

ACAM_64

Data Sheet

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Bruno Paillard

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1 Product Description

ACAM_64 is a 64-microphone array, and real-time beamformer. It can build a 32x32-pixel (128x128 interpolated) image of sound sources in real-time, with adjustable frequency response within 20 Hz to 8 kHz.

Its massively parallel beamforming DSP allows the instrument to build each pixel concurrently with no missed sample.

The instrument can be controlled, and the images can be retrieved using an open protocol based on virtual Com port. That open protocol can be used on any platform that has a generic USB CDC driver. That includes Windows, Linux and Mac-OS.

The instrument can stream audio to the host platform through a USB-Audio interface. Through that interface the instrument is seen by the host as a USB microphone. That audio signal is the output of the beamformer and can be steered digitally to any azimuth and elevation in the field of view of the camera. Using the provided Windows application, the beamformer can even track any acoustic source in the field of view.

That USB-Audio interface works on any platform that has a generic USB-Audio driver. That includes Windows, Linux and Mac-OS.

Note: The Virtual Com Port interface, and the USB-Audio interface are not mutually exclusive. They can be used simultaneously.

2 Applications

- Detection, tracking and recording of acoustic sources.
- Soundproofing.
- Mechanical product design for acoustical performance.

3 Specifications

Category	Specification
Bandwidth	• 20 Hz to 8 kHz. A good image resolution is obtained from 1 kHz and up. Below 1 kHz, the camera behaves as a single very low-noise microphone.
Aperture	• 64 microphones arranged in a square array: 168x168mm (6.6”x6.6”)
Image Resolution	• 32x32 Pixels (128x128 pixels interpolated)
Field of View	• Selectable: 90 deg or 60 deg
Image Persistence	• Adjustable 10ms to 10s
Rate of Image Capture	• Up to 1 image per ms
Microphone Sensors	• Digital MEMS

Saturation Level (typical @ 1 kHz)	• 120 dB SPL
Duty Rate of Signal Capture and processing	• 100% - No Missed Samples
Connectivity	• **Image Capture and Configuration:** USB (Virtual Com Port interface with open communication protocol) • **Beamformer's Audio Signal:** USB Audio Interface (Seen by the host as a USB microphone).

USB-Audio Interface	• **Sampling Rate:** 16 kHz
	• **Formats:**
	  ○ PCM 16-bits mono
	  ○ IEEE-754 (32-bit Float)

Temperature Range	• -20 degC to 60 degC (-4 degF to 140 degF)
Compatibility	• Windows, Linux and Mac-OS • Note: Ready-to Run applications are provided for the Windows environment. But the instrument will be recognized on any platform that has generic USB drivers for CDC (Virtual Com Ports) and Audio
Dimensions	• 187 mm x 182 mm x 16 mm • (7.4" x 7.2" x 0.625")
Mounting	• Standard Tripod Adaptor
Weight	• 240 g (0.53 lbs)
Protocol	• Open and documented

Table 1