

LA-1440 and LA-4440 Sound Level Meter

Measures L_{Aeq} (or L_X) every **10 Minutes** for **24 Hours** and Stores Data Automatically

This instrument is useful for measuring noises for a long time, for example 24 hours from 6:00 AM to 6:00 next morning in the case of traffic noise measurement, etc. This manual explains how to use this instrument in such an environment by showing the following case for instance: a user utilizes the sound level meter to repeatedly measure L_{Aeq} (or L_X) every 10 minutes for 24 hours and store data automatically.

■ Basic concept of operation

Most of sound level meters including the LA-1400 series meters have screens indicating the instantaneous value for L_A and the calculated value such as for L_{Aeq} , L_{MX} , L_{MN} , and L_N . On the instantaneous value screen, an instantaneous value is updated every second. On the calculated value screen, each value is measured and calculated based on the measurement time specified in the menu. Each value is displayed as the result of measurement and calculation after the “START” button is pressed. This manual refers to the former measurement as instantaneous measurement and the latter as calculation measurement.

In the following operation procedure, “ ” indicates a button on the panel (“MENU” for example) and [] indicates an optional item in the menu ([MEMORY] for example).

■ Measurement conditions

Measurement start time	6:00 a.m.
Total measurement time	24 hours
Measurement time	10 minutes
Time weighed characteristics	FAST
Frequency characteristics	A

■ Buttons used for menu operation



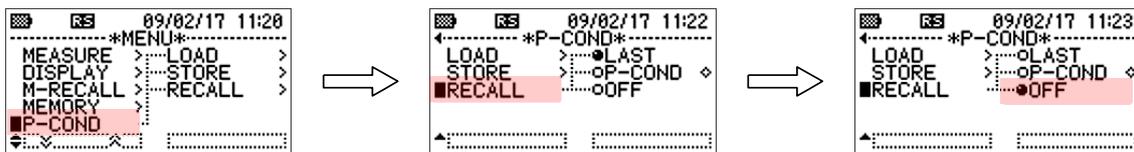
1. Press the “MENU” button on the measurement screen to display the menu. Press the [MENU] button while the menu is displayed, the screen is returned to the measurement screen.
2. The Up, Down, Left, and Right arrows on the “UP/DOWN” button can be pressed to move the cursor to an optional item in the menu.
3. For value setting, use the “Up/Down arrow” on the “UP/DOWN” button to select a numerical value and the “Left/Right arrow” to select a digit.
4. Press the “ENTER” button to confirm the selected item and setting value.

■ Operation procedure

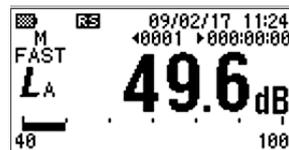
1. Starting in the factory default condition

Start the sound level meter with the factory default values. The sound level meter is initialized to “frequency characteristic: A; time weighting characteristic: FAST; instantaneous measurement”.

- 1. Switch on the power with the “Power” switch.
- 2. Press the “MENU” button to display the menu screen. On that screen, select [P-COND] → [RECALL] → [OFF].



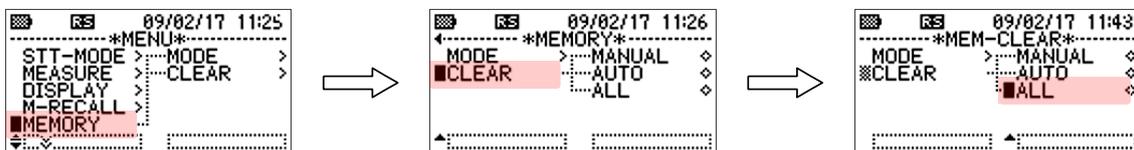
- 3. Press the “MENU” button to return to the measurement screen.
- 4. Switch off the power with the “Power” switch. After a while, switch the power on again. The sound level meter is started with the factory default setting.



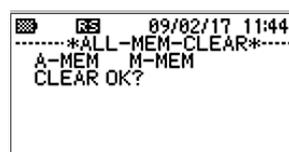
2. Clearing all memories

Clear all memories of MANUAL, AUTO 1, AUTO 2, and AUTO 3.

- 1. Press the “MENU” button to display the menu screen. On that screen, select [MEMORY] → [CLEAR] → [ALL].



- 2. When the confirmation message screen [CLEAR OK ?] appears, press the “ENTER” button. This operation will clear all memories.



- 3. Press the “MENU” button to return to the measurement screen.

