Sound Level Meter for Environmental Noise

- **Exceedance Based Logging**
- **Audio and Voice Recording with Replay**
- **Multiple Communication Options, Including GPRS**
- **2 GB Data Storage Including Audio Files**
- **Small, Lightweight, Ergonomic Design**
- **Real Time 1/1 and 1/3 Octave**

...and a whole lot more

Model 831 is the newest Sound Level Meter from Larson Davis – with capabilities not found in other meters: USB powered, ANY LEVEL™ data representation, huge data storage, and remote access technologies that fit your "real life" needs and expectations. The rugged, ergonomic design is ideal for one-handed operation, right or left.

The 831 can be used with a complete range of microphones and preamplifiers including weather-resistant units for unattended and semi-permanent monitoring applications.
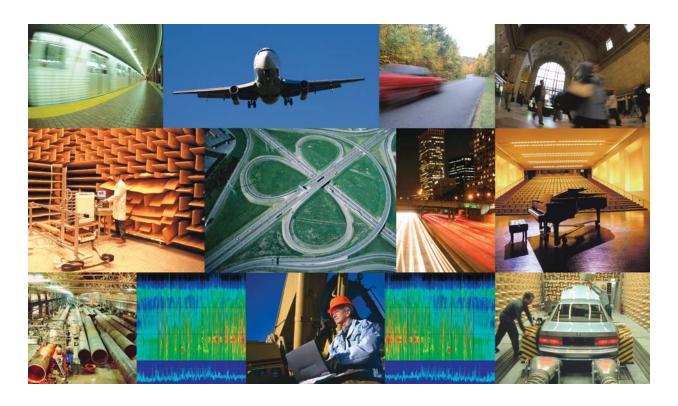
As with all Larson Davis equipment, this product is complemented with toll free applications assistance, 24-hour customer service, and is backed by a no-risk policy that guarantees satisfaction or your money refunded.

Larson Davis

A PCB Group Co.

Acoustic Test Products Group

✓ Precision integrating sound level meter, ANSI S1.4 type 1, IEC 61672 class 1

✓ Single measurement range from 20 to 140 dB SPL

✓ 120 MB standard data memory, expands up to 2GB

✓ 160 x 240 graphic LCD display with backlight and icon driven user interface

✓ Elastomeric illuminated keypad with "Quiet Touch" tactile action

✓ Detectors: linear, slow, fast, impulse, peak

✓ Frequency weighting: A, C, Z

✓ Peak frequency weighting: A, C, Z

✓ L_n statistics (L0.01 through L99.99 available) and Histogram tables

✓ Measurement or Interval History stores statistics with every run or by time interval

✓ Exceedance History with programmable length and triggers

✓ Jack for AC/DC output or Headset microphone and speaker

✓ Voice annotation recording with playback, from headset or measurement microphone

✓ Digital audio recording of events and interval start

✓ Detachable preamplifier with up to 30m (100 feet) microphone extension cable (full scale to 20 kHz)

✓ 4 – AA batteries provides up to 12 hours of battery life

✓ Dust tight (IP53), durable plastic case with tripod mount and lanyard

✓ USB 2.0 peripheral full-speed port

✓ AUX control connector for USB Mass Storage, Cellular & Dialup Modems and future devices

✓ AC and DC signal output connector, 2.5 mm phone jack

✓ Utility software included for setup, control and high speed data download, application software available

✓ Field-upgradeable firmware

Total Customer Satisfaction Guaranteed

Larson Davis, Inc.
3425 Walden Avenue, Depew, NY 14043-2495 USA
Toll Free: 888-258-3222   Phone: 716-926-8243   Fax: 716-926-8215
Email: sales@LarsonDavis.com   www.LarsonDavis.com
ISO 9001:2000 CERTIFIED

Larson Davis provides a complete line of acoustic and vibration measurement tools including dosimeters, sound level meters, real time analyzers, pre-amplifiers, calibrators, and microphones.

Model 831 Standards, Features & Specifications

Standards Met by Model 831

The Model 831 meets the specifications of the following standards:

Sound Level Meter Standards

IEC61672-1 Ed. 1.0 (2002-05) Class 1, Group X
IEC60651 Ed 1.2 (2001) plus Amendment 1 (1993-02) and Amendment 2 (2000-10) Type 1, Group X
IEC60804 (2000-10) Type 1, Group X
ANSI S1.4-1983 (R 2006) plus Amendment S1.4A-1985 (R 2006) Type 1
ANSI S1.43-1997 (R 2007), Type 1

Octave Filter Standards (Option 831- OB3)

IEC61260 Ed. 1.0 (1995-08) plus Amendment 1 (2001-09), 1/1 and 1/3 octave bands, Class 1, Group X, all filters
ANSI S1.11-2004 Class 1

Personal Noise Dosimeter Standards (Option 831-IH)

IEC61252 Ed. 1.1 (2002-03) Type 1
ANSI S1.25-1991 Class 1

Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use

2006/95/EC Low Voltage Safety Directive
IEC 61010-1 Ed. 3.0 (2010-06)

