Ultrasonic leak detector SONAPHONE M

Function description

Ultrasound is generated due to friction caused by the flow of gases, liquids and solids in pipes and leakages. These ultrasonic signals are recorded by the SONAPHONE M, their intensity is shown on the display screen and made audible through speakers or headphones. As an option, surface temperatures can be measured with a temperature sensor. The recorded data can be stored and transmitted to a personal computer using the integrated USB interface. Ultrasound can be generated in a wide variety of processes, for example:

• at leaks in compressed air-, steam- and vacuum systems

• at steam traps

• at leaky valves, gate valves, shut-offs and valves in piping

• from roller bearing damages

• from cavitation at pumps and compressors

• from flashovers and corona discharges at electrical installations

Using the SONAPHONE M, it is possible to locate precisely the defects and estimate their magnitude. The ultrasonic transmitter SONAPHONE T can be used to detect leaks at pressureless systems, such as vehicles, freight containers, other types of containers and ventilation technique systems, where no ultrasound is generated. The SONAPHONE T generates ultrasonic waves which emerge at the leaks. Precise location is carried out from the outside with the SONAPHONE M.

The SONAPHONE M testing device is a mobile hand-held and battery-supplied unit. Various probes, which are connected directly or via a cable to the device, serve to detect the ultrasound. The type of probe is automatically recognised by the SONAPHONE M by means of a probe code. A temperature sensor (type K thermocouple, NiCr-Ni) with a circular plug-in connector is used for temperature readings (optional). It can be extended at any time using a corresponding extension cable.

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Unit content

SONAPHONE M	Ultrasonic detector with integrated loud speaker incl. carrying strap (for leak detection, steam trap and fitting control, bearing diagnostics and cavitation control incl. datalogger and USB-interface, instruction manual)
Separate air ultrasonic sensor L 50	For leak detection
Extension cable for SONAPHONE M	Length 30 cm
Head phone	High sound deadening
Leather bag	with sensor holder
Directional tube with tip	The focus of the probe is improved through the directional tube; for point measurement a directional tip can be fitted to the tube
Transportation case - big -	Plastic case black (509 x 360 x 116 mm)
Optional accessories:	
Body sound probe L 51 - special -	For the detection of worn out valves, slides etc.
Body sound probe L 52 with stainless steel tip	For steam traps and fittings
Flexible air sound probe L 53	For difficult accessible positions
Body sound probe L 54	For testing of progression, abrasions of bearings and cavitation
Temperature sensor for SONAPHONE E/K/M	(T_{max} = 800 °C)
Extension cable for the temperature sensor	For hot surfaces
SONAPHONE E/M Communicator	Software for data transfer to the PC incl. USB cable
Telescopic bar	Offers a broad reach in workshops in combination with air sound probes (2x1.50 m plus body height)
SONAPHONE T V2.0 Set	Consisting of: SONAPHONE T V2.0, SONOSPHERE spherical transmitter L56 with magnet- and suction cup holder, batteries, lanyard keychain, tripod, bag with carring strap, operating manual
SONOSPOT L55	Parabolic probe for reliable and precise detection over longer distances incl. bag

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Technical data

Function	Multifunctional detector
Display	Graphical display Background lighting Menu control
Connections	Ultrasonic sensor Temperature sensor Headphone USB interface (USB 2.0)
Keyboard	8 function digits
Ultrasonic sensor	Internal and external
External sensors	Sound level (noise level) dBA
Data logger	Memory for 250 single- and long time tests with max. 21.000 datasets
Measuring Range	-10 dBµV to +70 dBµV *1)
Accuracy	±0.5 dBµV
Measuring resolution	0.1 dBµV
Lowest signal level	-5 dBµV typical
Band width	(-3 dB) 2 kHz
Frequency range	40 kHz (20-60 kHz width 2 kHz increments)
Battery pack	Batteries (R6) with a nominal voltage of 1.5V are used
Auto power	Auto power off function
Operating temperature	-10 °C to +60 °C
Temperature measurement range	0 °C to 800 °C
Storage temperature	-20 °C to +60 °C
Housing	Shock-proof plastic with wiping resistant keyboard (foil)
Weight	Approx. 650 g
Dimensions	190 x 110 x 85 mm
CE standards, EU directives and laws	89/336/EEC or 92/31/EEC (Electromagnetic Compatibility) 2002/96/EC (Waste Electrical and Electronic Equipment)

*1) Full range available without switching parameters; leakages with higher signal level are reported as maximum value and already hearable without device.

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