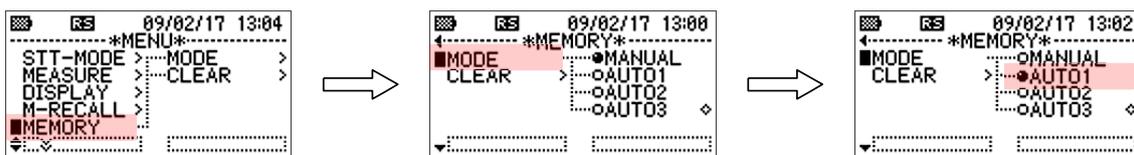
3. Setting the memory mode to “AUTO 1”

Four memory modes are available: MANUAL, AUTO 1, AUTO 2, and AUTO 3, in each of which a different type of data is stored. In the MANUAL memory mode, the same data as in AUTO 1 mode is stored in the memory each time when the “STORE” button is pressed. In AUTO 1 memory mode, measurement data is automatically stored in the memory when the specified “measurement time” is reached. This operation is repeated up to the specified “total time”.

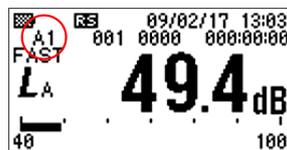
The AUTO 1 memory mode is used for explanation in this example, although AUTO 2 and AUTO 3 memory modes can also be selected.

MANUAL	The same data as in AUTO 1 mode is stored in the memory when the “STORE” button is pressed.
AUTO 1	L_{eq} (average), L_E (exploded), L_{MX} (max.), L_{MN} (min.), L_{PK} (peak), and L_N (eight types including L_{05} , L_{10} , L_{50} and so on) are stored in the memory in succession.
AUTO 2	L_{eq} in every 100 ms is stored in the memory in succession.
AUTO 3	Instantaneous data is continuously stored every 1 ms at the fastest.

- 1. Press the “MENU” button and then the menu screen appears. On that screen, select [MEMORY] → [MODE] → [AUTO 1].

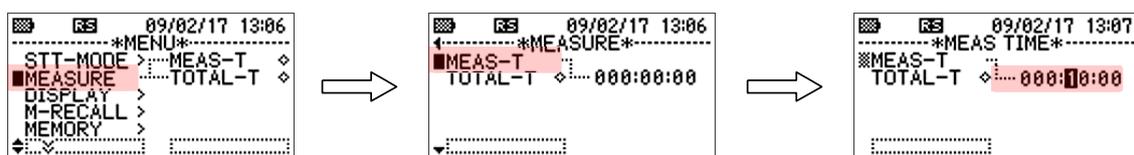


- 2. Press the “MENU” button to return to the measurement screen. The message “A1” is displayed.

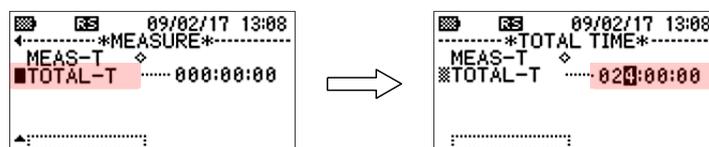


4. Setting “10:00” as the measurement time, “24:00:00” as the total time, and “06:00” as the measurement start time (24-hour display)

- 1. Press the “MENU” button and then the menu screen appears. On that screen, select [MEASURE] → [MEAS-T] and set [000:10:00] as 10 minutes for the measurement time.

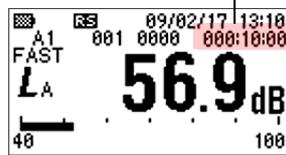


- 2. On the menu screen, select [TOTAL-T] and set [024:00:00] as 24 hours for the total time.

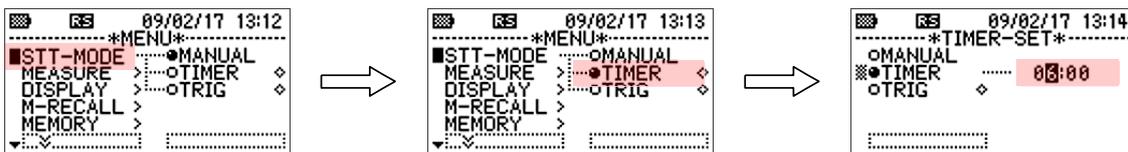


-3. Press the “MENU” button to return to the measurement screen.

