



Sauter GmbH

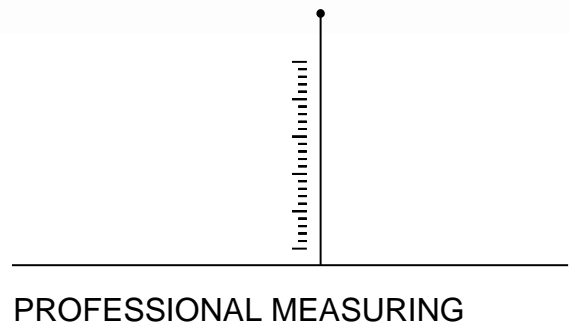
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Instruction Manual Sound Level Meter

SAUTER SU

Version 2.0
04/2020
GB



SU-BA-e-2020



SAUTER SU

V. 2.0 12/2021

Instruction Manual Sound Level Meter

Thank you for purchasing a SAUTER sound level meter. We hope that you are very satisfied with this high-quality device and its functionality.

Although this is a complex and sensitive measuring instrument, it is still very robust and will last you many years if operated correctly. Therefore, please read the operating instructions carefully and always keep them within easy reach.

We wish you much pleasure with your quality measuring instrument. For questions, wishes or suggestions we are always at your disposal.

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1 Functions

- * Mainly used to make noise measurements in the environment, for measuring machine noise, in the car industry, shipbuilding or other noise sources.
- * Multifunctional: it has 4 measurement parameters:
Lp (sound level), Lmax (maximum sound level),
Leq (corresponding continuous A sound level) and
Ln (percentage of all readings that are above the preset alarm value)
- * Alarm preset and alarm output
- * The measuring instrument has a choice of acquisition modes of "A", "C" or "Flat", as well as "Slow" / "Fast" (slow/fast) response times
- * DC output: from 0 to 1.3V 10mV / dB
- * Automatic measuring range selection and digital display, which eliminates reading errors
- * Manual or automatic shutdown. The meter can be switched off manually at any time by pressing the on/off button. On the other hand, the instrument can be operated with the "Auto Power-Off" automatic switch-off. The time for this can be selected variably between 1 and 9 minutes.
- * This meter can store 30 measurement results and store measurement conditions for later use or download to a PC.
- * Communication with PC for statistics, printing and analysis using the optional cable and software connection RS 232C.

2 Technical description

Display: 14mm (0.5") LCD with backlight

Measurable parameters: Lp, Lmax, Leq, Ln

Measuring range: Lp: 30~130dB (A)

35~130dB (C)

35~130dB (F)

Leq: 30~130dB (10 s, 1 min, 5 min, 10 min, 15 min, 30 min, 1 h, 8 h, 24h)

Ln: 0-100

Resolution: 0.1dB

Accuracy: 3% of max.

Selectable acquisition modes: "A", "C", "F" (=Flat)

Time modes: Fast (fast: 125ms)

Slow (slow: 1sec)

Microphone: ½ inch Electret Condenser Type

Internal memory: 30 measurements, can be stored on
PC are displayed

Built-in calibration signal: 94dB at 1kHz (sinusoidal)

Frequency range: 20 up to 12,500 Hz

Alarm default setting: 30 to 130 dB

Alarm output: LED

PC connection: RS 232C

Battery level indicator

Power supply: 4 x 1.5V AAA (UM-4 battery)

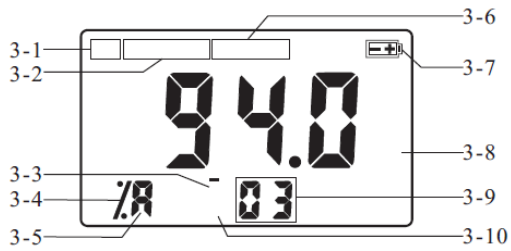
Dimensions: 236 x 63 x 26 mm (9.3 x 2.5 x 1.0 inches)

Weight: 170 g (including batteries)

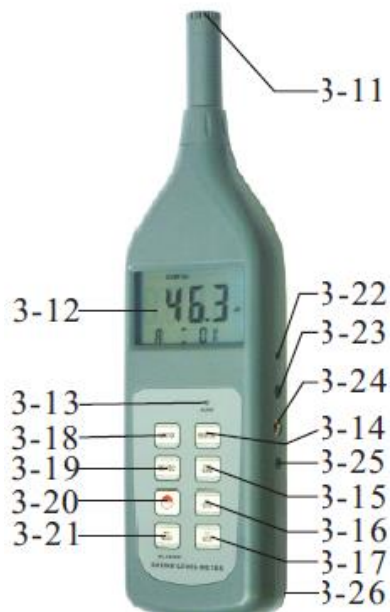
Standard equipment: Main unit
Carrying case
Operating Instructions
Foam cover (windscreen)

