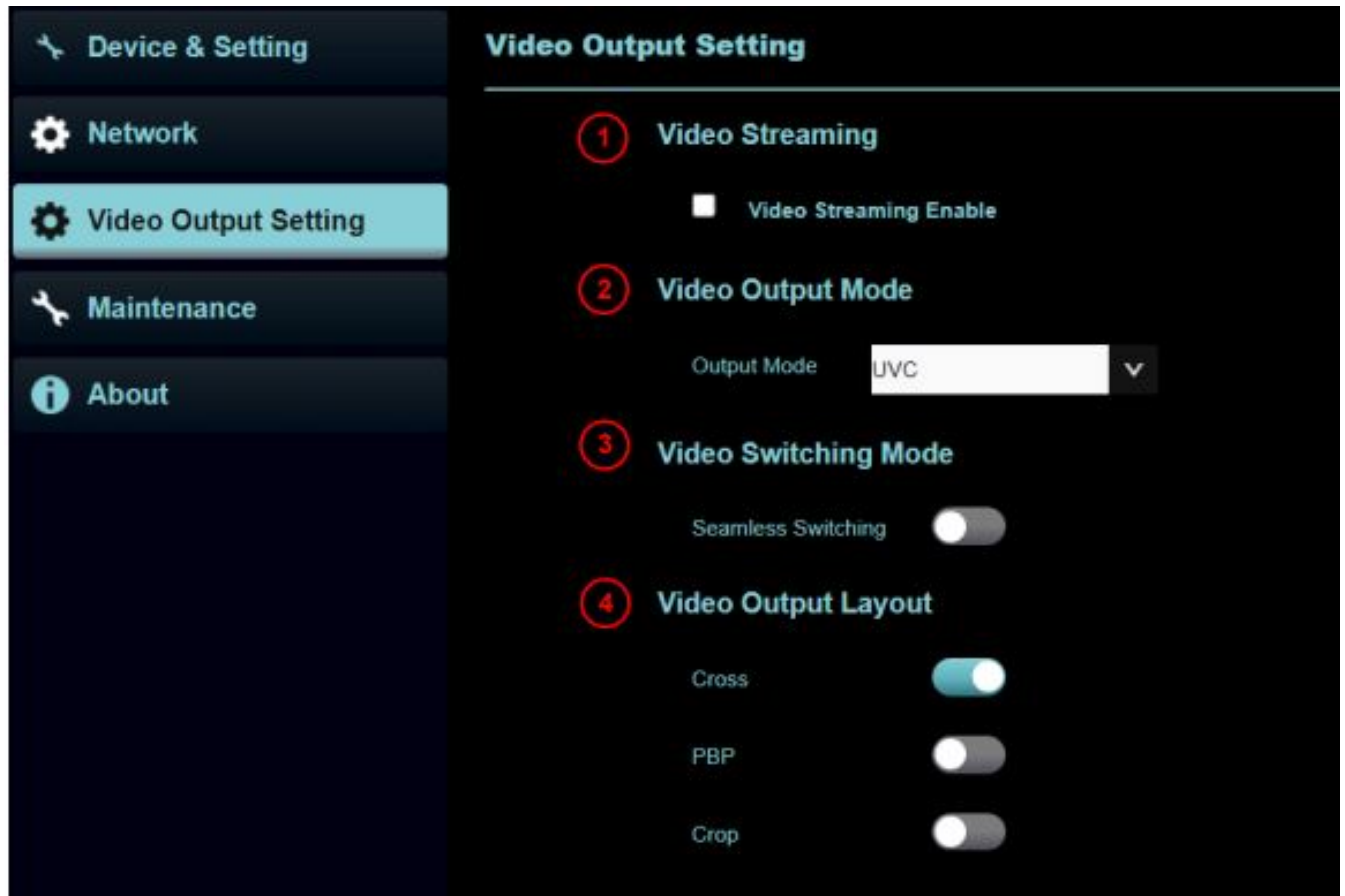
192.168.100.1

Apply

### Function Descriptions

Ethernet Setting. When it is set to Static IP, the setting can be modified. Once the settings are completed, click Apply.

