DS-4CU
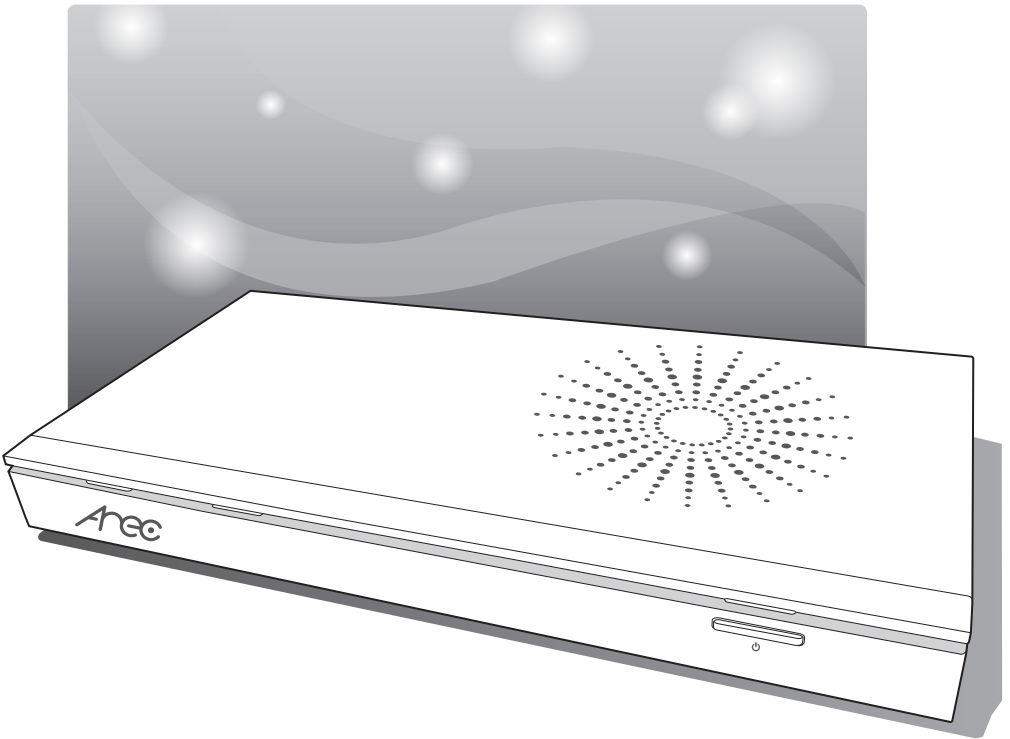## Speaker Tracking Station

Quick Installation Guide │ ENGLISH

FCC

Federal Communication Commission interference statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: -Reorient or relocate the receiving antenna. -Increase the separation between the equipment and receiver. -Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. -Consult the dealer or an experienced radio/TV technician for help.

RF Exposure Warning

The equipment complies with RF exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

FCC Caution

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

> (1) this device may not cause harmful interference and
> (2) this device must accept any interference received, including interference that may cause undesired operation

This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Notice: Any changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

CE

Hereby, AREC Inc., declares that this Media Station is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

CB

CB

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type.

– the ventilation should not be impeded by covering the ventilation openings with items, such as
  newspapers,table-cloths, curtains, etc.:
– no naked flame sources, such as lighted candles, should be placed on the apparatus;
– attention should be drawn to the environmental aspects of battery disposal;
– the use of apparatus in tropical climates.

the instructions for use shall state that the apparatus shall not be exposed to dripping or
splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
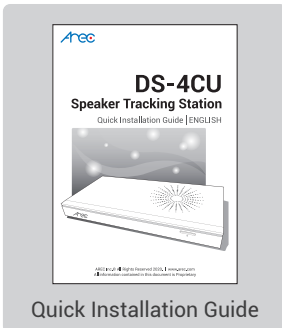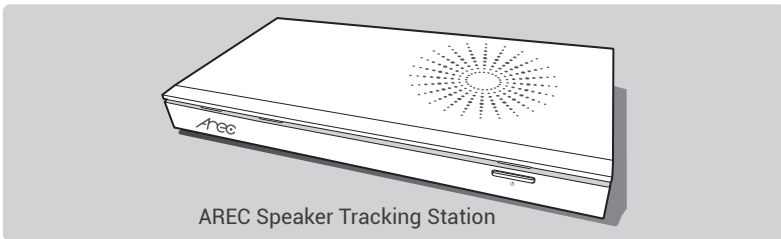
Introduction

Compatible with recommended Conference Microphone System and AREC PTZ Cameras, AREC DS-4CU Speaker Tracking Station enables all of the meeting participants can see the close-up view of the active speaker and a custom graphic together on the local screen clearly. Working with AREC Media Station, all the meeting and discussing content can be recorded completely with auto tracking and auto switching features. The architecture of AREC Speaker Tracking System is simple and can be installed quickly, providing more effective meetings and enhancing user experience.

Specifications

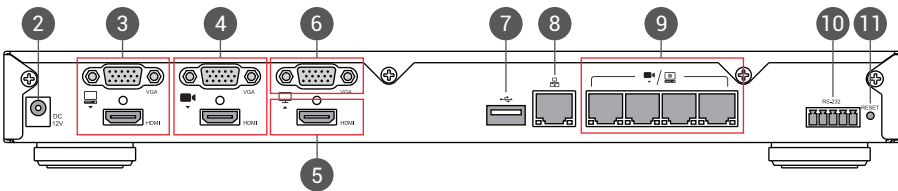| Product Name	Speaker Tracking Station
Model Name	DS-4CU
Dimension	354mm(L) x 188.2mm(W) x 46mm(H)
Weight	1324g
Power Requirement	12V/2A
Power Consumption (Max.)	24W (Max.)
Operating Temperature / Humidity	0ºC ~ 40ºC / 90%
Maximum normal load description	Insert 3 IP CAM to LAN port and insert 1 video signal (either HDMI or VGA input). And output the transcoded video to both HDMI and VGA port.

