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Instruction Manual

Digital Sound Level Meter

SAUTER SU

V. 1.4
09/2018
GB



PROFESSIONAL MEASURING

SU-BA-e-1814



SAUTER SU

V. 1.4 09/2018

Instruction Manual Digital Sound Level Meter

Thank you for buying a digital SAUTER sound level Meter. We hope you are pleased with your high quality instrument and its big functional range. Although this Sound Meter is a complex and advanced instrument, its ruggedness will allow many years of use if you will care for an appropriate operating technique and maintenance. Please read the following operating instructions carefully and always keep this manual within easy reach.

If there are any queries, wishes or helpful suggestions, do not hesitate to call our service number.

Summarize:

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1 Features

- * Widely used to test the sound level of the environment, machinery, vehicle, ships and other noise
- * Multi functional: it offers 4 measurement parameters:
 - Lp (sound level), Lmax (maximum sound level),
 - Leq (equivalent continuous A sound level) and
 - Ln (percentage of all readings over alarm value set).
- * With alarm set and alarm output
- * This instrument permits choice of “A”, “C” or “Flat” Weighting and “Slow” / “Fast” response times
- * DC output: 0 up to 1.3V 10mV / dB
- * Auto range selection and digital display with no reading errors
- * Manual or automatic shut down. The tester can be switched off by pressing the power key at any time.
On the other hand, the tester can be set to “Auto-Power-off” between 1 to 9 minutes or disable Auto Power Off.
- * The instrument can memorize 30 measurement results and measuring conditions for later use or download to PC
- * Can communicate with PC for statistics, printing and analysing by the optional cable and the software for RS 232C interface.

2 Specifications

Display: 14mm (0.5”) LCD with backlight

Parameters measured: Lp, Lmax, Leq, Ln

Measurement 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, 24 h)
 Ln: 0-100%

Resolution: 0.1dB

Accuracy: 3% of Max.

Frequency weighting: “A”, “C”, “F” (Flat)

Time weighting: Fast (125ms)
 Slow (1 second)

Microphone: ½ inch electrets condenser type

Internal memory: 30 values with measuring conditions

Inbuilt calibration signal: 94dB at 1 kHz (sinusoidal)

Frequency range: 20 to 12,500 Hz

Alarm value set: 30-130 dB

Alarm output: LED

PC interface: RS 232C

Low battery indication

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

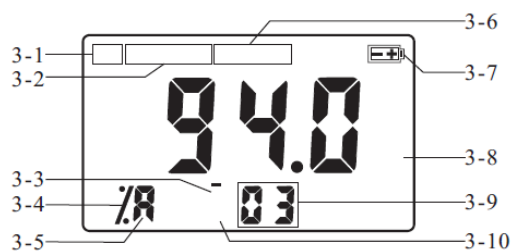
Dimensions: 236 x 63 x 26 mm (9.3 x 2.5 x 1.0 Inch)

Weight: 170 g (including batteries)

Standard equipment: Main unit
Carrying case
Instruction Manual
Foam cover

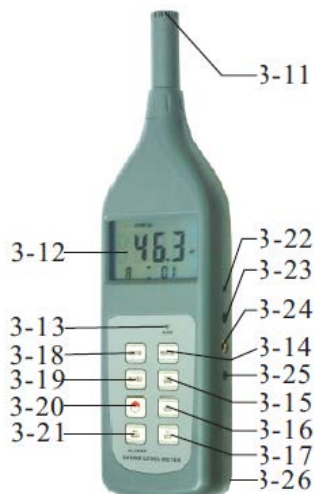
Optional Accessories: Sound level meter calibrator (ASU-01)
Cable and software for RS 232C (ATC-01)

3 Front panel description




- 3-1 Calibration Mark
- 3-2 Time Weighting
- 3-3 Memory state
- 3-4 Mark for LN
- 3-5 Weighting Icon
- 3-6 Function Mark


- 3-7 Battery indicator
- 3-8 Max Hold
- 3-9 Number memorized
- 3-10 Browsing Icon



