

ClearOne[®]

Ceiling Microphone Array
INSTALLATION MANUAL



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Introduction

PRODUCT OVERVIEW

The ClearOne Ceiling Microphone Array enhances any conferencing application which demands high-quality audio. The Ceiling Microphone Array is easily installed and combines affordability with exceptional audio quality. The Ceiling Microphone Array features three microphones that are mounted together into a single unit array, providing the rich sound of three individual unidirectional microphones while maintaining full 360 degree coverage. The design minimizes noise pickup from sources near the ceiling and frees table space while maintaining speech quality and intelligibility.



DEVICE APPLICATION

The Ceiling Microphone Array is ideal for use in medium to large conference rooms, training rooms, court rooms, learning centers, convention centers; any area needing unobtrusive, quality audio pickup.

Installation should be done by a qualified Dealer Service representative.

Installation

PHYSICAL CHARACTERISTICS

Microphone Array Dimensions (Excluding Cables and Mounting)

Length: 3.3 in (8.38 cm)

Diameter: 1.5 in (3.81 cm)



CABLES

Two cables and a mixer adapter are used for connecting from the microphone array through the pass-through Mounting Assembly to the mixer.

- One 4-pin mini-XLR cable is used for connecting the microphone array to the pass-through Mounting Assembly. (Both 12-inch and 24-inch 4-pin mini-XLR drop-down cables are provided allowing you to use the most suitable length.) A grommet is included to cover where the cable connects to the pass-through mounting assembly.



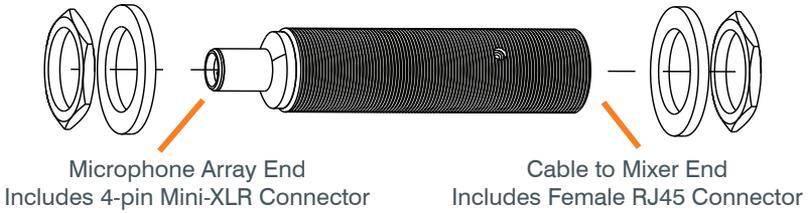
- One 25-foot RJ45 Male to RJ45 Male CAT5e cable is used connecting at the pass-through mounting assembly going to the mixer. If required this cable can be extended to 328Ft (100m) using the 568B wiring standard.
- One RJ45 Male to mixer adapter is used to connect the RJ45 cable to the mixer. (There are two types depending on which is ordered - one with 3 mini-Phoenix connectors, one with 3 XLR-M connectors.)



The microphone array is phantom powered by the mixer through the mixer adapter, the RJ45 cable and the 4-pin mini-XLR cable.

PASS-THROUGH MOUNTING ASSEMBLY

This assembly includes a threaded body with integrated mini-XLR and RJ45 connectors, and the required washers and nuts for fastening in a suspended ceiling tile.



TOOLS REQUIRED

You will need a drill and a 1-inch hole saw bit to install the mounting adapter, and an adjustable wrench to tighten the adapter fittings.



DETERMINING THE PLACEMENT

Determine the placement of the Ceiling Microphone Array by the characteristics of the room where it will be installed and the pickup pattern of the microphone array. The choice of either the 12 or 24-inch microphone cable determines how close the microphone array is to the users below and how wide the pickup pattern extends. Single and Dual Array pickup patterns and placements are illustrated below:

SINGLE MICROPHONE ARRAY PICK-UP PATTERN



□ 120° from mic array (Best pick-up) ■ 180° from mic array (Good pick-up)