Package Contents

AREC Speaker Tracking Station
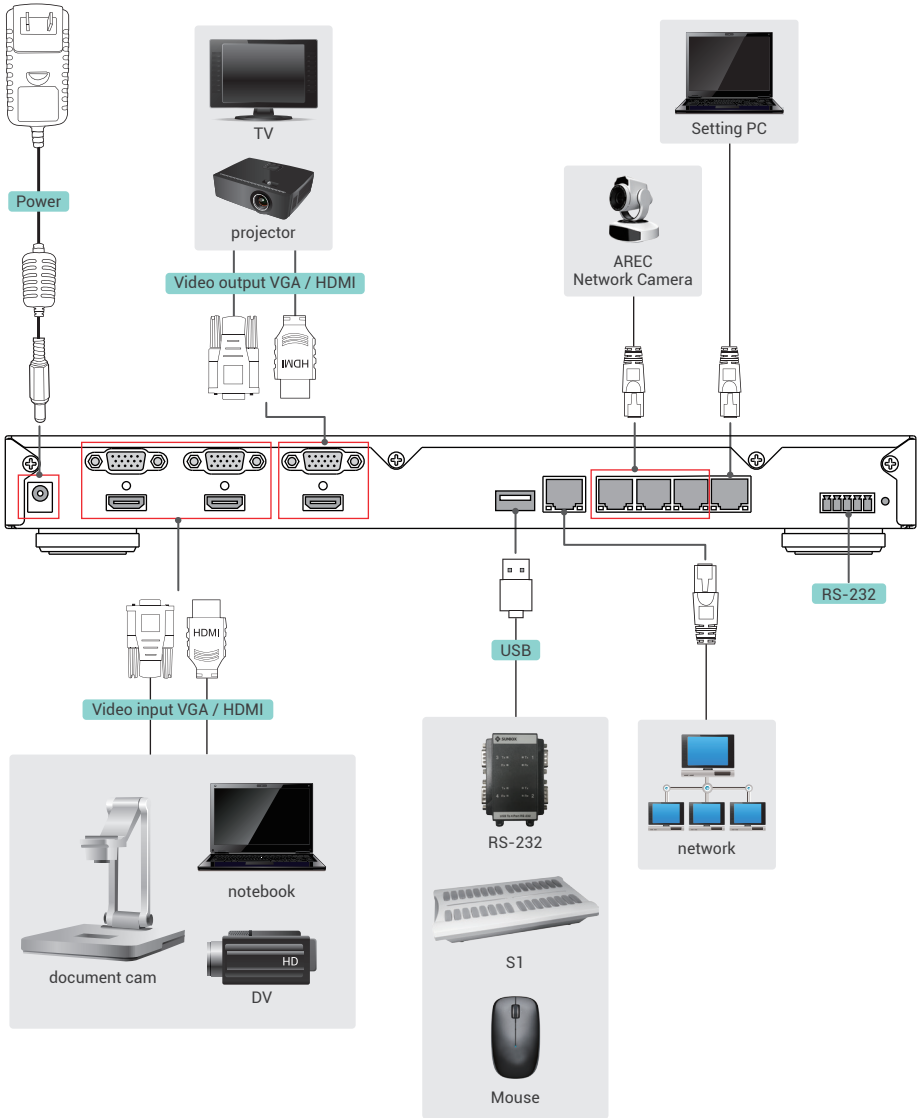

Quick Installation Guide

Power Adapter


Terminal Block

3
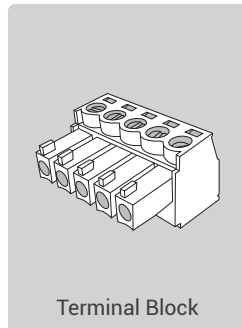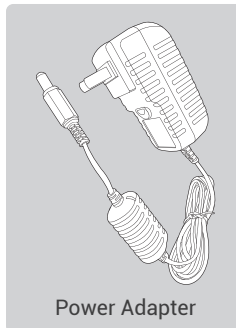
Product Appearance

■ Front Panel

■ Rear Panel

NO.	Name	Brief introduction
1	Power	Power on/off the device
2	Power port	12V/ 2A
3	Video input	VGA/ HDMI input source for PC [🖳]
4	Video input	VGA/ HDMI input source for camera [🎥]
5	Video output	Monitor input sources
6	Video output	Preview with On-screen menu
7	Back USB port	1. Control external devices via USB to RS-232 converter 2. Connect the mouse to control the menu 3. Connect to AREC S1
8	Network port	RJ-45 Ethernet connector for network connection
9	Network camera input or device setting	1. RJ-45 Ethernet connector for network camera input source 2. RJ-45 Ethernet connector for device configuration and control
10	RS-232	Captive screw connector for control over RS-232
11	Reset button	Restoring devices to its factory default state

Connection

TV

projector

Video output VGA / HDMI

Power

HDMI

Setting PC

AREC
Network Camera

RS-232

USB

Video input VGA / HDMI

HDMI

notebook

document cam

DV
HD

RS-232

S1

Mouse

network

Accessing the Administrator pages

Connect PC to the setting port of Media Station with standard network cable.Open up the browser, and input 192.168.11.254 in the broswer page. Log in Administrator ⚙ with default username admin and password admin, then entering System Administration webpages.
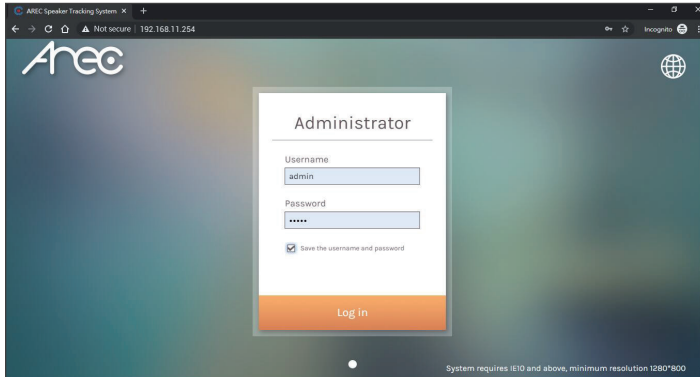

Setup

Step 1: Set up video input name, video source, PTZ control in [Video inputs] of [Media I/O]. The Capture source can be the video port [🖵] and [📹] with option VGA or HDMI. If only one of the latter is connected, the system would detect and automatically switch to source of signal. If both options are connected, set the capture priority between those.
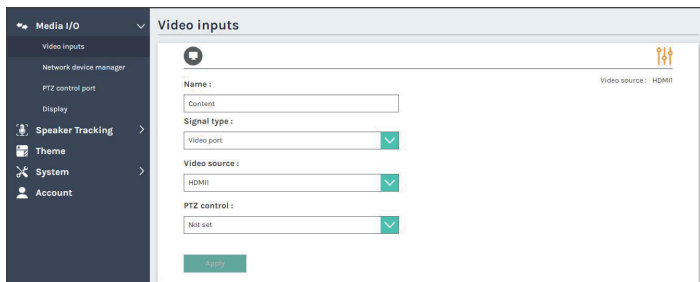
If the desired video source is network camera, a login authentication with the camera is required firstly in the [Network device manager] setup tab of [Media I/O].
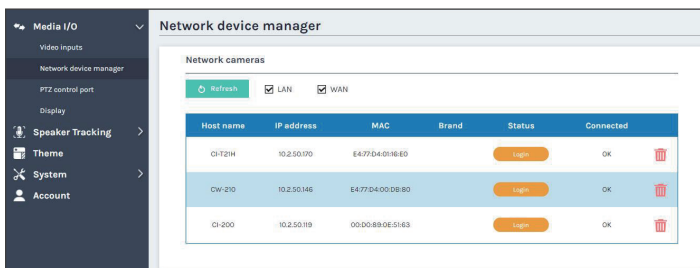
The system automatically scans and lists the network cameras connected to the Media Station once entering the [Network device manager] page. You may click Refresh button to scan again. Click Login button and the login authentication dialog pop out. Enter the username and password of the camera to complete the authenticationand change the status to [OK]. Then the camera is ready for video input selection. Select the desired camera by its IP address. For video source of encoder, enter RTSP or RTP connection URL.

Name :
Cam 2

Signal type :
Encoder

Protocol :
RTSP

Primary URL :
192.168.11.202/h264

Secondary URL :

PTZ control :
Not set

Apply

Step 2: Set up the camera's automatic tracking in [Speaker Tracking \ Camera control] page.

