



SoundExpert™ LXT



www.larsondavis.com



Sound Level Meter

Designed for Professionals



LARSON DAVIS
A PCB PIEZOTRONICS DIV.

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The All-In-One Sound Level Meter For The Noise Professional



- Standard 1/2 inch Free Field or Random Incidence Microphone
- Integrated Preamplifier Collar to Eliminate Reflections

- ← Large High Resolution Display
- ← One-button Access to Measurement Set-up
- ← Run/Pause Control
- ← Navigational Keypad
- ← System Set-up Access

- ← Display Navigation
- ← Dual Purpose Start/Stop
- ← Reset/Clear Memory
- ← Recessed On/Off Button

- ← USB Host (Thumb Drive Storage)
- ← USB and Power
- ← Headphone Jack

Applications

- Product Noise Evaluation
- Production Line Acoustic Testing
- Site Assessment
- Attended Noise Measuring
- Environmental Noise Monitoring

Highlights

- Class 1 Sound Level Meter
- Random Incidence (RI) or Free Field (FF) microphones
- Complete firmware package
- 30 hours of operations using AA lithium batteries
- Rugged, compact, lightweight

Included Features & Capabilities

- Real-Time Octave Band Analysis (1/1 & 1/3)
- Time History Logging
- Community Noise Metrics
- 2GB Internal Memory
- Measurement History

Options

- Tripod (TRP001)
- Class 1 Calibrator (CAL200)
- Rugged Outdoor Case (EPS042)

SoundExpert LxT Sound Level Meter:

(LxT1-SE-FF or LxT1-SE-RI)

The Larson Davis SoundExpert LxT Sound Level Meter is a full-featured meter designed for general product evaluation and noise monitoring applications. SoundExpert LxT comes with a graphic display and a fixed set of firmware options applicable for these applications. It is available as a general hand-held meter or data acquisition tool and also in a short-term noise monitoring kit. The meter expands upon the Larson Davis tradition of delivering value, innovation and function in a rugged, single-handed package, and is backed by our 2-year factory warranty, 24-hour application support, and accredited factory service/calibration.



Compact, Portable, Complete Measurement System



Applications

- Mining Operations
- Construction Site Noise
- Wind Turbine Noise
- Motorsports
- Entertainment Events
- Industrial Operations
- Unattended Noise Monitoring

Highlights

- Complete noise measuring system
- Weatherproof, lightweight, compact case (EPS042)
- Up to 300 hours of operations with a D-cell battery pack (BAT015)
- Ideal to deploy, measure, download, then analyze
- Includes SoundExpert LxT

Options

- Tripod (TRP001)
- Class 1 calibrator (CAL200)
- DNA analysis software (SWW-DNA)
- LxT driver for DNA (SWW-DNA-LXT)

SoundExpert LxT Noise Monitoring Kit:

(NMS-SE-FF or NMS-SE-RI)

In addition to the SoundExpert LxT meter, this kit includes the EPS042 protection case and D-cell battery pack, the EPS2108-2 microphone protection shroud, and EXC010 10 ft. cable. Using D-cell alkaline batteries, allows the noise monitor to be smaller and lighter; avoid the expense of shipping heavy lead acid batteries and the hassle of recharging. You can transport it easily to your site, deploy it, measure data, retrieve your system, download the data, and issue your report.



Application Solutions:

The SoundExpert LxT was specifically designed to provide a simple, easy-to-use meter to provide professional measurements to support your Product Engineering or Basic Noise Monitoring needs. It comes configured with a fixed set of firmware options that will typically meet the needs of the professional engineer or consultant.

Product Engineering Applications

- Vehicle NVH Analysis
- Acoustic Target Setting and Evaluation
- Appliance Noise Testing
- Speaker Evaluation
- Production Line Acoustic Testing



Product Noise Evaluation

The SoundExpert LxT provides the functions, metrics, and accessories needed to help you develop quieter products. This instrument is well suited for acoustic development in the automotive, motorcycle, appliance, turbine, and speaker industries. Available with free field or random incidence microphones and with a detachable preamplifier and microphone that comes with extension cable options from 6 to 200 feet, this device makes noise measurement and recording simple and portable.

