
List of enhancements and fixes made to Larson Davis Model 831 Firmware¹

Model 831 V2.112 Enhancements and Fixes

January 2012

- Improvements to the communication watchdog were made to prevent watchdog triggering when downloading large files over slow Internet connection.
- Fixed a defect that prevented downloading more than 99 sound recordings (5331).

Model 831 V2.110 Enhancements and Fixes

November 2011

- Takt Max fixed and confirmed to be compliant with DIN 45657
- The list of available microphones on the Calibration Microphone tab now includes the 377C01 and 377C10 (3158 & 3159).
- Added functionality to turn the instrument off while locked to prevent accidental improper shutdowns (5058).
- The Dosimeter setting tabs have moved to the right to improve the navigation experience for the majority of users (4997).
- When using the Vaisala weather station, the data labels for Temperature and Humidity are translated per the localization language instead of having to be entered by the user. Also there was a mismatch between the values and the units displayed (5047, 5306 & 5309).
- An under range indication now appears for the Measurement History Ln centiles; the digits will become grey when influenced by the noise floor (5146).
- The ability to adjust FFT graphs independently of other graphs was added (5148).
- Improvements were made to improve the connection and reconnection method robust to the 831-INT-ET.
- Fixed a defect that prevented the LAFTM5 metric from showing in the time history metric setting list (5280).
- Corrected the algorithm for LAFTM5 to meet the specific requirements of DIN 45657:2005-03 (5284).
- Corrected a problem with the measurement of the maximum and minimum weather metrics in the time history; they were always the same value that was found at the instant the record began rather than the true maximum and minimum values (5285).
- Corrected a problem with the At-Max OBA spectrum capture that allowed it to occur at other broadband weightings than just the one selected (5295).
- Corrected a problem that would allow the AC output to send the microphone's signal to the amplifier in an RT-60 measurement configuration and thus cause the system to generate audio feedback (5298).
- Enhanced the GPS time adjustment mechanism to prevent the time correction from stepping to a previous day when the adjustment was negative. The daily measurement will now continue into the next day for the length of the adjustment before setting the time (5299).
- Corrected a problem with the displaying of GPS data on the Overall display (5308).
- Changing the microphone type setting now requires stopping the measurement.

¹ Note: Numbers in parenthesis such as "(3210)" are an internal tracking number.



- Added a message to indicate when there is data corruption in the flash memory file system: “Bad Flash blocks detected. Please backup data and format the file-system.” This can be caused by an improper instrument shutdown or when the internal flash memory has internal block read faults do to wear on the device. If the problem persists it is recommended to have the flash memory replaced.

Model 831 V2.110 Known Issues

- An older Model 831 having a DSP version of 0.3, when using the MDMUSB-E wireless/cellular modem, will not properly connect via the Internet. The workaround for this configuration is to use firmware version 2.000 in the Model 831.

Model 831 V2.101 Enhancements and Fixes

August 2011

- Allow enabling Measurement History in FFT mode without requiring purchase of the 831-ENV option.
- Fixed Big Digit display not allowing the displayed parameter to be changed.
- Fixed a bug that caused the keypad to quit working after an auto-store in FFT mode.
- Fixed a bug that causes the instrument to crash when OBA weighting is set to A weighting and OBA statistics are enabled.
- Fixed a bug that caused random lockups and crashes, especially when booting the instrument.
- Only show “Options Mask” tab in SLM mode.

Model 831 V2.100 Enhancements and Fixes

July 2011

- FFT functionality added with these features:
 - Frequency span adjustable from 100 Hz to 20 kHz (in a 1-2-5 sequence)
 - 400 – 6400 lines
 - Windowing (Hanning, Flat Top, Rectangular)
 - Frequency Weighting A, C, and Z
 - Run modes Manual Stop, Count Stop, and Timed Stop
 - Graphical zooming on the display (not FFT zoom)
 - Manual, max-tracking or harmonic cursor(s)
 - Graphical display in G3
 - FFT displays Live, Overall, and History
 - Average and Max data types
 - Units: dB re 20μPa
 - Output: Magnitude only
- Restricted Evening time to be between Day and Night time settings for LDEN.
- When the Exceedence option is masked the dynamic trigger now becomes inactive in the Settings tab.
- Streaming data now uses a more accurate time stamp.
- The Voice recorder progress bar is now reset when terminating a saved recording.
- Voice annotation record progress bar now moves even if the record is not saved.
- In the Measurement tab, the Spectral LN cursor is now limited to 20 kHz.
- Fixed Measurement History timestamp error that occurred when Daily Auto-Store was set to midnight.
- Weather units displayed for Wind, Temperature, and Humidity now take advantage of the full width of the edit box.