Camera control

Camera control

+ Add

Group	ID	Video inputs (Preset)	Overlay	Layout	Background	Ext. Recorder Theme			
0	1	Content(1)	1	1	0	2	👁	📝	🗑
0	2	Content(2)	2	1	0	2	👁	📝	🗑
0	3	Content(3)	3	1	0	2	👁	📝	🗑
0	4	Content(4)	4	1	0	2	👁	📝	🗑

Media I/O
Speaker Tracking
  Control settings
  Camera control
  External device control
Theme
System
Account

Step 3: Set up date and time of host machine in [System settings] of [System].

System settings

Device identification

Hostname :   Hostname follows RFC-952 internet host table specification.
DS-4CU

Device description :
DS-4CU

Brand :
AREC Inc.

Model :
DS-4CU

Serial number :

MAC :
84:7E:40:ED:80:46

Media I/O
Speaker Tracking
Theme
System
  System settings
  Network
  Firmware
  Configuration
Account

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS

Important Security Policy

■ Precautions

1. Please open the product package carefully; we commend you keep this packaging for future transport, storage or maintenance use.
2. There are no switches or adjustment buttons required for operation inside this product, so for your safety, please do not open the casing on your own, or vigorously rotate, shake or use any other inappropriate ways to operate this product in order to avoid electrical shocks and voiding the warranty. You can contact a local dealer directly if you have any questions.
3. Heat will be generated during the use of this product; therefore there must be sufficient ventilation for the temperature of the unit to remain at a stable status. So please use the product under normal environments to prolong the usage life, and avoid installing it in the following environments.
   - Locations that are unstable or have incomplete planes
   - Locations with powerful magnetic fields
   - Locations where it is damp or may have water leakage
   - Locations that are too hot, close to heaters and air hoses, or be exposed to direct sun light for long periods of time
   - Locations that are dusty
   - Locations where there are possible shocks
   - Locations close to power amplifiers
4. If you notice smoke or odor coming from the product, please quickly remove the power cable and send it to a maintenance center for processing.
5. To avoid electrical shock, the plug of the adapter should be stably and completely inserted into the power outlet and cannot be exposed; it must also have sufficient capacity to withstand the current transmission. Please do not plug the adapter into the power outlet before connecting the cable in order to avoid danger.
6. If not used for long periods of time, please unplug the power plug, and to ensure electrical s afety, when unplugging the adapter, please hold the plastic part of the adapter with dry hands and then unplug the adapter. Please properly connect the cables according to the printed instructions on the installation manual and the machine to ensure optimized usage effects.

Made in Taiwan
Date : 2020.1.1
Version : 6.0

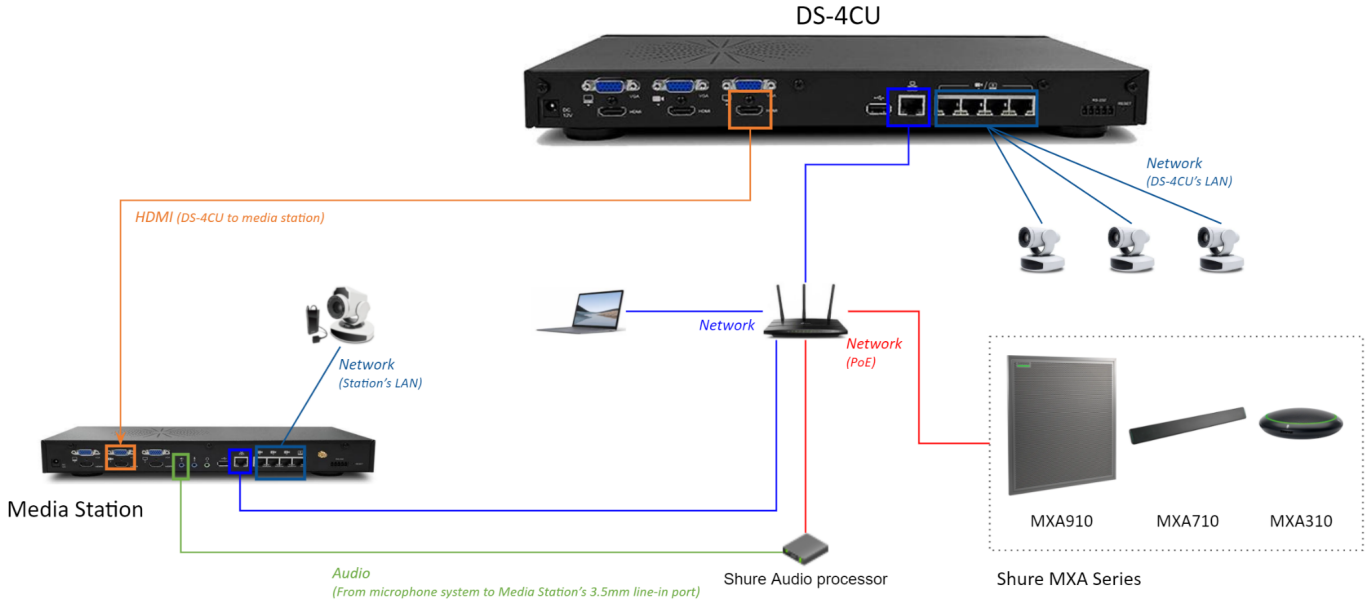# Speaker Tracking System

DS-4CU

Description

DS-4CU is a device that helps to communicate between the microphone system and PTZ camera to provide a close-up view of the active speaker in a meeting/conference room.

It synchronizes the microphone system's status(active microphones' ID) and controls the camera to move to the corresponded speaker by the preset position with the preferred layout, overlay, and background.

When paired with an AREC media station, It could also control the station's theme when a microphone is activated/deactivated.

Installation

Connection

DS-4CU

Network
(DS-4CU's LAN)

HDMI (DS-4CU to media station)

Network
(Station's LAN)

Network

Network
(PoE)

Media Station

MXA910   MXA710   MXA310

Audio
(From microphone system to Media Station's 3.5mm line-in port)

Shure Audio processor

Shure MXA Series

Configuration

Video Inputs - Camera Setup

DS-4CU supports cameras with different video output interfaces (**HDMI** / **VGA** / **Network cameras**(**ONVIF** protocol) / IP streams: **RTSP**(Network Cameras) / **RTMP** / **RTP**).
The following guide gives an example of the commonly used ONVIF protocol of network cameras.