Optional accessories: Sound level calibrator, ASU-01
Cable and software for RS 232C, ATC-01

3 Function keys and part names



- 3-1 characters for calibration
- 3-2 Weighting factor time
- 3-3 Memory Status
- 3-4 characters for L_N
- 3-5 Symbol for weight factor
- 3-6 Function symbols
- 3-7 Battery level indicator
- 3-8 Max Hold
- 3-9 Stored number of measured values
- 3-10 Symbol for browsing




- 3-11 Microphone
- 3-12 Display
- 3-13 Alarm LED
- 3-14 Button for selecting the acquisition modes
- 3-15 Fast/Slow Answer Mode Button
- 3-16 Up/Save button
- 3-17 Down/Read Key
- 3-18 Function key
- 3-19 Max Hold button
- 3-20 On/Off button
- 3-21 Delete/Menu
- 3-22 Calibration Tuning

- 3-23 Socket for RS 232C connection
- 3-24 Socket for output
- 3-25 Socket for AC
- 3-26 Battery compartment / cover

4 Measuring procedure

4.1 To switch on the measuring instrument, press the button  3-20.


4.2 It must first be checked whether the selected measuring function is the correct one. If not, this can be corrected by pressing the  3-18 key down.

The default setting for the multi-measurement functions is Lp, acquisition mode A, and "Fast" for response mode.

Lp - the standard sound level measurement function

Leq - energy equivalent sound level Measuring mode (type A), the arithmetic mean value preset in a time period


Ln - Statistics Analysis; displays the value in percent as soon as the measured value exceeds a defined limit. The acoustic pre-setting of the alarm is described in chapter 7.

4.3 It must also be checked whether the acquisition mode has been selected correctly. If not, this can be done by pressing the  3-14 button down to select between "A", "C" or "Flat".

If the acquisition mode is set to "A", the frequency response of the measuring instrument is similar to that of the human ear. Detection mode "A" is usually used for noise measurement in environmental areas and in noise protection regulations.

The detection mode "C" has a sensitivity for louder environmental conditions such as in machines, systems, motors, etc.

Note: The acquisition mode "A" is determined automatically when "Leq" is set.


4.4 With the key  3-15 the answer mode Fast (125ms) or Slow (1 second) can now be set.

"Fast" is used to detect sound peaks and noises that occur suddenly and very quickly.


The slow response mode is used to detect a sound source that has a constant sound level or to quickly average rapidly changing sound levels.




The slow response mode is used for most applications.




4.5 If the display shows the symbol "max", the measured value is the highest of all values measured so far. The respective reading value appears immediately if "max" does not appear.

The option for the "max" value can be switched on or off with the key  3-19 during the measurements.

5 Store, recall and delete measured values

5.1 In the 'M' status, the measured values can be stored in the memory of the instrument together with the measuring conditions by pressing the key  3-16. Then the symbol automatically 'M' changes to the status 'M' while the number of stored measured values increases by 1 each time.

5.2 No matter whether you are in 'M' - or in 'M' status, the stored data can be browsed by pressing the key  3-17. The browsing status is indicated by an 'R' on the display. In 'R' status, all stored measured values can be recalled  by pressing the or  key.


5.3 To delete a stored measured value in the memory, you must be in browsing status. Then the measured value to be deleted is selected  with the  or keys. Now push key  3-21 and the measured value is deleted.

If "Err0" appears on the display, this means that there are no more measured values to be deleted.

6 Presetting the "Leq" measuring mode

The "Leq" measurement mode is used to recall the rms average noise level over a preset period of time.


To make a Leq measurement, the period to be tested must be selected for the measurement beforehand. The longer this period is, the more accurate the meter reading result for the Leq value will be.





To set this time period for the measurement, press the  3-21 button for about 8 seconds until "Leq" appears on the display. Then the button is released. The time is now entered with the Up (3-16) or Down (3-17) buttons, whereby 10s, 1 min, 5 min, 10 min, 15 min, 30 min, 1 hour, 8 hours or 24 hours can be selected.

To exit, press  any key except or .

7 Presetting the alarm value

The alarm LED is activated when the current measured value is greater than or equal to the value set as alarm. The factory default value is 85dB. This can be changed to any desired value between 30 and 130 dB by following the steps below:




The button  3-21 is pressed and held down for about 5 seconds. It can be released as soon as "AL" appears on the display.

