

# SOUND INTENSITY

SOUND POWER DETERMINATION, SOUND SOURCE LOCATION.

When "where the sound is coming from" is in question, nothing is as simple and as intuitive, as our sound intensity solution.



## INTRODUCTION

Sound Intensity is part of the solutions offered by Dewesoft for industrial acoustic applications. Sound Intensity is an experimental technique providing detailed information, such as Sound Power or Noise Source localization, on the sound patterns emitted from a source. Simple scans for viewing intensity levels and complex scans for developing a sound map of the test area are both common techniques used with sound intensity.

## APPLICATIONS

- Sound power determination, e.g. for product noise labelling
- Sound source identification and localization, e.g. compressors, pumps, gearboxes, rotating machinery, transformers and HVAC systems.
- Troubleshooting on machinery, e.g. vehicle NVH performance
- Building acoustics evaluation
- Noise in the workplace

## FUNCTIONALITY

Sound intensity is a measure of the noise per unit area and is used when measuring noise generated by a machine or device in operation. Sound intensity allows calculation of the ISO sound power value.

### Sound power – noise compliance

The Sound Intensity solution complies to sound intensity-based sound power calculation - discrete points segmentation method (ISO 9614-1) and scanning method (ISO 9614-2) to determine product noise.

### Sound intensity – troubleshooting

Sound intensity measurements can identify, localize, quantify and map critical sound sources and detect acoustic leaks and hot spots providing a basis for noise reduction and improvement of products and components.



OBJECT UNDER TEST

SOUND INTENSITY PROBE

 **DEWESoft® X**  
SOFTWARE

RS232 TO USB

SIRIUS MINI



# KEY FEATURES

## QUICK SOUND SOURCE IDENTIFICATION

Identify noise sources with an easy-to-use interface.

## COMPLIES TO SOUND POWER STANDARDS

Use Sound Intensity-based Sound Power calculation - ISO 9614-1 and ISO 9614-2.

## ADAPTED FOR IN-SITU AND LARGE-SCALE

No need for the special acoustic environment - perfect for measuring big chillers, transformers and other large-scale industrial applications in-situ.

## UNMATCHED FLEXIBILITY

Measure additional process parameters like vibration, video and others, all synchronized.

## SUPPORTS MAJOR MANUFACTURERS HARDWARE

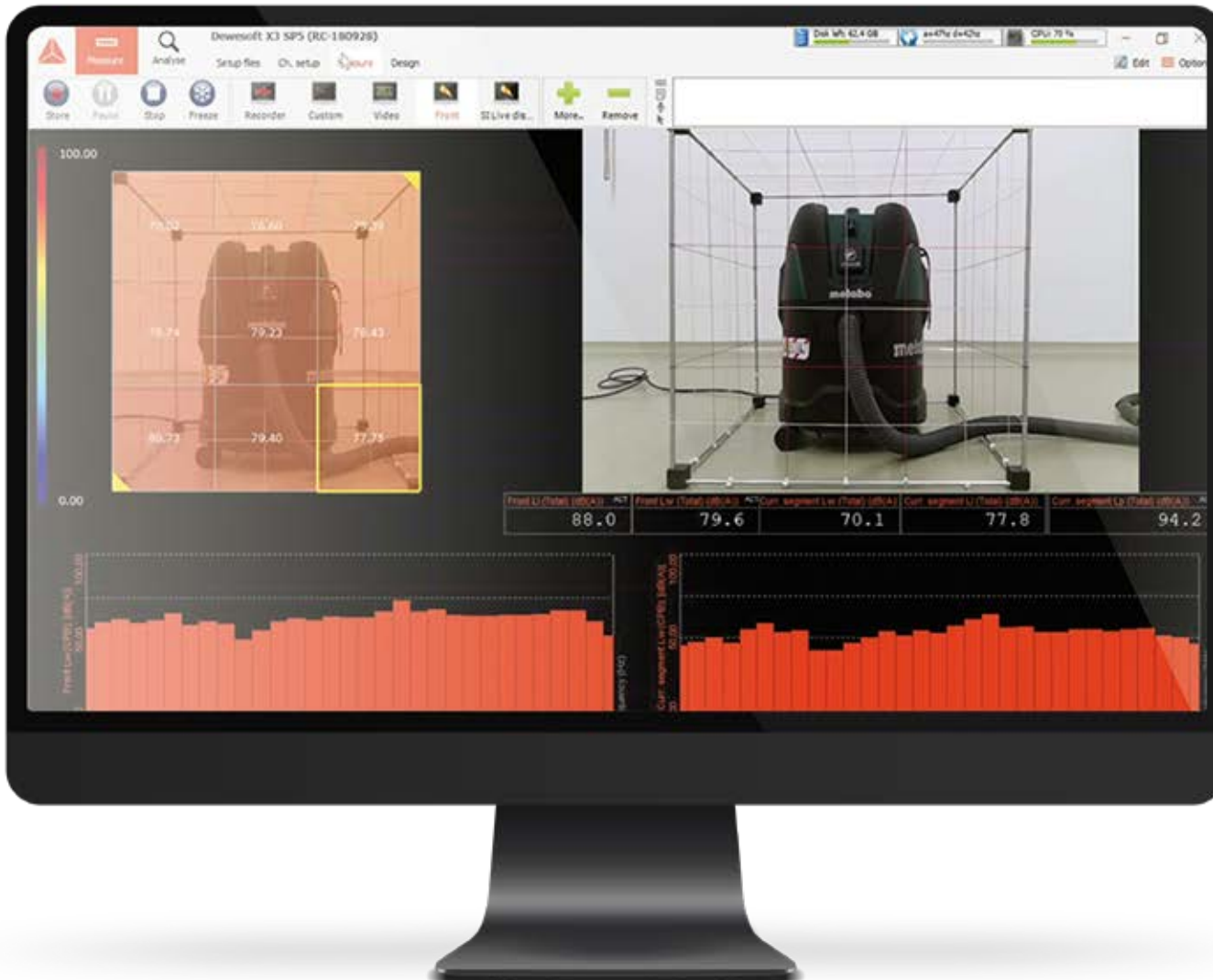
Use any intensity probes from all major manufacturers - plug and play - integrating remote control functionality.

