



Speaker Tracking System

DS-4CU

Description

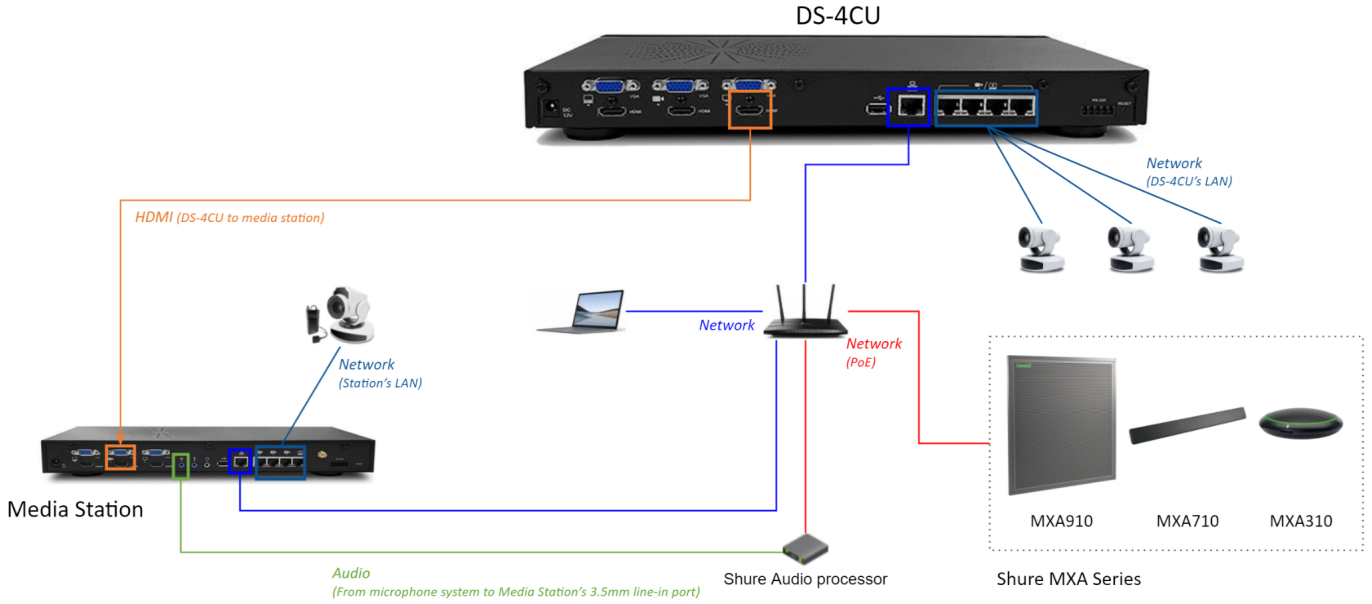
DS-4CU is a device that helps to communicate between the microphone system and PTZ camera to provide a close-up view of the active speaker in a meeting/conference room.

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



Configuration

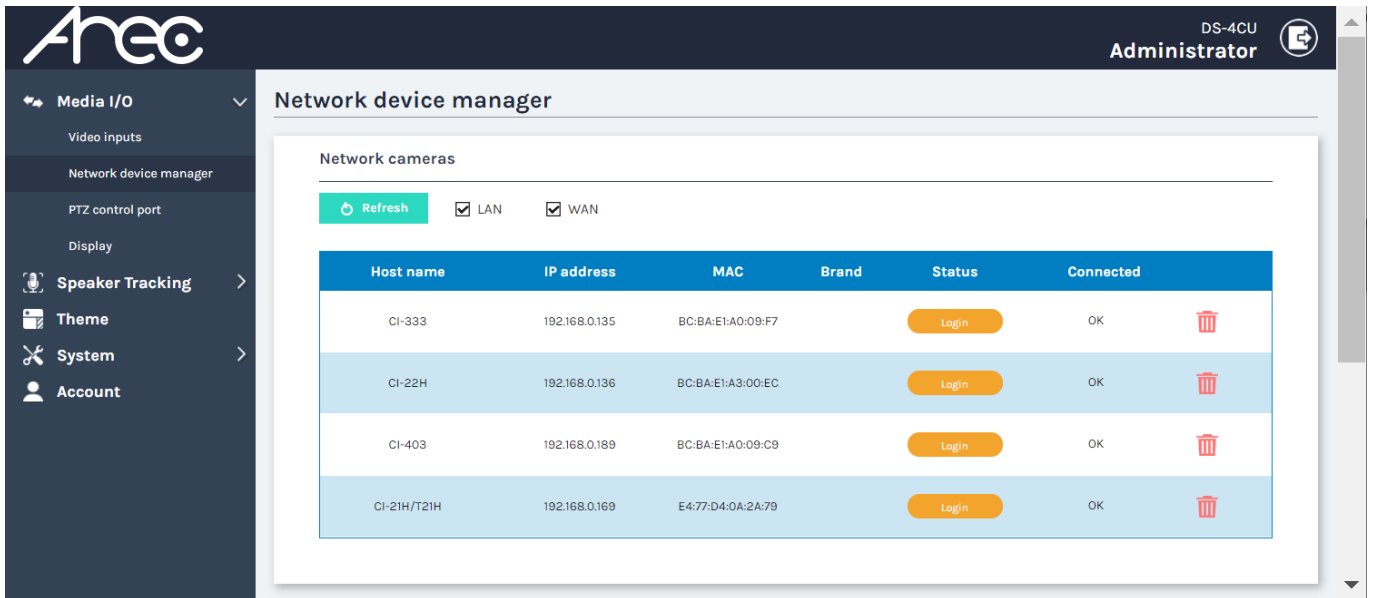
Video Inputs - Camera Setup

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.

