

SOLUTION GUIDE For Hybrid Learning Environment

PRODUCTS SUPPORTED:

BMA 360 Beamforming Mic Array
CONVERGE Pro 2 DSP Mixer
UNITE 200 PTZ Camera
Ceiling Speakers

CLEARONE DOC-0468-001
May, 1, 2021

Using the BMA 360 in a Hybrid Learning Environment:

Overview

In response to the global pandemic, the educational landscape has been changed forever. A new era of combined, in-person and distance learning has emerged. Educational administrators are looking to hybrid flexible (HyFlex) classrooms as a solution for this new learning environment. A Hyflex classroom allows all students, whether remote or in-person, the ability to collaborate with teachers and fellow students as if they are all in the same room. Remote participants should be able to hear and be heard as clearly as the students in the classroom. The combination of audio and video allows both in-class and remote participants to pick up verbal and non-verbal cues which are critical to comprehension and understanding. The Hyflex classroom microphone system requires exceptional coverage of the entire instructional area to clearly amplify the instructor's voice. The microphone must be able to pick up a student's voice while in a 50' (ft) x 40' (ft) classroom. With proper audio processing, the system will filter out unwanted noises and leave only intelligible communication. The Instructor's voice must be heard clearly at the far end as well as in the room. This Hyflex solution must support conferencing and voice lift features simultaneously.

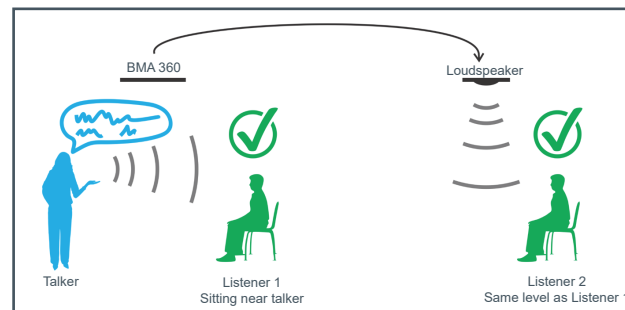
Requirements

- Hands-free voice lift communication with clear audio for in-room and remote participants.
- HD Video capture with camera tracking for lecturer and students.
- BYOA (bring your own app). User choice of conferencing software.
- Easy to use.
- Easy to deploy.



Solution

- BMA 360 with Voice Lift.
- UNITE 200 PTZ camera with voice-based tracking.
- CONVERGE® Pro 2 DSP.
- Visual display(s).
- Computer with user choice of conferencing software.
- Ceiling speakers.



Voice lift allows the listener at the farthest distance to have the same audio experience as the listener that is closest to the talker.

Related Documents

- [BMA 360 Datasheet](#)
- [BMA 360 Voice Lift Presentation](#)
- [BMA 360 DARE™ Configuration Guide](#)
- [BMA 360 Voice Lift Design Guide](#)
- [CONVERGE Pro 2 Brochure](#)
- [UNITE 200 Datasheet](#)
- [LS6CT Ceiling Speaker](#)

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Benefits

BMA 360:

The ClearOne BMA 360 is based on a dramatically new approach to beamforming that provides a new beam topology to easily achieve distortion-free, full 360-degree coverage of any room shape and any seating arrangement using ClearOne Audio Intelligence™. The BMA 360 is the world's first truly wideband, frequency invariant beamforming mic array with uniform gain response across all frequency bands. ClearOne's breakthrough technologies, FiBeam, DsBeam, Voice Lift, and 6G AEC combine to create VividVoice™, a significant advancement for professional conferencing. With FiBeam™ technology, lecture participants will experience the ultimate in natural and full fidelity audio across all beams and within a single beam. The BMA 360's deep sidelobe beamforming, DsBeam™, provides unparalleled sidelobe depth, below -40 dB, resulting in superior rejection of reverberation and noise, even in difficult spaces, for superb clarity and intelligibility. The BMA 360's Voice Lift provides a powerful and simple way to drive multiple mix-minus speaker zones allowing everyone in the room to hear every word. 6G Acoustic Echo Cancellation (AEC) delivers unmatched per-beam full-duplex audio performance. Further advancements in adaptive steering provide impeccable coverage of each conference participant as well as support for camera tracking. Finally, robust built-in amplifiers, configurable as 4 x 15 Watt or 2 x 30 Watt, provide flexibility for driving loudspeakers.

UNITE 200 PTZ Camera:

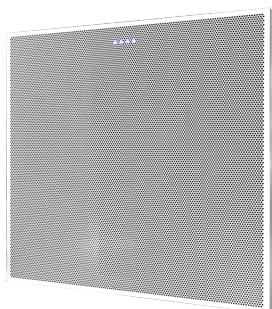
The ClearOne UNITE 200 PTZ (Pan, Tilt, Zoom) Camera offers unbeatable, pro-quality, Full HD 1080p60 video, a 72.5° wide-angle, high-quality lens, 12x optical zoom, and voice-based camera tracking to easily capture all of the participants in the room. The UNITE 200 supports flexible mounting options with horizontal and vertical flip that allows for stand, wall or, ceiling mount. The UNITE 200 is USB 2.0 and 3.0 compatible and has the ability to recall 255 presets.

CONVERGE Pro 2:

Combine the BMA 360, UNITE 200, and ClearOne's CONVERGE Pro 2 DSP along with the easy to manage CONSOLE AI Software and the hybrid learning experience has never looked or sounded better. The CONVERGE Pro 2 applies 6G Acoustic Echo Cancellation (AEC) to each beam of the BMA 360 to give perfect results for audio and video lectures. ClearOne's HD Conference™ adaptive noise reduction and advanced DARE™ feedback elimination Provide both Automatic Max Gain Setup of Fixed filters, and the option to provide additional Dynamic filtering to remove detected feedback during system operation.