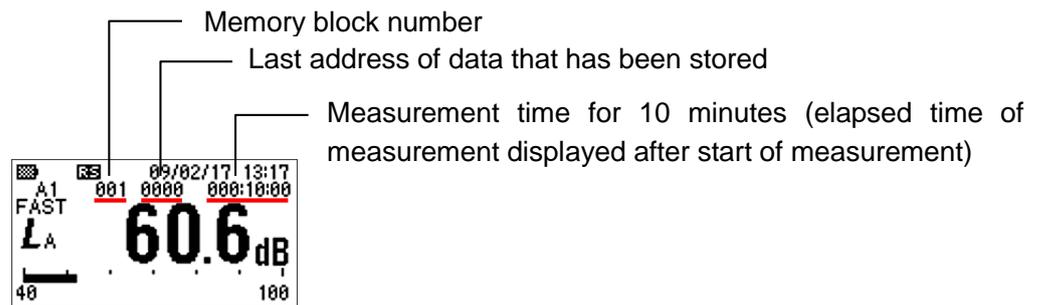
Measurement time: 10 minutes



-4. Press the “MENU” button and then the menu screen appears. On that screen, select [STT-MODE] → [TIMER] and set [06:00] as 6:00 a.m. for the measurement start time.



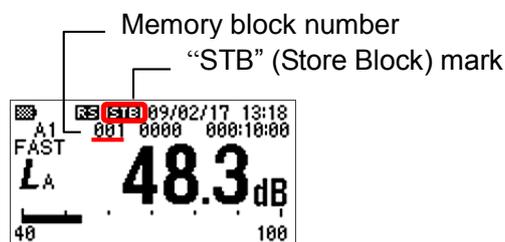
-5. Press the “MENU” button to return to the measurement screen.



5. Starting measurement

-1. Enabling the AUTO storage function

Press the “STORE” button to enable the AUTO storage function. “STB” (Store Block) mark and memory address “0000” appear on the screen.



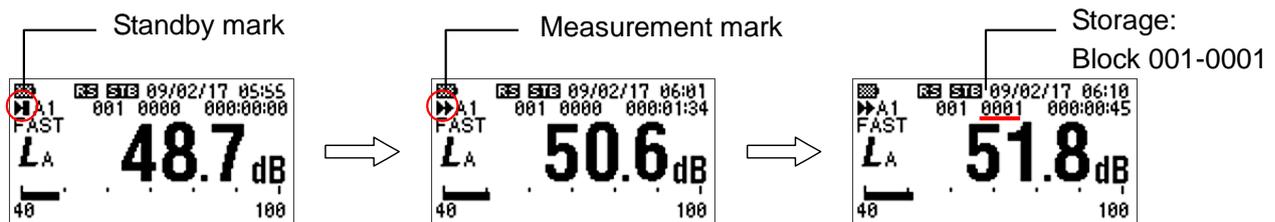
CAUTION

When the “STORE” button is pressed while the “STB” mark is displayed, the “STB” mark disappears and the AUTO storage function is cancelled. Note that measurement data is not stored in the memory when measurement is executed with the “STB” mark not displayed.

-2. Starting calculation measurement

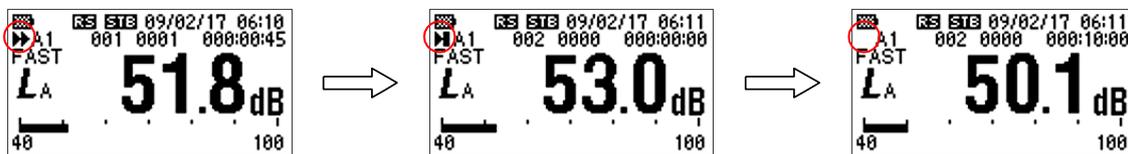
Press the [START] button to start calculation measurement. The standby mark is appeared. When the time reached to measurement time, the measurement is started and the mark is changed to measurement mark. Thereafter, specified data such as L_{eq} calculated with the measurement time is stored in each time of the specified measurement time (10 minutes). This operation (measurement and storing) is repeated up to the specified total time (24 hours).

The number representing the memory address is incremented each time a measurement value is stored. The measurement screen shown below displays instantaneous sound pressure. To display L_{Aeq} , press the “ L_p/L_{eq} ” button to change the indication L_A to L_{Aeq} .



6. Interrupting calculation measurement

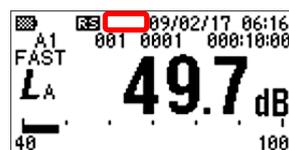
-1. To interrupt calculation measurement during the measurement, press the “START” button. When the “START” button is pressed, the measurement mark being displayed changes to the standby mark. When the “START” button is pressed in this state, the “standby mark” disappears and the calculation measurement is cancelled. Note that the calculation measurement is cancelled with the standby mark disappearing when the “START” button is pressed while the standby mark is displayed before the measurement starting time.



