LARSON DAVIS
A PCB DIVISION

MODEL **831-RT**

REVERBERATION TIME SOFTWARE

- T20 and T30 measurements according to ISO 3382-2:2008 and ASTM E2235-04
- Fast and easy-to-use
- 1/1 and 1/3 octave band analysis
- Supports Integrated Impulse Response and Interrupted Noise excitation methods
- Built-in pink and white noise generator
- Automated trigger
- Display of RT spectrum, individual and ensemble decays
- Quality indicators to ISO 3382-2
- Field upgradeable – requires no other options

TYPICAL APPLICATIONS

- Reverberation time
- Absorption coefficient
- Room acoustics
- Architectural acoustics

MEASUREMENT AND CALCULATION

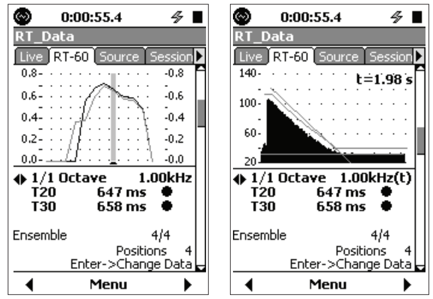
Whether for performance venues, architectural measurements or work-place acoustics, reverberation time is a key parameter for characterizing a room. A long reverberation time can make speech less intelligible and music can become garbled. Too short a reverberation time can muffle speech and make a room sound “thin”. The 831-RT firmware option adds reverberation measurement and calculation functionality to the Model 831 Sound Level Meter.

831-RT firmware was designed with simplicity in mind yet complies with the latest ISO 3382-2 and ASTM E2235-04 measurement standards. It supports both the Integrated Impulse Response and Interrupted Noise excitation methods and includes an automated trigger to easily control the measurement. The on-board signal generator provides a pink or white noise source for optional amplifiers and omni-directional or facade speakers via the AC/DC output connector on the Model 831.

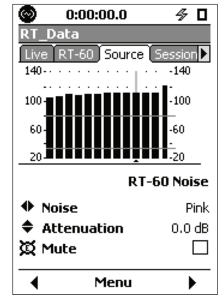
The user can display an individual RT spectrum and discard those with erroneous data. The spectra from multiple positions are ensemble averaged to display an overall RT60 calculation.

A full battery of quality indicators supports the validation of measurements. Additionally, grading of the measurement according to ISO 3382-2 indicates whether sufficient positions (microphone-source combinations) have been acquired to obtain the expected grade: survey, engineering or precision.

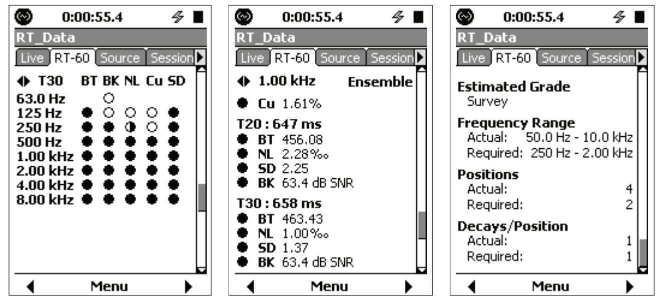
SPECIFICATIONS
831-RT with Model 831 Complies with the Following Standards
ISO 3382-1:2006 Measurement of Room Acoustic Parameters Part 1: Performance Rooms
ISO 3382-2:2008 Measurement of Room Acoustic Parameters Part 2: Reverberation Time in Ordinary Rooms
ASTM E2235 (2004) Standard Test Method for Determination of Decay Rates of Use in Sound Insulation Test Methods.
IEC 61672-1:2002 Class 1 Electroacoustics – Sound level meters
IEC 61260-1:2003 Class 0 Electroacoustics – Octave-band and fractional-octave-band filters
Reverberation Time
Impulse Excitation using reverse time integration (Schroeder method)
Interrupted noise excitation with internal or external source
Least squares estimation of the T20 and T30 slopes
1/1 octave band: 63 Hz to 8 000 Hz
1/3 octave band: 50 Hz to 10 000 Hz
Selectable bandwidth – (1/1 or 1/3 octave) and selectable frequency range
Selectable trigger bandwidth and level
Programmable exit time: 0 – 99 seconds
Programmable build time (interrupted noise method): 0 – 19 seconds
Programmable acquisition time: 2 – 9 seconds
Sampling time: 2.5, 5, 10 or 20 milliseconds
Reverberation time – as large as 33 seconds (19 seconds acquisition window, with 20 milliseconds sample time)
Predefined setups for impulse and interrupted noise methods
Measurement state: exit, background, pretrigger, ready, triggered, done
Display of integrated impulse response with decay
Ensemble and individual decay viewing
Decay exclude and include
T20 and T30 reverberation time spectra
Quality Indicators to ISO 3382-2
Quality indicators: curvature, standard deviation, non-linearity, BT check and SNR-background
Ensemble and individual decay quality indicators
Survey, engineering and precision uncertainty grade indicator
On-board Signal Generator
Pink or white noise generation with 0 – 50 dB attenuation in 3 dB steps
Generator output via 2.5 mm jack
Measurement controlled or manual preview mode
Data Management
Storage of data on 831 with or without individual decays
Ensemble and individual decay quality indicators
Export of data to MS Excel, DNA and SDK
Sound Level Meter
Requires no other software option
Field-upgradable



RT DISPLAYS OF DECAY CURVES



NOISE SOURCE DISPLAYS



QUALITY AND MEASUREMENT GRADE INDICATORS

ORDERING INFORMATION	
831-FF or 831-RI	Model 831 Sound Level Meter with Class-1 pre-polarized precision condenser microphone (50 mV/pa), preamplifier (PRM831), accessory kit (831-ACC).
831-RT Upgrade	For Model 831 Sound Level Meter. Reverberation time (1/1 and 1/3 octave, pink and white noise generation, auto trigger). Does not require any other options
CAL200	Class 1 acoustic calibrator with user selectable output of 94 or 114 dB at 1 kHz.
TRP001	Instrumentation tripod w/ ADP032 preamp to tripod interface.
EXA025	Microphone extension cable, 5 pin Switchcraft, 25 ft (8 m).
TRP002	Adjustable microphone stand (5/8" thread) with boom. (Use with ADP068)
ADP068	½" preamplifier holder for Switchcraft 5-pin cable to microphone stand.
BAS001	Omnidirectional source
BAS002	Power Amplifier for BAS001 and BAS003
BAS003	Directional source (FACADE)
TRP023	Tripod for omnidirectional source and directional source

LARSON DAVIS
A PCB DIVISION

3425 Walden Avenue, Depew, NY 14043 USA

larsondavis.com | sales@larsondavis.com | 888 258 3222 | +1 716 926 8243

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