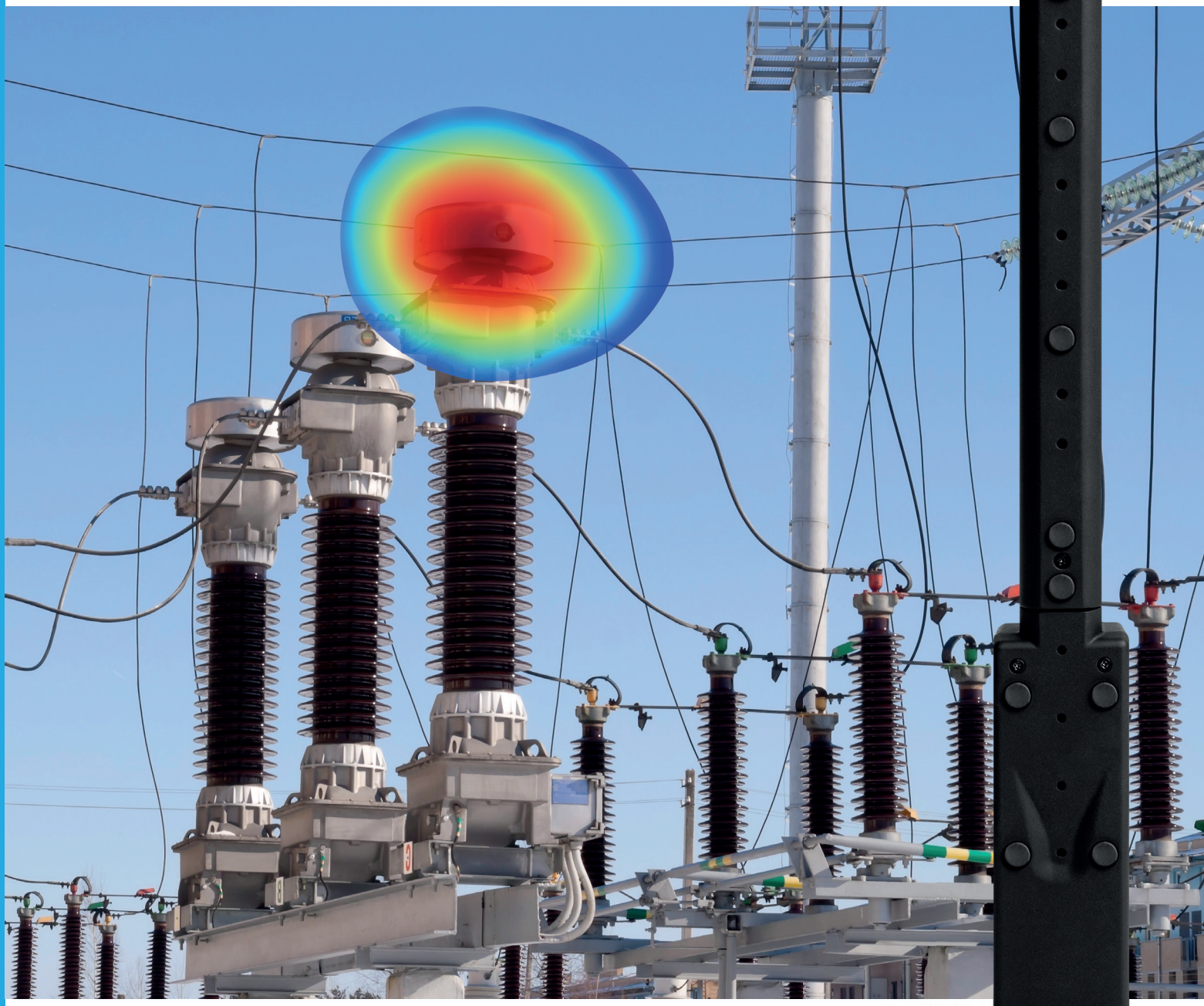
WE MAKE
SOUND VISIBLE



sevenbel
EFFECTIVE SOUND IMAGING

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As an engineer in the energy industry, you are confronted with maintenance and repair work on machines and systems on a daily basis. Don't waste time on lengthy research into the cause of acoustic anomalies. The visualization of noise sources allows you to identify defective components precisely and thus massively reduces the time associated with maintenance work.