CAUTION

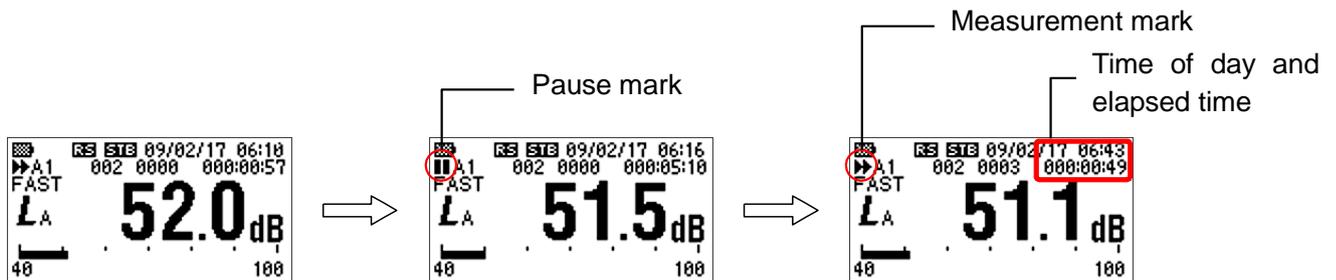
When the standby mark is displayed after the “START” button is pressed, the standby status remains under the setting conditions of the step 4. Note that the measurement will be in the standby status until the specified time “6:00 a.m.”

-2. Press the “STORE” button to disappear the “STB” mark.



7. Pausing calculation measurement

When the “PAUSE” button is pressed while the measurement mark is displayed, the pause mark is displayed and the measurement is paused. Pressing the “PAUSE” button during the pause changes the pause mark to the measurement mark and restarts measurement for the rest of the specified measurement time. When a measurement is paused by this procedure, deviations will occur in the timing between the timetable and measurement time. After halting the measurement, restart it from the beginning.



CAUTION

- When the “START” button is pressed during pause, the pause mark changes to the standby mark. Note that the measurement remains on standby until the time “6:00 a.m.” specified in the step 4. If the “START” button is pressed several times in the pause state and the standby mark disappears, calculation measurement is cancelled and the measurement is interrupted.
- When the “STORE” button is pressed while the “STB” mark is displayed, the “STB” mark disappears and the AUTO storage function is cancelled. Note that measurement is performed but measurement data is not stored if calculation measurement is started without the “STB” mark displayed.
- To change the menu setting, press the “START” button several times until the “measurement mark”, “standby mark”, and “pause mark” disappear and then click the “MENU” button to open the menu screen.
- The “MENU” button is not enabled when the measurement mark, standby mark, or pause mark is displayed.

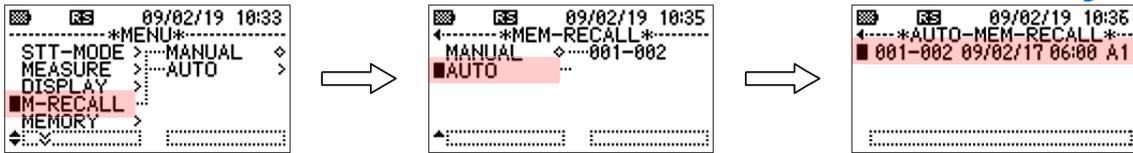
8. Repeating measurement

Repeat the steps 4 and 5 above.

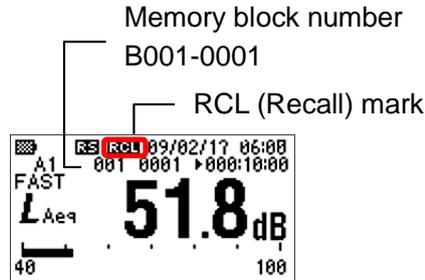
9. Confirming AUTO 1 data

Measurement data can be confirmed after the measurement is finished or interrupted.

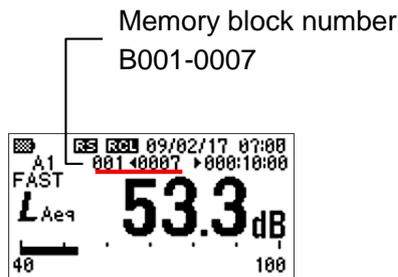
- 1. Press the “MENU” button and then the menu screen appears. On that screen, select [M-RECALL] → [AUTO] and press the “ENTER” button to list the block numbers of stored data.