- Fixed Data Explorer incorrectly showing file size of 0 kB.
- Reduced the RT-60 Minimum Build Time lower limit from 2 seconds to 1 second.
- Fixed Voice Recorder occasionally causing the meter to get stuck when in the "Run Pending" state.
- Attempting to stream live audio no longer causes the meter to crash.
- Fixed occasionally getting "unable to save file" message in the RT-60 mode.
- Sound output no longer continues after stopping playback.
- In the RT-60 mode, before a measurement has been made, "No Data" is now displayed on the History Tab instead of a blank graph.
- RT-60 positions count is now correct if a measurement is terminated early.
- Fixed a problem that would not allow more than 10 sound records to be downloaded over analog or wireless connections.
- Fixed a problem that would store an incorrect Automatic E.A. Cal-Check Spectrum level.
- A "Reset Required" message is now displayed when turning off USB host port when GPS is on.
- When viewing a file in the Data Explorer, the OSHA-1 and OSHA-2 pages of Overall and Measurement displays now show the Detector correctly.
- A warning was added to the manual that having two DVX008As connected to a hub causes unpredictable behavior.
- Fixed time of day drift that occurred while using ScreenGrabber .
- Fixed a problem that caused the broadband Lmax data not to be reset between records in the Time History record.
- 24 kHz or 48 kHz sound recordings can no longer be selected if a settings conflict is detected.
- Time History LZpeak(max) when compared to Overall LZpeak(max) now match.
- Fixed Time History Peak Levels being displayed as invalid when period is 1 minute or longer.
- Fixed USB bugs associated with thumb drives and communications.
- The manual was updated to better describe the way that the dynamic trigger feature works.

Model 831 V2.000 Enhancements and Fixes

December 2010

- 831-RT option automatically computes reverberation time (RT60).
- LAE (SEL) is standard.
- SIL4 added as part of OBA option and is the arithmetic average of the level in 500 Hz, 1 kHz, 2 kHz and 4 kHz octave bands. Requires 831-RA and 831-OB3.
- When using daily timers, the run time is now managed more accurately.
- Can bring the Model 831 out of standby mode using SLM Utility-G3.
- Changes to the weather parameter ADC2 unit name will display correctly.
- Microphone sensitivity now supports 4 digit calibration values.
- In saved data the GPS would previously be live data; now displays from saved data.
- GPS position now displays with an additional digit precision.
- Large digit display updates at approximately four times per second for Fast time weighted metrics.
- Stored files display using the preferences that were active when file was stored.
- Instrument identification expanded to two lines.
- Updated Model 831 manual to better describe automatic file naming.
- The sound level displayed in the mark sound type display is more stable.



- The print screen image is gathered immediately so changing displays will not cause an unwanted screen to be printed.
- When a Vaisala WXT-520 is connected and then USB disabled, Model 831 will not reboot
- On spectra Ln displays, cursor now stops at 20kHz filter.
- If run mode is set to 'stop when stable' and the Model 831 is set to Auto-store the file, the instrument will no longer become unresponsive after run has been pushed.
- Improvements to MDM-USB-E ability to connect and signal strength indicator.
- MDM-USB-E can now connect to different PCs. Previously, only the first IP address received was able to connect.
- "Out of memory" SMS message will be sent once instead of every 20 seconds.
- Logic IO triggers correctly when set to trigger on 'event'.
- Humidity scale can be set to a positive number.

Model 831 V1.603 Enhancements and Fixes

October 2010

- Big digit display refresh rate change made faster.
- Improvements made to Edge modem to download files with many sound recordings and improve ability to connect.
- Measurement history bug fixed that could cause 0.1s record when using timers.

Model 831 V1.602 Enhancements and Fixes

August 2010

- Missed samples when pressing run can cause spectral noise.
- Headset recording with revision B or earlier board is fixed.
- When dominant noise is below approximately 6 Hz and at a low level sometimes the 831 could report very low LAeq levels.
- Sound recordings would not play back when file downloaded via RS232 or Edge modem
- Various weather data fixes and improvements.
- Accuracy improved for time stamp in streaming data .
- Edge modem could fail to connect when using 831 with version 0.4 DSP.

Model 831 V1.601 Enhancements and Fixes

March 2010

- When OBA is off or uninstalled, sometimes calibration or voice recording can cause time history data to be incorrect.

