SPL82 DATA LOGGER SOUND LEVEL METER



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Specifications

ALWAYS READ THESE INSTRUCTIONS BEFORE PROCEEDING

Thank you for buying one of our products. For safety and a full understanding of its benefits please read this manual before use. Technical support is available from 01923 441717 and support@martindale-electric.co.uk.

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1. SAFETY INFORMATION

A REMEMBER: SAFETY IS NO ACCIDENT

These instructions contain both information and warnings that are necessary for the correct operation and maintenance of this product. It is recommended that you read the instructions carefully and ensure that the contents are fully understood.

Particular attention should be paid to the Precautions and Technical Specifications.

Please keep these instructions for future reference. Updated instructions and product information are available at: www.martindale-electric.co.uk

1.1 Meaning of Symbols and Markings

- ▲ Caution refer to instructions
- CE Equipment complies with relevant EU Directives



End of life disposal of this equipment should be in accordance with relevant EU Directives.

1.2 Precautions

This product has been designed with your safety in mind, but please pay attention to the following cautions before use.

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A Cautions

The SPL82 must only be used by a skilled and competent person who is familiar with the relevant regulations, the safety risks involved and the consequent normal safe working practices, and under the conditions and for the purposes for which it has been constructed and specified.

Before use check the unit for cracks or any other damage. Make sure the unit is free from dust, grease and moisture. Also check any associated leads and accessories for damage. **Do not** use if damaged.

The microphone in particular must be protected from exposure to water or dust as contamination can alter the performance characteristics of the unit. Always replace the SPL82 in its storage case when not in use.

Avoid severe mechanical shock or vibration and extreme temperature.

To avoid corrosion from leaking batteries, remove the batteries when the unit is not in use for an extended period.

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3. OPERATION

3.1 Description of Press Buttons and SPL82 Elements



| 1 | | Windscreen |
|---|------------|------------------------|
| 2 | | Liquid crystal display |
| 3 | 0 | Power On/Off button |
| 4 | MIN MAX | Min/Max button |

2. INTRODUCTION

2.1 Inspection

Examine the shipping carton for any sign of damage. Inspect the unit and any accessories for damage. If there is any damage then consult your distributor immediately.

2.2 Description

The SPL82 has the following functions and features:

- Complies with IEC 61672-1 Class 2
- Measuring level range from 30 to 130dB
- Frequency range from 20Hz to 8KHz
- Min Max function
- Auto power off
- ◆ AC and DC outputs for the connection of external instruments
- USB PC interface with Windows software included.
- 64,000 record data logging capacity
- Tripod mounting

2.3 Accessories

The SPL82 comes with the following accessories:

- 4 x 1.5V AAA LR03 batteries
- SE323 software
- Micro USB cable
- PC software on CD
- Storage case
- Windscreen
- Instructions

2.4 Battery Installation & External Power Supply

Refer to Section 6.1 (Battery replacement). The SPL82 has a USB interface for connection to a PC or an external power supply. If batteries are fitted, the USB adaptor supply takes priority.

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| 5 | REC | Records measured results |
|----|--------------|---|
| | | Increases value in settings |
| 6 | A/C | Frequency weighting button |
| 7 | FAST SLOW | Time weighting button |
| | LEVEL | The user can adjust the measurement range - dual function |
| ° | ▼ | Decreases value in settings |
| 9 | | Microphone |
| 10 | | AC/DC output socket |
| 11 | | USB Interface |
| 12 | | Tripod mounting thread |
| 13 | | Battery compartment |

3.2 Description of LCD symbols

| IIII) | Battery Capacity Indicator |
|-----------|--------------------------------------|
| MIN MAX | Minimum/Maximum value indicator |
| FAST SLOW | Time weighting indicator |
| 30-130 | Measurement range level |
| inmi | Analogue display bar graph |
| 88.88.88 | Time or date |
| dBA/dBC | Frequency weighting indicator |
| 188.8 | Measured result |
| OVER | Indicates measurement is over range |
| FULL | Memory is full |
| REC | The SPL82 is recording |
| UNDER | Indicates measurement is under range |

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3.3 Windscreen

If the wind is blowing across the microphone, attach the windscreen to the microphone.