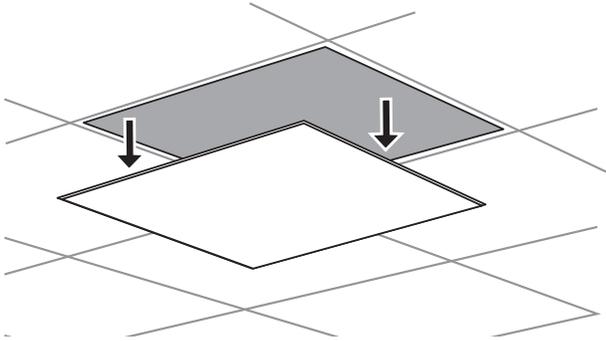
DUAL MICROPHONE ARRAY PICK-UP PATTERN



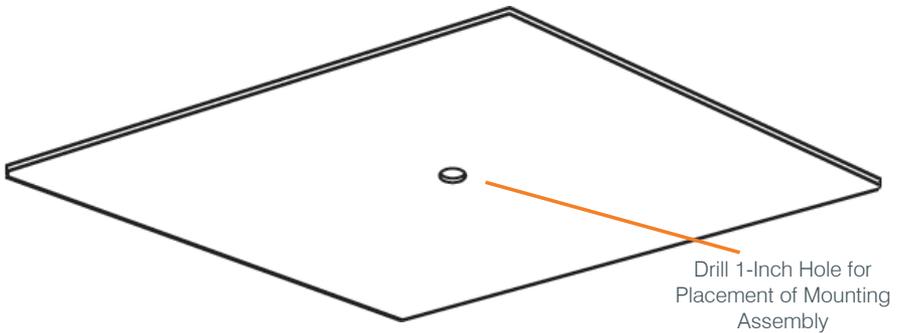
□ 120° from either mic array (Best pick-up) ■ 180° from either mic array (Good pick-up)

INSTALLING THE MICROPHONE ARRAY

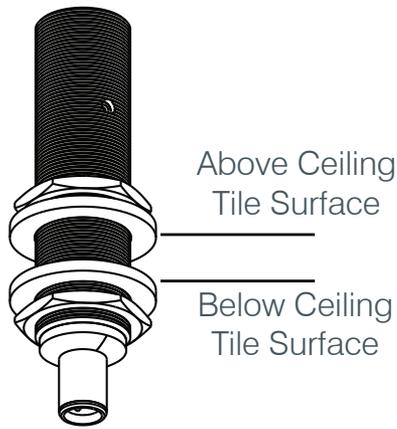
1. Drop the ceiling tile where you have selected to install the microphone array.



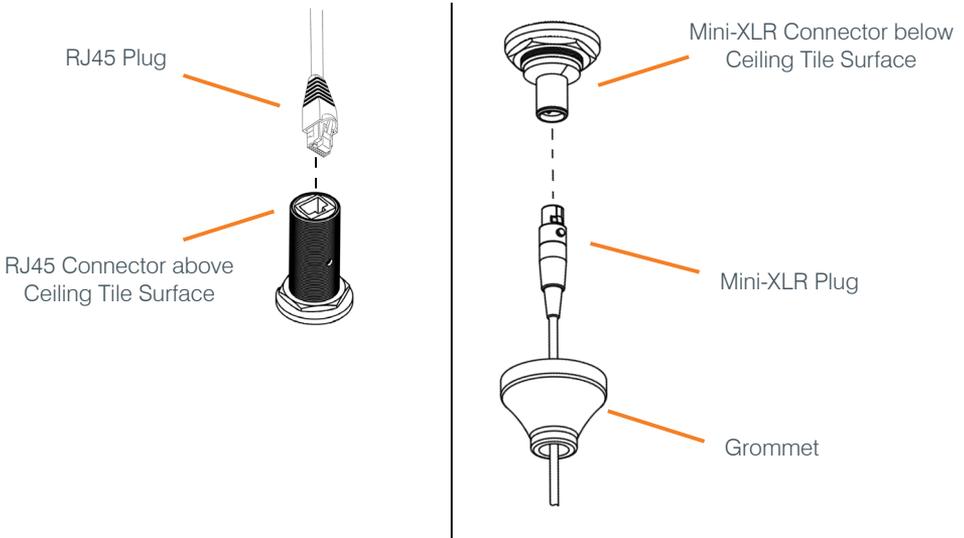
2. Run the 25-ft RJ45 cable from the mixer location into the space above the suspended ceiling and down through the opening of the removed tile to conceal the cable.
3. Drill a 1-inch hole through each removed ceiling tile where the pass-through Mounting Assembly will be placed.



4. Insert the Mounting Assembly through the hole with the RJ45 end above the ceiling tile, then tighten into place with the washers against both faces of the tile followed by the nuts. Be sure to place the washer and nut on the mini-XLR end as close to the end of the threaded assembly as possible to allow the microphone array cable and grommet to fit snugly against the ceiling tile.



5. Plug the RJ45 cable into the top end of Mounting Assembly, then lift the ceiling tile back into place.
6. Make sure the mini-XLR cable is fed through the grommet. Connect the mini-XLR connector into the receiving plug at the bottom of the Mounting Assembly, then slide the Grommet over the cable and connector snugging it over the Mounting Assembly against the ceiling tile.



7. Attach the Microphone Array to the hanging end of the mini-XLR cable.



8. Connect the RJ45 Male to Mixer adapter cable for your mixer: The Converge Pro requires the RJ45 to mini-Phoenix adapter cable. The RJ45 to XLR-M adapter is for the Interact Pro and Interact AT mixers.
9. Connect the CAT5e cable from the Ceiling Microphone Array to the adapter cable ordered to match the microphone inputs on the mixer.

