



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.



SOUND INTENSITY

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

LEARN MORE:

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

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.

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.
- **Unmatched flexibility:** Measure additional process parameters like vibration, video and others, all synchronized.
- **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.
- **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.



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DEWESOFT WORLDWIDE:
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<https://dewesoft.com/support/distributors>

HARDWARE	
Model	50GI-R
CCP Intensity Probe with Remote Control	½" Free-field
Preamplifiers 26CB	Phase-matched
Frequency response and phase-matching	IEC 61043 class 1
Frequency range (±2 dB)	IEC 61043 Class 1
Frequency range with 100 mm spacer	30 Hz – 1 kHz
Frequency range with 50 mm spacer	80 Hz – 1.5 kHz
Frequency range: with 25 mm spacer	120 Hz – 5 kHz
Frequency range: with 12 mm spacer	200 Hz – 10 kHz
TEDS	yes
Weight	400g

SOFTWARE: DEWESoft X3	
Minimum	
Processor:	Intel Atom Z3740
RAM:	2GB
Storage:	1GB of hard drive for software + Storage for datafiles (32GB)
Graphic:	Open GL 4.0 support
OS:	Windows 7 (32bit - 64bit)
Other:	USB 2.0 or higher
Recommended	
Processor:	Intel Core i5, 1.9 GHz
RAM:	4GB
Storage:	1GB of hard drive for software + Storage for datafiles (32GB)
Graphic:	Open GL 4.0 support
OS:	Windows 7 (32bit - 64bit) or Windows 10 (64bit)
Other:	USB 2.0 or higher

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)	

DAQ SYSTEM		SIRIUS 8XACC	
Input types	Voltage		
	IEPE		
ADC Type	24bit delta-sigma dual core with anti-aliasing filter		
Sampling Rate	Simultaneous 200kS/sec		
Ranges (Dual Core Low Range)	±10V (±500mV)	±500mV (NA)	
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		

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