Production Line Acoustic Testing

Production line acoustic testing is necessary for qualifying and inspecting a wide range of products and sub-assemblies. The SoundExpert LxT meter provides an affordable method to measure noise for pass/fail assessments and for archiving for future traceability. This data can identify alignment errors, missing components, cracks, defects, and other anomalies. Octave band analysis can be used to get immediate diagnostic feedback as to what has failed on the component that can help root cause the concern and eliminate warranty costs. This data can also be used to predict subjective customer perceptions and to set quality standards that drive product acceptance and differentiation.

Noise Monitoring

- Mining Industry
- Traffic
- Industrial Assessments
- Wind Turbine
- Construction Sites
- Public Venues
- Code Enforcement

Attended Noise Measuring

The SoundExpert LxT is your professional tool for hand-held or attended noise monitoring projects. It comes loaded with the firmware you need for logging, metrics, and octave band analysis and 2GB internal memory is standard. It's perfect for site assessments, compliance evaluations, and root cause investigations.



Short Term Monitoring Projects

When you need a simple and affordable noise monitoring solution for periods less than two weeks, the SoundExpert LxT, battery powered, monitoring kit is the perfect fit. It's small, lightweight, and easy to transport with a basic D-cell battery pack. Optional tripods and analysis software are available. Deploy it, measure it, retrieve, download your data, and issue the report!



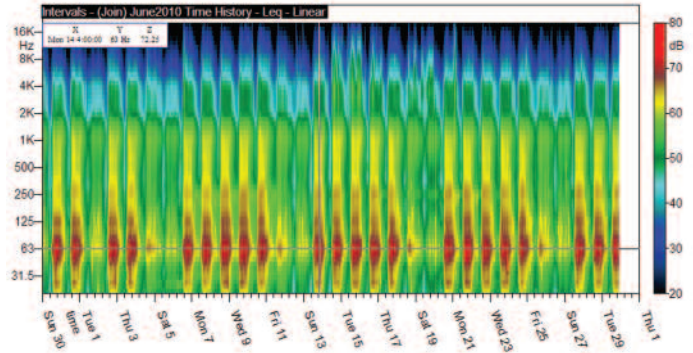
Software Solutions:

The SoundExpert LxT has numerous on-board capabilities, yet often further processing, visualization or reporting needs exist. For this purpose the SoundExpert LxT can be used as a portable instrument and retrieve the data, work as a data acquisition front-end, or in combination.

SLM Utility-G3

The SLM Utility-G3 program is included with your SoundExpert LxT and is an easy-to-use utility for managing and providing configuration set-up and data download. The Screengrabber feature emulates the SLM screen on your PC, convenient for presenting data stored on the SoundExpert LxT or for teaching classes. Measurement set-ups can be stored on the PC and exchanged with one or more sound level meters. Data can be downloaded into a PC and easily exported to Excel® for further analysis.

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Environmental Noise Spectrogram from DNA

Data Navigation and Analysis Software (SWW-DNA)

Data Navigation and Analysis Software (SWW-DNA) is designed to analyze and report environmental noise, factory noise and product noise with an interactive graphical interface. DNA and the SoundExpert LxT can be used in two ways: DNA retrieves files from the SoundExpert LxT or DNA uses the SoundExpert LxT as a data acquisition front-end.

- Interactive graphs with data zoom, evaluate processing for events with linked cursors over several graphs
- Reprocess time history data to remove unwanted noise
- Customizable template-based operation

A major differentiating concept of DNA is the principle of separation of data and graphical layout. This allows for drag-and-drop functionality of new data in the same layout. With many environmental studies being similar in nature, this feature allows for quick, professional looking reports.

Software Development Kit (831-SDK)

The Software Development Kit for the SoundExpert LxT interfaces smoothly and directly with the Microsoft® programming environment, either for Excel® VBA or Visual C++ programming. The SDK consists of two main parts, the SLM Server and the SLM Translator.

