SOUND LEVEL METER

Model : SL-4010

Your purchase of this SOUND LEVEL METER marks a step forward for you into the field of precision measurement.
Although this METER is a complex and delicate instrument, its durable structure will allow many years of use if proper operating techniques are developed. Please read the following instructions carefully and always keep this manual within easy reach.

SYSTEM CERTIFICATION ISO 9001:2008 SGS
UKAS QUALITY MANAGEMENT 005

OPERATION MANUAL

TABLE OF CONTENTS

1. FEATURES

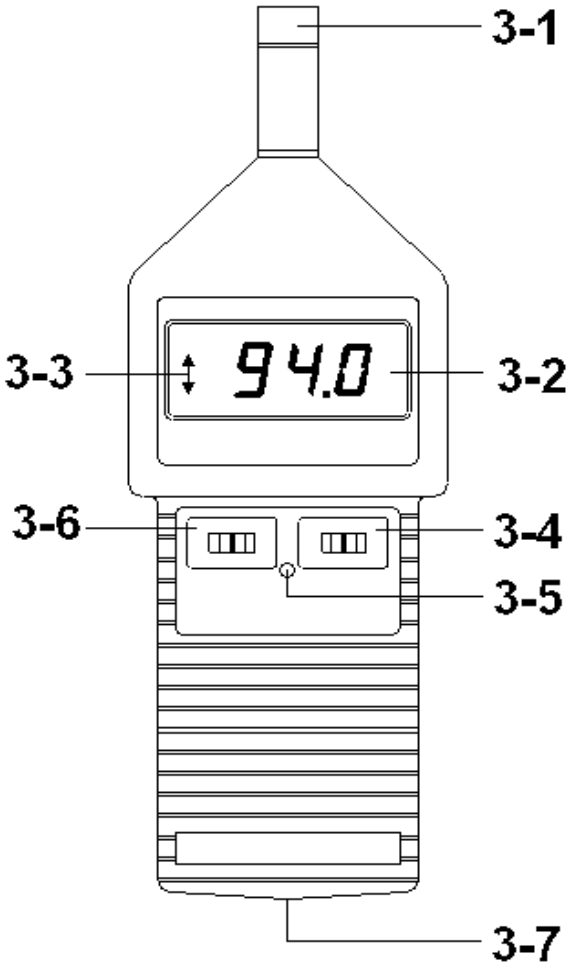
* Large LCD display, easy to read.
* Characteristic of " A " frequency weighting network are designed to meet IEC 61672 class 2.
* " Fast " time weighting characteristic mode.
* Build in adj. VR is available for easy calibration.
* Condenser microphone for high accuracy & long-term stability.
* Hold function to freeze the display value.
* Warning indicator for over and under range.
* LCD display for low power consumption & clear read-out even in bright ambient light condition.
* Used the durable, long-lasting components, including a strong, light weight ABS-plastic housing case.
* Small and light weight design allow one hand operation.
* Low battery indicator.
* High quality with economical cost.

2. SPECIFICATIONS

Display	18 mm (0.7") LCD (Liquid Crystal Display), 3 1/2 digits.
Measurement Range	*35 to 130 dB, 3 ranges :* range 1 - 35 to 80 dB, range 2 - 50 to 100 dB, range 3 - 80 to 130 dB, * Each range with warning indicator for over & under load.
Resolution	0.1 dB.
Measurement Frequency	31.5 Hz to 8,000 Hz.
Frequency Weighting	Characteristics of " A " frequency weighting network. * The " A weighting " characteristic is simulated as "Human Ear Listing" response.