3.4 Power On/Off

Press the ① button to switch on the meter. Press and hold the ① button for 3 seconds to turn off.

3.5 Auto Power Off

If the unit is inactive for a period of 30 minutes, it will automatically power off. Auto power off will be automatically disabled when connected to a PC or when the sound level meter is recording.

To disable this function, press and hold the $\frac{|SAST|}{|SAST|}$ button while switching on the SPL82. The \bigcirc symbol will disappear from the LCD to confirm the auto power off is disabled.

3.6 Low Battery Indication



If the symbol is displayed, the battery needs replacing as measurement accuracy can no longer be guaranteed (See section 4.1 Battery Replacement).

3.7 Backlight

Press the button to turn on the display backlight. Press data again to turn off the backlight. It will automatically turn off after 30 seconds if there is no further operation of the meter.

3.8 Min/Max

When this function is selected, the SPL82 simultaneously monitors and stores the minimum and maximum results in to the memory. The meter will continue to update and refresh the data until the user exits this function.

blowing across the microphone, attach the windscreen. The best method for accurate sound level measurements is to mount the SPL82 on a tripod and allow sufficient clearance to minimise any sound reflections from the user's body. If the SPL82 is held by hand, it should be held out to the side of the body at arm's length.

The microphone should be placed well away from reflective surfaces such as walls and floors in order to eliminate errors caused by reflection and make sure the noise source is not obstructed.

3.13 Adjustment Using a Sound Calibrator

Most noise regulations and guidelines require that your sound level meter is tested using a sound level calibrator before use. Even if working in an environment where the regulations are not applicable, it is regarded as good practice to test the SPL82 against a sound level calibrator before and after use to make sure that it is not faulty. The SPL82 should be tested against a sound calibrator with a 94dB, 1 kHz reference level and if required, adjusted to correctly display the certified value of the sound calibrator.

A suitable sound calibrator is the Martindale SPC70.

Calibration Procedure:

Press and hold the MNX button and then press the O button to switch on the SPL82. When both buttons are released, CAL 94dB should appear on the LCD.

Carefully insert the microphone of the SPL82 into the microphone well of the sound calibrator, ensuring that the microphone is correctly seated.

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To display the minimum recorded value, press the MAX button, and MIN appears on the LCD.

To display the maximum recorded value, press the MAX button, and MAX appears on the LCD.

Press the MAX button again and MIN MAX flash together which shows the meter is in MIN MAX recording mode.

To exit MIN/MAX, press and hold the MIN MAX button until the MIN MAX symbol disappears.

3.9 Frequency Weighting

Press the $\begin{bmatrix} A/C \end{bmatrix}$ button to select the frequency weighting for **dBA** or **dBC**.

A – weighting is used for general sound level measurements
 C – weighting is used for low frequency noise.

Note: If the C-weighted level is much higher than the A-weighted level, this means there is low frequency noise.

3.10 Time Weighting

Press the <u>stow</u> button to set the time weighting to fast or slow. Set to **FAST** weighting for normal measurements. Set to **SLOW** weighting for measuring the average level of fluctuating noise.

3.11 Measurement Range

Press the LEVEL button to select the measurement range from Low, Medium, High and Auto range.

3.12 Measurement Considerations

Outdoor noise measurements should be made on a day with a calm to gentle breeze and not to be made in the rain. If the wind is

Power on the sound calibrator to the correct level (94dB) and check the value on the SPL82 LCD. If required, press the \checkmark or \blacktriangle to increase or decrease the displayed value until it matches the certified value of the sound calibrator. Press the \boxed{MIN}_{MAX} button to complete

the adjustment. To abort during the set up process, press the obtion to cancel.