The SLM Translator is the library that allows for the reading of data files. The SLM Server provides on-line SLM access and control. The SDK integrates completely and seamlessly into the Microsoft® programming environment with the included files and interfaces.

The SDK is ideal for those who want to integrate a SoundExpert LxT into their system.





SoundExpert™ LxT



SoundExpert LxT Features

Class 1 Precision Integrating Sound Level Meter
1/1 and 1/3 Octave filters
2GB internal, non-volatile memory
User defined Data Logging with selectable parameters and storage rate
Intervals (Measurement History) for a second independent data logger
LDEN and LDN community noise
High Contrast LCD display with LED backlight; sunlight readable
USB communication
Slow, Fast, or Impulse time weighting
A, C, and Z frequency weighting
Six (6) user defined statistic levels (Ln)
Battery life > 16 hours using 4 AA Alkaline batteries
AC and DC outputs
Multiple language support (English, German, French, Italian, Spanish, Portuguese, Swedish, Turkish)
Field upgradable firmware using SLM Utility G3
Removable Microphone and Preampfier
Back erase -5 or -10 s
Two year limited warranty

SoundExpert LxT Specifications

Averaging (Integration Method)	Linear or Exponential
RMS Time Weighting	Slow, Fast or Impulse
RMS Frequency Weighting	A, C or Z
Peak Frequency Weighting	A, C or Z
Sample Rate	51200 Hz
Peak Rise Time	≤ 30 μs
Range Level Error (OBA)	≤ ± 0.1 dB
Compliance	ANSI Type 1, IEC Class 1
Ranges	Single Range for Broadband 2 ranges for OBA
Maximum Clock Drift at 77 °F (25 °C)	< 2.6 s per day

1/1 and 1/3 Octave Filters

1/1 Octave Filters	8 Hz to 16 kHz
1/3 Octave Filters	6.3 Hz to 20 kHz
Filter Selection	None, 1/1, 1/3, or 1/1 & 1/3
Frequency Weighting	A, C or Z (unweighted)
Maximum Spectrum	Maximum in each band or at broadband Lmax
Compliance	ANSI and IEC Class 1

Logging and Measurement History

Logging Period	1 s to 24 hr
Logged Parameter	User selectable from Leq; Lmax; Lmin; LCSeq – LASeq; LAleq – Laeq; 1/1 OBA Leq, Lmax, Lmin; 1/3 OBA Leq, Lmax, Lmin, Battery, Internal Temperature
Measurement History Period (Continuous run mode)	1 min to 24 hr
Measurement History Parameters	Leq; Lmin w/time; Lmax w/time; Lpeak w/time; Exceedance counts w/duration; LAeq, Lceq, 1/1 OBA Leq, Lmax, Lmin; 1/3 OBA Leq, Lmax, Lmin

Community Noise

Measured Parameters	LDEN, LDN
Day, Evening, Night Times	Programmable
Evening and Night Penalty	Programmable

Time Averaged Level Integration Time

Minimum	1 s
Maximum (error < 0.5 dB)	> 23 days

Ln Percentile

Number of User Defined Ln's	6
Ln Resolution	0.01%
Distribution Table Resolution	0.1 dB

Markers

Number of Markers	10
Predefined Markers	5

Measurement Modes

Available Modes	Manual Stop, Timed Stop, Stop when Stable, Continuous, Single Block Timer, Daily Block Timer
Manual Stop	Measurement defined by run and stop button
Timed Stop	Time in hh:mm:ss
Stop When Stable	Change < xx.x dB for hh:mm:ss
Continuous	Auto file store 1, 2, 4, 6, 12, 24, 48, 96, 144 times per day
Single Block Timer	Start date and time to end date and time
Daily Block Timer	3 unique start/stop times per day, multiple days

AC/DC Output

Connector	2.5 mm stereo
AC Output Maximum Voltage	± 2.3 V peak
AC Output Recommended Load	≥ 16 Ω
DC Output Resolution	10 mV/dB (0 to 100 dB)
DC Output Time Weighting	Follows SLM Setting (F, S, I)
DC Output Frequency Weighting	Follows SLM Setting (A, C, Z)