## IEC 61672 CALIBRATION

Calibrate the complete measurement chain of sound intensity solution according to IEC 61672.

## AUTOMATED PHASE CALIBRATION

Enjoy straightforward, automated phase calibration and correction with a single button click.





# SPECS

## DAQ SYSTEM - SIRIUS ACC TYPE INPUT

Inputs		
Input types	Voltage, IEPE	
ADC Type	24bit delta-sigma dual core with anti-aliasing filter	
Sampling Rate	Simultaneous 200kS/sec	
<b>Ranges (Dual Core Low Range)</b>	<b>±10V (±500mV)</b>	<b>±500mV (NA)</b>
Input Accuracy (Dual Core)	±0.1% of reading ±10(1)mV	±0.1 of reading ±1(NA)mV
Dynamic Range@10kS (Dual Core)	140 dB (160 dB)	135 dB (NA)
Typ. SNR@50kS (Dual Core)	107 dB (125 dB)	100 dB (NA)
Typ. CMR @ 50Hz/1kHz	140/120 dB	140/120 dB
Gain Drift	Typical 10 ppm/K, max. 30 ppm/K	
Offset Drift	Typical 0.5 μV/K + 2 ppm of range/K, max 2 μV/K + 10 ppm of range/K	
Gain Linearity	<0.02%	
Inter Channel Phase-mismatch	0.02° * fin [kHz] + 0.1° (@ 200 kS/sec)	
Channel Cross talk	>160 dB @ 1kHz	
Input Coupling	DC, AC 0.1 Hz,1Hz	
Input Impedance	1 MΩ (270kΩ for AC coupling ≥ 1Hz) in parallel with 100pF	
Overvoltage Protection	In+ to In-: 50 V continuous; 200V peak (10msec)	
IEPE mode		
Excitation	2, 4, 8, 12, 16 or 20mA	
Compliance voltage	25 Volt	
Output Impedance	>100 kΩ	
Sensor detection	Shortcut: <4Volt; Open: > 19Volt	
Counters (ACC+ type only)		
Inputs	1 digital counter input, 3 digital inputs, Fully synchronized with analog data	
Counter Modes	counting, waveform timing, encoder, tacho, gear-tooth sensor	
Additional Specifications		
Input connector BNC	BNC	
TEDS support	IEPE mode only	

## RELATED PRODUCTS

- Sound Power
- Sound Quality
- RT60
- Sound Level Meter

## SOFTWARE: DEWESoft X3

### Recommended

Processor:	Intel Core i7 with 4 Cores (3rd generation or higher)
RAM:	8 gigabyte (GB)
Hard drive:	Solid-state drive (SSD)
Graphic card:	Compatible with DirectX 11
Display	1280x720 (HD Ready)
Operating system:	Windows 10 64-bit

\*Actual requirements may be different due to specific setup configuration.

### TYPICAL CONFIGURATIONS

#### DEWESOFT G.R.A.S. BASIC

- DEWESoft SI: sound intensity plugin
- SIRIUSm-4xACC: Sirius mini, 4 Channels
- 50GI-R CCP: Sound intensity probe incl. preamplifier, remote control, G.R.A.S.
- 42AG: G.R.A.S. Multifunction Sound Calibrator, Class 1
- Meteo: SPARC meteo (Temp., humidity and static pressure)
- CPB-CAL: Filter calibration according to IEC 61260
- UC-232A: USB to RS-232 Adapter (35cm)

#### DEWESOFT G.R.A.S. ADVANCED

- DEWESoft SI sound intensity plugin
- SIRIUSi-8XACC, 8XAO: Sirius, 8 Channels, 8 Analog outputs
- 12AB: G.R.A.S. 12AB 2-Channel Power Module
- 42AG: G.R.A.S. Multifunction Sound Calibrator, Class 1
- 51AB: Sound intensity calibrator, G.R.A.S.
- Meteo: SPARC meteo (Temp., humidity and static pressure)
- CPB-CAL: Filter calibration according to IEC 61260
- UC-232A: USB to RS-232 Adapter (35cm)

#### DEWESOFT KIT (SUPPORTS B&K PROBE)

- DEWESoft SI: sound intensity plugin
- SIRIUSm-4xACC - Sirius mini, 4 Channels
- 12AB: G.R.A.S. 12AB 2-Channel Power Module
- Adapter LEMO: 18 pin LEMO to 12 pin & RS232 adapter
- Meteo: SPARC meteo (Temp., humidity and static pressure)
- CPB-CAL: Filter calibration according to IEC 61260
- UC-232A: USB to RS-232 Adapter (35cm)

#### OPTIONAL ACCESSORIES

- 42AA G.R.A.S. Pistonphone, Class 1
- 50GI-CAL: Microphone calibration IEC 1043 Class 1 accredited
- 42AG-CAL: Calibrator calibration IEC 60952 accredited
- 51AB-CAL: Calibrator calibration IEC accredited



## LEARN MORE:

<https://dewesoft.com/applications/acoustics/sound-intensity>

## HEADQUARTERS

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