### Video Output Setting




No	Item	Function Descriptions
1	Video Streaming	Enable/disable the camera image output
2	Video Output Mode	Set the Output Mode to either UVC or HDMI
3	Video Switching Mode	<p>Enable/disable the microphone connection function</p> <p>The system is set up for single-screen output, and the screen switching is triggered by the microphone signal.</p>
4	Video Output Layout	<p>Configure the layout of the video output according to the provided reference in section <b><u>3.5.1 Video Output Layout</u></b></p> <p>Cross: 4-split screen</p> <p>PBP: Picture by Picture screen</p> <p>Crop: Screen cropping function</p> <p><b>&lt;Remark&gt;</b> Choose either Cross/PBP only</p>

## Maintenance

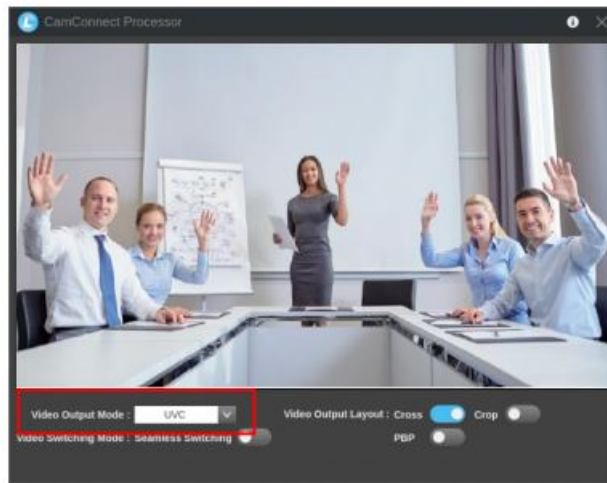
<div> <div>🔧 Device &amp; Setting</div> <div>⚙️ Network</div> <div>⚙️ Video Output Setting</div> <div>🔧 Maintenance</div> <div>ℹ️ About</div> </div>	<div>Maintenance</div> <div>Setting Config</div> <div>Export</div> <div>Import</div>
Function Descriptions	
Users can Export/Import AI-Box1 configuration parameters	

## About

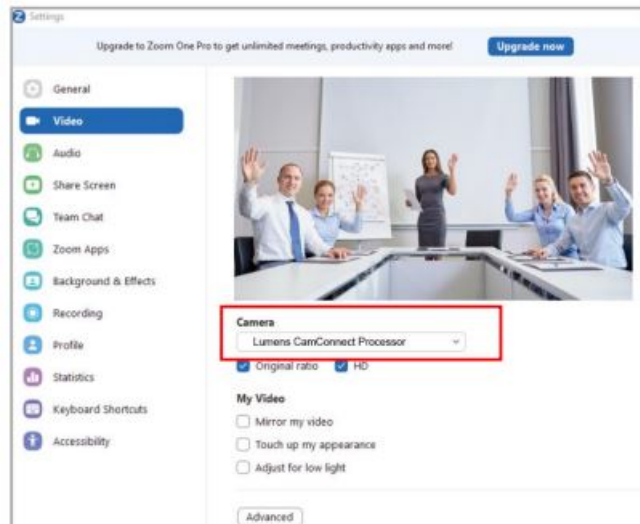
<div> <div>🔧 Device &amp; Setting</div> <div>⚙️ Network</div> <div>⚙️ Video Output Setting</div> <div>🔧 Maintenance</div> <div>ℹ️ About</div> </div>	<div> <div>Lumens®</div> <div> <div>Version: V1.2.3</div> <div>Update: <div>Check</div></div> </div> <div>  </div> </div>
Function Descriptions	
<p>This window displays the software version information of AI-Box1. Click <div>Check</div> on this to confirm the latest version and updates</p>	
<p>For technical support, please scan the QRcode at the bottom right</p>	