Mini-Phoenix Adapter
for Converge Pro and
Interact Pro Mixers



XLR-M Adapter for
the Interact AT Mixer

CAT5e Cable Inputs

» Note: There are three connectors that plug into the mixer, one for each of the three microphones in the array.

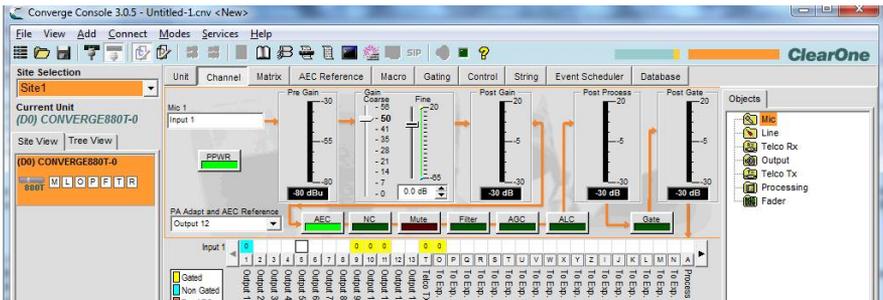
Software Setup of the Ceiling Microphone Array

The Ceiling Microphone Array can be used with the ClearOne Converge Pro, Interact Pro, and Interact AT audio conferencing mixers. Each Ceiling Microphone Array requires 3 microphone inputs.

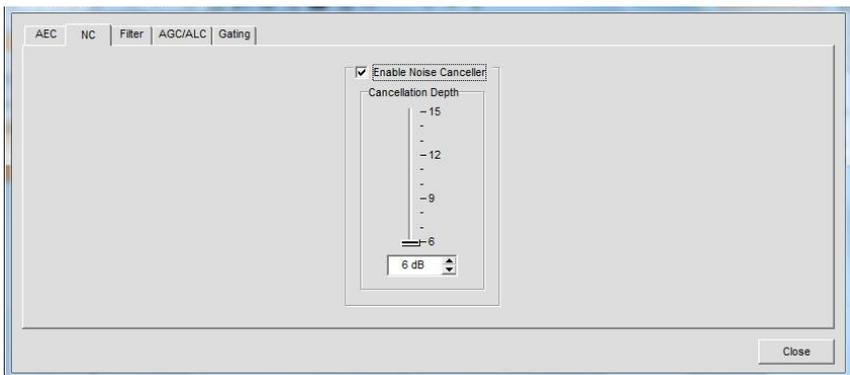
 **Attention Installers:** You must apply the software setup and filter settings in the audio conferencing mixer to obtain the best performance from the ClearOne Ceiling Microphone Array. Failure to apply these filter settings will result in degraded audio performance.

CONVERGE PRO MICROPHONE ARRAY SETUP

1. With Converge Console connect to the Converge Pro.
2. In Converge Console go to the channel view for the first microphone input.
3. Verify **PPWR** (Phantom Power) is turned on. The Ceiling Microphone requires phantom power for operation.
4. As a starting point set the **Coarse Gain** to 50 dB and the **Fine Gain** to 0 dB. Depending on your application and the user to microphone distance, the gain settings may need to be adjusted.



5. Click on the **NC button** and **Enable Noise Canceller**. Set the **Cancellation Depth** to 6 dB. This can be adjusted, if desired, based on your application.



6. Click on the **Filter Tab**.

7. Add 3 filters

Filter 1 is a PEQ filter with the center frequency at 100 Hz with a gain of 5 dB and a Q of 0.40

Filter 2 is a PEQ filter with the center frequency at 4000 Hz with a gain of -2 dB and a Q of 0.27