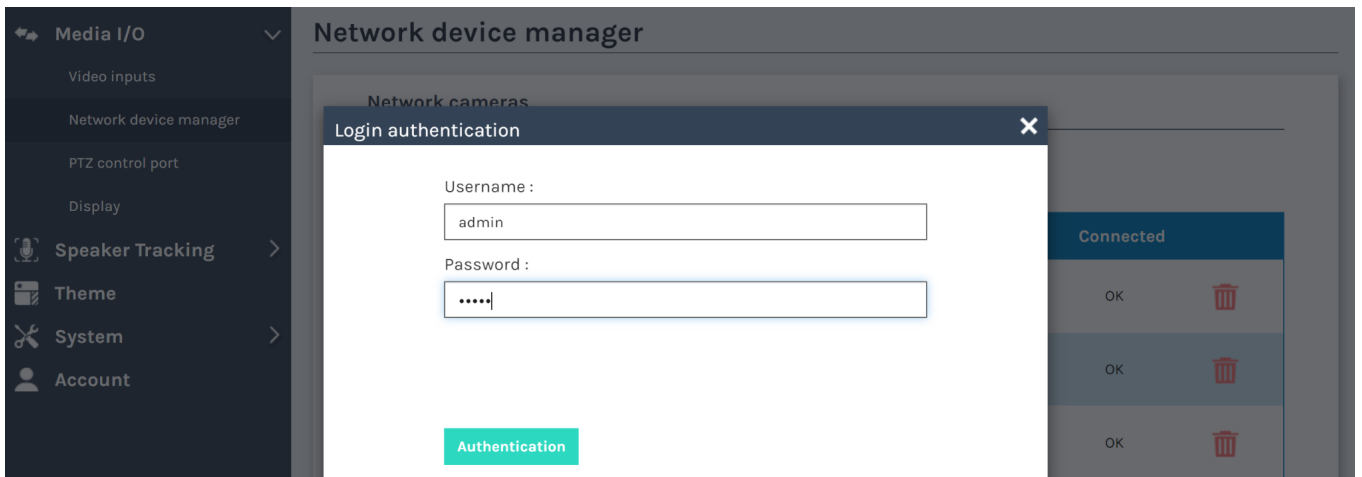
Register Camera

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

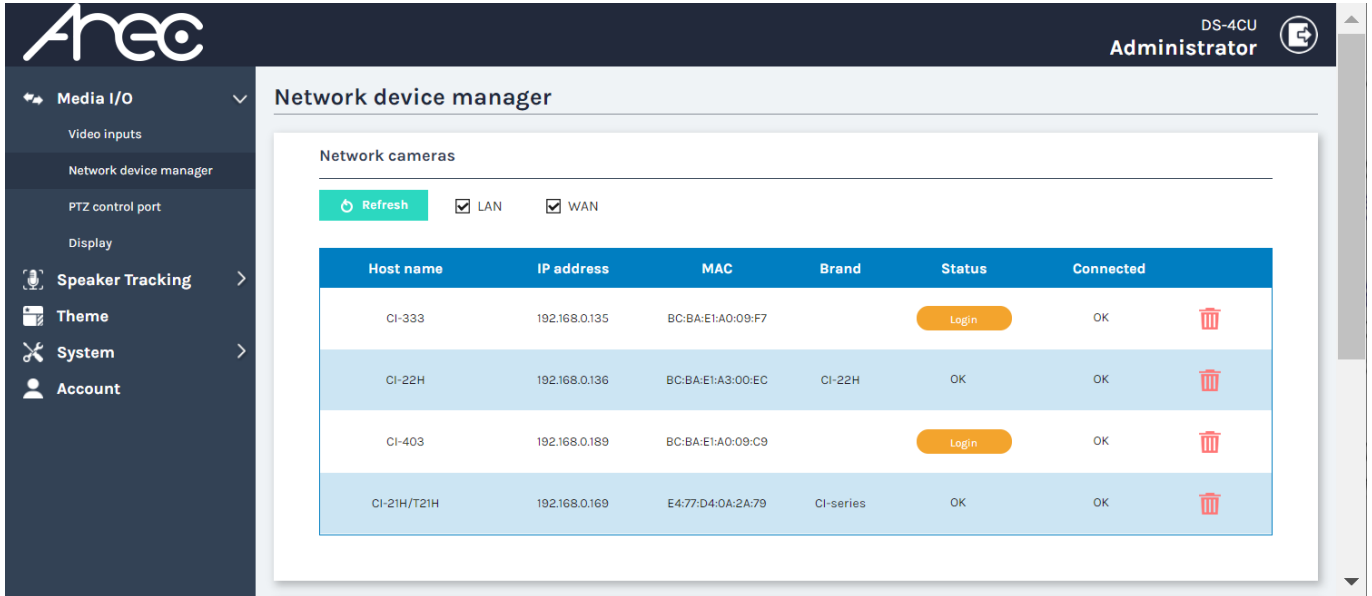


2. Click

3. Click , insert the username and password, and click 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.

The screenshot displays the 'Video inputs' configuration page in the Arec web admin interface. The interface includes a sidebar with navigation options and a main content area with four configuration panels. Each panel is labeled with a number and a color-coded title:

- 1st Video input (Red border):** Name: Content, Signal type: Video port, Video source: HDMI, PTZ control: Not set.
- 2nd Video input (Blue border):** Name: Cam1, Signal type: Video port, Video source: HDMI2, PTZ control: Not set.
- 3rd Video input (Yellow border):** Name: Cam2, Signal type: None, Video source: Not set, PTZ control: Not set.
- 4th Video input (Green border):** Name: Cam3, Signal type: None, Video source: Not set, PTZ control: Not set.

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.

The screenshot displays the 'Video inputs' configuration page in the AREC web interface. The interface includes a sidebar with navigation options and a main content area with three camera configuration cards. A green notification bar at the top right indicates 'Applied successfully'.