## Connect to a conference video software

Set the output mode of AI-Box1 to UVC and click the start streaming option



Launch a video software like Skype, Zoom, Microsoft Teams, or other similar software



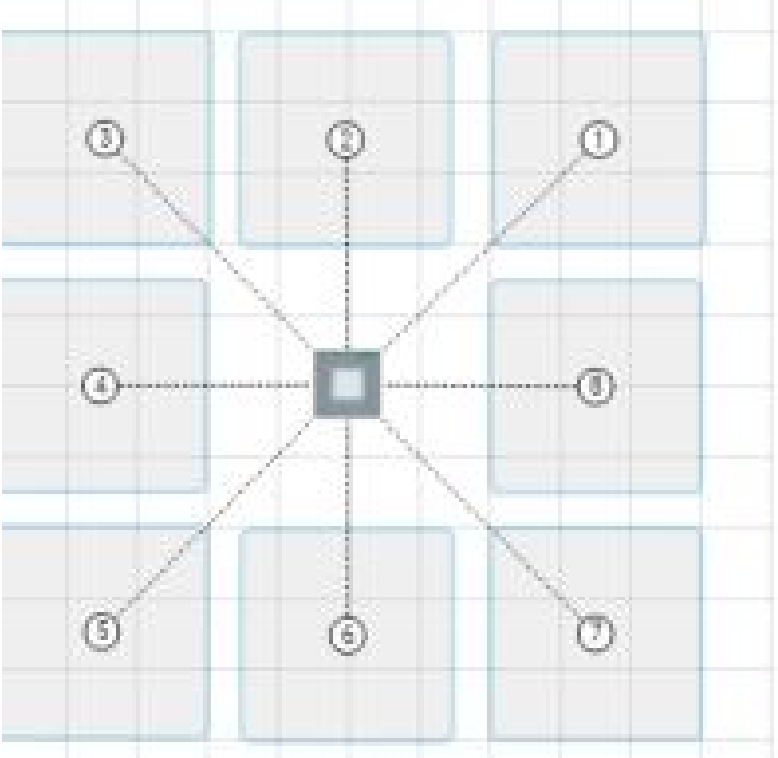
Choose the video source, to output camera images

