# CamConnect Al-Box1

# **User Manual - English**



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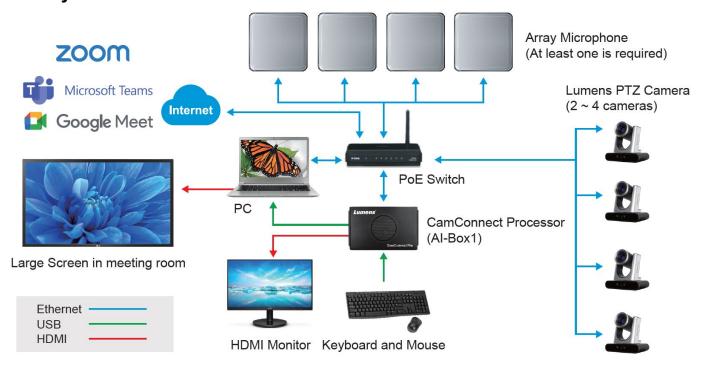
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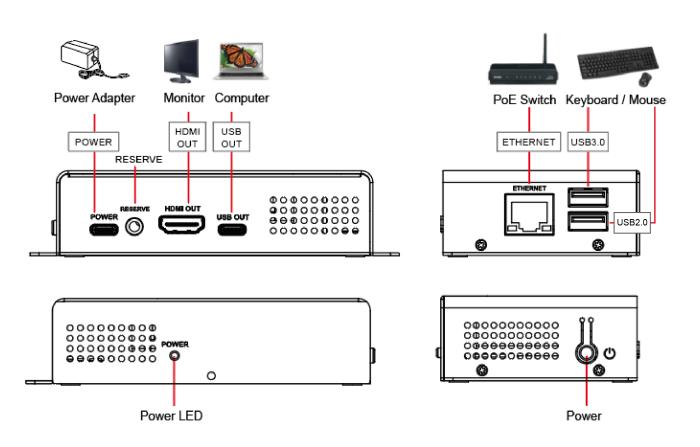


## **Chapter 1 System Connection**

### 1.1 System Connection

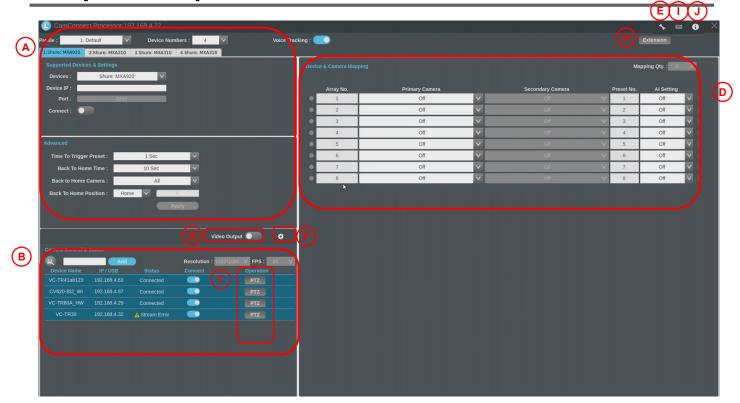


#### 1.2 Al-Box1 IO Interface

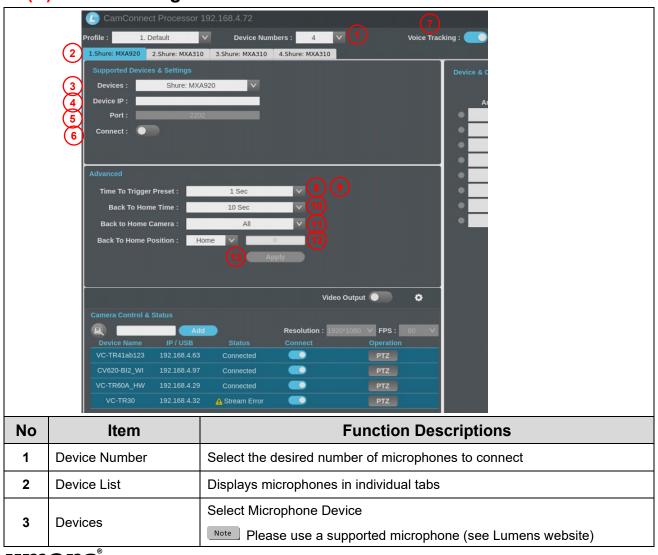




## **Chapter 2 Operation Interface**

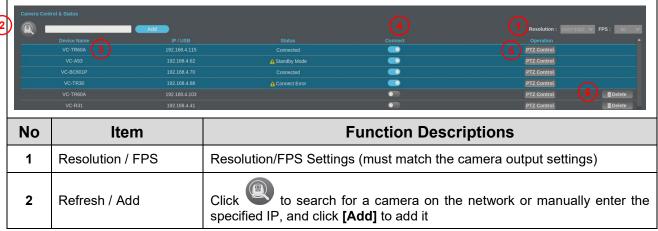


### 2.1 (A)Device Setting



4	Device IP	Enter the IP address of the microphone
		Displays the microphone's port
		■ Shure: 2202■ Shure: 2202
		Sennheiser: 45
_	5 ,	Sennheiser TCCM: 443
5	Port	■ Nureva: 8931
		■ Yamaha: 49280
		■ Audio-Technica : 17300
		Note Only Nureva allows customized PORT
6	Connect	Enable/Disable setting mode
		When enabled, signals received by a microphone triggers camera preset
7	Voice Tracking	positions. When setting camera presets, it is important to disable this
		function.
	Audio Trigger Level > dB	Trigger when an audio source exceeds the selected dB value.
		■ Sennheiser:-90~0 (recommended -55)
8		■ Nureva:0~120 (recommended 40+)
		■ Audio-Technica:0~60 (recommended 30)
		■ Yamaha:0~126 (recommended 80+ for RM-CG / 70+ for RM-W)
		Audio Reception Delay Settings
9	Time To Trigger Preset	When a second sound trigger occurs, there will be a delay in triggering
		camera preset based on the configured duration in seconds.
		Return the camera to its home position
10	Back To Home Time	If there is no audio input, the camera will move to its home position after
		the set seconds.
11	Back to Home Camera	Select one camera or select all cameras to move to home position.
12	Back To Home	Camera will return to either Home position or a specific preset position.
	Position	
13	Apply	Confirms changes to settings.