Card 1 (Unnumbered):

- Name: Content
- Signal type: Network Camera
- IP address: 192.168.0.169(CI-21H/T21H)Connected
- PTZ control: Over IP (ONVIF)
- Video source: 192.168.0.169

Card 2 (Numbered 1):

- Name: Cam1
- Signal type: Network Camera
- IP address: 192.168.0.136(CI-22H)Connected
- PTZ control: Over IP (ONVIF)
- Video source: 192.168.0.136

Card 3 (Numbered 2):

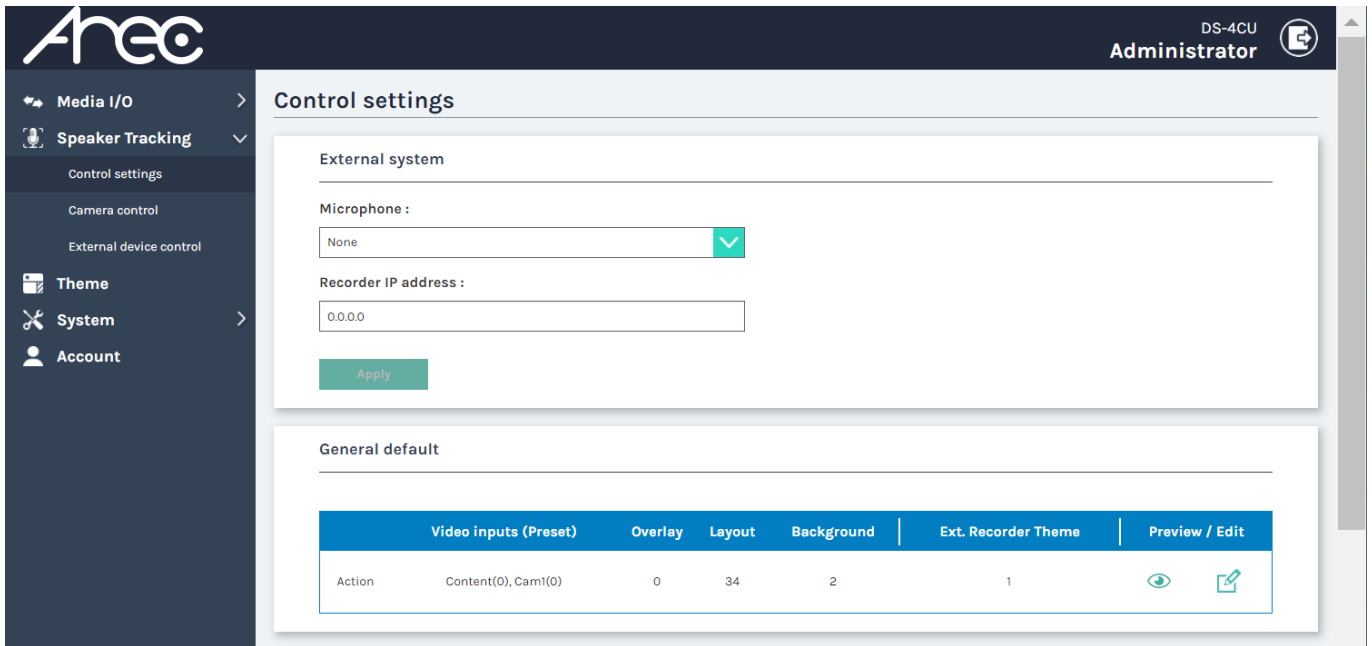
- Name: Cam2
- Signal type: None
- PTZ control: Over IP (ONVIF)
- Video source: Not set

Card 4 (Numbered 3):

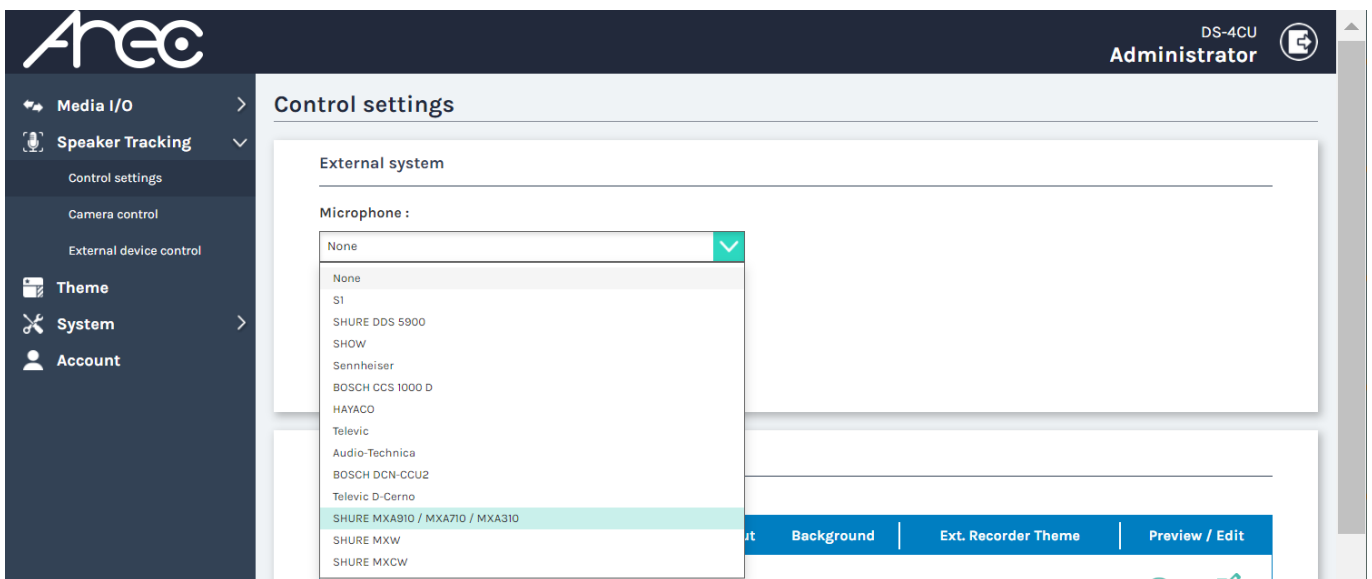
- Name: Cam3
- Signal type: None
- PTZ control: Over IP (ONVIF)
- Video source: Not set