EMC Immunity and Emission

2004/08/EC EMC Directive
IEC 61326-1 Ed. 2.0 (2012-07)
IEC 61672-1 Ed. 1.0 (2002-05)
FCC Title 47 CRF Part 15, Class B

Model 831 General Features and Characteristics

Class 1 Precision Integrating Sound Level Meter with real-time 1/1 and 1/3 octave filters
Non-Volatile Memory
High contrast 1/8th VGA LCD display with white LED backlight; sunlight readable
Icon-driven graphic user interface
Soft rubber backlit keys
Large dynamic range
Time weightings: Slow, Fast, Impulse, Integration and Peak simultaneously (AnyData)
Frequency weightings: A, C, Z simultaneously (AnyData)
1/1 and 1/3 octave frequency analysis available
Voice message annotation and sound recording
Ln statistics (L0.01 through L99.9 available)
SLM Utility-G3 software available for set-up, control and high speed data download with export to Excel®
Multi-tasking processor allows measuring while viewing data or transferring data
Data Secure feature saves data to permanent memory every minute
AC/DC outputs to recorder
Long battery life; > 16 hours continuous measurement
Multiple language support: English, German, Italian, Spanish, Portuguese, Swedish, French & Turkish
Field-upgradable firmware: keeps instrument current with the latest measurement features
Two-year limited warranty

Sound Level Meter Specifications

Averaging (Integration method)	Linear or Exponential
RMS Time Weighting	Slow, Fast or Impulse
Frequency Weightings	A, C or Z
Peak Detector Frequency Weighting	A, C or Z
Gain	0 dB or +20 dB
Exchange Rates	3, 4, 5, or 6 dB with optional 831-IH
Sample Rate	51,200 Hz
Peak Rise Time	30 µs

Physical Characteristics

Length with Microphone and Preamplifier	11.35 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, No Preamplifer or Microphone	13.6 oz	390 g
Weight with Batteries, Preamplifer and Microphone	1.2 lb	550 g

General Specifications

Reference level	114.0 dB re. 20 µPa
Reference level range	Single large range for SLM Normal for OBA option, Gain 0 dB
Reference frequency	1000 Hz
Reference direction	0° is perpendicular to the microphone diaphragm
Temperature	≤ ± 0.5 dB error between +14 to +122 °F (-10 to 50 °C)
Storage temperature	-4 to 158 °F (-20 to 70 °C)
Humidity	≤ ± 0.5 dB error from 30% to 90% relative humidity at 104 °F (40 °C)
Equivalent Microphone Impedance	12 pF for Larson Davis 1/2 in microphone
Range Level Error (OBA option)	≤ ± 0.1 dB relative to the reference range
Digital Display Update Rate	Four times per second (0.25 sec between updates). First display indication is available 0.25 seconds after initiation of a measurement.
Effect of an Extension Cable	None (up to 200 ft or 61 m with EXCxxx cable)
Electrostatic Discharges	The instrument is not adversely affected by electrostatic discharges
Extended Weather Options	-40 to +158 °F (-40 to +70 °C) operation with CER-831-E

Resolution Specifications

Levels	0.1 dB
Dose	0.1%
Elapsed time	0.1 second
Real time clock	1 second
Calendar	Through 31 Dec 2100

Integration Time

Time Averaged Levels and Sound Exposure Levels (s)	
Minimum	0.1 second
Maximum with Daily Autostore Enabled	Unlimited
Maximum with Daily Autostore Disabled	> 23 days with error < 0.5 dB
Dosimeter Metrics: TWA, Dose (s)	
Minimum	0.1 second
Maximum	Unlimited

Ln Statistics

Number of selectable parameters	6 in xx.xx% format, visible on the Model 831
Storage of Complete Table	0.1 dB Steps
Spectral Statistics	Requires Octave Analysis option (831-OB3)

Markers

Number of Markers	10
Prenamed Markers	5: Truck, Automobile, Motorcycle, Aircraft, Exclude
Link Marker to Automatic Sound Recording	Yes, requires Sound Recording option (831-SR)

Back Erase

Back Ease Time	5 or 10 seconds
Supported Modes	Manual

Measurement Control Modes

Available Modes	Manual Stop, Timed Stop, Stop when Stable, Continuous, Single Block Timer, Daily Block Timer
Timed Stop	Time in hh:mm:ss
Stop When Stable	Delta level in xx.x dB and time in hh:mm:ss
Continuous with Daily Auto-Store	1, 2, 4, 6, 12, 24, 48, 96 or 144 files per day, automated file numbering "yymmddnn.LD0"
Continuous Restart on Power Failure	Automatic if powered by 12VDC
Single Block Timer	Start date and time to End data and time
Daily Block Timer	Up to 3 blocks with each start and end date, blocks can cross date line

Clock Stability

< 1 sec in 24 hours, at 75 °F (+24 °C)
< 10 sec in 30 days, at -40 to +158 °F (-40 to +70 °C)

Digital Voice Annotation

Annotate Recordings	Use headset (ACC003) or measurement microphone
Recording Sample Rate	8 ksps
Listening Options	On the Model 831 or using processing software for .wav files

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