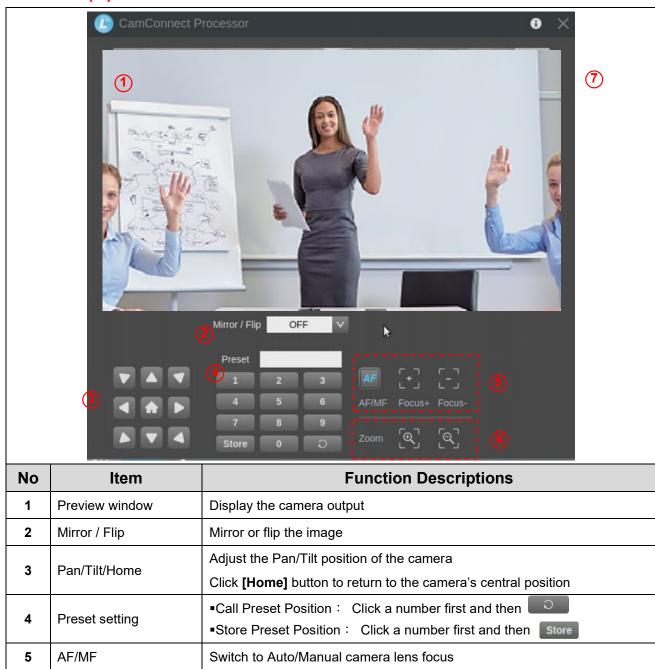
## 2.2 (B)Camera Control & Status





		Note Please ensure that the camera and Al-Box1 are on the same	
		network segment.	
3	Device Name	Displays discovered cameras	
4	Connect	Click to connect. Connected camera are highlighted in blue.	
5	PTZ Control	Click to enable PTZ control Refer to 2.2.1 PTZ Control for function description	
6	Delete	Delete a camera from the list.	

### 2.2.1 (C) PTZ Control



Lens Zoom In / Out

Exit the PTZ Control page

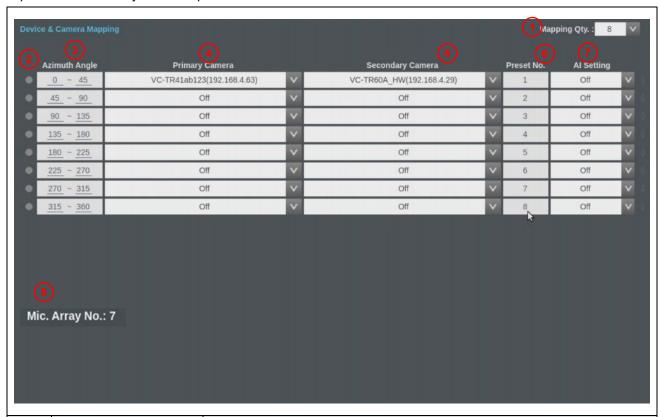


6 7 Zoom

Exit

## 2.3 (D)Device & Camera Mapping

When a microphone is connected, the camera will move to a preset position corresponding to the sound position detected by the microphone.

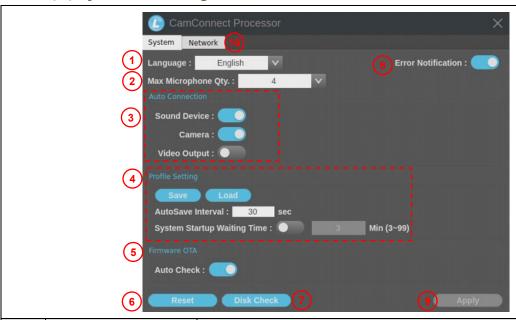


No	Item	Function Descriptions		
1	Mapping Qty	Select the number of locations to be mapped. Up-to 128 presets supported. Note Shure MXA310/ MXA910/ MXA920/ Audio-Technica no supported Note Not supported with Shure MXA310/ MXA910/ MXA920 and Audio-Technica microphones.		
2	Indicator	A green light indicates that the microphone is detecting a sound.		
3	Array No. Azimuth Angle	<ul> <li>Array No.: Applicable to Shure / Audio-Technica devices</li> <li>Azimuth Angle: Applicable to Sennheiser, Nureva, and Yamaha devices.</li> <li>Angles can be manually adjusted</li> </ul>		
4	Primary Camera	Select a desired Primary camera from the dropdown menu.  If unable to connect with a previously saved camera,   will be displayed.		
5	Secondary Camera	Select the desired Secondary camera from the dropdown menu.  When a camera is triggered to a preset position, and another preset position for the same camera is subsequently triggered, the Secondary camera will be the prior one to move to instead of the primary camera.  Note: This feature is available only when Seamless Switching is enabled.  If unable to connect with a previously saved camera,   will be displayed.		
6	Preset No.	Select the preset position for the camera from the dropdown menu		
7	Al Setting	Enable/Disable Al Tracking  Continuous Tracking: The camera will continuously track the		



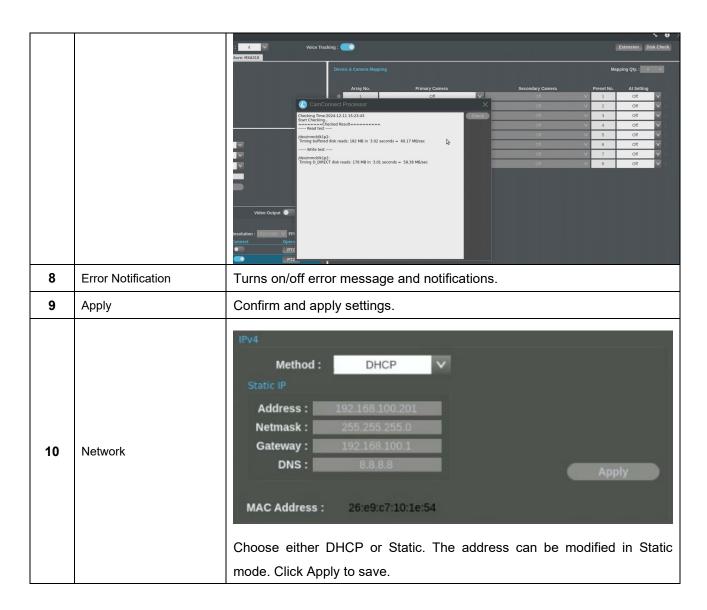
		<ul> <li>individual, keeping them in the center position.</li> <li>Center Stage: When the camera has been triggered to a preset position, the individual will be centered on the screen for 5 seconds before tracking stops.</li> </ul>
8	Mic. Array No./ Mic. Azimuth Angle	Displays current trigger position / angle information of the camera.