3.14 AC/DC Output Socket Connections

Auxillary recording or analyser equipment can be connected to the SPL82 via the standard 3.5mm coaxial socket which provides both AC and DC signal outputs.



AC Output: 1 Vrms at full scale (full scale is the upper limit of the selected level range)
DC Output: 10 mV/dB

Output Impedance: 100Ω

3.15 USB Interface

The SPL82 has a USB interface for connection to a PC or an external power supply.

3.16 Record Function

Press REC button to start recording data. The **REC** symbol will appear on the LCD. To stop recording, press the REC button again.

Note:

- When the memory is full (64,000 results), the FULL symbol will appear LCD. The data logger function will stop.
- 10

 When the battery power is low, the _____ symbol appears on the screen and the data logger function will not start. If the battery is running low during data logging, it will stop recording automatically.

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prevent possible damage caused by leakage. When reinstalling the batteries, please remember to set the time and date again.

4.2 Data Logger & Interval Set-Up

Set the desired recording interval by pressing and holding the $\boxed{A/C}$ button and then press the $\boxed{0}$ button to switch on the SPL82. **SEt** will flash on the LCD. Press the $\boxed{\frac{Fast}{sLow}}$ and **Int** appears with a flashing time display. To set the interval time in minutes and seconds, press the \blacktriangle or \checkmark buttons to increase or decrease the values. When the set-up is complete, press the $\boxed{\frac{Fast}{sLow}}$ button to save the interval time and exit Interval Set-Up mode.

Note: To abort during the set up process, press the ① button to cancel. The minimum value is limited to **00:01** (1 second) and the maximum value is 1 minute.

4.3 Auto Save Function

When the <u>REC</u> button is pressed to start recording, the measured values are automatically saved to the memory.

Note:

During recording, the user is unable to amend any of the settings. The $A^{(c)}$ [Sast] L^{EVEL} buttons are disabled so the settings need to be selected before starting the record function.

The LCD screen will display FULL when 64,000 results are stored in the memory.

4. SET-UP

4.1 Setting the Date and Time

The SPL82 has a built in clock so that the data logger function can also record the date and time as well as the measured value. Enter set-up mode by pressing and holding the $\begin{bmatrix} A/c \end{bmatrix}$ button and

then press the 0 button to switch on the SPL82. **SEt** will flash on the LCD.

Press the MAX button to set the clock. Press the \checkmark or \blacktriangle buttons to adjust the year and press the MAX button to save the setting before it moves on to the month. Use the same buttons to adjust and save the day, hour, minute and seconds. When the set-up is complete, press the MAX button to exit SET-UP mode.



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Note: To abort during the set up process, press the ① button to cancel.

The SPL82 has an integral rechargeable battery back-up which maintains the time and date while the power is turned off. This back up cell is charged by the main batteries. The clock will keep running for 30 minutes on the backup battery alone. If the SPL82 is not to be used for an extended period, remove the batteries to

4.4 Clearing Stored Data



Switch off the SPL82. Press and hold REC and O buttons to switch the meter back on. Keep holding both buttons and **REC**, **CLr**, **SUrE**, and **5** will appear on the LCD. Continue to hold both buttons and 5 will count down to 0.

The LCD will show **CLr, 0** and then **CLEAr** will appear on the LCD. When all of the stored records are deleted, release both buttons and the SPL82 will return to measurement mode.

5. SE-SPL82 SOFTWARE

5.1 Contents Software disk, micro USB cable

5.2 System requirements Windows XP, VISTA, Windows 7, Windows 8, Windows 10.

5.3 Minimum hardware requirements

PC or laptop with CD-ROM drive At least 50MB hard disk space available to install SE-SPL82 Recommended screen resolution 1024 x 768

5.4 SE-SPL82 Main Menu



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UNDO ZOOM To undo the zoom function, click this button to return to normal view.