Dynamic Range (typical)

A Weighted	17 dB to 118 dB
C Weighted	19 dB to 118 dB
Z Weighted	24 dB to 118 dB



Power	
Batteries	4-AA (LR6) 1.5 V Lithium or Alkaline
External Power	5V from USB
AC Power Supply	PSA029 (Worldwide)
12V Supply (optional)	PSA031 – 12 VDC to 5 VDC
Continuous Runtime	18 hours Typical using Alkaline Batteries
Continuous Runtime	30 hours Typical using 1.5 V Lithium Batteries
Continuous Runtime	> 13 Days Typical using optional BAT015

Physical Characteristics	
Length (overall)	11.4 in (29.0 cm)
Length (instrument body only)	8.8 in (22.4 cm)
Width	2.8 in (7.1 cm)
Depth	1.6 in (4.1 cm)
Weight (with batteries)	1.0 lb (471 g)
Weight (with batteries, microphone and preamplifier)	1.1 lb (513 g)
Maximum Preamplifier Cable Length	200 ft (61 m)
Ingress Protection Rating	IP54

Environmental	
Temperature Sensitivity	$\leq \pm 0.5$ dB +14 to +122 °F (-10 to +50 °C)
Storage Temperature	-22 to +140 °F (-30 to +60 °C)
Humidity Sensitivity	$\leq \pm 0.5$ dB, 30% to 95% RH at +104 °F (+40 °C)

SoundExpert™ LxT Standards	
ANSI S1.4-1985 (R2001) Specification for Type 1 Sound Level Meters	
ANSI S1.43-1997 (2002) Specifications for Integrating-Averaging Sound Level Meters, Type 1	
ANSI S1.11-2004 Specification For Octave-Band And Fractional-Octave-Band Analog And Digital Filters, Classes 1	
IEC 61672-1:2002 Sound Level Meters, Class 1	
IEC 61260:2001 Octave-Band And Fractional-Octave-Band Filters, Class 1	
IEC 60651:2001 Sound Level Meters	
IEC 60804:2000 Integrating-Averaging Sound Level Meters	
IEC 61010-1:2001 Ed 2.0 Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use – Part 1: General Requirements	
IEC 61326-1:2005 Electrical Equipment for Measurement, Control and Laboratory Use – EMC Requirements	
CE Directive 2004/108/EC	

Ordering Information

Model	Description
LXT1-SE-FF	SoundExpert LxT with 377B02 free-field microphone, SLM Utility G3 software
LXT1-SE-RI	SoundExpert LxT with 377B20 diffuse field microphone, SLM Utility G3 software
NMS-SE-FF	SoundExpert Environmental Noise Monitoring System – includes LXT1-SE-FF, EPS042, EPS2108-2, EXC010, SLM Utility G3 software
NMS-SE-RI	SoundExpert Environmental Noise Monitoring System – includes LXT1-SE-RI, EPS042, EPS2108-2, EXC010, SLM Utility G3 software
Included Accessories	
PRMLxT1L	Microphone Preamplifier
PSA029	Universal AC power supply
CBL138	USB Cable 6 ft (2 m)
Batteries	4-AA Alkaline
WS001	Windscreen 3.5" (90 mm)
Optional Accessories	
CAL200	Class 1 acoustic calibrator with 1/2 inch opening
SWW-DNA	Advanced Analysis Software
SWW-DNA-LXT	DNA driver for SoundExpert LxT
EPS042	Environmental Enclosure for LxT, includes BAT015 and gland for microphone cable
EPS2106-2	Outdoor protection for preamplifier with 3/4 inch NPT thread
EPS2108-2	Outdoor protection for preamplifier with 1/4 - 20 screw mount for tripod
LXT-CCS	Hard Shell carrying case
PSA031	12 VDC to 5 VDC power converter
EXCxxx	Microphone extension cable in various lengths
CBL139	Cable connection AC/DC out to RCA or BNC
TRP001	Camera type Tripod for mounting EPS2108-2
Calibration	
CER-LXT1	Calibration for SoundExpert LxT
CER-MIC	Calibration for Microphone