1 Results in 3 minutes

No other measurement system delivers acoustic images that fast and efficiently. You can set up the measurement system in less than 3 minutes, conduct the measurement of your use case and immediately receive dependable results for further analysis.

2 Anytime – anywhere

Due to the ultra-compact and light construction you are entirely independent in terms of location. Seven Bel's high performance measurement system works with a mobile device and cloud infrastructure in the background. Notebooks, power supply units or recorders that are usually required are no longer necessary.

3 Extraordinary image quality

Distributed microphones based on state-of-the-art semiconductor technology scan the acoustic field on an area of a disc and produce acoustic images with superior image quality and a high level of information. This facilitates the correct interpretation of the measured data for the user and leads to solutions that can be implemented quickly.

4 Intuitive handling

Benefit from a massively simplified workflow to measure and analyze your sound events. Share your results with your colleagues, partners or clients in the form of automatically generated reports.

WIND POWER

Precise measurement of sound emissions from wind turbines. Acoustic images let you easily identify damaged and worn rotor blades without interrupting ongoing operations.

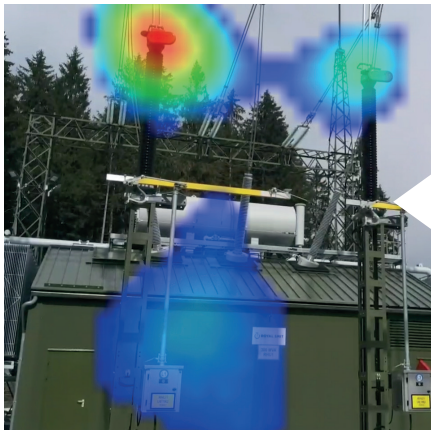
ENVIRONMENTAL NOISE

Disturbing low-frequency noise can travel a long distance through air.

The localization of unwanted sound emissions helps operators to implement targeted solutions and prevent complaints from residents.

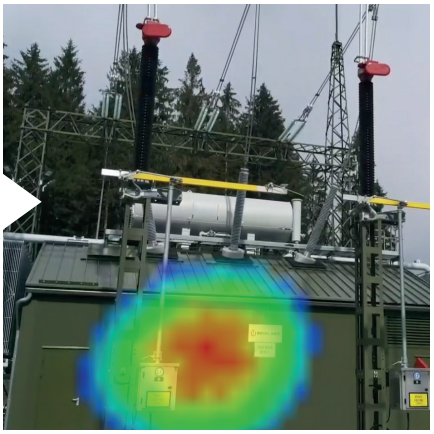
ELECTRICITY NETWORK

During maintenance work, acoustic images help with detecting partial discharge on insulators at an early stage. This allows components to be replaced at the right point in time.



SUBSTATIONS

Transformers emit a variety of different sounds. With acoustic images, low-frequency transformer humming can be clearly distinguished from other, high-frequency sound events such as corona crackling.



