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Data Sheet 5.85-51/1

Sound Intensity Measurement Device, Type 2270-G

Application

The portable, hand-held and battery operated Sound Intensity Measurement Device Type 2270-G is designed to make intensity measurements for noise source location and sound power calculation.

Description

The sound intensity measurement device consists of the hand-held Analyzer Type 2270 with its accessories and software packages and the Sound Intensity Probe Kit Type 3654.

The device comes with a weatherproof carrying case housing the analyzer, a probe with a windscreen, an extension stem with a handle, an intensity adaptor for the Sound Calibrator Type 4231, a tape measure and earphones. The case can also house optional accessories such as a sound calibrator, a sound intensity calibrator and spare batteries.

The system provides on-the-spot analyses of sound intensity spectra, which can be exported via utility software to spreadsheets for sound power calculation.

The hand-held Analyzer Type 2270 can also be completed by a vibration measurement kit.

Advantages

The powerful combination of the hand-held Analyzer Type 2270, the Sound Intensity Software BZ-7233 and the Sound Intensity Probe Kit Type 3654 makes it possible to carry out a complete sound intensity measurement from beginning to end.

Automatic measurement guidance and aural feedback during the measurements allow the person carrying out the measurements to concentrate on making a smooth scan of the area under investigation.

Most of the functionality of the analyzer is generated by the software packages that are loaded into the equipment. So the performance and the number of features can be increased afterwards if necessary.

Table 1: Technical Data

Technical Data	unit	Type 2270-G
Analyzer Input		
Max. voltage	V	±7V
Impedance	Ω	≥1M
Connector		LEMO, triaxial
Analyzer Output		
Max. voltage	V	±4.46
Impedance	Ω	50
Connector		LEMO, triaxial
Analyzer Performance		depends on Software configuration
Analyzer Features		
Display		Color LCD, touch screen
Keyboard		Pushbuttons
Memory (internal flash)	MB	20
Interface		Ethernet TCP/IP, USB, SD-Card, CF-Card
Battery pack		3.7V/4800mAh
Dimension and weight (incl. mic+preamp)		
Length	mm	300
Width	mm	93
Height	mm	50
Weight	kg	0.7
Normal operating conditions		
Rated power supply voltage	V(AC)	100 to120 / 200 to 240
Power supply frequency	Hz	50 to 60
Maximum required input power	W	10
Environmental conditions		
Temperature	°C	-10 to 50
Humidity	%r.H.	10 to 90, non condensing
Altitude	m	<2000
Accessories Analyzer		Type 2270-G
Hand-held Analyzer		Type 2270
Prepolarized Free-field ½" Microphone		Type 4189
Microphone Preamplifier		ZC-0032
Sound Calibrator		Type 4231
Sound Level Meter Software		BZ-7222
Frequency Analysis Software		BZ-7223
Logging Software		BZ-7224
Utility Software for Handheld Analyzers		BZ-5503
PC-Software Noise Explorer		-7815
Travel Bag		KE-0440
Protective Cover		KE-0441
Battery Pack		QB-0061
Mains Power Supply		ZG-0426