## 2.4 (E)System Settings

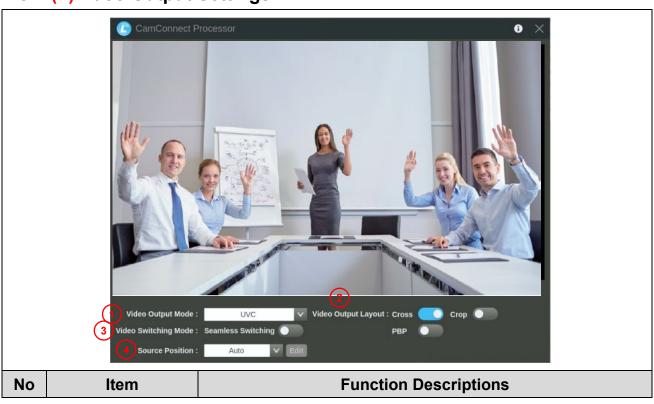


No	Item	Function Descriptions	
1	Language	English	
2	Max Microphone Qty.	Connect up-to 24 microphones.	
		Auto-connected items setting after Al-Box1 power is turned on.	
3	Auto Connection	■ Sound Device	
	Auto Connection	■ Camera	
		■ Video Output	
		■ Save/ Load: Save or Load the desired profile.	
	Profile Setting	AutoSave Interval: Set the auto saving interval.	
		System Startup Waiting Time: Set startup waiting time.	
4		After Al-Box1 powers on, it will automatically search for microphones and	
7		cameras. If the devices have a long boot-up time, Al-Box1 may not	
		connect to the devices properly. To prevent this issue, please adjust the	
		system waiting time based on the current environment and the boot-up	
		time of the microphones and cameras.	
5	Firmware Auto Check	Automatically checks for firmware updates.	
6	Reset	Resets the CamConnect Pro Al-Box1.	
7	Disk Check	Measure the reading from the SD card to check if it is working properly.  The reading data can be provided to Lumens personnel for further inspection.	





### 2.5 (F)Video Output Settings



1	Video Output Mode	Set the Output Mode to either UVC, HDMI or UVC+HDMI		
		Configure the layout of the reference in section <u>2.5.1 Vide</u>	video output according to the provided to Output Layout	
_		■ Cross: 4-split screen		
2	Video Output Layout	■ PBP: Picture by Picture scree	en	
		■ Crop: Screen cropping function	on	
		Note Choose either Cross/PB	SP only	
3	Saamlaaa Switshing	The system is set up for sing	le screen output, and camera switching is	
3	Seamless Switching	triggered by the microphone sign	gnal.	
		Switch the camera display po	osition, select "[Custom]" and then click on	
		(E) CamConnect Processor	×	
4	Source Position	Position 1	Position 2	
		Position 3	Position 4	
		Layout: ● 1x1	×2 1111 V	

2.5.1 Video Output Layout

	Connecting with 1 camera	Connecting w	Connecting with 2 cameras Connecting with 3 cameras		Connecting with 4 camera	
Cross	Position 1	Position 1 Position 2	Position 1	Position 1 Position 2		
			Position 2 Position 3	Position 3 Position 4		
PBP	Position 1	Position 1	Position 2	Position 1 Position 2 Position 3	Position 1 Position 2 Position 3 Position 4	

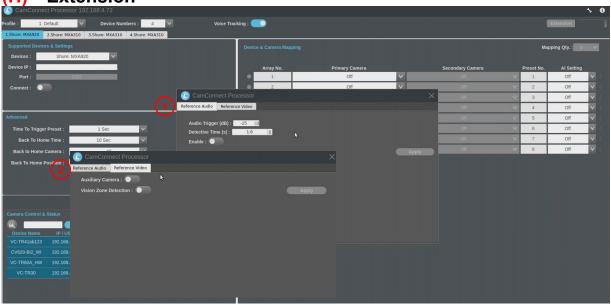
	Crop On	Crop Off
Crop		



## 2.6 (G)Start Video Output

Click to output camera images via HDMI, UVC or HDMI+UVC.





No	Item	Function Descriptions
		Scenario Application
		In a conference meeting, the microphone might pick up sound from the
		other side, accidentally triggering the camera and causing it to move to an
		unwanted preset position.
		With Reference Audio, the sound can now be censored and blocked to
		minimize interruptions from the other side, preventing the camera from
		moving to an unintended position.
		Connection:
	Reference Audio	Converge the audio signals from CamConnect Pro (C) and the speaker
1	(An audio cable splitter	(B), so they can be sent to a computer (A).
	is required to enable	Please refer to the connection method below to create the cable and make
	this function.)	the connection.
		(A)
		TRRS
		TRS
		TRSB
		Audio Trigger(dB): Set the audio detection threshold (-100~0 dB).
		The microphone will only trigger detection when the volume exceeds the
		set threshold.