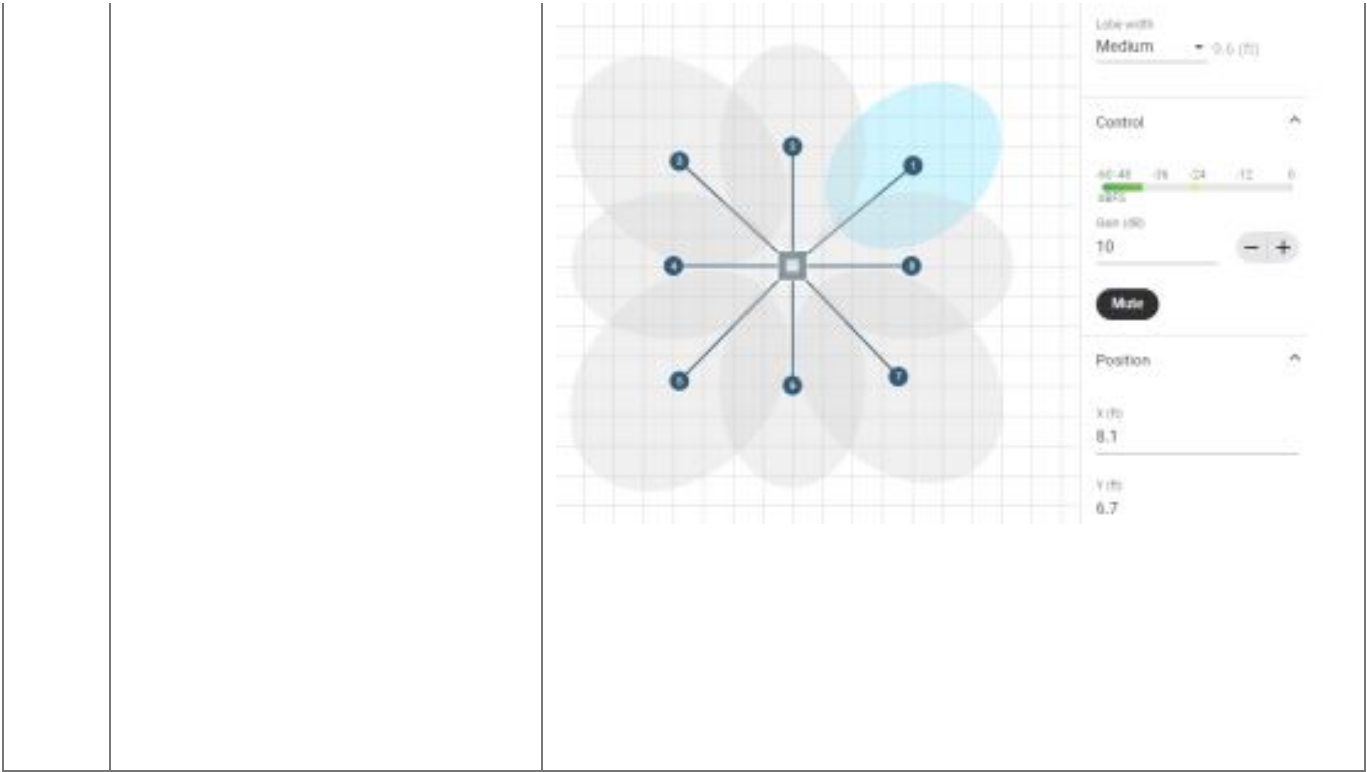
**Video Source Name:** Lumens CamConnect Processor

## Troubleshooting

This chapter describes problems you may encounter while using AI-Box1. If you have questions, please refer to related chapters and follow all the suggested solutions. If the problem still occurred, please contact your distributor or the service center.

NO	Problems	Solutions
1.	Unable to search camera devices	<ol style="list-style-type: none"> <li>1. Check the power supply of camera or PoE power supply is stable.</li> <li>2. Make sure the PC is connected to the camera with the USB cable</li> <li>3. Replace the cables and make sure they are not faulty</li> </ol>
2.	No response from the microphone detection position	Please confirm that the microphone device is in Connect status

3.	When using with a Sennhesier microphone, no response at the specific angle	<p>1. Make sure the Azimuth Angle settings in the CamConnect software include that angle position</p> <p>2. Make sure if the angle is set as the forbidden area on Sennhesier</p> <p>Control Cockpit software. Refer to <b><u>3.2 Sennhesier Microphone System</u></b> for details.</p>
4.	When setting camera preset positions, if the microphone detects signals from other directions, it may cause the camera to move to other positions, thus interrupting the setting	<p>Please refer to <b><u>3.1 Microphone Setting</u></b> to enable the Setting mode Once enabled, the microphone can receive signals, but it will not trigger the camera to the preset position</p>
5	Used together with Shure TCC2 microphone. Sound detection not sensitive, not accurate	 <p>Suitable for large-area positioning when Shure Designer Automatic coverage is On.</p> <p>If more accurate positioning is required, it's suggested to disable Automatic coverage, adjust Gain value/Position manually, reduce beamforming angle, to achieve more accurate positioning</p>



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Documents / Resources

	<p><a href="#">Lumens AI-Box1 CamConnect Pro Voice-Tracking Camera Solution</a> [pdf] User Manual AI-Box1, AI-Box1 CamConnect Pro Voice-Tracking Camera Solution, CamConnect Pro, Voice-Tracking Camera Solution, CamConnect Pro Voice-Tracking Camera Solution</p>
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References

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