<table>
<tr><td>Time Weighting</td><td>Default to " Fast " time weighting characteristics.
* " Fast time weighting " is simulated the human ear response character.</td></tr>
<tr><td>Accuracy
(23± 5 ℃)</td><td>Characteristics of " A " frequency weighting network meet IEC 61672 class 2.
Under 94 dB input signal, the accuracy are :
<table>
<tr><td>31.5 Hz</td><td>± 3.5 dB</td></tr>
<tr><td>63 Hz</td><td>± 2.5 dB</td></tr>
<tr><td>125 Hz</td><td>± 2.0 dB</td></tr>
<tr><td>250 Hz</td><td>± 1.9 dB</td></tr>
<tr><td>500 Hz</td><td>± 1.9 dB</td></tr>
<tr><td>1 K Hz</td><td>± 1.4 dB</td></tr>
<tr><td>2 K Hz</td><td>± 2.6 dB</td></tr>
<tr><td>4 K Hz</td><td>± 3.6 dB</td></tr>
<tr><td>8 K Hz</td><td>± 5.6 dB</td></tr>
</table>
Remark :
The above spec. are tested under the environment RF Field Strength less than 3 V/M & frequency less than 30 MHz only.</td></tr>
<tr><td>Calibrator</td><td>B & K (Bruel & kjaer), multi-fuction acoustic calibrator, model : 4226.</td></tr>
<tr><td>Microphone</td><td>Electric condenser microphone.</td></tr>
<tr><td>Size of microphone</td><td>1/2 inch standard size.</td></tr>
<tr><td>Calibration VR</td><td>Build in external calibration VR, easy to calibrate on 94 dB level by screw driver.</td></tr>
<tr><td>Data Hold</td><td>Hold function to freeze the display value.</td></tr>
<tr><td>Operating Temp.</td><td>0 to 50 ℃ (32 to 122 ℉).</td></tr>
<tr><td>Operating Humidity</td><td>Less than 80% RH.</td></tr>
<tr><td>Power Supply</td><td>Alkaline or Heavy duty type, 9V d.c.
006 P, MN1604(PP3) or equivalent.</td></tr>
<tr><td>Power Consumption</td><td>Approx. DC 6 mA.</td></tr>
<tr><td>Dimension</td><td>250 x 70 x 28 mm (9.9 x 2.8 x 1.1 inch).</td></tr>
<tr><td>Weight</td><td>250 g/0.55 LB (including battery).</td></tr>
<tr><td>Standard Accessories</td><td>Instruction Manual ..... 1 PC.</td></tr>
<tr><td rowspan="2">Optional Accessories</td><td>94 dB Sound Calibrator,
Model : SC-941, SC-942.</td></tr>
<tr><td>Hard carrying case, Model : CA-06.</td></tr>
</table>

3. FRONT PANEL DESCRIPTION



3-1 Electric condenser microphone
3-2 Display
3-3 Range upper / lower indicator
3-4 Range switch
3-5 External calibration VR
3-6 Power ON/OFF/Hold switch

" 1 " = Power ON " 0 " = Power OFF

3-7 Battery compartment / Cover

4. MEASURING PROCEDURE

1) Slide the " Power ON/OFF/Hold switch " (3-6, Fig. 1) to the " 1 " position will power on the meter.

   " 1 " = Power ON. " 0 " = Power OFF.

2) Determine proper measuring range by selecting the " Range switch " (3-4, Fig. 1) to minimize the tolerance of readout. When left corner of LCD show " " (Range upper / lower indicator, 3-3, Fig. 1), it shows the dB range selection is upper or lower setting. Slide range switch to other range for measuring.
3) Hold the instrument in hand and point the microphone at measured noise source, the sound level will be displayed on " dB " (decibel) unit.
4) During the measurement, if slide the " Power ON/OFF/Hold switch " (3-6, Fig. 1) to the " Hold " position will freeze the display value. If slide the " Power ON/OFF/Hold switch " (3-6, Fig. 1) to the " 1 " position. then the display will make the measurement continually.

5. REPLACEMENT OF BATTERY

1) When the left corner of LCD display show " BAT ", it indicate a normal battery output of less than 6.5 V - 7.5 V. It is necessary to replace the battery. However, in-spec. measurement may still be made for several hours after LOW BATTERY INDICATOR appears before the instrument become inaccurate.
2) Slide the Battery Cover (3-7, Fig. 1) & take the battery away from the battery compartment..
3) Replace with 9V battery (Alkaline or Heavy duty type, 006 P, MN1604/PP3 or equivalent) and reinstate the cover.

6. CALIBRATION

** The sound level meter is built in the internal " External calibration VR " (3-5, Fig. 1) on the front panel.*

** Please according the following procedures to calibrate the instrument accurately, if it is necessary.*

1) Prepare the optional " SOUND CALIBRATOR, model: SC-941, SC-942 or other equivalent sound calibrator. Power on the Sound Calibrator & plug calibrator output into the " Electric condenser micro- phone " (3-1, Fig. 1) of the Sound Level Meter.
2) Slide the " Range switch " (3-4, Fig. 1) to " 50 - 100 dB " position.
3) Carefully adjust the " Calibration VR " (3-5) with " - " screw driver, until the display read within " 94.0 ± 0.2 " dB.

7. FREQUENCY WEIGHTING CHARACTERISTICS OF " A " NETWORKS

Frequency Hz	A Weighting Character	Tolerance (IEC 61672 class 2)
31.5	-39.4 dB	± 3.5 dB
63	-26.2 dB	± 2.5 dB
125	-16.1 dB	± 2.0 dB
250	-8.6 dB	± 1.9 dB
500	-3.2 dB	± 1.9 dB
1 K	0 dB	± 1.4 dB
2 K	+1.2 dB	± 2.6 dB
4 K	+1 dB	± 3.6 dB
8 K	-1.1 dB	± 5.6 dB