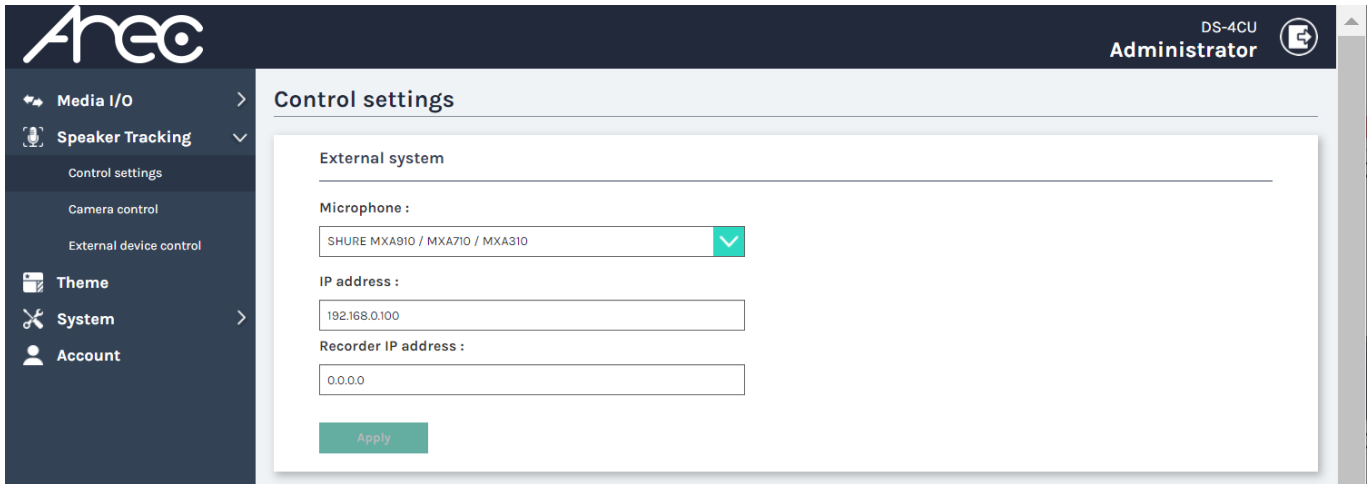
Connect to the microphone system

- Retrieve the Shure's Microphone's IP. For different Shure series:
 - MXA Series:
The IP of **MXA910 / MXA710 / MXA310**
 - MXCW Series:
The IP of the APT(Access Point Transceiver), which is **MXCWAPT**
 - MXW Series:
The IP of the APT(Access Point Transceiver), which is either an **MXWAPT8**, **MXWAPT4**, or **MXWAPT2**.
- Go to DS-4CU's web Admin page → Speaker Tracking → Control settings

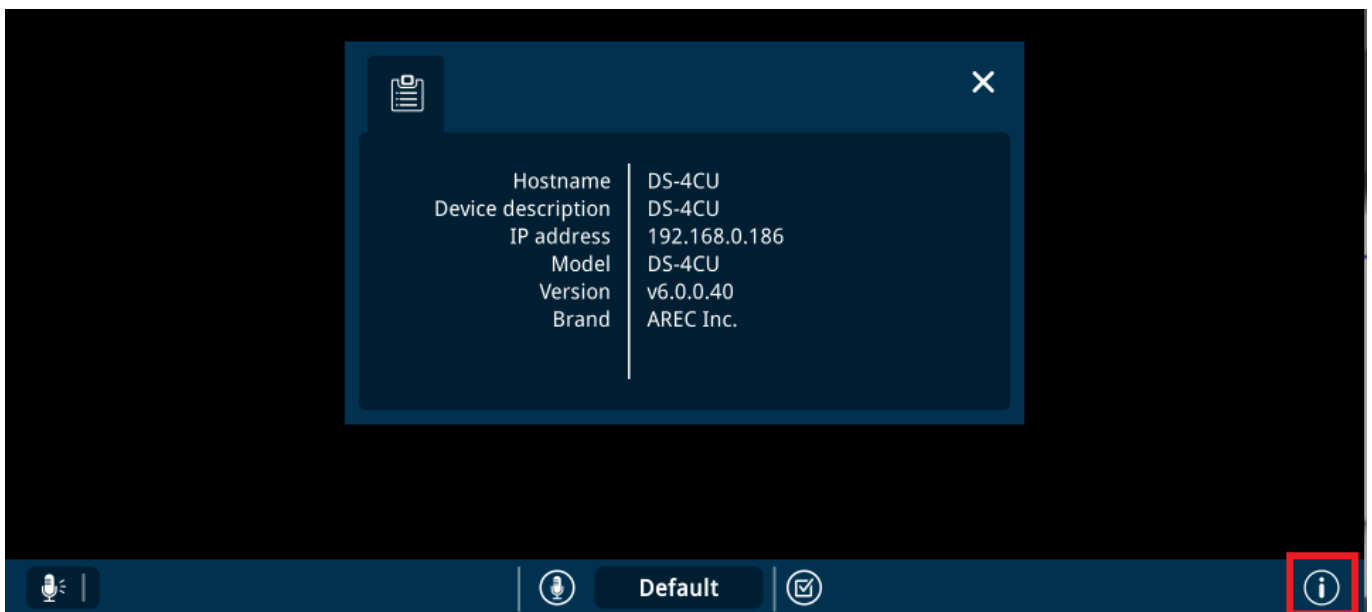


- Find the External system section and select the corresponding microphone. Insert the microphone system's IP and click Apply.