SPECIFICATIONS

	P12	P50	P132	P254
SENSOR				
Diameter of scan area	12 cm	50 cm	132 cm	254 cm
Weight (excl. sensor mount and tripod)	200 g	500 g	1400 g	900 g
Rotation frequency (min/typ/max)	0.2 / 2 / 5 revs/s	0,2 / 2 / 5 revs/s	0,2 / 1 / 2 revs/s	0,2 / 0,5 / 1 revs/s
Number of microphones	8	5	5	5
ACOUSTIC IMAGE				
Frequency range	2.8kHz - 44 kHz	700 Hz - 10,5 kHz	250 Hz - 10,5 kHz	125 Hz - 4 kHz
Spatial resolution at 5 kHz (3 dB DNR)	28 °	6,7 °	2,6 °	1,4 °
Dynamic range (DNR)	> 13 dB	> 13 dB	> 13 dB	> 13 dB
Computed images per revolution	up to 6	up to 6	up to 6	up to 6
Measuring distance	0,5 m - infinity	0,5 m - infinity	0,5 m - infinity	0,5 m - infinity
MICROPHONE				
Sample frequency	89 kHz	21,5 kHz	21,5 kHz	21,5 kHz
Resolution	24 bit	24 bit	24 bit	24 bit
Frequency range	20 Hz - 160 kHz	50 Hz - 20 kHz	50 Hz - 20 kHz	50 Hz - 20 kHz
Sensitivity tolerance	+/- 1 dB	+/- 1 dB	+/- 1 dB	+/- 1 dB
Maximum measurable sound pressure level	132 dB	117 dB	117 dB	117 dB
Absolute maximum sound pressure level	N/A	160 dB	160 dB	160 dB

ANALYSIS

Audio

- Real time display of time signal, frequency spectrum and spectrogram
- Stream/pause mode
- Selection of time intervals
- Playback of filtered audio

Acoustic image/video

- Selection of frequency band
- Audio playback
- Single frame or time averaged frames
- Video playback

Data management

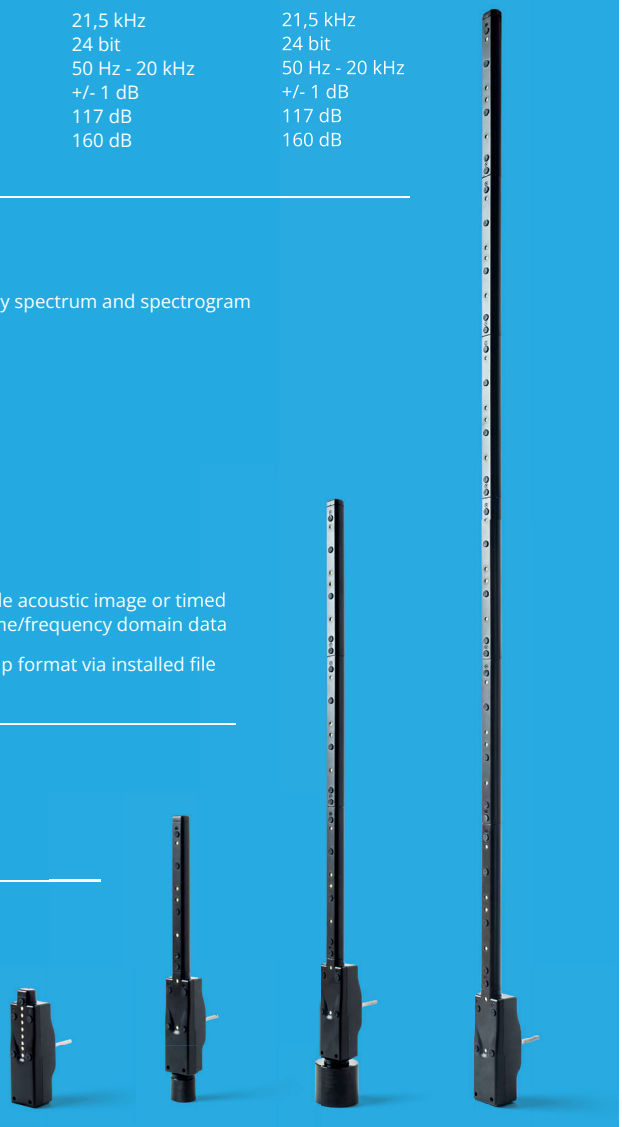
- Automated pdf report generation of single acoustic image or timed averaged images including meta data, time/frequency domain data
- Export and import of measurements in zip format via installed file sharing apps (e.g. Google Drive)

ENVIRONMENTAL CONDITIONS

Operating temperature	-10 °C - 60 °C
Relative humidity	45 % - 85 %

MOBILE DEVICE

Operating system	Android OS version 10.0 or higher



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