CUB-01 Miniature High-Fidelity Boundary Mic

A Totally New Concept in Cardioid Boundary Microphones

The Sanken CUB-01 offers a totally new design that overcomes the limitations of previous boundary microphones. Generally speaking, most boundary microphones have almost the same sound characteristics, heard as "thin," "solid," and "metallic." Using Sanken's advanced technology, the CUB-01 has resolved this problem with its unique square-shaped cardioid capsule. This proprietary design significantly enlarges the effective area of the diaphragm, resulting in a boundary microphone whose sound is rich and natural, with a flat response to 70Hz. Now it is possible to capture a "full bodied" and "clear" sound - Human narration and dialogue are clearly caught while excluding unnecessary background noise.

Sanken's revolutionary design has also eliminated the artificial need to overdesign the acoustic construction to create cardioid directivity.

Engineered for use in many situations, from TV and film field shooting to broadcast studio production and conference table recording, the CUB-01 departs from the common design of the boundary mic, which typically requires a large, heavy plate. By comparison, the CUB-01 is unbelievably small (32.5mm diameter, 14mm height, 45g weight) and light. Because of its size, it is easy to conceal from the camera, and can be positioned in a variety of environments, for example, attached to the ceiling of a car with two-sided sticky tape.

The CUB-01 is available in gray or beige and in two versions - the standard high performance CUB-01 which runs on 48volt phantom and the CUB-01-PT (pigtail) version. The PT version will operate on 3 to 14 VDC for wireless applications.

Theory of Boundary Microphones

There are at least two paths of sound waves from a sound source to a microphone. One is a

direct route from the sound source (D1), while another is sound reflected on the floor between the sound source and the microphone (R1). Obviously, sound D1 reaches to the microphone earlier than sound R1. As a result, sound waves through the R1 route have a "Time delay." The sound waves through D1 and the "delayed" sound wave (R1) will be combined at the microphone. In this case, the delay of mid and low frequencies will not be as affected because of the wavelength. In case of high frequencies, the time delay between D1 and R1 is critical because of its short wave length. In the high frequency range, the time delay of two sound waves creates a cancellation between the two. This is known as "comb filtering." When we think about this phenomenon as rms sound energy, we can see energy in the high frequency range decreasing considerably when compared to the mid and low frequencies. As frequency increases, energy decreases.

When we place a microphone "on the floor," with virtually no distance between the microphone transducer and the reflecting floor surface, most of the sound waves from the sound source to the microphone act as one direct route. Theoretically, there is no reflected route, and in this type of mic positioning, there is no time delay and, therefore, no comb filtering even in the high frequency range. This means that sound energy in the high frequencies is identical with the mid and lows. This is the basic theory of a boundary microphone.

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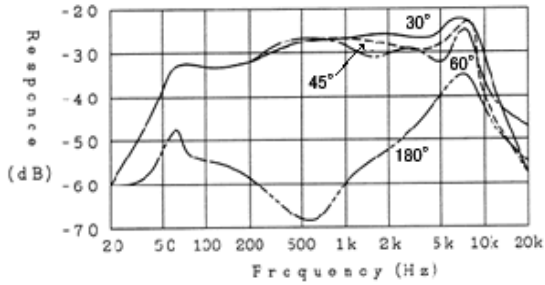
PRODUCT SPECIFICATIONS
(measurement condition; set on a board 500mm X 700mm)

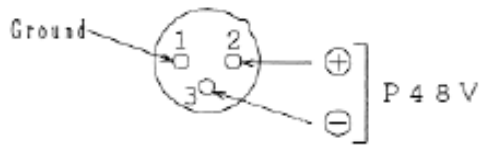
1.Transducer Type	Back electret condenser
2.Directivity	Cardioid/front side of hemisphere
3.Sensitivity	40mV(-28dB)/Pa ±2dB(0dB=1V/Pa)
4.Frequency Response	as attached graph
5.Equivalent Noise Level	less than 16dB(A-weighted) IEC 179
6.MAX. SPL	122dB SPL (THD 1%, 1kHz)
7.Output impedance	180 Ohms (1kHz)
8.Required power feeding	48V±4V phantom (U.P.F)
9.Consumption current	1.8mA
10.OUTPUT connector	XLR3-12C equivalent (1; G, 2; hot, 3; cold)
11.Directional pattern	as attached drawing
12.Weight	45g (microphone), 55g(Phantom I/F Part)
13.Color	Gray, or Beige
14.Dimensions	Microphone; Ø32.5mm, H 14mm
15.Cable length	Phantom I/F; Ø19mm, L 91mm
16.Material	3000 mm
	Metal mesh Woven wire cloth
17.Finish	Base Copper
	Fired Painted