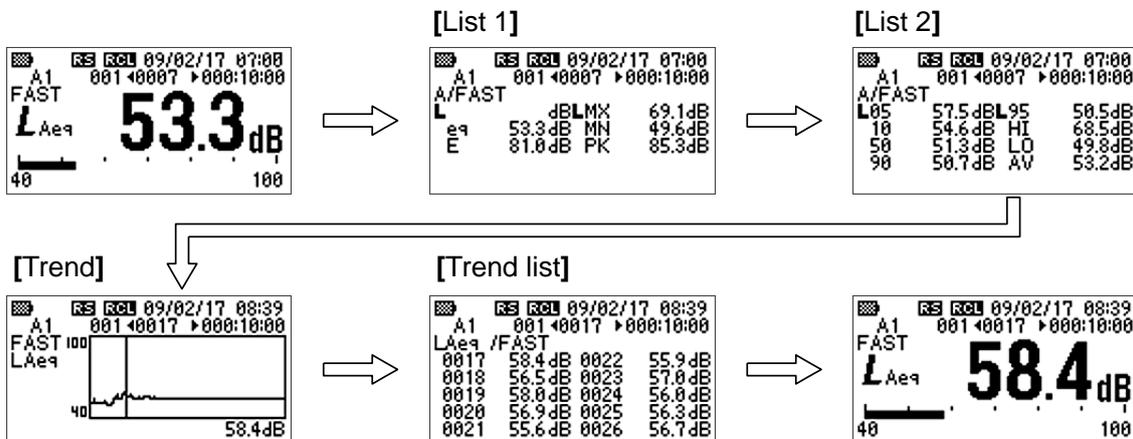
- 2. Select a block number and press the “ENTER” button. L_{Aeq} of B001-0001 is displayed. The “RCL” mark appears on the display screen.



- 3. The displayed address is incremented each time the right arrow (▶) of the “UP/DOWN” button is pressed and decremented each time the left arrow (◀) of the “UP/DOWN” button is pressed.

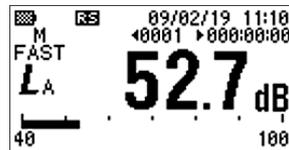


- 4. List display
Press the “DISP” button to list measurement data. The listed data changes each time the “DISP” button is pressed. Press the left or right arrow of the “UP/DOWN” button to change the address.



- 5. Press the “MENU” button to display the menu screen and then press the “MENU” button again. The “RCL” mark disappears and the operation mode changes to instantaneous measurement.

[Instantaneous measurement]

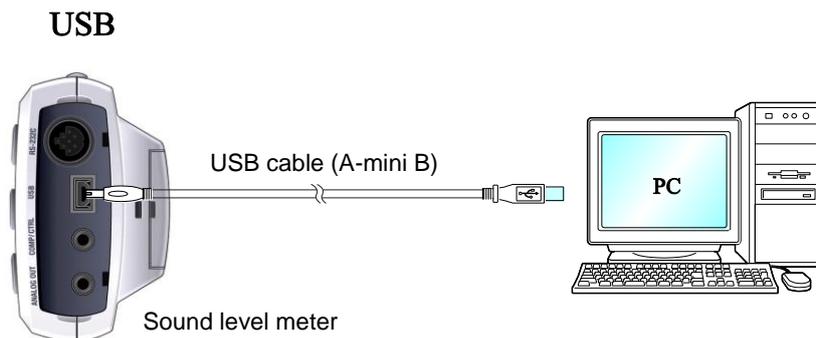
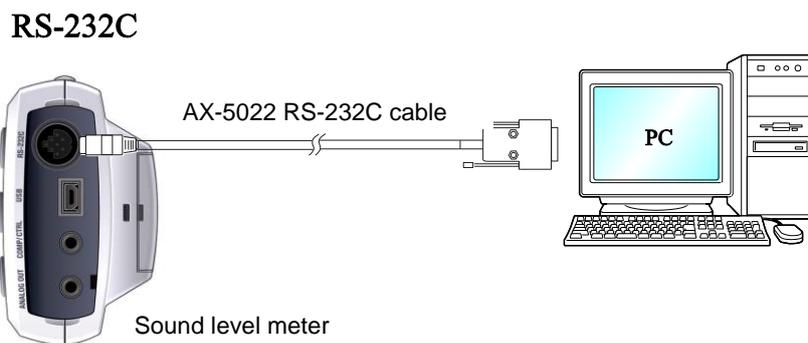


10. Uploading stored data to a personal computer

- 1. Connecting to a personal computer

Two modes are available for connecting to a personal computer: one is the virtual COM port mode using a USB cable (A-miniB) and the other uses an AX-5022 type RS232C cable.

When using a USB cable, you need to install the relevant driver and set the USB ID number to the sound level meter. For more information, refer to the Instruction Manual - Interface.



End