		<b>Detective Time(s)</b> : Set the duration of the detection (0~10 seconds)
		Enable: On / Off
		Apply: Click to apply the settings.
		Scenario Application
		The camera may be triggered by any sound, whether it is caused by a
		human or just incidental noise. With the Lumens BC200 auxiliary camera,
		the system will no longer be triggered by sound alone. It will also use Al
		face recognition to detect people on site. The camera will only be triggered
	Reference Video	when an audio source is accompanied by a human face that can be
	Treference video	detected.
2.	(The Lumens BC200 camera is required to enable this function.)	Connection: The Lumens BC200 auxiliary camera must be connected.  The BC200 is set to be released in Q1 2025. For a more detailed introduction, please refer to the BC200 user manual at that time.
		Auxiliary Camera: Enable or disable the BC200 camera.
		Vision Zone Detection: This feature is not functional at the moment and is
		not for use.
		Apply: Click to apply the settings.

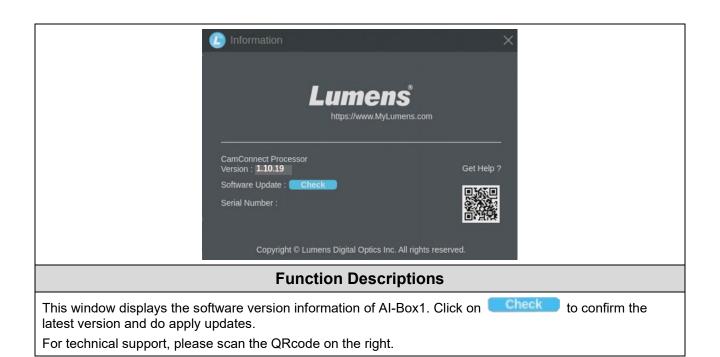
## 2.8 (I) Virtual Keyboard

Click the keyboard icon to display the virtual keyboard.



## 2.9 (J) Firmware Information

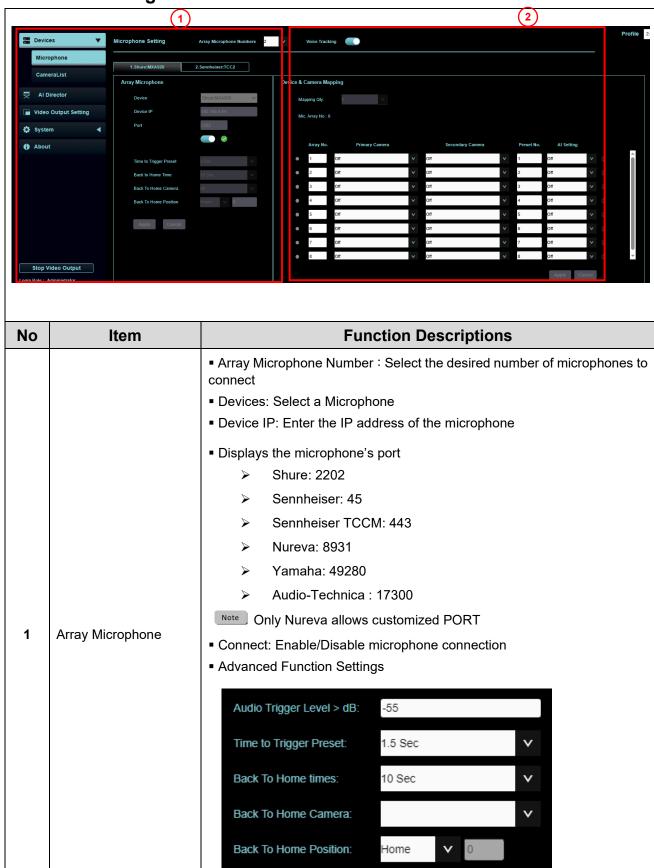






## **Chapter 3 Web Interface**

### 3.1 Device Settings



Close



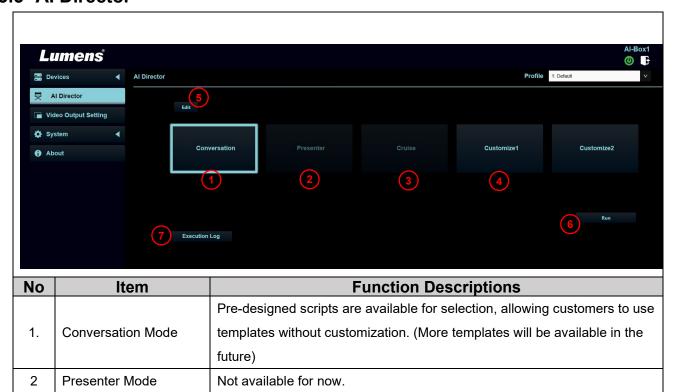
		■ Audio Trigger Level > dB: Triggered when an audio source exceeds the
		specified dB value.
		➤ Sennheiser:-90~0 (recommended -55)
		> Nureva:0~120 (recommended 40+)
		> Audio-Technica:0~60 (recommended 30)
		> Yamaha:0~126 (recommended 80+ for RM-CG / 70 up for RM-W)
		■ Time To Trigger Preset: Audio Reception Delay Settings
		When a second sound trigger occurs, there will be a delay in triggering camera preset based on the configured duration in seconds.
		■ Back To Home Time: If there is no audio input, the camera will move to its home position after the set seconds.
		■ Back To Home Position: You can select either the Home position or
		designate a preset number.
		■ Voice Tracking: When enabled, the microphone can receives signals,
		and the camera would moves to preset positions when triggered. When
		setting preset positions, disable this function.
		Mapping Q'ty: Select the number of locations to be mapped. Up-to 128
		presets supported.
		Note Shure MXA310/ MXA910/ MXA920/ Audio-Technica no supported
		Note Not supported with Shure MXA310/ MXA910/ MXA920 and
		Audio-Technica microphones.
		• Indicator: a green light indicates that the microphone is detecting a sound.
		■ Array No. / Azimuth Angle :
		> Array No.: Applicable to Shure/ Audio-Technica devices
		> Azimuth Angle: Applicable to Sennheiser, Nureva, and Yamaha
		devices. The angle can be manually adjusted
2	Device & Camera	■ Primary Camera: Select a Primary camera from the dropdown menu
	mapping	■ Secondary Camera: Select a desired Secondary camera from the
		dropdown menu. When a camera is triggered to a preset position, and
		another preset position for the same camera is subsequently triggered, the
		Secondary camera will be the prior one to move to instead of the primary
		camera.
		Note: This feature is available only when Seamless Switching is enabled
		■ Preset No.: Select the preset position for the camera from the dropdown
		menu
		Al Setting : Enable / Disable Al tracking
		> Center Stage: When the camera has been triggered to move to a
		preset position, the individual will be centered on the screen for 5
		seconds before tracking stops.
		> Continuous Tracking : The camera will continuously track the
		individual, maintaining them in the center position.