Then use the or  keys to  preset the desired alarm value. To exit, any key except  or can be pressed. 

8 Presetting the time for automatic switch-off

The factory default setting for the automatic switch-off is 5 minutes. This means that the sound level meter will switch off automatically after 5 minutes if no keys are pressed during this period.

This period can be changed by the user between 1 and 9 minutes by following the steps below:

Press and hold button  3-21 for about 10 seconds until "AUTO" appears on the display. Then the button can be released.  Now use the or  keys to enter the desired time for automatic switch-off.

To deactivate the automatic switch-off, the time must simply be preset to "0". This way the meter does not switch off automatically, this can only be done manually with the ON/OFF button.

9 Calibration


The standard method to calibrate the instrument requires the external calibrator ASU-01 and additionally a small screwdriver.

9.1 Calibrating the device with the ASU-01

- a) The device is switched on.
- b) The "A" acquisition mode is preset.
- c) The "SLOW" (slow) response mode must also be pre-programmed
- d) Now place the microphone in the calibrator and switch it on.
- e) The CAL rotational resistance of the device must be set in the following way (to be corrected) that the display of the device is connected to the output of the calibrator matches.

9.2 Calibration of the device with the built-in signal

The instrument is switched on to enter the calibration status.

Then press the 3-18  key until the "CAL" symbol appears on the display.

With the screwdriver the CAL rotation resistance of the device is changed in such a way that 94dB can be read on the device.

10 General considerations

10.1 Wind blowing over the microphone increases the sound level during the measurement. Therefore you should use the **foam cover** to cover the microphone with it if necessary.

10.2 The measuring instrument shall under no circumstances be disassembled by inexperienced workers. This should only be left to trained personnel.

11 Battery replacement

11.1 If the battery voltage indicates less than 5 V, the batteries must be replaced.

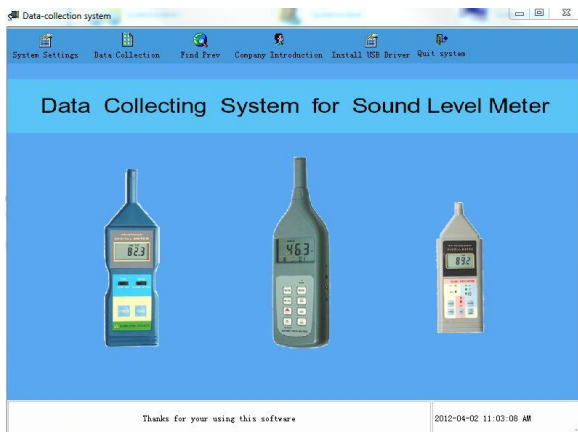
11.2 The old batteries are removed and the 4 new 1.5 V batteries are inserted correctly into the battery compartment.

11.3 If the sound level meter is not used for a long period of time, the batteries should be removed to prevent leakage.

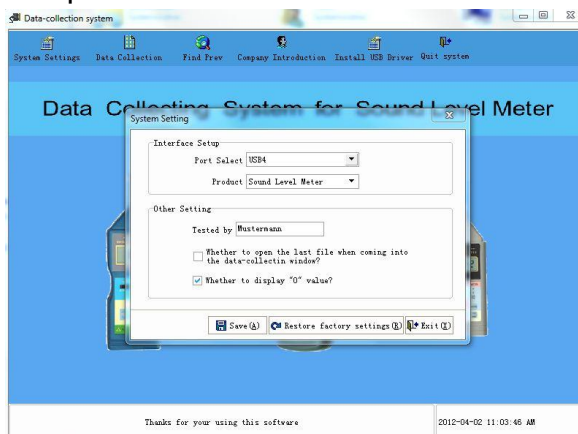
12 Transfer of the data memory into the software

Important: First start continuous data recording and then read out the memory data!

1. Connect SU 130 to PC (cable available in conjunction with ATC-01 software).
2. Set SU 130 in the Memory Read mode (press the READ button)
3. Start the associated software.



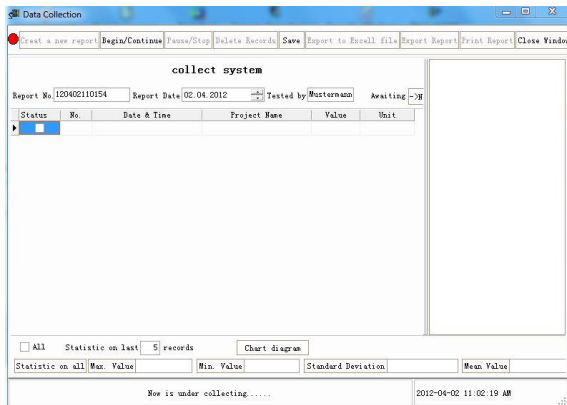
4. select the port (e.g. COM1, USB4 or similar) under System Settings in Interface Setup.