Model 831 V1.600 Enhancements and Fixes

February 2010

- Supports Vaisala WXT-520 weather sensor, SEN031.
- Support for improved clock chip on 831 with revision D circuit board.
- Support for Z-MODEM download protocol when using wireless or wired modem connection. Requires DSP version 0.5 or greater.
- The 426A12 internal temperature and humidity data is now stored in measurement history.
- Features to stream the audio signal when connected via USB client.
- Martel USB printer, PRN003, supported on 831.
- Czech language support added.
- Improvements made to connectivity and reliability of wireless EDGE connections.

- Boot loader enhanced to provide the following functionality:
 - Press and hold Tools and Enter simultaneously will force boot loader to wait 120s before loading firmware. This allows time to program new firmware
 - Press and hold Power key will turn off 831
 - Press and hold Stop, Reset and Enter simultaneously will cause the 831 to format internal SD flash. This is useful if the 831 fails to fully boot because of a corrupt file system.
- When manually instigating an E.A. check it is noted in the session log.
- GPS time sync improved.
- Support for 2565 microphone added.
- 831 will reliably come out of power save mode without appearing to lock up.
- Under-range indication calculations were corrected.
- Weather pages were added to the current tab.
- When 831 is in power save mode a remote command to run will be processed correctly.
- The profile data graph on Live tab now displays 1s Leq data, previously 0.1s data was shown.
- Character entry is displays characters specific to the language selected.
- Memory management improved to avoid low memory reboots when 831 heavily used.
- When using back erase, the records marked in time history could be one too many.
- Measurement history sound recording length corrected.
- Several issues with SMS messaging fixed.
- 48kHz streaming audio improved. During long periods of time a sample rate mismatch between the PC sound card and 831 can cause skips.
- When exporting to Excel, the wind speed and wind direction names follow the names used in the 831.

Model 831 V1.520 Enhancements and Fixes

November 2009

- Loading V1.520 firmware will cause 831 to reformat data drive and reset settings.
- Added QC tonality.
- Fixed "black bar" lockup that could occur while booting.
- Fixed problem where 831 would occasionally reboot while performing a download using analog modem.
- Several bug were fixed that will lead to improved reliability when making long term measurements.
- QC Tonality algorithm modified to exclude tones if tonal band is not greater than both sidebands.
- Updated Brazilian Portuguese translations.
- Fixed an issue when power save enable the 831 display will not always repaint correctly when power save is exited.
- 1/3 octave 40 and 50 Hz filter real time performance improved.

NOTE: Use with SLM Utility-G3 V1.520 or later

Model 831 V1.512 Enhancements and Fixes

May 2009

- Allow USB memory sticks larger than 2GB to be detected properly.
- Allow time history to time sync; uses MH time sync (ELA).
- Bad SR files, manual stop sometimes copied the SR file.
- Split Portuguese into Brazilian and Portugal Portuguese.
- Make C-A, impulsivity and TaktMax part of base package (not requiring ELA).
- Edge modem would lock-up in disconnected state and not respond.
- Sound Recording 48kHz which is manually started will not record correctly if ended due to pressing stop key but will duplicate.
- The 831 lost focus while doing measurement with Run Mode: Stop When Stable
- Sound recordings corrupted by repeating recorded data.
- Added measurement number to GPS page on measurement tab.
- GPS will always time sync. Previously would only sync if time difference was greater than 2 seconds.
- When interval time is set to 0, the error message states that a valid time must be ≥ 1 min.
- When ELA option is not present and sound recording is triggered using the threshold then the event logic is not reset when a measurement is run. This is manifest when the threshold is set lower than the minimum SPL such that a sound recording is expected every time a run is started but you only get one sound recording.
- 831 gives a timer overlap message when there is no apparent timer overlap.
- Added ability to temporarily turn off purchased options (masking).
- On some instruments ScreenGrabber acted slowly or would hang, this is fixed.
- Added TaLarm display for German customers.
- Fixed sound recording bug that would cause the sound recording proceeding a run command to have repeated data.

NOTE: Use with SLM Utility-G3 V1.51 or later.

Model 831 V1.500 Enhancements and Fixes

July 2008

- New firmware options
 - GPS support is part of the standard Model 831
 - 831-MDM supports the analog modem and the serial port
 - 831-WTHR supports logging of weather parameters
 - 831-SR runs in manual or continuous mode without LOG or ELA
 - 831-COMM supports the wireless modem (MDMUSB-E)
 - 831-FST supports the faster logging (2.5, 5 and 10 milliseconds, requires 831-LOG)
- Model 831 supports remote access by analog modem (MDMUSB-A), wireless modem (MDMUSB-E), serial port technology (DVX008A+CBL117) and long USB cables.
- Model 831 supports the 831-INT Interface Cradle delivering power and control to the outdoor microphone, powered USB hub, weather sensors reading, logic I/O and battery management.
- Model 831 supports the permanent outdoor microphones models 426A12 and PRM2100K in 2 modes: direct or via the 831 interface cradle, 831-INT.
- The internal humidity and temperature of the 426A12 permanent outdoor microphone can be logged. Using TEDS the serial number of the 426A12 is read.
- Large digital display with selectable function in the live tab.
- Back erase function allows for 5 or 10 seconds erase.