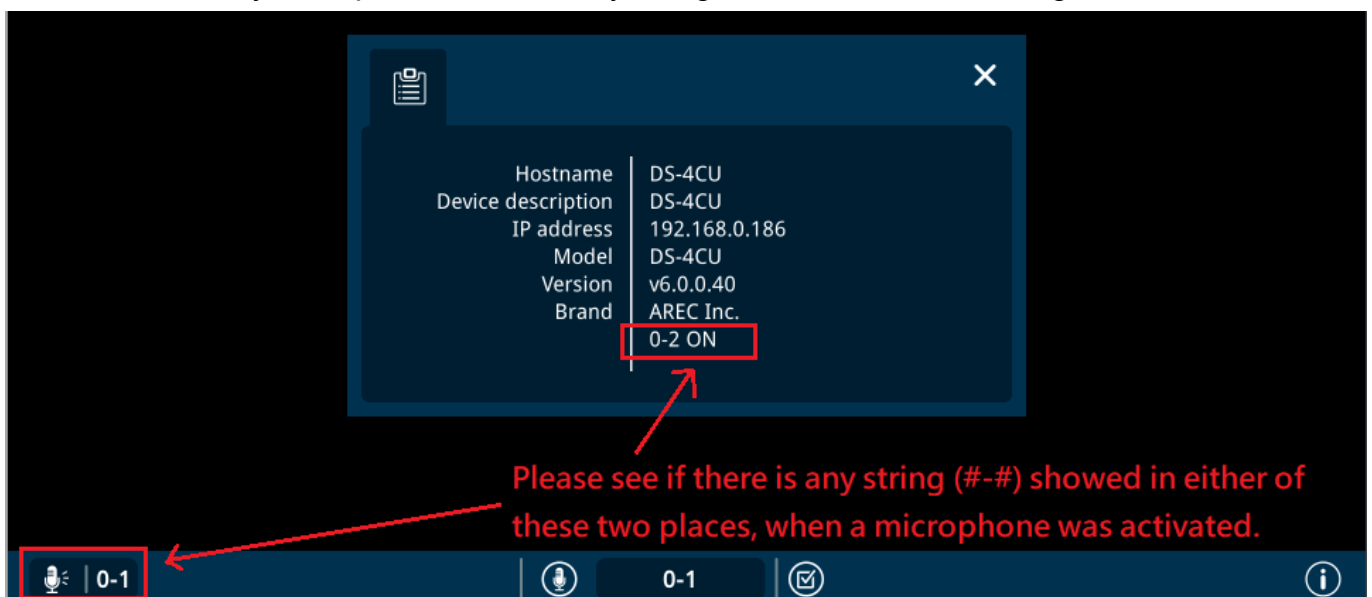




- Go to the display's graphic user interface and click the Info button in the bottom-right corner.



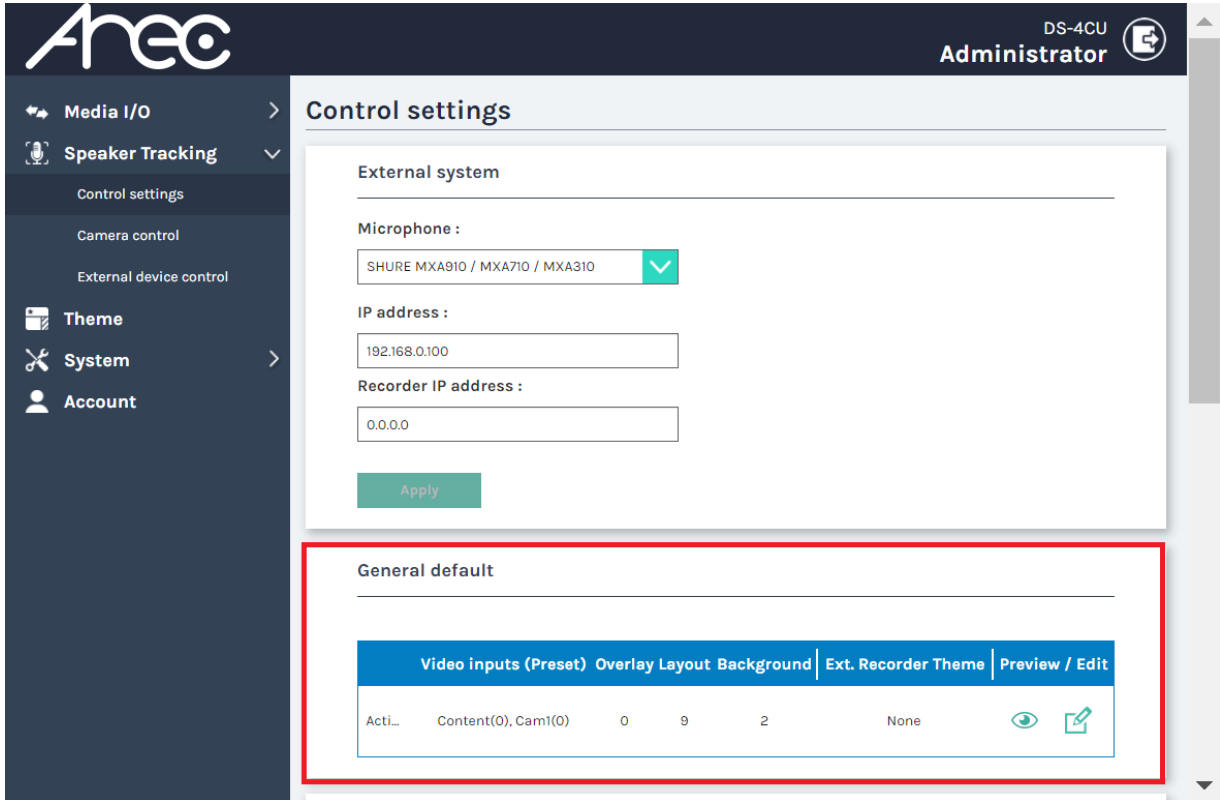
- To ensure the connection between DS-4CU and the microphone was successfully set, activate any microphone to see if any string was shown like the image below.