Register Camera

1. Make sure the cameras are correctly connected. And go to DS-4CU web Admin page → Media I/O → Network device manage → Network cameras

2. Click [🔄 Refresh]
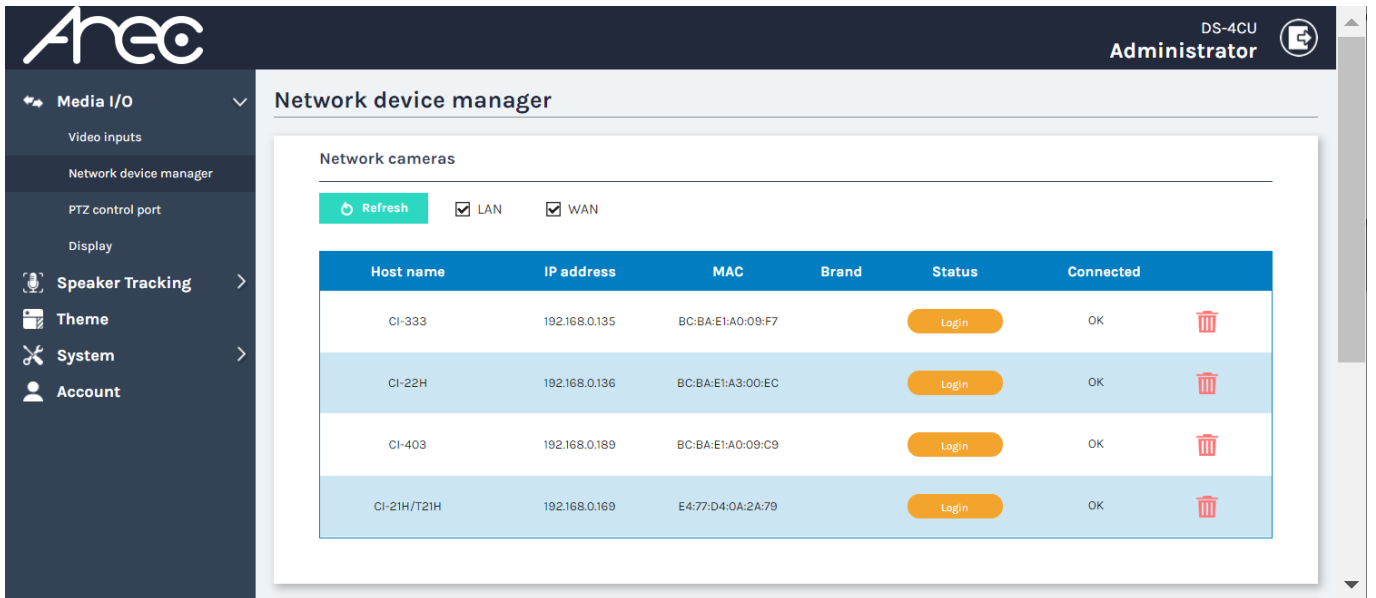
3. Click [Login], insert the username and password, and click [Authentication] to register the camera
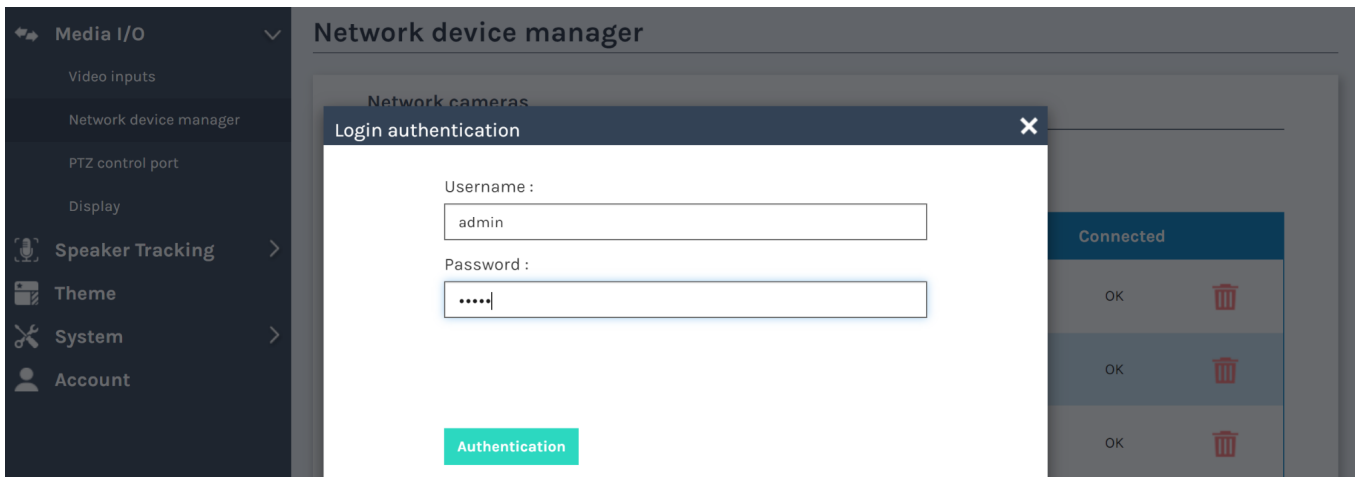
4. Repeat the last step if more cameras are needed
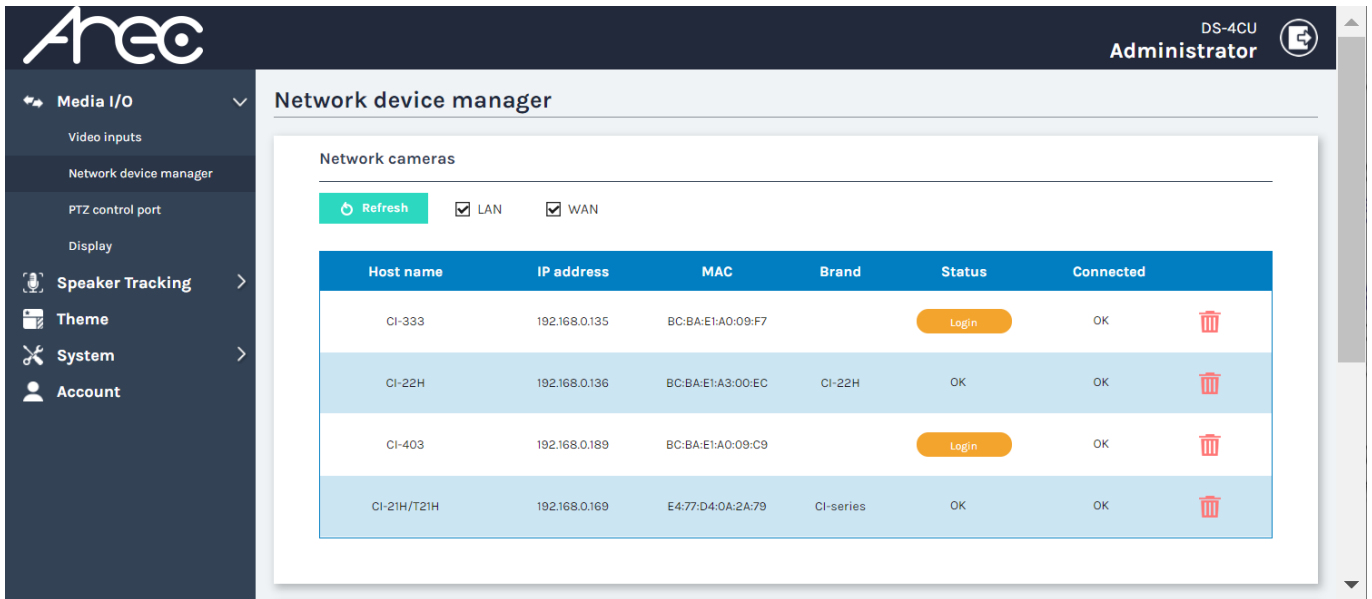
*Note: If your camera doesn't support Onvif protocol, it cannot be found by camera search on DS4CU. Please go to the Video input page and select "Signal type" to "Encoder" in the "Video Inputs" and fill in the stream URL of your camera.