#### 3.2 Device - Camera List



#### 3.3 Al Director

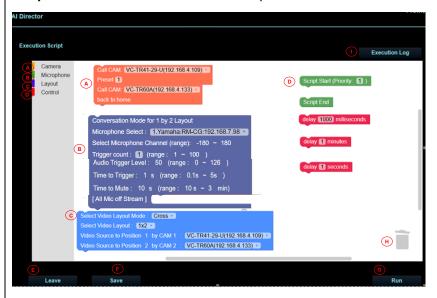




3	Cruise Mode	Not available for now.
4	Customize	Create and fully customize your own 2 unique scripts.
5	Edit	Edit the contents of the script
6	Run / Stop	Start or stop the script running.
7	Execution Log	Display the log activity of Al Director.

#### **Example of script creation**

Script Edition: Conversation Mode Example



- **A.** Camera: Assign commands for connected cameras to move to a preset position or return to their home position.
- B. Microphone:
  - 1.trigger count: Set the number of triggers (1~100) required to activate the camera.
- 2. All Mic off Stream: Define the action CamConnect Pro will take when the microphone stops receiving sound. For example, change the image layout scene or send commands to cameras.

(See example below)

```
Script Start (Priority: 1)

Conversation Mode for 1 by 2 Layout

Microphone Select: 1.Yamaha:RM-CG:192.168.7.98 •

Select Microphone Channel (range): -180 - 180

Trigger count: 1 (range: 1 - 100 )

Audio Trigger Level: 50 (range: 0 - 126 )

Time to Trigger: 1 s (range: 0.1s - 5s )

Time to Mute: 10 s (range: 10 s - 3 min)

[All Mic off Stream]

Call CAM: (VC-R30(192.168.7.21) •

back to home

Call CAM: (VC-A71P-Coco(192.168.7.25) •

back to home

Select Video Layout Mode: Cross •

Select Video Layout Mode: Cross •

Select Video Source to Position 1 by CAM 1: (VC-R30(192.168.7.21) •

Video Source to Position 2 by CAM 2: (VC-A71P-Coco(192.168.7.25) •

Script End
```

- C. Layout:
  - 1. Video Layout: Cross / PBP
  - 2. Video Layout of camera quantity: 1x1 / 1x2 / 1x3 / 2x2
  - 3. Video source to specific position



#### D. Control

- 1. Script Start:
  - a. This block must be placed at the beginning of any valid script.
  - b.Set the priority to determine which script takes precedence when multiple scripts are active.
- 2. Script End: This block must be placed at the end of any valid script
- 3. Delay time: milliseconds / seconds / minutes
  - a. Set the custom time and select the units.
  - b. This block can be used as a stopover point in a script.

#### Example:

```
Script Start (Priority: 1 )

Call CAM: VC-TR41-29-U(192.168.4.109) 
Preset 1

delay 1000 milliseconds

Select Video Layout Mode: Cross 
Select Video Layout: 1x1 
Video Source to Position 1 by CAM 1: CV630-ND3(192.168.4.101) 
delay 1 minutes

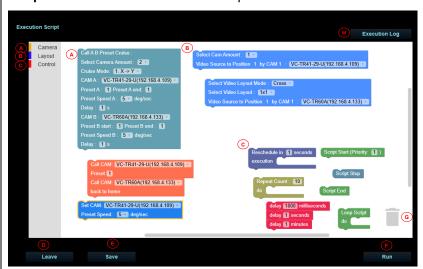
Call CAM: VC-TR60A_HW(192.168.4.29) 
Preset 1

Script End
```

Note: A valid script must always include both the Script Start block and Script End block.

- E. Leave: Exit the page
- F. Save: Save the settings
- G. Run: Start executing the script
- **H.** Bin: Drag unwanted blocks to the bin icon to discard them.
- I. Execution Log: Displays the activity log of the Al Director.

Script edition: Customize Mode example



#### A. Camera

1. Preset Cruise

Set how the preset positions of 2-3 cameras are triggered in sequence

Mode 1: Assign one preset position for each camera. Each camera moves to its preset position in order.



Mode 2: Assign two preset positions for each camera. Each camera move to their preset positions in order.

Configurable value: 1. Movement speed (degrees per second) for the camera when the preset position is triggered.

2. Delay time(seconds)

#### 2. Camera settings

- a. Move to a specific preset position or home position
- b. Movement speed (degrees per second) for the camera when the preset position is triggered.

#### B. Layout

- 1. Layout: Cross / PBP
- 2. Video Layout for Camera Quantity: 1x1 / 1x2 / 1x3 / 2x2
- 3. Video source to specific position

#### C. Control

- 1. Script Start:
  - a. This block must be placed at the beginning of any valid script.
  - b.Set the priority to determine which script takes precedence when multiple script are active.
- 2. Script End: This block must be placed at the end of any valid script.
- 3. Delay time: milliseconds / seconds / minutes
  - a. Set the custom time and select the units.
  - b. This block can be used as a stopover point in a script.
- 4. Reschduled in \_ seconds: Specify how many seconds will be needed before triggering the next step.
- 5. Repeat Count: How many times the scrpt will repeat
- 6. Script stop: Stops the script execution.
- 7. Loop Script: The script will repeat continuously.