Control settings - General default

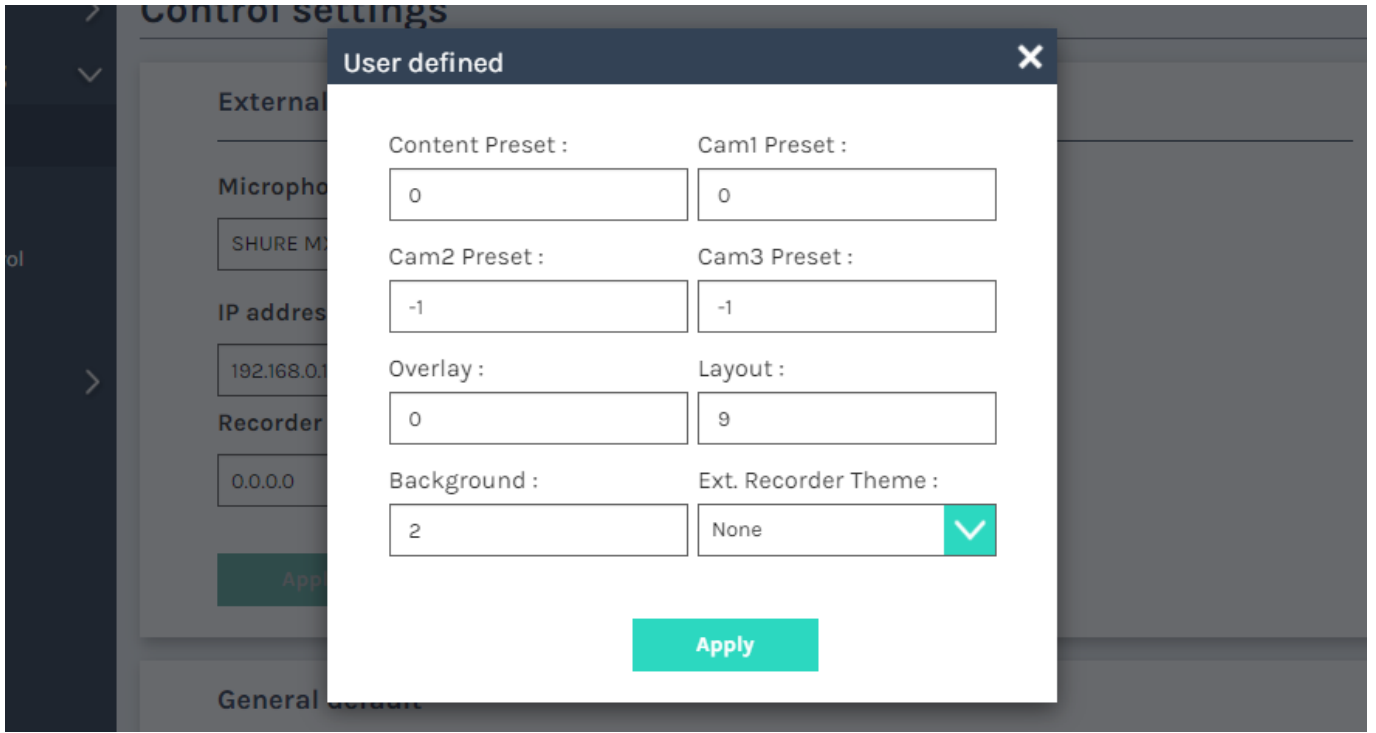
This configuration defines how the image should be displayed when there is no microphone activated.

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].

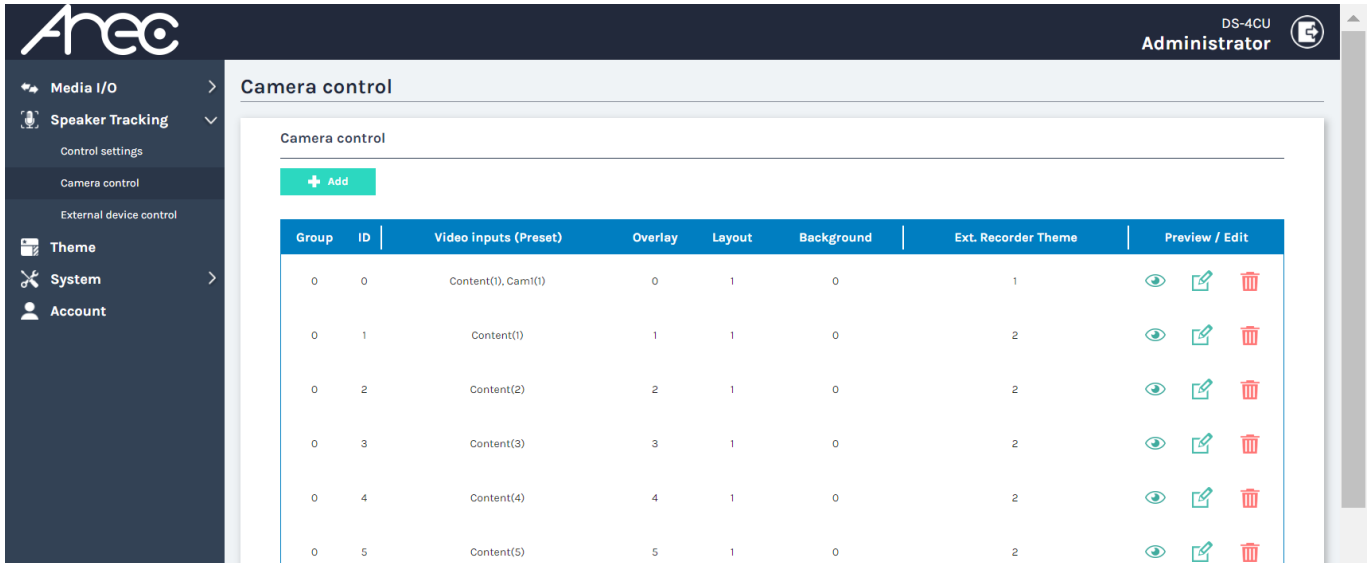
Parameter	Description	Range
Content Preset	Preset Position of the camera that set as 1st video input source	-1 ~ 255, -1 = OFF
Cam1 Preset	Preset Position of the camera that set as 2nd video input source	-1 ~ 255, -1 = OFF
Cam2 Preset	Preset Position of the camera that set as 3rd video input source	-1 ~ 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.