COLLABORATE Space:

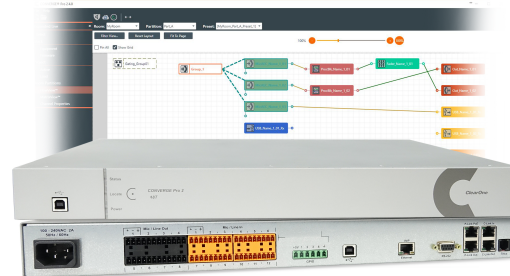
COLLABORATE Space is a powerful cloud-based video collaboration application with a full suite of audio, video, and meeting tools in a persistent space. It includes everything you need for online meetings, including messaging, integrated file sharing, whiteboarding, annotation, meeting minutes, scheduling, and more. The ClearOne solution is also optimized for compatibility with other popular conferencing tools such as Cisco Webex, MS Teams, Zoom, and Google Meet.



BMA 360



UNITE 200 PTZ Camera



CONVERGE Pro 2



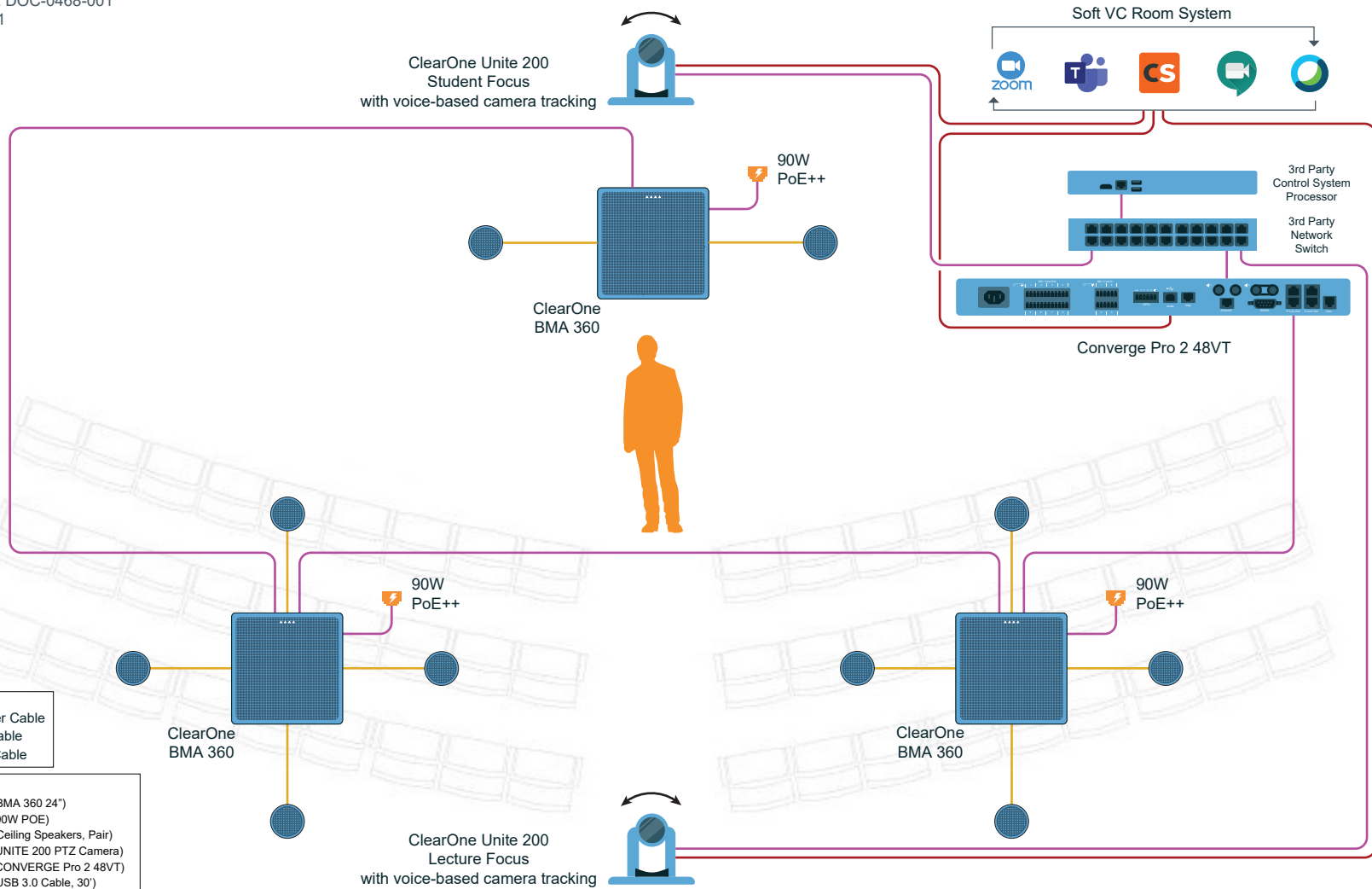
COLLABORATE Space

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Legend:

—	Speaker Cable
—	USB Cable
—	Cat 6 Cable

BoM:

(Qty. 3) = 910-3200-208.....	(BMA 360 24")
(Qty. 3) = 910-3200-209.....	(90W POE)
(Qty. 5) = 910-151-001-01-208.....	(Ceiling Speakers, Pair)
(Qty. 2) = 910-2100-003.....	(UNITE 200 PTZ Camera)
(Qty. 1) = 910-3200-008.....	(CONVERGE Pro 2 48VT)
(Qty. 1) = 910-3200-702-30.....	(USB 3.0 Cable, 30')
(Qty. 1) = 910-3200-702-100.....	(USB 3.0 Cable, 100')

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