- 3-11 Microphone
- 3-12 Display
- 3-13 Alarm LED
- 3-14 Weighting key
- 3-15 Fast/Slow key
- 3-16 Up/Save key
- 3-17 Down/Read key
- 3-18 Function key
- 3-19 Max Hold key
- 3-20 Power key
- 3-21 Delete/Menu
- 3-22 Cal. Adjusting
- 3-23 Jack for RS 232C interface
- 3-24 Jack for output
- 3-25 Jack for AC
- 3-26 Battery compartment / cover

4 Measuring procedure

4.1 The  key 3-20 has to be pressed and released to switch on the instrument.


4.2 It has to be checked whether the function selected is right. If not, it can be changed by pressing the  key 3-18.

The default setting is Lp, weighting A, Fast.

Lp – current sound pressure level

Leq – Equivalent Continuous A Sound pressure Level, i.e. arithmetically mean value in a period of time set.


Ln – Statistic analysis, i.e. which percentage of all measurement values is larger than or equal to the alarm value set by the user. For setting the alarm value, please see chapter 7.

4.3 It has to be checked whether the weighting is right. If not, it can be changed by pressing the  key 3-14 to select “A”, “C” or “Flat”.

With the “A” weighting selected, the frequency response of the device is similar to the response of the human ear. “A” weighting is commonly used for environmental or hearing conversation programs such as OSHA regulatory testing and noise Ordinance law.


“C” weighting is a much flatter response and is suitable for the sound level analysis of machines, engines etc.

Note: Weighting “A” will be automatically selected when measuring “Leq”.


4.4 The  key 3-15 has to be used to select a Fast (125ms) or a Slow (1 second) response time.


Fast has to be selected to capture noise peaks and noises that occur very quickly.



Slow response has to be selected to monitor a sound source that has a consistent noise level or to average quickly changing levels. Slow response is selected for most applications.



4.5 The reading is the highest one if the icon “max” appears on the display. The reading is an instant value if “max” does not appear. This appearance is controlled by pressing the  key 3-19 during the process of measurement.


5 Storing and recalling readings

5.1 In \bar{M} state, the reading can be saved to the instrument together with measuring conditions by pressing the  key 3-16. Then the icon \bar{M} changes to \bar{M} state automatically, while the number of memorized readings increases for 1.


5.2 No matter, in \bar{M} or in \bar{M} state, the memorized data can be browsed by pressing the  key 3-17. The browsing state is marked by \bar{R} on the display.

In \bar{R} state, all the readings memorized, can be recalled by pressing the  or  key.

5.3 To delete the memorized value in memory, the browsing state has just to be entered and the reading to be deleted has to be located by pressing the  or  key.

Then the  key 3-21 has to be pressed. If there appears “Err0” on the display, this indicates that there is no more reading to delete.


6 How to set the „Leq“ time


Leq is used to access the rms average noise level over a preset period of time, often the starting point of a noise assessment. To take the Leq measurement, the period of time which has to be tested, must be selected. The longer the period of measurement time, the more accurate the Leq reading will be. To set the period of measurement time, the  key 3-21 just has to be pressed for about 8 seconds until “Leq” appears on the display. Then the key has to be released and the time has to be selected among 10s, 1 min, 5 min, 10 min, 15 min, 30 min, 1 hour, 8 hours or 24 hours by pressing the Up (3-16) or Down (3-17) key.

To quit, any key except  or  key can be pressed.

7 How to set the alarm value

The alarm LED is on when the instant measurement value is bigger than or equal to the alarm value set. The default setting value at the factory is 85dB. It can be changed to any value between 30 and 130dB by the following steps:




The  key 3-21 has to be pressed for about 5 seconds. It has to be released after “AL” is shown on the display.

Then  key or  key have to be pressed to preset the alarm value as desired.

To quit, any key except  or  key can be pressed.