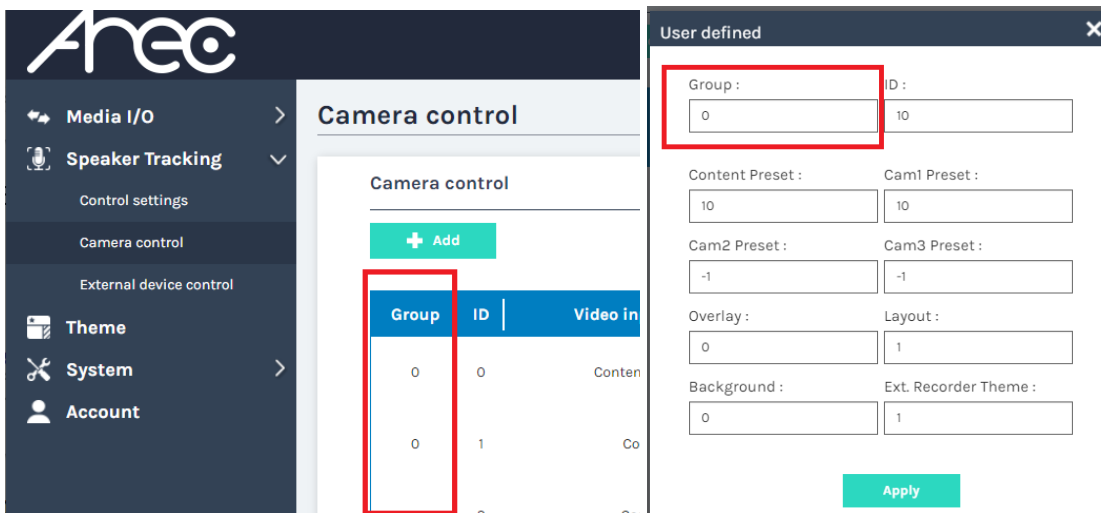
3. Click  to preview the theme setting

Camera Control

This configuration defines how the image should be displayed when a single microphone is activated.



Note: When connected with any Shure model, the **Group on this page should always be set at 0.*



1. Go to DS-4CU's web Admin page → Speaker Tracking → Camera control
2. Click 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 set at 0.
ID	the ID number microphone system	digits, characters, or combination of them *Refer to: How to get each of the Shure microphones' ID for the instruction to retrieve the microphone's ID

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

User defined
✕

Group :	ID :
<input style="width: 100%;" type="text" value="0"/>	<input style="width: 100%;" type="text" value="1"/>
Content Preset :	Cam1 Preset :
<input style="width: 100%;" type="text" value="4"/>	<input style="width: 100%;" type="text" value="4"/>
Cam2 Preset :	Cam3 Preset :
<input style="width: 100%;" type="text" value="-1"/>	<input style="width: 100%;" type="text" value="-1"/>
Overlay :	Layout :
<input style="width: 100%;" type="text" value="4"/>	<input style="width: 100%;" type="text" value="1"/>
Background :	Ext. Recorder Theme :
<input style="width: 100%;" type="text" value="1"/>	<input style="width: 100%;" type="text" value="-1"/>

3. Click to preview the theme setting

How to get each of the Shure microphones' ID

MXA Series(MXA910/MXA710/MAX310)

For Shure MXA Series, each mic lobe/channel on a Shure device corresponds to a microphone theme. The ID set on DS-4CU is the same as the mic lobe/channel number on Shure.

Ex. MXA910 - 8 lobes/channels (1~8)

The screenshot shows the Shure MXA910 software interface. At the top, there are tabs for Coverage, Light Bar, IntelliMix, and PEQ. The IntelliMix tab is active, displaying a diagram of the microphone's 8 lobes (numbered 1-8) and a control panel for each channel. The control panel includes buttons for Send to mix, Solo, Always On, Priority, and AGC, along with a volume knob and an 'On' indicator. To the right, the AUTOMIXER PROPERTIES panel is visible, showing settings for Automix mode, Gating, Maximum Open Channels (set to 8), Leave last mic on, Off Attenuation (dB), Hold Time (ms), and Gating Sensitivity.

On DS-4CU's camera control page, it should have Group 0, ID 1~8.

The screenshot shows the DS-4CU Administrator interface. The left sidebar contains navigation options: Media I/O, Speaker Tracking, Control settings, Camera control, External device control, Theme, System, and Account. The main content area is titled 'Camera control' and features a table with the following data:

Group	ID	Video inputs (Preset)	Overlay	Layout	Background	Ext. Recorder Theme	Preview / Edit
0	1	Content(1)	1	1	0	2	[Eye] [Pencil] [Trash]
0	2	Content(2)	2	1	0	2	[Eye] [Pencil] [Trash]
0	3	Content(3)	3	1	0	2	[Eye] [Pencil] [Trash]
0	4	Content(4)	4	1	0	2	[Eye] [Pencil] [Trash]
0	5	Content(5)	5	1	0	2	[Eye] [Pencil] [Trash]
0	6	Content(6)	6	1	0	2	[Eye] [Pencil] [Trash]
0	7	Content(7)	7	1	0	2	[Eye] [Pencil] [Trash]
0	8	Content(8)	8	1	0	2	[Eye] [Pencil] [Trash]

MXCW Series

Find the seat number for each microphone on the Shure MXCW series, and use it as the ID to set up the microphone theme on DS-4CU.

The screenshot shows the 'Devices' tab for the MXCWAPT-20d364 system. It displays a table with columns for Mic status, Seat, Seat name, Role, Battery (hh:mm), RF strength, and Firmware. There are three devices listed, all with a 'Delegate' role and '5.0.13.0' firmware.

Mic status	Seat	Seat name	Role	Battery (hh:mm)	RF strength	Firmware
<input type="checkbox"/>	1	Jan Kowalski	Delegate	11:22		5.0.13.0
<input type="checkbox"/>	2	Seat 2	Delegate	12:04		5.0.13.0
<input type="checkbox"/>	3	Ters	Delegate	10:30		5.0.13.0

0 of 0 slots available for active Remote Caller

The screenshot shows the 'Camera control' page in the Arec Administrator interface. It features a table with columns for Group, ID, Video inputs (Preset), Overlay, Layout, Background, Ext. Recorder Theme, and Preview / Edit. There are three rows of camera configurations listed.

Group	ID	Video inputs (Preset)	Overlay	Layout	Background	Ext. Recorder Theme	Preview / Edit
0	1	Content(1)	1	1	0	2	
0	2	Content(2)	2	1	0	2	
0	3	Content(3)	3	1	0	2	

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MXW Series

Find the channel number for each microphone on the Shure MXW series, and use it as the ID to set up the microphone theme on DS-4CU.