**Note: DS-4CU supports IP stream profile: H264, 1920x1080, 30 FPS, Bitrate 4Mbps.

Assign cameras to video inputs

DS-4CU could be connected to up to 4 video input sources; they could be either HDMI/VGA/IP camera/encoder(stream sources: RTP/RTSP/RTMP).
Note: HDMI/VGA only available in 1st and 2nd Video input

1. Go to web admin → Media I/O → Video inputs.

2. In the preferred video input section,
   (1) select "Network Camera" in Signal type,
   (2) select the IP address of the camera,
   (3) select "over IP (ONVIF)" for PTZ control,
   (4) and click **Apply**
   Repeat the steps above to add all necessary cameras.

Connect to the microphone system

1. Retrieve the Conference System's IP.

2. Go to DS-4CU's web Admin page → Speaker Tracking → Control settings
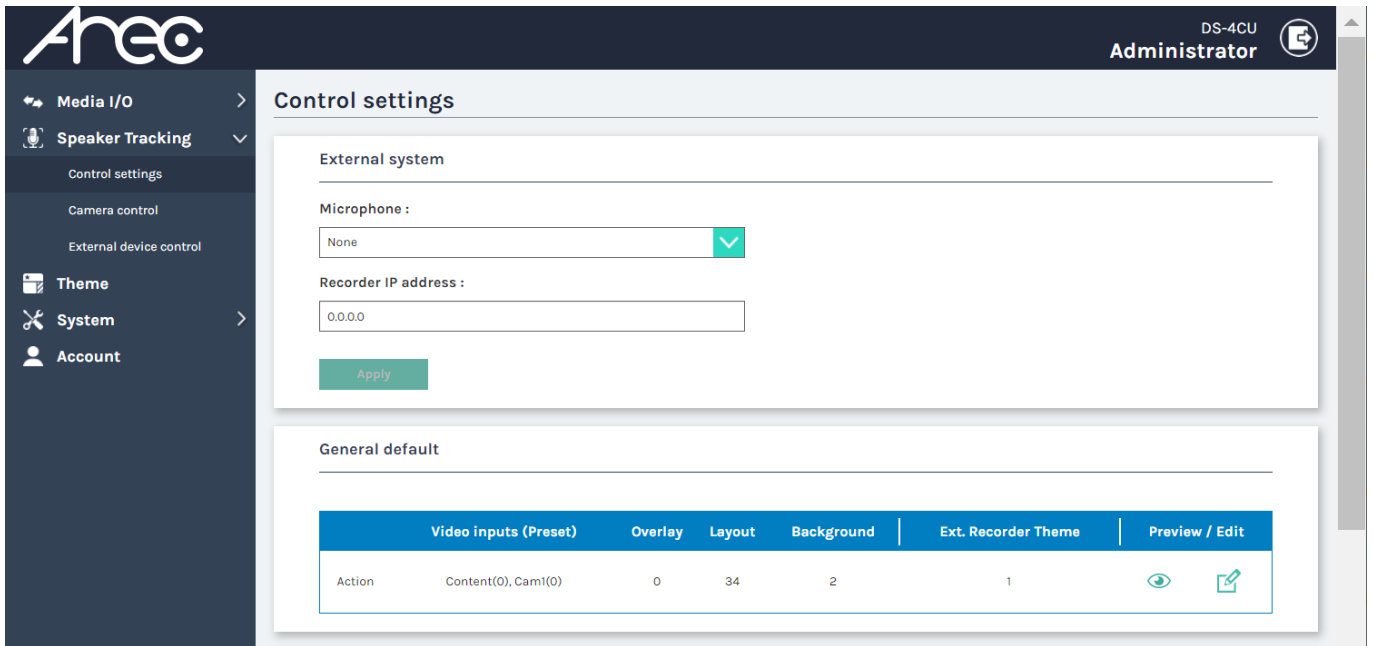
3. Find the External system section and select the corresponding microphone.
   Insert the microphone system's IP and click Apply.
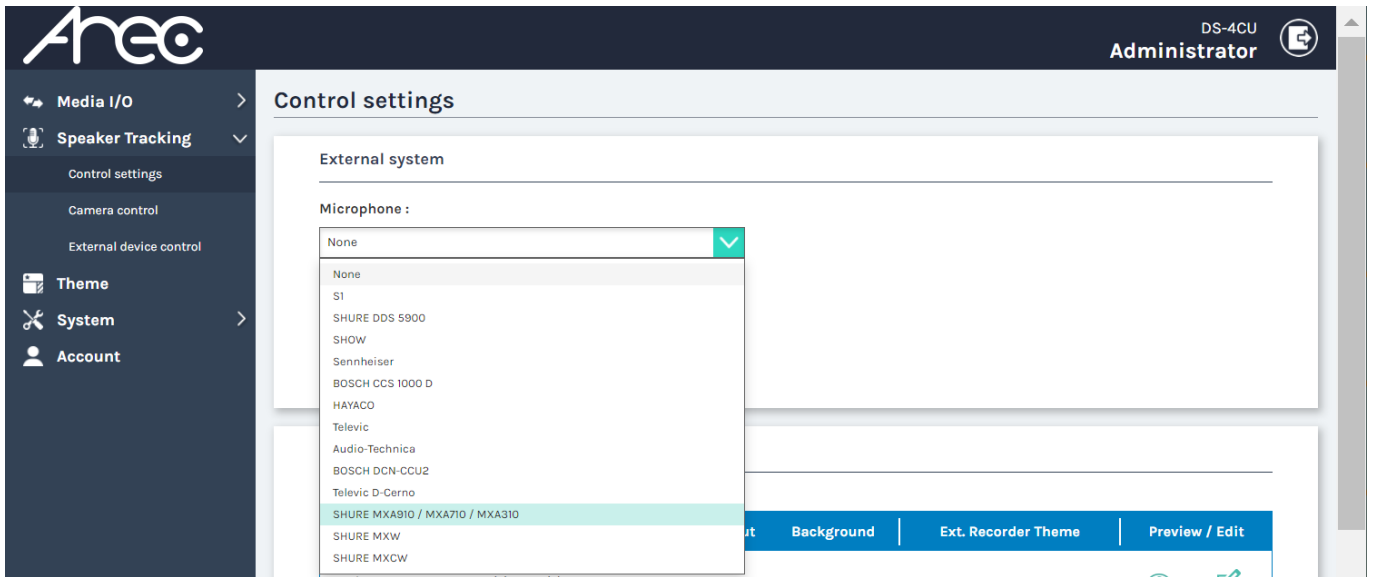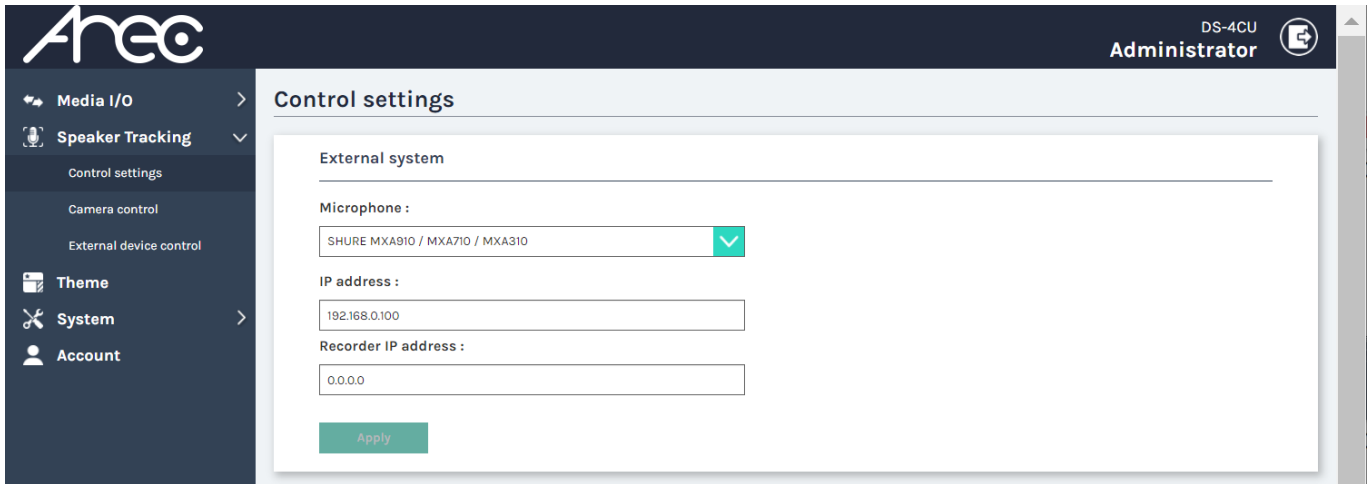
4. Go to the display's graphic user interface and click the Info button in the bottom-right corner.
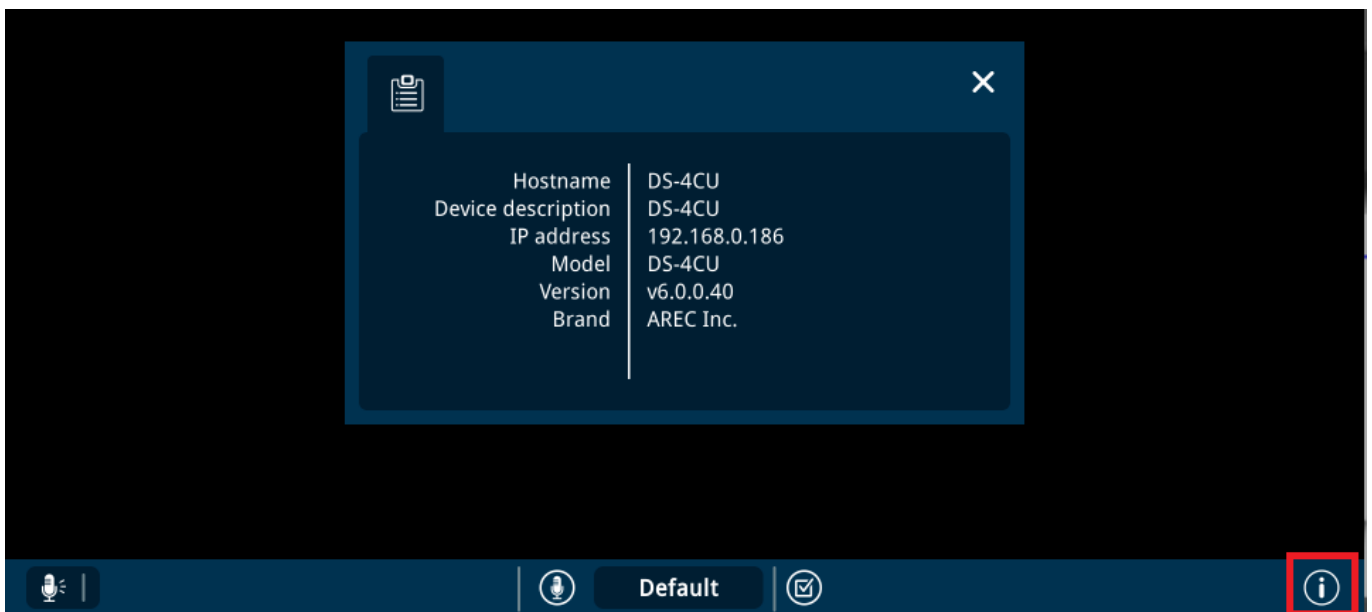
5. To ensure the connection between DS-4CU and the microphone was successfully set, activate any microphone to see if any string was shown like the image below.