Figure 1

When the SPL82 is connected to the PC, select Data Logger in

the main menu or click on the icon to load the recorded data from the meter. A progress indicator shows the loading status and if an error occurs during the transfer, click on Data Logger again to restart loading the data. When the data transfer is complete, the downloaded data sets will be listed on the left side of the window (see **figure 1** and **figure 2**). The first record will also be displayed as a graph on the right side of the window. To select the graph for another record, click on the chosen data set.

| Cont. | CATE | TRAF | literte | 11.000 | - |
|-------|-----------|----------|---------|--------|----|
| 1 | 2015/4/15 | 1512:40 | 00.01 | 1 | C |
| 2 | 2015/0/15 | 1512.42 | 00.91 | 5 | с |
| 3 | 2015/4/15 | 151303 | 00.01 | 16 | c |
| 4 | 2015/4/15 | 15:50-41 | 00:01 | 2 | c |
| 5 | 2015/4215 | 15.50.43 | 00.01 | 2 | с |
| 1 | 2015/4/15 | 15 50 44 | 00.01 | 1 | c |
| 7 | 2015/4/17 | 10.27.01 | 00.82 | 304 | c |
| 1 | 2015/1/17 | 21 27 62 | 00101 | 376 | e. |

Figure 2

5.5 Tool Bar Functions



Standard cursor

Display or hide Statistic 1

Display or hide Statistic 2

When selected, the cursor will become a cross symbol when moved on the graph.

When selected, the cursor will become an I symbol when moved on the graph.

Deletes amendments made to the graph

5.6 Data Record Graph



To zoom in on the graph

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The view of the graph can be expanded by clicking on the selected area and dragging the cursor until the graph is enlarged to the required size. Release the cursor and the graph view will remain as the expanded view.

5.7 Recording Real Time Data in Waveform

Switch on the SPL82 and connect it to a PC USB port with the micro USB cable. Start the SE-SPL82 software to establish a connection.

Note: If the connection between the SE-SPL82 software and the SPL82 fails, No Connection will appear on the panel window of the software (see figure 3)



Figure 3

When the connection is complete, click **Real Time - Run** or from the main menu to start recording real time data and this information will appear in the waveform Real Time graph window. Click **Real Time - Stop** or **E** to stop recording.

5.8 Save recorded Real Time data to file

Click the graph window to be saved and the window will become active. Choose **File - Save** from the main menu or select the button from the toolbar. There are 3 options of file format for saving recorded data – binary file (*.ghf), text file (*.txt) and Excel format files (*.csv). The *.ghf file format uses less disk space when saving files but it can only be used in the SE-SPL82 software. The text file (*.txt) can be opened in SE-SPL82 software and word processing programmes like Word, Notepad etc. Excel format (*.csv) can be opened in both SE-SPL82 software and Microsoft Excel.

Note: If the SPL82 and SE-SPL82 software are to be used in a region where the comma is used as a decimal point, the *.csv format will be disabled. For example 78,6 will become 78 and 6 in Excel – not 78.6

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6.3 Cleaning

If contamination is found, clean with a damp soft cloth and if necessary a mild detergent or alcohol. Do not use abrasives, abrasive solvents, or detergents which can cause damage to the unit. If a mild detergent is used, the unit should subsequently be thoroughly cleaned with a water dampened soft cloth. After cleaning, dry and allow to remain in a dry environment for 2 hours before use.

6.4 Repair & Service

There are no user serviceable parts in this unit other than those that may be described in section 6. Return to Martindale Electric if faulty. Our service department will quote promptly to repair any fault that occurs outside the guarantee period.

Before the unit is returned, please ensure that you have checked the unit and batteries.

6.5 Storage Conditions

The instrument should be kept in warm dry conditions away from direct sources of heat or sunlight, and in such a manner as to preserve the working life of the unit. It is strongly advised that the unit is not kept in a tool box where other tools may damage it.