Filter 3 is a Low Pass filter set at 12000 Hz

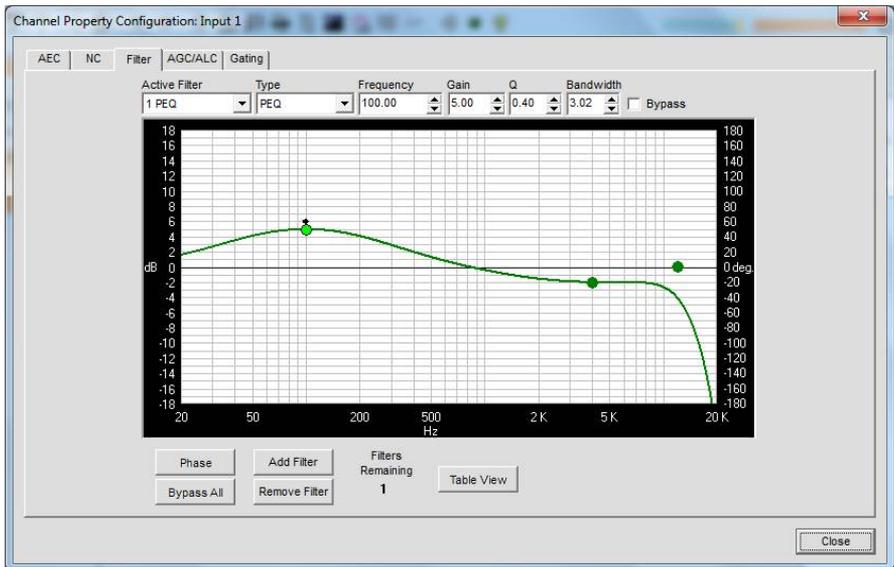
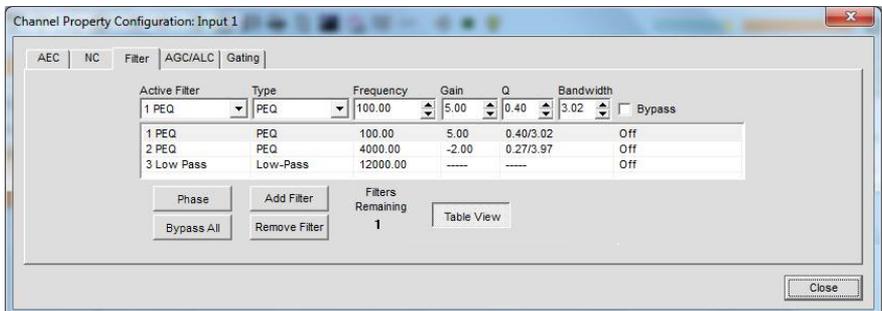


Table View



8. Other settings in the microphone channel can be set or adjusted based on your application.

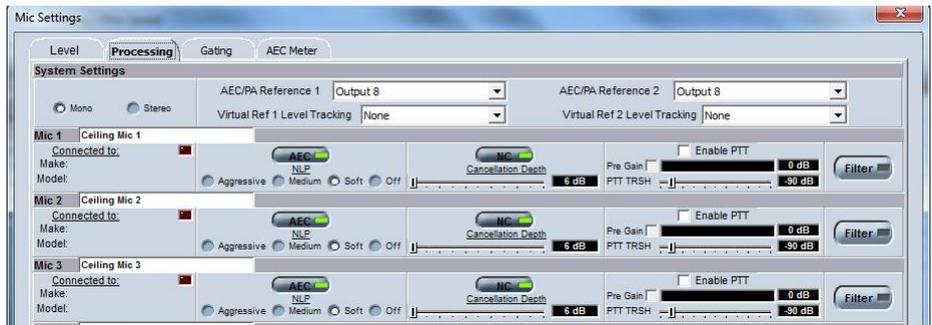
9. Repeat these steps for the other Ceiling Microphone Array inputs.

INTERACT PRO MICROPHONE ARRAY SETUP

1. With the Interact software connect to the Interact Pro.
2. In the Interact Software go to the **Mic Settings** screen
3. Verify **P Pwr** (Phantom Power) is turned on. The Ceiling Microphone Array requires phantom power for operation.
4. As a starting point set the **Coarse Gain** to 49 dB and the **Fine Gain** to 1 dB. Depending on your application and the user to microphone distance, the gain settings may need to be adjusted.



5. Click on the **Processing Tab**.
6. Enable the **NC** button and set the **Cancellation Depth** to 6dB.
7. Click on the **Filter** button for the first microphone input.



8. Add 3 filters

Filter 1 is a PEQ filter with the center frequency at 100 Hz with a gain of 5 dB and a Q of 0.40

Filter 2 is a PEQ filter with the center frequency at 4000 Hz with a gain of -2 dB and a Q of 0.27

Filter 3 is a Low Pass filter set at 12000 Hz



Table View

Mic 1 Filter

Active Filter: 3 Low Pass | Type: Low Pass | Frequency: 12000.00 | Bypass:

Active Filter	Type	Frequency	Q	Gain	Bypass
1 PEQ	PEQ	100.00	5.00	0.40/3.02	Off
2 PEQ	PEQ	4000.00	-2.00	0.27/3.97	Off
3 Low Pass	Low-Pass	12000.00	----	----	Off