Please see if there is any string (#-#) showed in either of these two places, when a microphone was activated.
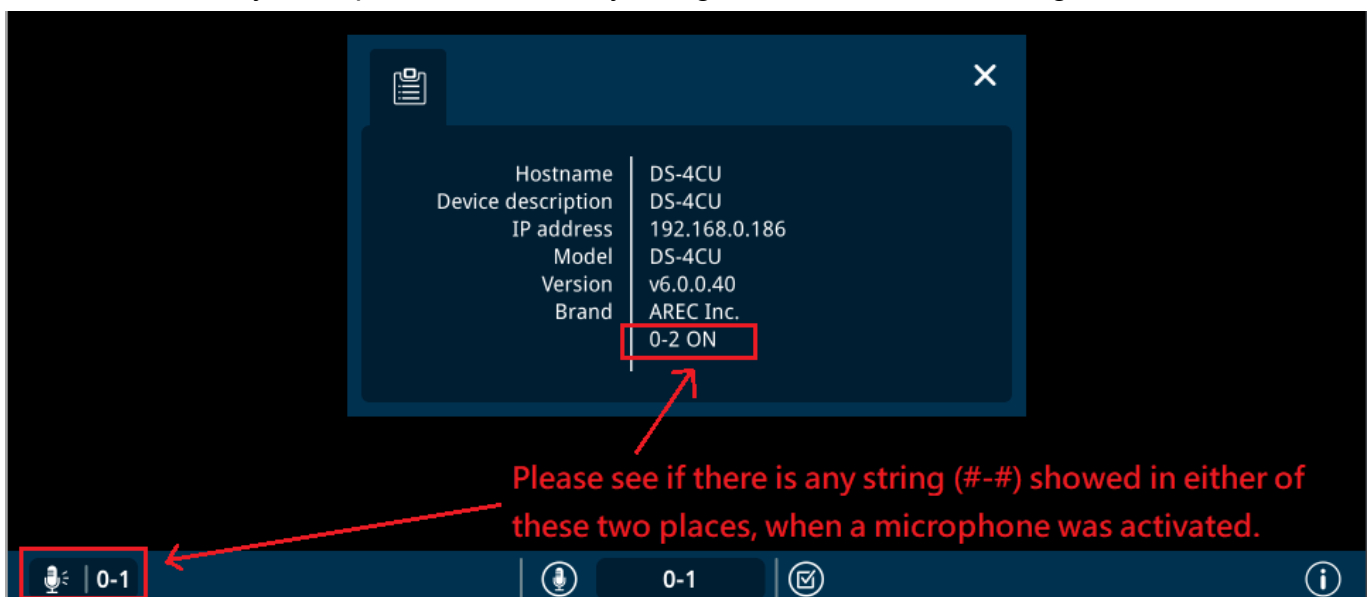
Control settings - General default

This configuration defines how the image should be displayed when there is no microphone activated.