6. MAINTENANCE

6.1 Battery Replacement

Before replacing the batteries, switch the meter off and disconnect any leads or adaptors that may be attached. The battery compartment is on the rear of the unit. To gain access, undo the retaining screw and slide the cover away from the back of the unit.



Replace with new 1.5V, AAA alkaline batteries (IEC LR03, NEDA 24A) observing correct polarity. Replace the battery cover.

Note: Do not mix old and new batteries.

6.2 Calibration

To maintain the integrity of measurements made using your instrument, Martindale Electric recommends that it is returned at least once a year to an approved Calibration Laboratory for recalibration and certification.

Martindale Electric is pleased to offer you this service. Please contact our Service Department for details. Email: service@martindale-electric.co.uk Tel: 01923 650660

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7. WARRANTY AND LIMITATION OF LIABILITY

This Martindale product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is 2 years and begins on the date of receipt by the end user. This warranty extends only to the original buyer or enduser customer, and does not apply to fuses, disposable batteries, test leads or to any product which, in Martindale's opinion, has been misused, altered, neglected, contaminated, or damaged by accident or abnormal conditions of operation, handling or storage. Martindale authorised resellers shall extend this warranty on new and unused products to end-user customers only but have no authority to extend a greater or different warranty on behalf of Martindale.

Martindale's warranty obligation is limited, at Martindale's option, to refund of the purchase price, free of charge repair, or replacement of a defective product which is returned to Martindale within the warranty period.

This warranty is the buyer's sole and exclusive remedy and is in lieu of all other warranties, expressed or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. Martindale shall not be liable for any special, indirect, incidental or consequential damages or losses, including loss of data, arising from any cause or theory.

Since some jurisdictions do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any part of any provision of this warranty is held invalid or unenforceable by a court or other decision-maker of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision or other part of that provision.

22 Nothing in this statement reduces your statutory rights.



Specification SPL82 Data Logger Sound Level Meter

Measuring level range: 30 - 130dB Resolution: 0.1dB Frequency range: 20Hz - 8kHz Frequency weighting: A or C Level ranges: Lo: 30 - 90dB Med: 50 - 110dB Hi: 70 – 130dB Accuracy: ±1.4dB (under reference conditions @ 94dB, 1KHz) Dynamic range: 60dB Time weighting: fast or slow Microphone: 1/2 inch electret condenser microphone AC output: 1Vrms at full scale (full scale is the upper limit of the selected level range) DC output: 10mV/dB

GENERAL

Digital display: 4 digit liquid crystal display Sampling rate: twice per second

Analogue display: 30 segment bar graph Analogue resolution: 2dB Analogue measurement rate: 20 times per second Alarm function: OVER is when output is more than the upper limit of the range (over 130dB).

UNDER is when output is less than the lower limit of the range (under 30dB).



Specification SPL82 Data Logger Sound Level Meter

Data logging capacity: 64,000 records Power: 4 x 1.5V AAA alkaline batteries (IEC LR03, NEDA 24A) Battery life: 24 hours (approximate) Auto power off: 30 mins (can be disabled) Power consumption: 0.2W approx External power supply: 5V DC (micro USB plug) Dimensions: 264 (L) x 63 (W) x 29mm (H) Weight: 245g including battery Includes: storage case, 4 x 1.5V AAA alkaline batteries, software, micro USB cable, 3.5mm plug, USB stick and instruction manual.

ENVIRONMENTAL

 Operating conditions: Temperature: 0°C to 40°C (32 to 104°F) Relative humidity: 10 to 90% R.H.

 Storage conditions:
 Temperature: -10°C to 60°C (14 to 140°F) Relative humidity: 10 to 75% R.H.

FUNCTIONALITY Complies with BS EN 61672-1 Class 2

EMC Conforms to BS EN 61326-1

Check out what else you can get from Martindale:

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- Socket Testers
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- Test Leads
- Voltage Indicators
- Specialist Metrohm Testers (4 & 5kV)
- Specialist Drummond Testers



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