Acoustic Camera Array Fibonacci72 AC Pro

72 Channel System for Beamforming and Holography – Far Field and Near Field

The Fibonacci array is the first Acoustic Camera that allows near field as well as far field measurements.

The aluminum structure of the array guarantees the maximum possible acoustic transparency as well as a precise microphone alignment. Due to the spiral microphone arrangement, beamforming achieves the highest possible spatial resolution and the best possible map dynamics.

In combination with the NoiseImage analysis software, the specially optimized microphone arrangement allows the user to use the Fibonacci array for holography (SONAH and HELS) and standard beamforming analyses. The array comes standard with both an integrated Intel® RealSense™ depth camera, which has full HD resolution and the ability to record depth information, and a Baumer camera. In this combination, you get excellent measurement results in near-field and far-field applications.

BENEFITS

- Easy handling and accurate microphone positioning
- Beamforming and holography methods can be used with the same hardware
- Minimizes reflections, sound pressure doubling effects on the surface, and imposed resonance effects due to the acoustically transparent array design

APPLICATIONS

- Environmental noise control
- Wind tunnel measurements
- Acoustic leakage detection
- Low-frequency sound sources in the near field
- High-frequency sound sources in the far field

Fibonacci array measurement set up

Acoustic Camera Array **Fibonacci72 AC Pro**

SIZE AND WEIGHT

Array-body dimensions	79 x 79 x 17 cm
Weight	9 kg

FEATURES

Video camera	Intel® RealSense™ Depth Camera D435 and Baumer VCXG-25C
Resolution	1920 x 1080 (Full HD)

OPERATING CONDITIONS

Ingress protection code	IP20
Cable length to data recorder	up to 20 m (on request: 50 m)
Operating environment	0 °C- 35 °C, up to 80 % RH (RealSense) 0 °C- 45 °C, up to 80 % RH (Baumer)

MICROPHONE DATA

Microphones	Electret condenser capsule + special designed preamplifier
Frequency response	20 kHz – 60 kHz (< 15 dB) 100 Hz – 15 kHz (< 0.5 dB) 20 Hz – 20 kHz (< 3 dB)
Max. sound pressure level	130 dB at 3 % THD
Noise level	27 dB(A)
Sensitivity	20 mV/Pa

ARRAY DATA

Channels	72
Recommended measurement distance	**SONAH:** 10 – 20 cm **HELS:** 0 – 10 cm **BF:** > 0.8 m
Acoustic mapping range	9 dB – 130 dB
Recommended mapping frequencies	**SONAH:** 40 Hz – 2 kHz **HELS:** 30 Hz – 400 Hz **BF:** 285 Hz – 20 kHz
Dynamic range*	14 dB – 20 dB, up to 50 dB with advanced algorithms
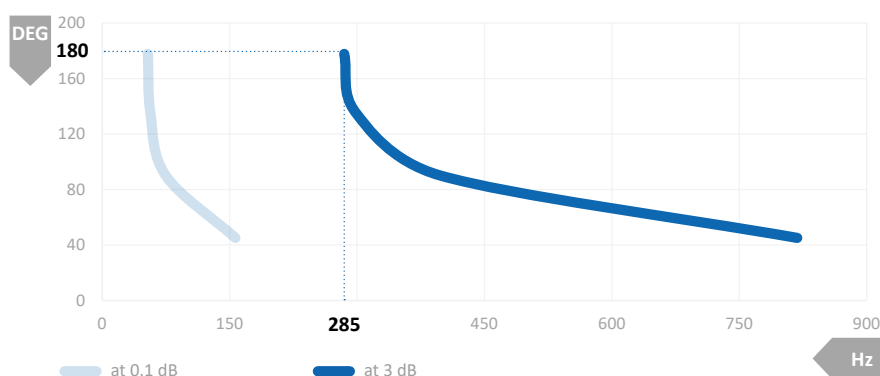
Calculation of the lowest frequency (Hz) at 180° opening angle (DEG)

— at 0.1 dB   — at 3 dB

* Distance to the source: 1 m; calculation points: 90.000