Technical Data	unit	Type 2270-G
Accessories Sound Intensity Probe Kit		
		Type 3654
Sound Intensity Microphone Pair		Type 4197
Dual Preamplifier		Type 2683
Sound Intensity Software		BZ-7233
Extension Stem		UA-1439
Handle with Integral Cable		UA-1440
Intensity Adaptor for Type 4231		DP-0888
Carrying Case for Type 2270 and Probe Kit		KE-0548
Accessories Vibration Measurements		
Accelerometer		Type 4514
Cable		AO-0702-D-030
Mounting Magnets		UA-0643
FFT Analysis Software		BZ-7230
Optional Accessories		
Tone Assessment option		BZ-7231
BZ-5503 Software Performance / Features		
On-line Display of data		Utility Software for Handheld Analyzers measurements on Type 2270 can be controlled and displayed on-line with the PC
Data management		Explorer for users, jobs, projects and templates; Data viewer for project content; Template editor; Synchronisation between Type 2270 an PC
Export facilities		MS Excel
BZ-7222 Software Performance / Features		
Transducer database		Sound Level Meter Software serial number, nominal sensitivity, analogue hardware is set up automatically
Correction filters		to compensate frequency response of microphones and accessories
Detectors		parallel, A-,B-,C- or Z- weighted, overload
Measurements		L_{Aeq} , L_{AE} , L_{ASmax} , L_{ASmin} , L_{AFmax} , L_{AFmin} , L_{Almax} , L_{Almin} , L_{Aeq} , start/stop/elapsed time
Dynamic Range (Mic: Type 4189)	dB	16.6 to 140 (@ 1kHz pure tone signal)
Measurement control		manual, automatic, auto-start
Annotations		text, voice, image
BZ-7223 Software Performance / Features		
Transducer database		Frequency Analysis Software serial number, nominal sensitivity, analogue hardware is set up automatically
Correction filters		to compensate frequency response of microphones and accessories
Detectors		parallel, A-,B-,C- or Z- weighted, overload
Measurements		L_{Aeq} , L_{AE} , L_{ASmax} , L_{ASmin} , L_{AFmax} , L_{AFmin} , L_{Almax} , L_{Almin} , L_{Aeq} , start/stop/elapsed time, spectra for L_{Aeq} , L_{ASmax} , L_{ASmin} , L_{AFmax} , L_{AFmin}
Measurement control		manual, automatic, auto-start
Annotations		text, voice, image
Centre Frequencies		
1/1-octave Band Centre Frequencies	Hz	8 to 16k
1/3-octave Band Centre Frequencies	Hz	6.3 to 20k
Dynamic Range (Mic: Type 4189)	dB	1.7 to 140 (@ 1kHz pure tone signal 1/3 octave)

Technical Data	unit	Type 2270-G
BZ-7224 Software Performance / Features		
		LoggingSoftware
Transducer database		serial number, nominal sensitivity, analogue hardware is set up automatically
Correction filters		to compensate frequency response of microphones and accessories
Detectors		parallel, A-,B-,C- or Z- weighted, overload
Measurements		L_{Aeq} , L_{AE} , L_{ASmax} , L_{ASmin} , L_{AFmax} , L_{AFmin} , L_{Almax} , L_{Almin} , L_{Aeq} , start/stop/elapsed time
Logging		measurement data logged at pre-set periods into files on SD- or CF-cards
Logging time	s	1 to 86400
Dynamic Range (Mic: Type 4189)	dB	16.6 to 140 (@ 1kHz pure tone signal)
Measurement control		manual, automatic, auto-start
Annotations		text, voice, image
BZ-7230 Software Performance / Features		
		FFT Software
FFT sampling frequency	kHz	51.2 (downsampling)
FFT frequency span	Hz	100, 200, 500, 1k, 2k, 5k, 10k, 20k
FFT lines		100, 200, 400, 800, 3200, 6400
FFT spectrum		averaged, maximum
Measurement control		manual/triggered/auto start,
Averaging		linear, exponential
Display spectra		RMS, peak, peak-to-peak, power scaling; linear or log X- and Y- axis; Digital post A-weighting
Display parameter		sound pressure, vibration, direct
Detectors		parallel, A-,B-,C- or Z- weighted, overload
Measurements		L_{Aeq} , L_{AFmax} , L_{AFmin} , L_{Almax} , L_{Almin} , L_{Aeq} , L_{AFteq} , L_{Apeak} , start/stop/elapsed time
Dynamic Range (Mic: Type 4189)	dB	16.6 to 140 (@ 1kHz pure tone signal)
BZ-7231 Software Performance / Features		
		Tone Assessment Option Software
Spectra assessed		any displayed sound FFT spectrum (with BZ-7230 only) or 1/3-octave spectrum
Tone assessment cursor		all tones found are indicated in the display
Tone at cursor		sinusoidal tone is available at the headphone output
BZ-7233 Software Performance / Features		
		Sound Intensity Software
Transducer database		serial number, nominal sensitivity, preamp ID
Correction filters		to compensate frequency response of microphones and accessories
Frequency Range		
1/1-octave Band Centre Frequencies	Hz	31.5 to 8k
1/3-octave Band Centre Frequencies	Hz	25 to 10k
Frequency weighting		Z- and A- weighted
Detectors		linear integration from 1s to days, overload
-7815 Software Performance / Features		
		PC-Software Noise Explorer
Input		RS232, PC-Card, Import (BZ-5503)
Output		Windows (R) Clipboard, Printer, Export (*.xls, *.asc, *.uff)
Calculation		sound power, sound reduction
Display of data		spectrum view, cumulative and level distribution, profiles, surface view, tabular results