All specifications are measured on 500mm X 700mm board, except frequency response. Frequency response is measured without board. (0° ON AXIS)

4.Frequency Response



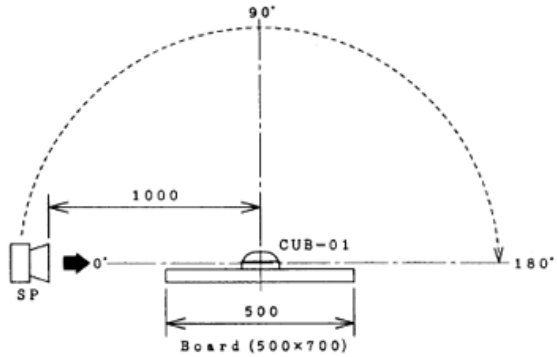
10.Output connector

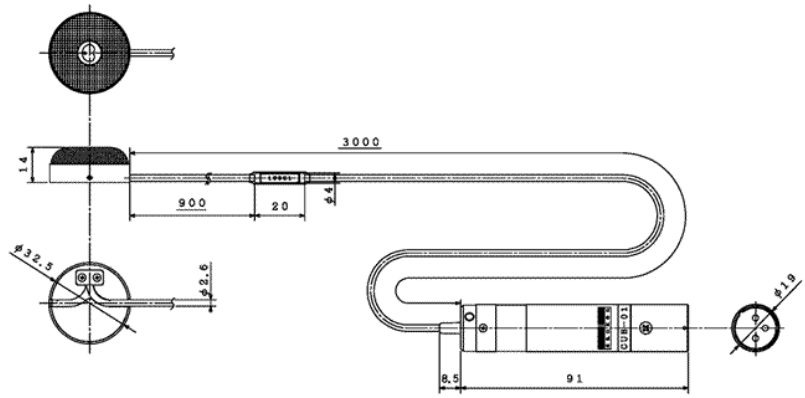


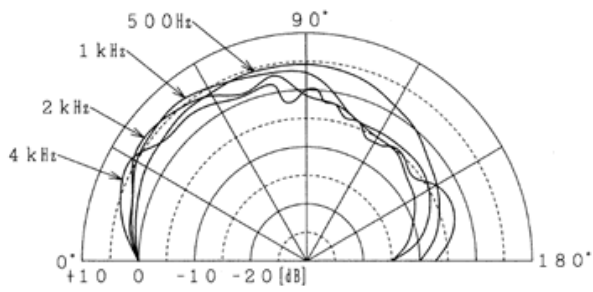
CUB-01-PT Specifications
(All specifications except 3,5,6,7,8,9,10,12 are same as CUB-01.
Only different parts are shown)

3.Sensitivity	3V power supplied
	15mV(-36.5dB ±2dB)/Pa (0dB=1V/Pa)
	12V power supplied
	16.8mV(-35.5dB ±2dB)/Pa (0dB=1V/Pa)
5.Equivalent Noise Level	(at 3V) less than 17dB(A-weighted) IEC 179
	(at 12V) less than 16dB(A-weighted) IEC 179
6.MAX SPL	3V power supplied
	121 dB SPL (THD 1%, 1kHz)
	12V power supplied
	127 dB SPL (THD 1%, 1kHz)
7.Output impedance	120 Ohms (1kHz),
	expected receive side impedance more than 5k Ohms
8.Required power feeding	3V to 14V(MAX) DC
9.Consumption current	3V power supplied less than 0.6mA
	12V power supplied less than 1.3mA
10.OUTPUT connector	Pig-tail: cable direct out; hot (signal) white,
	+DC voltage in:black, shield:ground
14.Dimensions	Microphone; Ø 32.5mm, H 14mm

11.Directional pattern







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