#### Example:

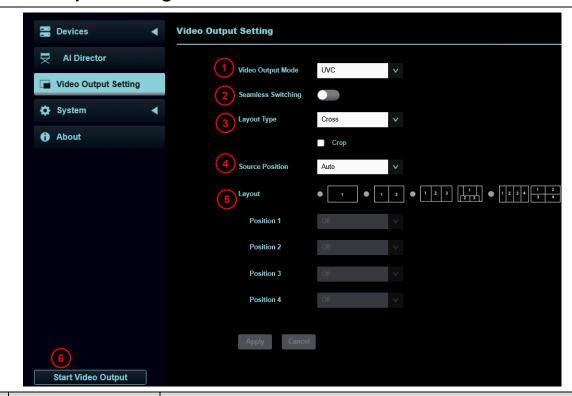
Note: A valid script must always include both the Script Start and Script End blocks.



```
Script Start (Priority: 1)
         Repeat Count: 10
         do Call A B C Preset Cruise
             Select Camera Amount: 3
             Cruise Mode: 2. X start -> X end -> Y start -> Y end •
             CAM A: (VC-TR41-29-U(192.168.4.109) -
                  et A Start: 1 Preset A end: 2
              Preset Speed A: 5 deg/sec
              CAM B: VC-TR41-29-U(192.168.4.109) •
             Preset Speed B: 5 deg/sec
             Delay: 1 s
              CAM C: VC-TR41ab123(192.168.4.63)
             Preset C Start: 1 Preset C end : 2
             Preset Speed C: 5 deg/sec
             Delay: 1 s
             Reschedule in 1 seconds
              execution Select Cam Amount: 4
                        Video Source to Position 1 by CAM 1 : VC-TR41-29-U(192.168.4.109)
                        Video Source to Position 2 by CAM 2 : VC-TR61(192.168.4.86)
                        Video Source to Position 3 by CAM 3 : VC-TR41ab123(192.168.4.63)
                        Video Source to Position 4 by CAM 4 : Null >
                       delay 1000 milliseconds
                       Call CAM: CV630-ND3(192.168.4.101)
                       Preset 1
         Script End
D. Leave: Exit the page
E. Save: Save the settings
F. Run: Start executing the script
G. Bin: Drag unwanted blocks to the bin icon to discard them.
H. Execution Log: Display the activity log of Al Director.
```



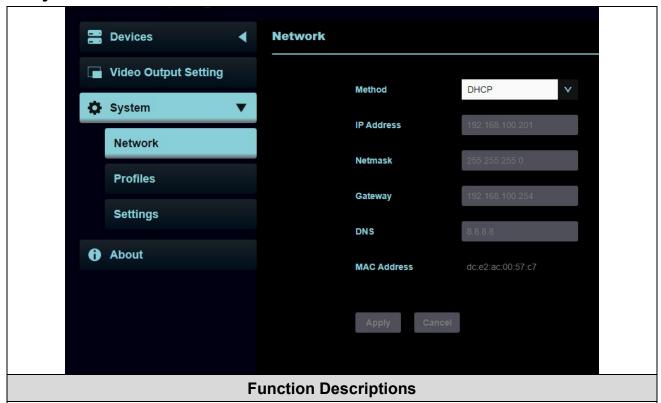
## 3.4 Video Output Settings



No	Item	Function Descriptions	
1	Video Output Mode	HDMI,UVC or HDMI+UVC	
2	Seamless Switching	The system is set up for single screen output, and the camera switching is	
		triggered by the microphone signal.	
3	Layout Type	Configure the layout of the video output according to the provided reference in section <u>2.5.1 Video Output Layout</u>	
		■ Cross: 4-split screen	
		■ PBP: Picture by Picture screen	
		■ Crop: Screen cropping function	
		Note Choose either Cross/PBP only	
4	Source Position	on Custom / Auto	
5	Layout	Choose how many camera images will be displayed on the screen.	
		Position: Determine which camera source will be displayed in each	
		position	
6	Start Video Output	Click the button to start or stop video output.	

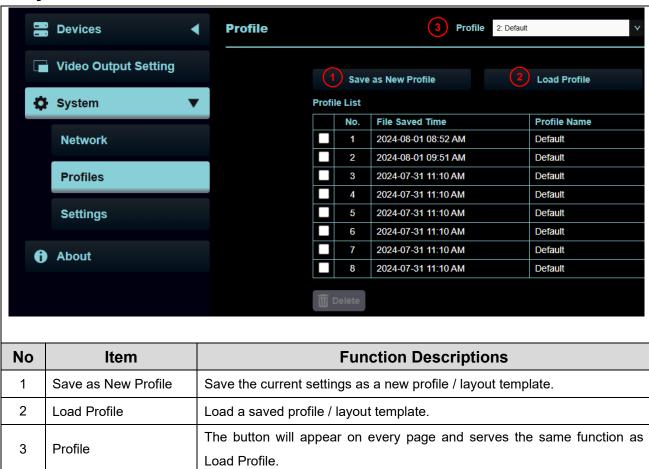


### 3.5 System- Network



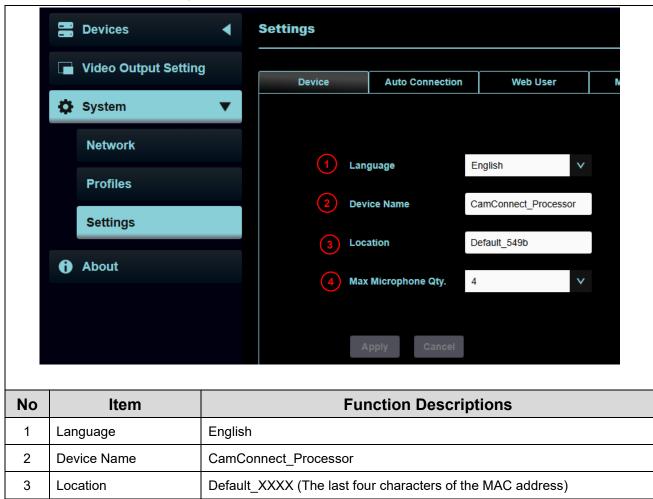
Ethernet Settings. When it is set to Static IP, settings can be modified. Once the settings are complete, click Apply.

