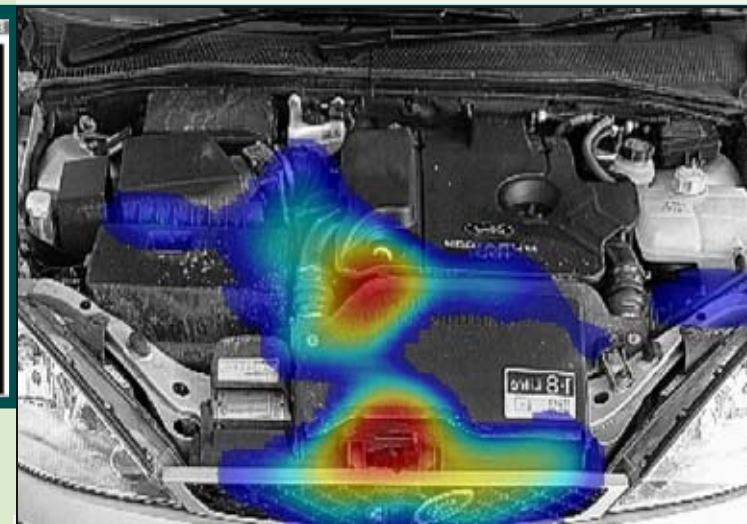
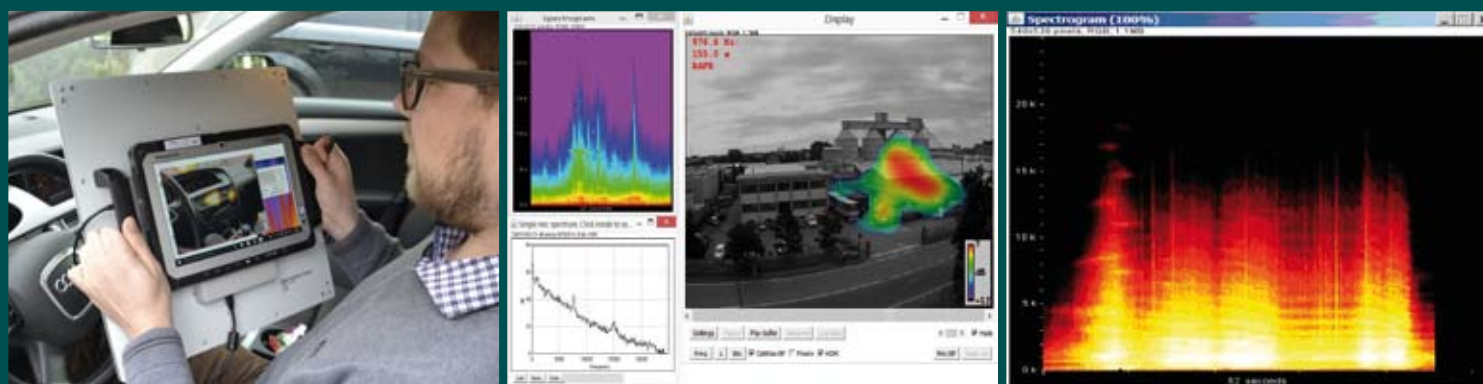


AcoustiCAM



*See what you hear
with our acoustic cameras*

- Display of acoustic images in real-time
- Frequency spectrum over time
- Display of spectrum and time signal
- Raw data storage for post-processing
- Post-processing of the raw data
- Saving videos in MP4 format
- Event presentation as a spectrogram

Technical Specification of the AC100

Dimensions of the array	40 x 40 cm with integrated microphones
Microphones	40 MEMS microphones with 24 Bit ADC
Sampling rate	51.2 kHz, decimation selectable
Anti-aliasing filter	yes, integrated digital filter
Frequency range	200 Hz to 24 kHz
Maximum sound pressure level	112 dB
Dynamic range	20 dB (5 kHz to 20 kHz)
Working distance	0.5 m to infinity
Frontend	signal processor integrated into array
Interface	data and power connection via USB 2.0
Optical camera	integrated 5 megapixel camera
VESA holder	10 x 10 cm with tripod thread 3/8"
Handles	2, detachable
Optional expansion	4 digital I / O (2x In, 2x Out)
PC System Requirements	Win7 or higher 64 Bit, 8 GB RAM
Software	- API - BeamformX (Optinav)

Due to its state-of-the-art microphones in MEMS technology with integrated AD converters and 51.2 kHz sampling rate, together with an integrated measurement data processing electronics in the latest DSP technology, the AC100 is now affordable for wide range of users. The complete integration in the array, with only one USB interface for data and power supply, allows for convenient mobile use with any Windows PC.

The AC100 is a compact and very easy-to-use acoustic camera for standalone applications. Just connect the USB cable, install and start the BeamformX software to make measurements and visualizations simply and rapidly.