- Timestamp with 0.5 milliseconds is added in Time history (when logging faster than 1 second).
- Daily Auto-store has more frequencies: 1x, 2x, 4x, 6x, 12x and 24x. At 24x per day you have hourly files. If the GPS is enabled, the clock can be synchronized automatically.
- LAeq – LAeq metric added for impulsivity measurement.
- Daily Auto-store and continuous mode are part of the base Model 831.
- Calibration history and EA history will store the calibration spectrum if OBA is enabled on the instrument.
- Spectrum at overall Lmax level can be stored.
- 4 Normalized spectra for 1/1 and 1/3 octaves can be recorded or edited, next to 3 fixed ones. Comparison or relative views are supported.
- Weather parameters can be logged: wind speed and direction, temperature and humidity.
- Logic input and output are supported, also via the 831-INT interface cradle.
- The GPS unit tags the measurement location in the overall data or the measurement history (each interval using ELA).
- Sound recording snapshots are possible as marker in manual mode and in automatic mode synchronized with each interval in measurement history, with each event.
- Link function allows to link time histories with measurement histories on the instrument for quick navigation.
- New icons for the Events tab allow live tracking of event detection and sound recording.
- Overall reliability and performance improvements.
- New soft pouch, CCS032.
- Event trigger status display to show 831 event processing on a single display.
- LAE added to events.
- Support for E-Lithium batteries for longer run times.
- The default setting for battery type is set to Alkaline (in NiMH mode charging of Alkaline or E-Lithium batteries can lead to damage).
- Post trigger control added to Event Time History so that the 831 will store a pre-defined number of samples after an event has ended.
- 831-FST option added that allows for 2.5ms, 5ms and 10ms data storage. This enables logging at 400 frames per second (2.5msec) (831-FST).
- 831 can do a file system check or format a USB thumb drive eliminating the need to do this on a PC.
- Free-field to random and random to free-field corrections are available.
- Time sync feature extended to time history and event time history so that when enabled, all time histories will be synchronized.
- Timing accuracy has been improved.
- Noise floor and under-range data changed for from 15pF to 12pF for 377B02 and 377B20 microphones to more closely match typical capacitance values.
- USB thumb drive support improved.
- Overall performance improvements to make the 831 more responsive.
- Measurement history and Auto-store will be delayed until an event has completed so that a measurement or files will not break an event into two pieces.
- When run mode is continuous and a file is manually stored, the default file name will follow the auto-store naming convention.
- BootLoader will check battery voltage, show a message and not boot the 831 if batteries are low preventing an improper shutdown due to low batteries.
- The external battery shutoff voltage is user programmable.
- L_{DN} and L_{DEN} computation does not require a full 24 hour period but will project the level for any period that has partial data.



- The default range setting for OBA and SR has been changed to low range.
- There is an option to select all files in the 831 for transferring to USB thumb drive.
- Some unwanted “calibration out of range” warnings have been eliminated.
- When a delete all internal files is done, the suffix counter will be reset.
- 20ms and 50ms time history data computed correctly when integration method is exponential.
- The dose will now always be computed from the exponentially averaged data, Fast or Slow, regardless of the integration method setting for compliance with ANSI S1.25 requirements.
- New languages added: Norwegian.

Model 831 V1.157 Enhancements and Fixes

November 2007

- SLMScreenGrabber 2.1.3 may cause the Model 831 with DSP V0.5 to lock-up.
- Download file occasionally loses data during transmission is addressed with Error-Checking Protocol on USB file downloads.
- Time history peak can have 0dB levels in DNA, “---” on instrument. This was caused because the peak detector was returning a level of 0 and $\log_{10}(0)$ = undefined. This has been changed to report the level associated with the peak detector noise floor.
- When the OBA is A-weighted and integration method is exponential, a mathematical error has been fixed that could cause low frequency levels to read very high (>130dB)
- The standards declaration on the about screen has been changed to be consistent with the new back labels.
- Support for DSP V0.5.
- 50ms time history was labeled as 40ms .
- Sound Recorder Improvements.