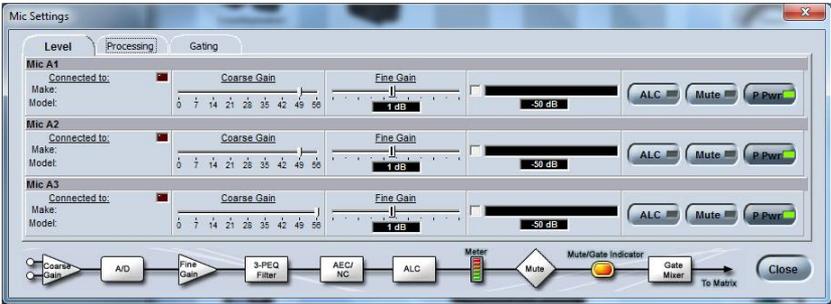
Phase | Add Filter | Filters Remaining: 0 | Table View | Bypass All | Remove Filter | Close

9. Other settings in the Microphone Settings screen can be set or adjusted based on your application.

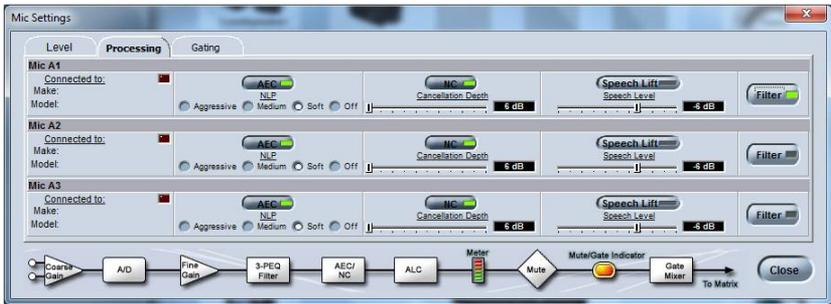
10. Repeat the filter setup for the other 2 Ceiling Microphone Array inputs.

INTERACT AT MICROPHONE ARRAY SETUP

1. With the Interact software connect to the Interact AT.
2. In the Interact Software go to the **Mic Settings** screen
3. Verify **P Pwr** (Phantom Power) is turned on. The Ceiling Microphone Array requires phantom power for operation.
4. As a starting point set the **Coarse Gain** to 49 dB and the **Fine Gain** to 1 dB. Depending on your application and the user to microphone distance, the gain settings may need to be adjusted.



5. Click on the **Processing Tab**.
6. Enable the **NC** button and set the **Cancellation Depth** to 6dB.



7. Click on the **Filter** button for the first microphone input.
8. Add 3 filters
 - Filter 1 is a PEQ filter with the center frequency at 100 Hz with a gain of 5 dB and a Q of 0.40
 - Filter 2 is a PEQ filter with the center frequency at 4000 Hz with a gain of -2 dB and a Q of 0.27
 - Filter 3 is a Low Pass filter set at 12000 Hz



Table View

Mic A1 Filter

Active Filter: 3 Low Pass | Type: Low Pass | Frequency: 12000.00 | Bypass:

Active Filter	Type	Frequency	Q	Gain	Bypass
1 PEQ	PEQ	100.00	5.00	0.40/3.02	Off
2 PEQ	PEQ	4000.00	-2.00	0.27/3.97	Off
3 Low Pass	Low-Pass	12000.00	----	----	Off

Phase | Add Filter | Filters Remaining: 0 | Table View | Bypass All | Remove Filter | Close

9. Other settings in the Microphone Settings screen can be set or adjusted based on your application.

10. Repeat the filter setup for the other 2 Ceiling Microphone Array inputs.

Compliance

COMPLIANCE OVERVIEW

ROHS COMPLIANCE

All components and processes used to produce the Ceiling Microphone Array will comply with the RoHS initiative.

SUSTAINABILITY

The Ceiling Microphone Array is compliant with the WEEE recycling initiative. It is made from easily recyclable materials such as aluminum and steel.

ELECTRICAL SAFETY ADVISORY

This equipment uses DC power supplied from an external source which can be subjected to electrical surges, typically lightning transients which are very destructive to customer terminal equipment. The warranty for this equipment does not cover damage caused by electrical surge or lightning transients. To reduce the risk of this equipment becoming damaged it is suggested that the customer consider installing a surge arrester.

Service and Support

If you need assistance setting up or operating your product, please contact us. We welcome your comments so we can continue to improve our products and better meet your needs.

Technical Support

Telephone: 1.800.283.5936
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Sales

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E-mail: sales@ClearOne.com

Techsales

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E-mail: techsales@ClearOne.com

Product Returns

All product returns require a Return Material Authorization (RMA) number. Contact ClearOne Technical Support before returning your product. Make sure you return all the items and packing materials that originally shipped with your product.

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