The screenshot shows the 'MXWAP78-3fc5' software interface with a green header bar. The main area displays eight channels (1-8) with various controls:

- Channel 1:** Microphone icon, Primary dropdown, Mute button, 12:20 remaining timer, Audio and RF meters, Mic Gain (dB) set to -8, LPF (12kHz) and HPF (150Hz) filters, Handheld microphone type, Link/Unlink buttons.
- Channel 2:** Microphone icon, Primary dropdown, Standby button, 14:37 remaining timer, Audio and RF meters, Mic Gain (dB) set to 0, LPF (12kHz) and HPF (150Hz) filters, Gooseneck microphone type, Link/Unlink buttons.
- Channel 3:** Offline Mic, Primary dropdown, Inactive button, Audio and RF meters, Mic Gain (dB) set to 0, LPF (12kHz) and HPF (150Hz) filters, Offline Mic type, Link/Unlink buttons.
- Channel 4:** Microphone icon, Primary dropdown, Standby button, 16:50 remaining timer, Audio and RF meters, Mic Gain (dB) set to -15, LPF (12kHz) and HPF (150Hz) filters, Gooseneck microphone type, Link/Unlink buttons.
- Channel 5:** Offline Mic, Primary dropdown, Inactive button, Audio and RF meters, Mic Gain (dB) set to 0, LPF (12kHz) and HPF (150Hz) filters, Offline Mic type, Link/Unlink buttons.
- Channel 6:** No Linked Mic, Primary dropdown, No Linked ... button, Audio and RF meters, Mic Gain (dB) set to 0, LPF (12kHz) and HPF (150Hz) filters, No Linked Mic type, Link/Unlink buttons.
- Channel 7:** Offline Mic, Primary dropdown, Inactive button, Audio and RF meters, Mic Gain (dB) set to 0, LPF (12kHz) and HPF (150Hz) filters, Offline Mic type, Link/Unlink buttons.
- Channel 8:** No Linked Mic, Primary dropdown, No Linked ... button, Audio and RF meters, Mic Gain (dB) set to 0, LPF (12kHz) and HPF (150Hz) filters, No Linked Mic type, Link/Unlink buttons.

At the bottom, there are two 'Return channel' sections for mics 1-4 and mics 5-8, each with a slider and a Mute button.

The screenshot shows the 'DS-4CU Administrator' interface. The left sidebar contains navigation options: Media I/O, Speaker Tracking, Control settings, Camera control (selected), External device control, Theme, System, and Account. The main content area is titled 'Camera control' and features a '+ Add' button and a table of camera configurations.

Group	ID	Video inputs (Preset)	Overlay	Layout	Background	Ext. Recorder Theme	Preview / Edit
0	1	Content(1)	1	1	0	2	Preview, Edit, Delete icons
0	2	Content(2)	2	1	0	2	Preview, Edit, Delete icons
0	3	Content(3)	3	1	0	2	Preview, Edit, Delete icons
0	4	Content(4)	4	1	0	2	Preview, Edit, Delete icons
0	5	Content(5)	5	1	0	2	Preview, Edit, Delete icons
0	6	Content(6)	6	1	0	2	Preview, Edit, Delete icons
0	7	Content(7)	7	1	0	2	Preview, Edit, Delete icons
0	8	Content(8)	8	1	0	2	Preview, Edit, Delete icons

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**

The screenshot shows the DS-4CU Administrator web interface. The left sidebar contains navigation options: Media I/O, Speaker Tracking (expanded), Theme, System, and Account. The main content area is titled 'Control settings' and is divided into three sections: 'External system', 'General default', and 'Speaker action settings'. The 'Speaker action settings' section is highlighted with a red border. It contains a 'Mode' dropdown menu set to 'Multiple speaker' and an 'Apply' button. The 'External system' section includes fields for 'Microphone' (SHURE MXA910 / MXA710 / MXA310), 'IP address' (192.168.0.100), and 'Recorder IP address' (0.0.0.0). The 'General default' section features a table with columns for 'Video inputs (Preset)', 'Overlay', 'Layout', 'Background', 'Ext. Recorder', 'Theme', and 'Preview / Edit'. The table contains one row with values: 'Acti...', 'Content(0), Cam1(0)', '0', '9', '2', 'None', and icons for preview and edit.

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**

The screenshot shows the Arec web Admin interface. The left sidebar contains navigation options: Media I/O, Speaker Tracking (expanded), Control settings, Camera control, External device control, Theme, System, and Account. The main content area is titled 'Control settings' and is divided into three sections:

- External system:** Includes a 'Microphone' dropdown menu set to 'SHURE MXA910 / MXA710 / MXA310', an 'IP address' field with '192.168.0.100', and a 'Recorder IP address' field with '0.0.0.0'. An 'Apply' button is at the bottom.
- General default:** Contains a table with columns: 'Video inputs (Preset)', 'Overlay Layout', 'Background', 'Ext. Recorder Theme', and 'Preview / Edit'. The table has one row with values: 'Acti...', 'Content(0), Cam1(0)', '0', '9', '2', 'None'. The 'Preview / Edit' column contains an eye icon and a pencil icon.
- Speaker action settings:** Includes a 'Mode' dropdown menu set to 'Multiple speaker' and an 'Apply' button.
- General - Multiple speaker:** This section is highlighted with a red border. It contains a table with columns: 'Video inputs (Preset)', 'Overlay Layout', 'Background', 'Ext. Recorder Theme', and 'Preview / Edit'. The table has one row with values: 'Acti...', 'Content(0), Cam1(0)', '0', '15', '3', '1'. The 'Preview / Edit' column contains an eye icon and a pencil icon.

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.

The screenshot shows the Arec web admin interface for the 'Theme' configuration. The top navigation bar includes the Arec logo, the user name 'Administrator', and the device ID 'DS-4CU'. The left sidebar contains menu items: Media I/O, Speaker Tracking, Theme (selected), System, and Account. The main content area is titled 'Theme' and is divided into three sections:

- Overlay:** Displays four thumbnail images with ID numbers 1, 2, 3, and 4 above them. A green plus icon is to the right. An 'Apply' button is below the thumbnails.
- Background:** Displays three thumbnail images with ID numbers 1, 2, and 3 above them. A green plus icon is to the right. An 'Apply' button is below the thumbnails.
- Layout:** Displays six thumbnail images with ID numbers 7, 8, 9, 10, 11, and 12 above them. A green plus icon is to the right. An 'Apply' button is below the thumbnails.