Because of its high performance, simple operation and fair price, the AC100 is suitable for a wide range of applications in research and production.

Typical applications

- Locating stationary and transient sound sources
- Long-term monitoring of machines and plant
- Acoustic vehicle tests (inside and outside)
- Quality assurance
- Predictive machine maintenance
- Acoustic optimization of products

Software for the AC100

The AC100 is supplied either as pure hardware + Windows driver for custom development or bundled with the BeamformX application software from OptiNav. BeamformX uses an advanced new evaluation algorithm, the Robust Functional Beamforming. Compared to conventional beamforming methods, Robust Functional Beamforming works faster, has a higher dynamic range and can resolve more details spatially and temporally. Robust Functional Beamforming has been developed by Robert P. Dougherty, OptiNav Inc USA.

The stored raw data can also be used in postprocessing with the SAMURAI software from SINUS Messtechnik.

The handheld acoustic camera AC100

*** Compact * mobile * robust * low-cost ***

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SINUS
Messtechnik GmbH

AcustiCAM®

Handheld and conventional acoustic camera with various microphone arrays
SINUS Tornado as perfect multi-channel hardware for acoustic camera application



In addition to the **compact acoustic camera AC100**, our multi-channel system Tornado offers an excellent platform for data acquisition with conventional microphone arrays and for the beamforming calculation with its high-performance PC.

We offer a number of different array geometries with detachable 1/4" ICP microphones optimized for various applications:

- Single circle with 32 microphones (500 Hz to 20 kHz)
- Double circle with 32 microphones (500 Hz to 20 kHz)
- Inline array with 32 microphones for preemptive measurements
- foldable star array with 30 microphones (200 Hz to 20 kHz)
- detachable star array with 30 microphones (1 kHz to 20 kHz)

Each set of 16 microphone signals is connected to the inputs of the Tornado system securely and quickly by means of highly flexible multi-core cables with MDR connectors. This solution also allows use with customer-specific arrays.

Various interfaces are available for the programming of Tornado by the user:

- SINUS MATLAB Toolbox (compileable)
- LabView Library
- API for individual programming with C++ or Python

The main advantage of conventional arrays with Tornado is the universal use of the measuring hardware with the detachable microphones (SMB connectors). The same hardware can also be used for sound power measurement according to the envelope area method or for a simulated Indoor Pass-By.



Double circle array during measurement in an anechoic chamber



Star array in field use



Star array folded during transport

AcustiCAM® AFD 7001 Software

The AcustiCAM AFD 7001 beamforming software ensures precise localization and separation of sound sources.

Any sound situation can be measured with a single measurement along any scanning surface as a colored, two-dimensional, absolute sound pressure distribution.

For the visualization of the sound situation, the localization result can be stored and displayed with an overlaid photograph of the object to be examined.

Features at a glance:

- Localization, separation and analysis of stationary and non-stationary sound sources
- Classical and novel beam-forming algorithms in the time domain and in the frequency domain (eg pass-by for moving objects at constant speed)
- Orthogonal beamforming for the separation of independent Sound sources
- Illustration of the sound situation as a colored, two-dimensional, absolute sound pressure mapping
- Storage of sound pressure mapping with image of the test object
- Continuous localization of sources (live mode)
- Unlimited recording time (streaming)
- Generation and auralisation of the source signal (listen)
- Determination of sound spectra and profiles
- Evaluation of trigger signals
- Support for any microphone arrangement
- Import of time data from array measurements already performed
- Export of calculation results



Dismountable star array in the field on the transport case

Tornado™ Measuring system

This compact measuring system is ideally suited for both stationary and mobile applications. The fanless design and the 3-way power supply with AC, DC and battery (V-mount battery on the back of the unit for 4 h autonomous operation) are key features.

Up to four Apollo PCI Express cards with 64 channels in total can be installed. In addition 8x SLOW channels are available.

The Tornado measuring system is characterized by a very robust mechanical design with a moderate weight.

The fold-out carrying handle on the upper side can be used both for transport and for fastening at the place of use (for example in a vehicle). An optional TFT monitor (12") can also be powered by the V-Mount battery via D-TAB connector.

Processor	Intel i7 3517UE with 4 GB RAM, 256 GB SSD, CFast as backup memory
Operating system	Windows 7 or higher
Interfaces	4x USB, 1x RS232, 2x LAN, DVI
PCIe Slots	4x PCIe x1 for Apollo_PCIe Card, up to 64 (32) measuring channels, 24 Bit @ 51.2 (204.8) kHz sample rate and 8 SLOW channels @ 200 Hz
Keyboard	USB Trackball Keyboard (DE, EN)
Dimensions	210 x 210 x 180 mm
Power supply	12 VDC, 230 VAC, V-Mount Akku
Software	AFD 7001, SAMURAI

