



# Model 831 Reverberation Time Software

Measurement and Calculation of Reverberation Time using the Integrated Impulse Response or Interrupted Noise Methods with 831-RT Firmware.

## Highlights

- 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 upgradable – requires no other options

## Applications

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



SLM UTILITY G3 V2.0



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 façade 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.

**831-RT****831-RT with Model 831 complies with following standards**

ISO3382-1:2006 Measurement of Room Acoustic Parameters Part 1: Performance Rooms  
ISO3382-2:2008 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 to 99 seconds

Programmable build time (interrupted noise method): 0 to 19 seconds

Programmable acquisition time: 2 to 9 seconds

Sampling time: 2.5, 5, 10 or 20 milliseconds

Reverberation time – as large as 33s (19s acquisition window, with 20 ms 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 to 50 dB attenuation in 3 dB steps

Generator output via 2.5mm jack

Measurement controlled or manual preview mode

**Data management**

Storage of data on 831 with or without individual decays

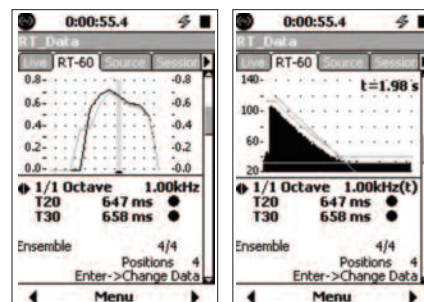
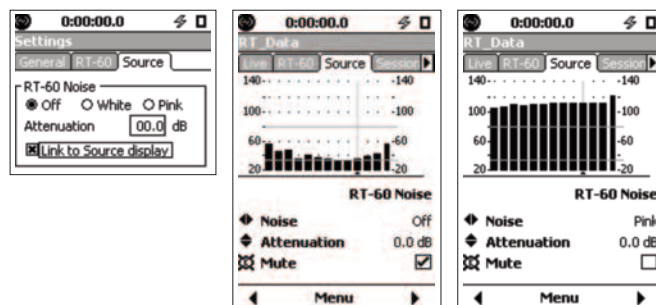
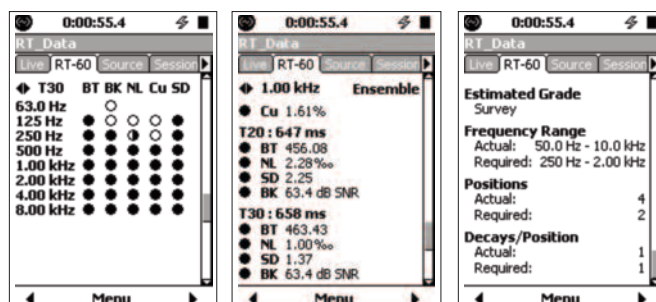
Ensemble and individual decay quality indicators

Export of data to SLM Utility-G3, MS Excel, DNA and SDK

**Sound Level Meter**

Requires no other software option

Field-upgradable

**RT Displays of Decay Curves****Built-In Pink and White Noise Source Display****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 (50mV/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' (8m).

TRP002 Adjustable microphone stand (5/8 in thread) with boom. (Use with ADP068)

ADP068 1/2 in 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

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