

Fibonacci120 AC Pro

120 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. Two Baumer cameras (one with an extra wide-angle lens for near field measurements) provide ideal reference images.

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
- Pass-by measurements of vehicles
- Wind tunnel measurements
- Acoustic leakage detection
- Low-frequency sound sources in the near field
- High-frequency sound sources in the far field



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TECHNICAL DATA

Size and Weight

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

Features

| | |
|--------------|--|
| Video camera | 2x Baumer VLG-22C (1x wide-angle lens) |
| Resolution | 1920 x 1080 (Full HD) |

Operating Conditions

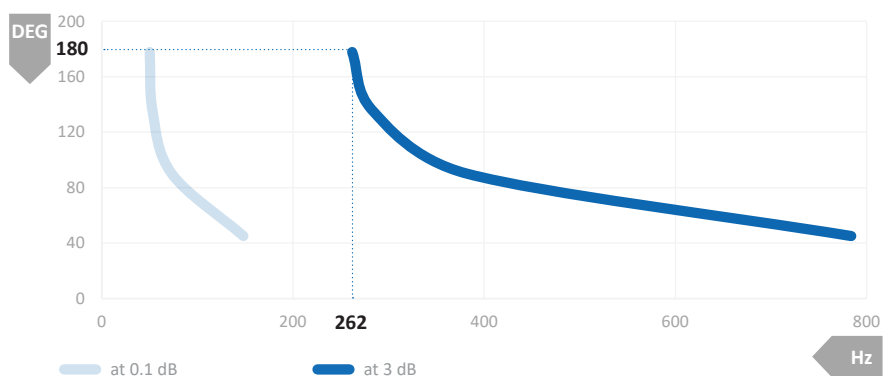
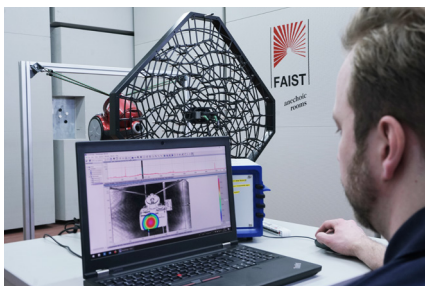
| | |
|-------------------------------|-------------------------------|
| Ingress protection code | IP20 |
| Cable length to data recorder | Up to 20 m (on request: 50 m) |
| Operating environment | 0°C - 45°C, up to 80% RH |

Microphone Data

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

Array Data

| | |
|----------------------------------|--|
| Channels | 120 |
| Recommended measurement distance | SONAH: 10 – 20 cm HELS: 0 – 10 cm BF: > 0.8 m |
| Acoustic mapping range | 7 dB – 130 dB |
| Recommended mapping frequencies | SONAH: 40 Hz – 2 kHz HELS: 30 Hz – 400 Hz BF: 262 Hz – 20 kHz |
| Dynamic range* | 16 dB – 25 dB, up to 50 dB with Advanced Algorithms |



Calculation of the lowest frequency (Hz) at 180° opening angle (DEG)

* Distance to the source: 1 m; calculation points: 90,000