1. Go to DS-4CU's web Admin page → Speaker Tracking → Control settings, and find the **General default**
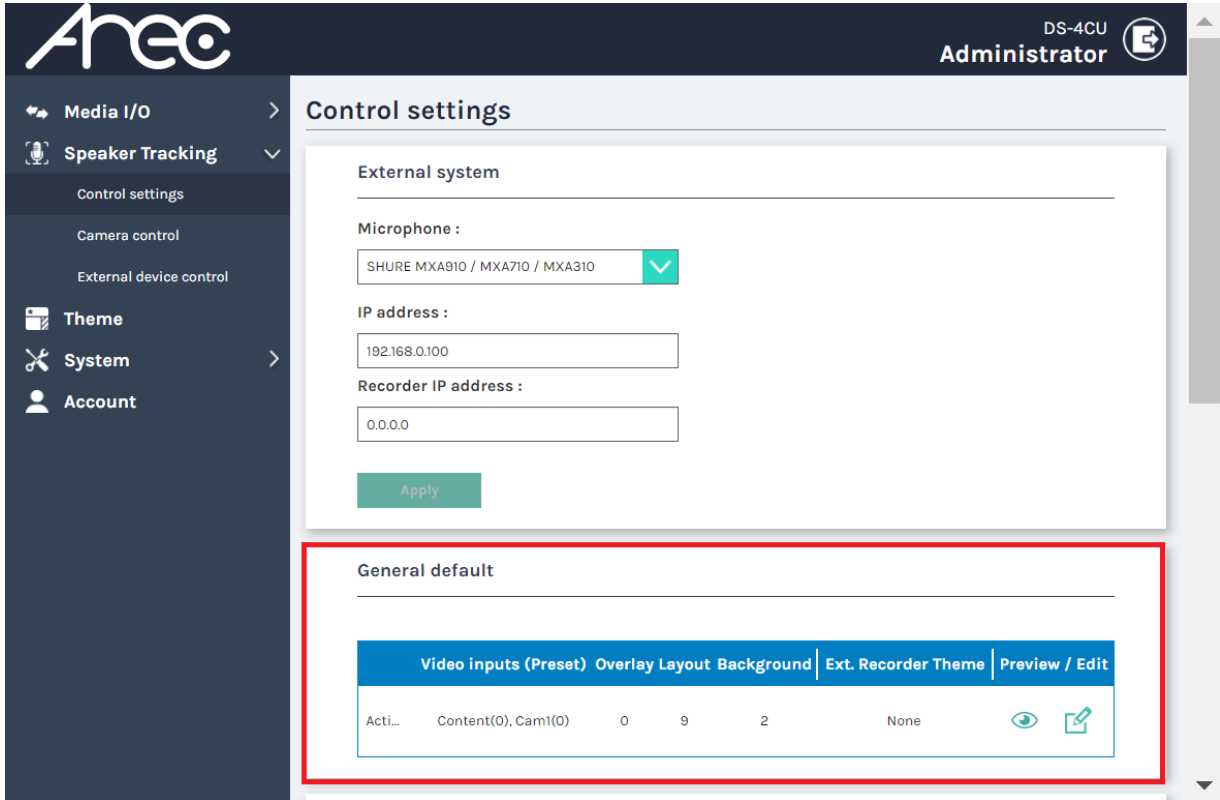
2. Click the edit button ✏️ to edit the theme of general default(no microphone activated). And click [Apply].

Parameter	Description	Range
Content Preset	Preset Position of the camera that set as **1st video input** source	-1 ~ 255, -1 = OFF
Cam1 Preset	Preset Position of the camera that set as **2nd video input** source	-1 ~ 255, -1 = OFF
Cam2 Preset	Preset Position of the camera that set as **3rd video input** source	-1 ~ 255, -1 = OFF
Cam3 Preset	Preset Position of the camera that set as **4th video input** source	-1 ~ 255, -1 = OFF
Overlay	Overlay ID	0 ~ 255, 0 = no overlay
Layout	Layout ID	1 ~ 255
Background	Background ID	0 ~ 255, 0 = no background
Ext. Recorder Theme	Paired AREC media station Theme ID	as the drop-down list defines *Auto: DS-4CU saves the last theme ID of the media station before any microphone is activated, and returns to this theme when all mics are OFF.
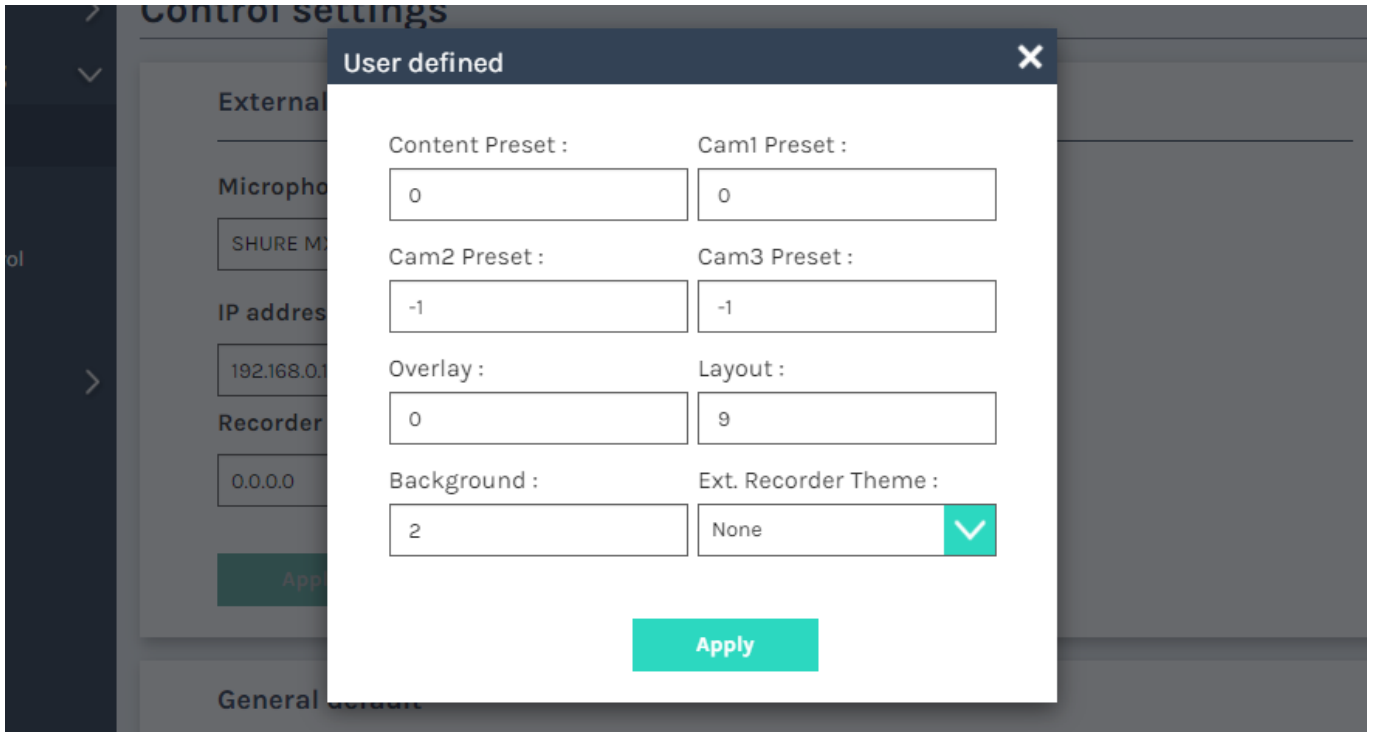
3. Click 👁 to preview the theme setting