### 3.6 System- Profile





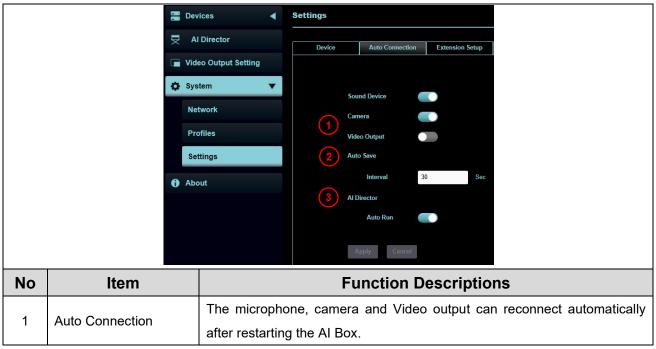
### 3.6.1 System- Settings-Device



### 3.6.2 System- Settings- Auto Connection

4 / 8 / 16 / 24

Max Microphone Qty.

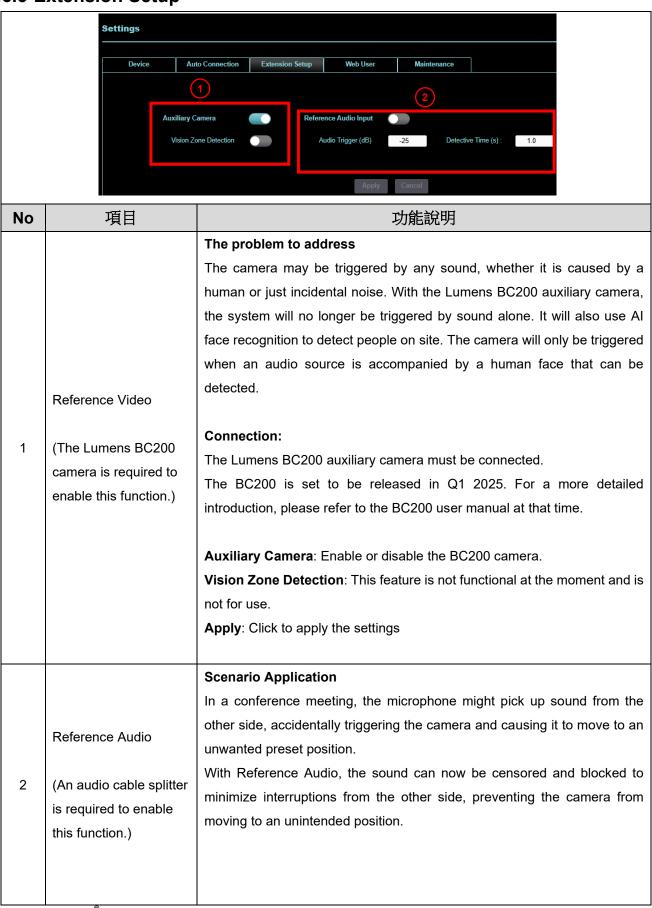


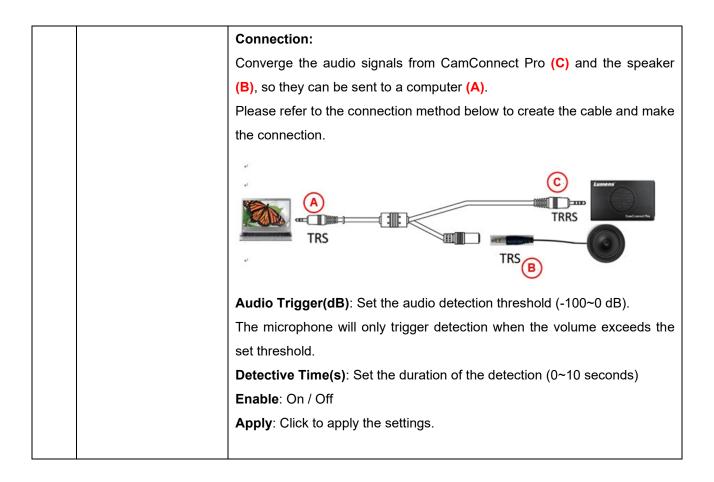


4

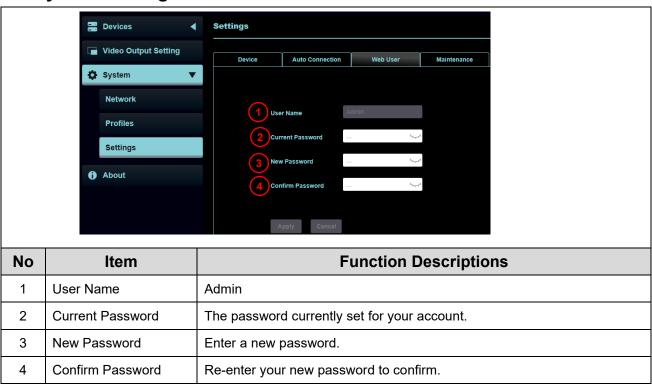
2	Auto Save	The profile can be saved automatically after a specific interval time.
3.	Auto Run	Al Director will be run automatically.

