



ARCHITECT'S AND ENGINEER'S SPECIFICATION

PRODUCTS SUPPORTED:
Beamforming Microphone Array 2

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BEAMFORMING MICROPHONE ARRAY 2

Architect's and Engineer's Specification

The beamforming microphone array shall be a microphone array with 24 microphone elements. It shall provide wideband (150 Hz - 16 kHz) Acoustic Echo Cancellation (AEC) with internal 24-bit A/D converters operating at a sample rate of 48 kHz. The beamforming microphone array shall output a single channel of digital audio to a connected CONVERGE® Pro 2 mixer. The beamforming microphone array shall not use any analog AEC input channels on the connected CONVERGE Pro 2 mixer. The dynamic range shall be greater than 70 dB between 150 Hz and 16 kHz.

The beamforming microphone array shall support three mounting modes: (1) ceiling mode, (2) wall mode, and (3) table mode. The beamforming microphone array shall also support Auto mode, in which the array automatically detects the mounting configuration and selects the appropriate fixed beams for that mode. It shall provide 5 beams in ceiling mode, 6 beams in table mode, and 5 beams in wall mode. The type of beam shall be fixed rather than dynamic— the polar patterns of the beams do not change during operation of the array after initial setup and configuration. The beamforming microphone array shall provide a proprietary polar pattern.

The AEC feature shall operate on each beam. The beamforming microphone array shall select between the fixed beams to best pick up an audio source or follow a moving audio source (termed adaptive steering or smart beam selection in marketing materials). The beamforming microphone array shall select one or more beams for transmission to a connected CONVERGE Pro 2 mixer. The beamforming microphone array shall inhibit changing the selected beam(s) while only the far end has voice activity. The AEC shall have a frequency response of 150 Hz to 16 kHz, tail time of 250 ms, convergence rate of 120 dB/sec, Noise Cancellation (NC) depth up to 25 dB and AEC + NC latency of 32 ms.

The beamforming microphone array shall include advanced functions to prevent false activation of beams including: gating, First Beam Priority and Adaptive Ambient.

Software shall be provided for configuring and adjusting system parameters within each beamforming microphone array unit and within a daisy-chained system consisting of a CONVERGE Pro 2 mixer and connected beamforming microphone array units. Configurable system components shall include: acoustic echo cancellation, active noise cancellation, filters, Automatic Level Control (ALC), and meters. This software shall allow individual beams to be enabled or disabled. This software shall provide a MatrixView™ and a signal FlowView™ of the complete system with controls to select and filter the view. Software shall operate on a PC running Windows® 7/10 and above.

The beamforming microphone array unit shall work only with a connected CONVERGE Pro 2 unit and shall be capable of daisy-chaining with the same beamforming microphone array unit type or other proprietary peripheral devices to make one combined system that supports two modes. In the first mode, multiple beamforming microphone array units shall be linkable via a digital, proprietary audio and control bus with cable lengths between units up to 61 meters (200 feet) and up to 3 beamforming microphone array units per CONVERGE PRO 2 AEC unit in a system. The digital audio and control bus shall allow sharing of digital audio and control signals across a multi-unit system. The beamforming microphone array unit shall be linkable to other types of devices via a digital audio, control and power bus capable of linking with proprietary peripheral devices including the USB expander, GPIO expander and Wireless Receiver, with cable lengths between units up to 61 meters (200 feet) and up to three units of each peripheral device. In the second mode, multiple beamforming microphone array units shall be linkable via a digital, proprietary audio and control bus with cable lengths between units up to 200 meters (650 feet). In this mode, up to three beamforming microphone array devices shall be supported per CONVERGE Pro 2 AEC unit.

The beamforming microphone array unit shall have two LED indicators for Power and mute. It shall also have two capacitive touch buttons for mute. The beamforming microphone array unit shall provide an option to disable the LED indicator.

The beamforming microphone array shall be powered via a Power over Ethernet (PoE/PoE+) input port, or from the proprietary input port which carries power from the connected CONVERGE Pro 2 unit. The PoE port shall support "mode B" type power injectors. PoE+ power shall be daisy-chainable for up to three beamforming microphone arrays.

The beamforming microphone array shall be available in two colors: black and white.

The beamforming microphone array shall be compliant with EU 2014/35/EU EMC Directive, the 2011/65/EU RoHS Compliance Directive.

Warranty shall be 2.5 years with an option to extend the total warranty to 5 years.

The beamforming microphone array shall be the ClearOne BEAMFORMING MICROPHONE ARRAY 2.

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