Camera Control

This configuration defines how the image should be displayed when a single microphone is activated.
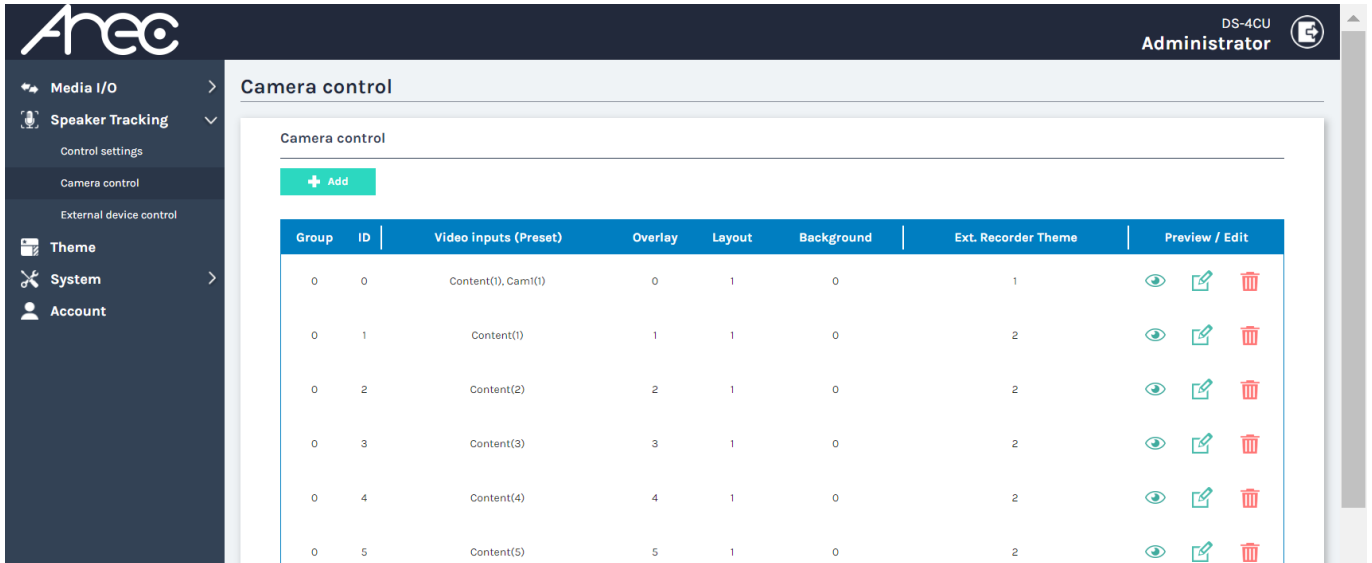
*Note: For most conference models, the **Group** on this page should always be set at **0**. Currently, only the SHOW conference system and S1 support multiple groups.*
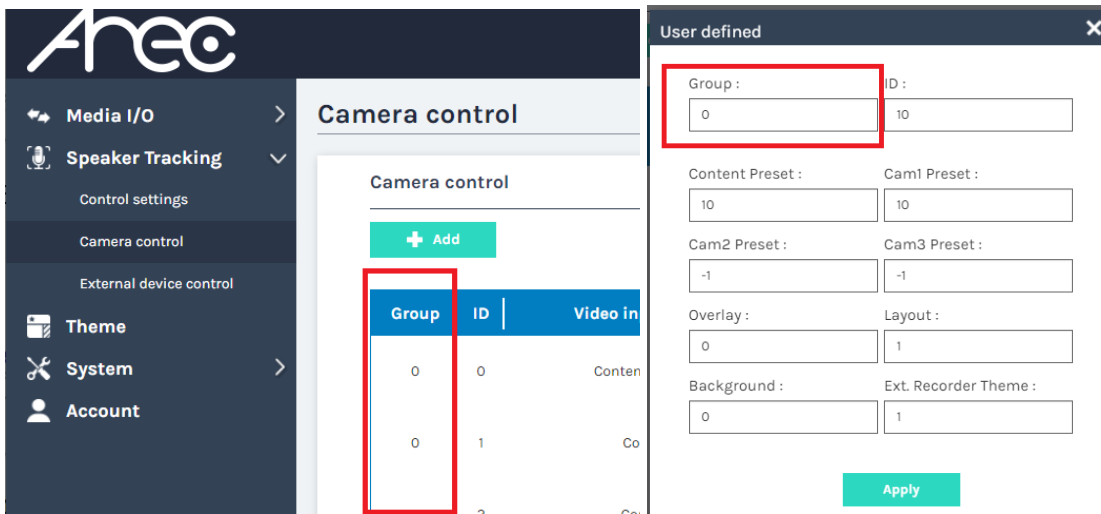
1. Go to DS-4CU's web Admin page → Speaker Tracking → Camera control

2. Click [+ Add] or the edit button to edit the theme of each microphone, and click [Apply].

Parameter	Description	Range
Group	Microphone group defined by microphone system	0 ~ 255, *Only effective on SHOW and S1; Other microphone systems should always be set at 0.
ID	the ID number microphone system	digits, characters, or combination of them

Content Preset	Preset Position of the camera that set as **1st video input** source	-1 ~ 255, -1 = OFF
Cam1 Preset	Preset Position of the camera that set as **2nd video input** source	-1 ~ 255, -1 = OFF
Cam2 Preset	Preset Position of the camera that set as **3rd video input** source	-1 ~ 255, -1 = OFF
Cam3 Preset	Preset Position of the camera that set as **4th video input** source	-1 ~ 255, -1 = OFF
Overlay	Overlay ID	0 ~ 255, 0 = no overlay
Layout	Layout ID	1 ~ 255
Background	Background ID	0 ~ 255, 0 = no background
Ext. Recorder Theme	Paired AREC media station Theme ID	-1 & 1 ~ 255, -1 = OFF

3. Click 👁 to preview the theme setting

Control settings - Speaker action settings

This configuration defines the rule of how DS-4CU applies themes when multiple microphones are activated.

There are three modes defines as follows:
- **Multiple speaker**:
  DS-4CU always applies to the same single theme set in *General - Multiple speaker.*
- **Single speaker - Override**:
  DS-4CU applies the theme of the latest activated microphone.
- **Single speaker - FIFO**:
  DS-4CU applies the theme of the earliest activated microphone.

Set Mode of Speaker action settings

1. Go to DS-4CU's web Admin page → Speaker Tracking → Control settings, scroll down and find the **Speaker action settings**

2. Select the mode and click [Apply].

Theme configuration for Multiple speaker mode

There's no extra setting needed for "Single speaker - Override" and "Single speaker - FIFO". However, for the "**Multiple speaker**" mode, users need to set up the theme to be applied when multiple microphones are activated.

1. Go to DS-4CU's web Admin page → Speaker Tracking → Control settings, scroll down and find the **General - Multiple speaker**

2. Click the edit button to edit the theme of general default(no microphone activated). And click [Apply].

Theme - Overlay / Background / Layout

Find the current Overlay / Background / Layout ID number

1. Go to web admin → Theme

2. The number above each image is the ID number of the overlay/background/layout.