8 How to set the time of Auto-Power-off

The default setting for auto power off at the factory is 5 minutes, which means that the device will auto power off 5 minutes from the time of the last key operation. This can be changed by the user to any value between 1 to 9 minutes by the following steps:

The  key 3-21 has to be pressed for about 10 seconds and it can be released after “AUTO” is shown on the display. Then the  or  key has to be pressed to preset the time as desired. To stop the function of auto power off, time just has to be preset to “0”. So the device will not be powered off automatically, it can only be shut down manually in that case.

9 Calibration


The standard method to calibrate the instrument requires an external calibrator (ASU-01) in addition to a small screw-driver.

9.1 Calibration of the device with ASU-01

- a) The device has to be turned on.
- b) It has to be preset in the “A” weighting mode
- c) It also has to be preset the “SLOW” response mode

- d) Then the microphone has to be placed into the calibrator. The calibrator has to be switched ON.
- e) The CAL potentiometer of the device has to be adjusted in the way that the device's display matches the output of the calibrator.

9.2 Calibration of the device by the inbuilt signal

The instrument has to be switched on to enter the calibration state. Then the  key 3-18 has to be pressed until the icon "CAL" is to be seen on the display.

The screw-driver has to be used to adjust the CAL potentiometer of the device in the way that the device shows 94dB.

10 General Considerations

- Wind blowing across the microphone increases the noise measurement. The *supplied foam cover* has to be used to cover the microphone when applicable.
- The instrument may not be dismantled by inexperienced staff. There are no parts inside which might serve the user.

11 Battery replacement

11.1 When the battery voltage is less than approx. 5V, it is necessary to replace batteries.

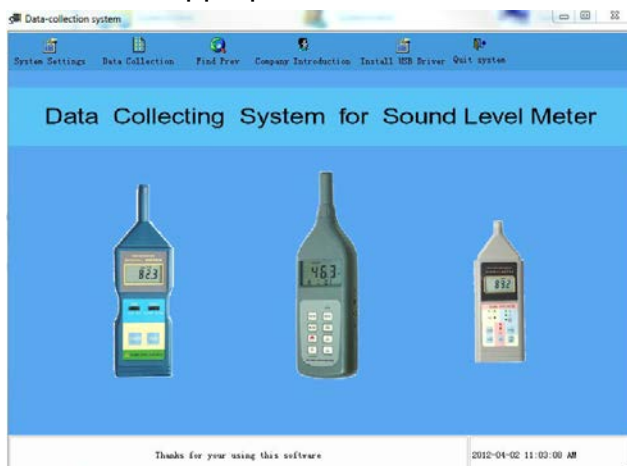
11.2 The 4 x 1.5 V batteries have to be installed correctly into the case.

11.3 If the device is not going to be used for an extended period, batteries have to be removed.

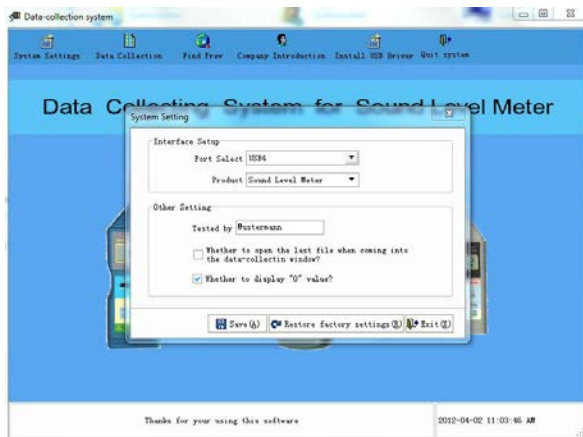
12 Takeover of data memory into software

Important: First start the continuous data logging and then read out the stored data!

1. Connect the SU 130 to the PC (cable is optional available with software ATC 01).
2. Put the SU 130 into the Memory Read Mode (by pressing the READ-button).
3. Start the appropriate software.