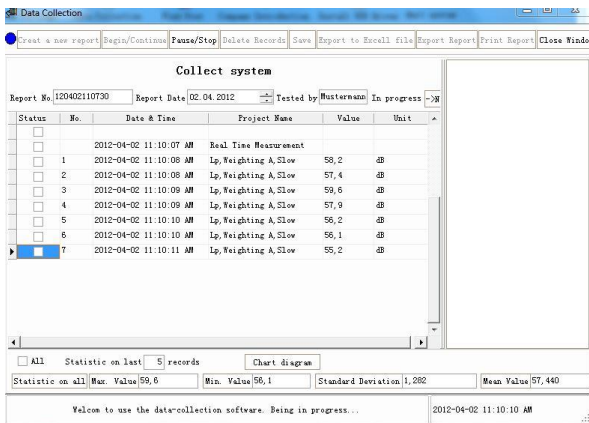
5. under Product: Select Sound Level Meter

6. press the Save(A) button and exit the window via Exit(X).

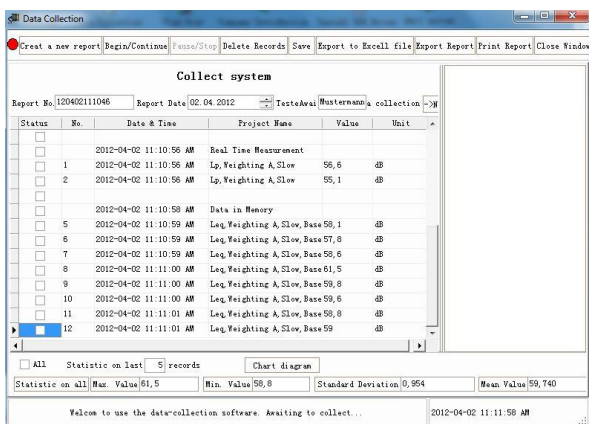
7. open data collection.



8. press start/ (Continue button) - press button on SU 130 (e.g. FAST/SLOW) - data recording Real Time starts



9. press the READ button on the SU 130 -Data in Memory The reading of the data starts and ends automatically with the last stored value.



10. select and process data (everything after "Data in Memory") accordingly

Data Collection

Collect system

Report No. 120402111046 Report Date 02.04.2012 Testehasi Musterwahl collection

Status	No.	Date & Time	Project Name	Value	Unit
<input type="checkbox"/>		2012-04-02 11:10:58 AM	Real Time Measurement		
<input type="checkbox"/>	1	2012-04-02 11:10:58 AM	Lq, Weighting A, Slow	59,6	dB
<input type="checkbox"/>	2	2012-04-02 11:10:58 AM	Lq, Weighting A, Slow	55,1	dB
<input type="checkbox"/>		2012-04-02 11:10:58 AM	Data in Memory		
<input checked="" type="checkbox"/>	5	2012-04-02 11:10:58 AM	Lq, Weighting A, Slow, Base 58,1		dB
<input checked="" type="checkbox"/>	6	2012-04-02 11:10:58 AM	Lq, Weighting A, Slow, Base 57,0		dB
<input checked="" type="checkbox"/>	7	2012-04-02 11:10:58 AM	Lq, Weighting A, Slow, Base 58,6		dB
<input checked="" type="checkbox"/>	8	2012-04-02 11:11:00 AM	Lq, Weighting A, Slow, Base 61,5		dB
<input checked="" type="checkbox"/>	9	2012-04-02 11:11:00 AM	Lq, Weighting A, Slow, Base 59,8		dB
<input checked="" type="checkbox"/>	10	2012-04-02 11:11:00 AM	Lq, Weighting A, Slow, Base 59,6		dB
<input checked="" type="checkbox"/>	11	2012-04-02 11:11:01 AM	Lq, Weighting A, Slow, Base 58,8		dB
<input checked="" type="checkbox"/>	12	2012-04-02 11:11:01 AM	Lq, Weighting A, Slow, Base 59		dB

All Statistic on last 5 records Chart diagram

Statistic on all: Max. Value 61,5 Min. Value 58,8 Standard Deviation 0,954 Mean Value 59,740

Welcome to use the data-collection software. Awaiting to collect... 2012-04-02 11:13:09 AM

Note:

To view the CE declaration, please click on the following link:

<https://www.kern-sohn.com/shop/de/DOWNLOADS/>