SOUNDEXPERT®
SOUND LEVEL METER

LARSON DAVIS

A PCB DIVISION

SOUNDEXPERT LXT SOUND LEVEL METER

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

SOUNDEXPERT LXT

MODELS 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.

HIGHLIGHTS

- Class 1 Sound Level Meter
- Random Incidence (RI) or Free Field (FF) microphones
- 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)

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

Display Navigation

Dual Purpose Start/Stop

Reset/Clear Memory

Recessed On/Off Button

USB Host (Thumb Drive Storage)

USB and Power

Large High Resolution Display

One-button Access to Measurement Set-up

Run/Pause Control

Navigational Keypad

System Set-up Access

Headphone Jack

SOUNDEXPERT LXT OUTDOOR NOISE MONITORING KIT

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

NOISE MONITORING KIT
MODELS 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 EPS2116 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.

HIGHLIGHTS

- Complete noise measuring system
- Weatherpoof, 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)

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

- 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

- Vehicle NVH Analysis
- 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.
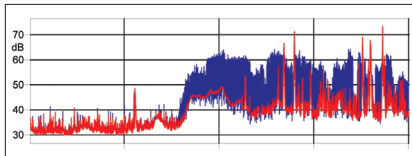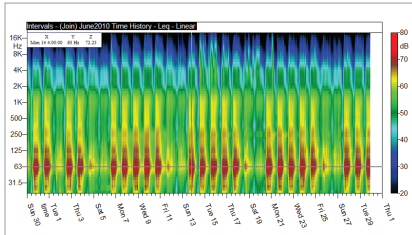
DATA NAVIGATION AND ANALYSIS SOFTWARE (SWW-DNA)

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.

G4 LD UTILITY

The G4 LD Utility 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.

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 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	Singe 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; LAIeq – 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

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	≤ ± 0.5 dB +14 to +122 °F (-10 to +50 °C)
Storage Temperature	-22 to +140 °F (-30 to +60 °C)
Humidity Sensitivity	≤ ± 0.5 dB variation from 10% to 99% relative humidity (non-condensing)

Standards

ANSI S1.4-2014 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, Class 1
IEC 61672-1:2013 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, G4 LD Utility software
LXT1-SE-RI	SoundExpert LxT with 377C20 diffuse field microphone, G4 LD Utility software
NMS-SE-FF	SoundExpert Environmental Noise Monitoring System – includes LXT1-SE-FF, EPS042, EPS2116, EXC010, G4 LD Utility software
NMS-SE-RI	SoundExpert Environmental Noise Monitoring System – includes LXT1-SE-RI, EPS042, EPS2116, EXC010, G4 LD Utility 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 ½ 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
EPS2116	Outdoor microphone protection
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 EPS2116
Calibration	
CER-LXT1	Calibration for SoundExpert LxT
CER-MIC	Calibration for Microphone

SOUNDEXPERT® LXT

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

SOUNDTRACK LXT N/FORCER

- Community Noise Standards and Code Enforcement
- Nuisance Noise Complaint
- Traffic Noise and 'Boom Cars'
- Evidential Data

SOUNDTRACK LXT1-QPR

- Firearms Acoustic Analysis
- Shooting Ranges Noise Assessment
- Impulsive Noise Measuring

SOUNDTRACK LXT

- Workplace Noise Exposure Assessment
- Plant Noise Surveys
- Hearing Protection Analysis