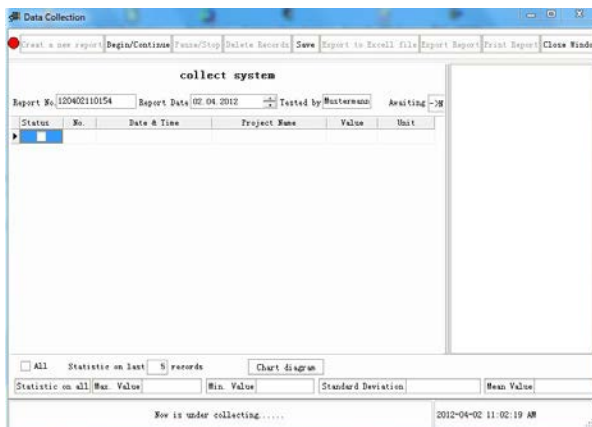
4. Select Port at System Settings at Interface Setup (e.g. COM1, USB4 or similar).



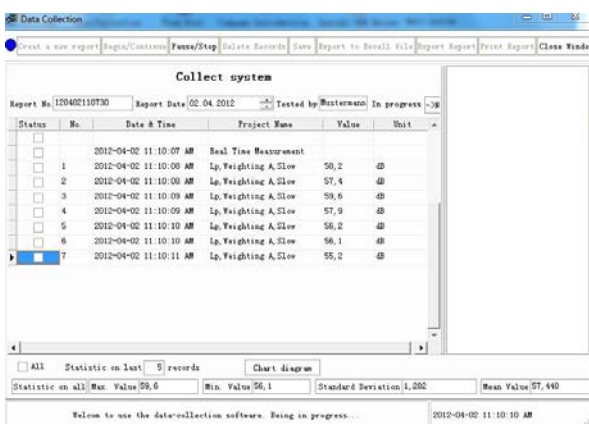
5. Select Product: Sound Level Meter.

6. Press Save (A) button and leave this window by Exit (X).

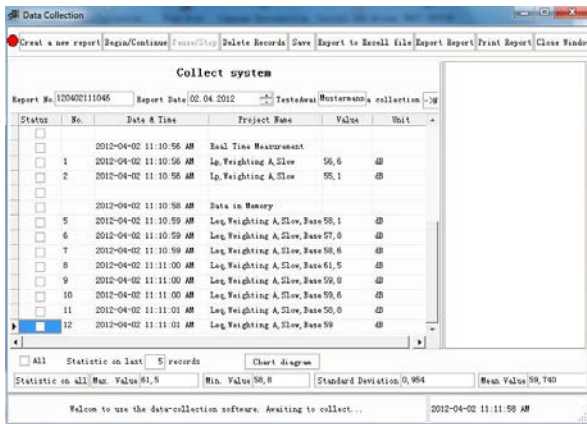
7. Open Data Collection.



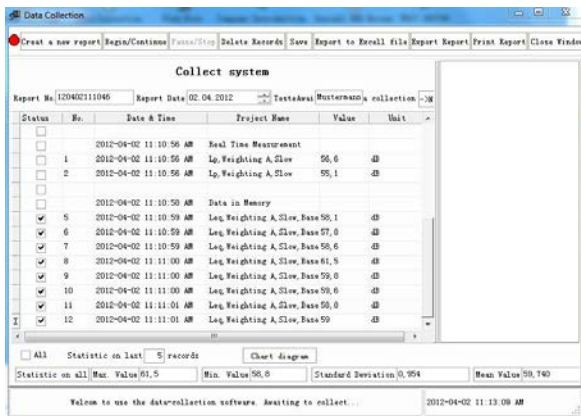
8. Press Continue Button- press button on SU 130 (e.g. FAST/SLOW) – Data acquisition Real Time starts



9. Press READ- button on the SU 130- data in memory.
 Readout of data starts and ends automatically with the last stored memory.



10. Select data (all which appears after “data in memory”) accordingly and continue processing.



Annotation:

To have a look at the CE Declaration of Conformity, please click onto the following link: <https://www.kern-sohn.com/shop/de/DOWNLOADS/>