### 3.6.3 Extension Setup



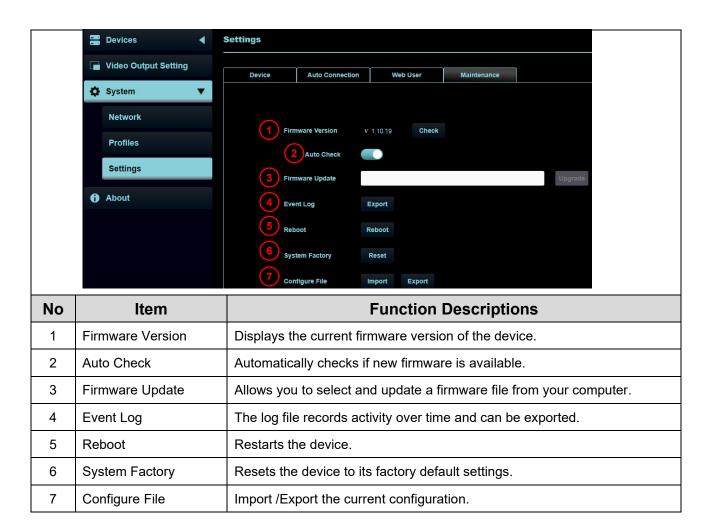


### 3.6.4 System Settings: Web User

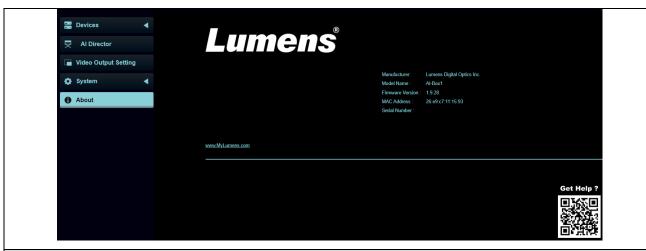


### 3.6.5 System- Settings- Maintenance





#### 3.7 About



#### **Function Descriptions**

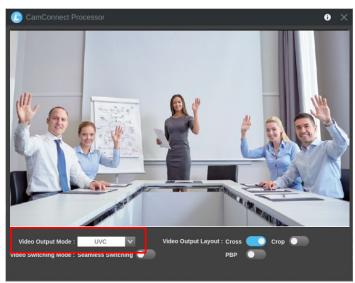
This window displays the version information of Al-Box1.

For technical support, please scan the QR code at the bottom right

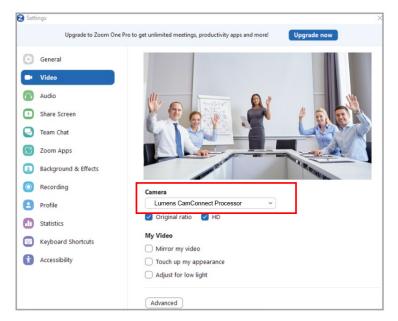


# **Chapter 4 Connect to video conferencing software**

4.1 Set the output mode of Al-Box1 to UVC or HDMI+UVC, then click the Video output button



- 4.2 Launch software (such as Skype, Zoom or Microsoft Teams)
- 4.3 Select CamConnect as the video source
  - Video Source Name: Lumens CamConnect Processor





## **Chatper 5 Microphone Settings**

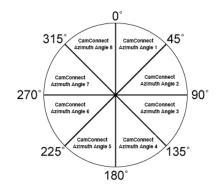
Please check the latest list of supported microphones on the Lumens website.

Below are examples. Compatibility is not limited to these microphones.

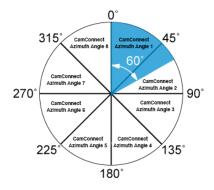
Before installing Al-Box1, third-party microphone systems may require configuration.

#### 5.1 Sennheiser

When using TCC2 with CamConnect, set and configure the channels on the Sennheiser Control Cockpit software first. By default, Sennheiser divide a space into 8 equal parts in a horizontal angle of view. They correspond to CamConnect Azimuth Angle 1 to 8.

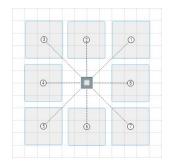


If a blocked area is enabled on the Sennheiser Control Cockpit software, the corresponding position of CamConnect will also be affected. Example: If the blocked area is set to 0° to 60°, the audio signal from 0° to 45° of CamConnect Array Azimuth 1 and 45° to 60° of Array Azimuth 2 will be ignored.

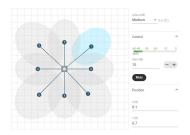


### 5.2 Shure

Suitable for large-area positioning when Shure Designer Automatic coverage is On.



If more accurate positioning is required, disable Automatic coverage, adjust Gain value/Position manually and reduce the beamforming angle, to achieve accurate positioning.





# **Chapter 6 Troubleshooting**

This chapter describes problems you may encounter while using Al-Box1. If a problem still occurs, please contact your distributor or the service center.

NO	Problems	Solutions
1.	Unable to search camera devices	<ol> <li>Check the power supply of camera or PoE power supply is stable.</li> <li>Make sure the cameras are on the same network as the CamConnect Al-Box1.</li> <li>Replace the cables and make sure they are not faulty</li> </ol>
2.	The microphone fails to detect the position of a sound	Please confirm that the microphone device is in Connected status
3.	When using a Sennheiser microphone, there is no response at a specific angle	1.Make sure the Azimuth Angle settings in the CamConnect software include that angle position     2.Check the blocked zones in the Sennheiser Control Cockpit software. Refer to 5 Microphone Settings for details.
4.	When setting camera preset positions, the camera moves when it hears a sound from another direction.	Please refer to <u>2.1 Device Setting</u> to disable voice tracking during the camera set-up process.
5.	Unable to connect camera.	Please access the camera's web interface and go to the Network tab. Make sure Multicast is disabled. When Multicast is opened, the Al-Box1 cannot connect the camera.  RTSP  REQUIRE Password Authentication  RTSP  RTSP URL:rtsp://192.168.4.15:8557/h264  Enable Multicast
6.	Cannot upgrade firmware by OTA.	Please check if you are using static IP.  Turn to DHCP and try update again.



# **Chapter7 System Message**

No	Warning message	Action
1	Microphone cannot be found. Please check Microphone connection status and try to connect again.	Ensure that the microphone's port has been typed correctly and check if the IP address is on the same network as the AI-Box.  You can also refer to the link below from for more information about the setup method with compatible ceiling microphones. <a 3?id2="5&amp;keyword=ai%20box&amp;keyword2=&amp;pageSize=10&amp;ord=&lt;/a" downloads="" en="" href="https://www.mylumens.com/en/Downloads/3?id2=5&amp;keyword=ai%20box&amp;keyword2=&amp;pageSize=10&amp;ord=" https:="" www.mylumens.com=""></a>
2	Connection Loss.	The connection between the Al-box and the microphone has been lost.  Please check if the microphone has been accidentally turned off or if there is another network issue. Refer to 3.1 Device - Microphone Setting to check the microphone's status.
3	Camera connection failure	Check if the camera's resolution and FPS have been configured correctly with the Al Box. Access the camera's webpage to confirm its network connectivity. Refer to 3.2 Device - Camera List to check resolution of Al-Box1.



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