SD card real time datalogger, RS232/USB
Frequency weighting and Time weighting
meet IEC 61672 class 2

Integrating

SOUND LEVEL METER

Model : SL-4035SD

Your purchase of this Integrating SOUND LEVEL METER with SD CARD DATALOGGER 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.

OPERATION MANUAL

TABLE OF CONTENTS

1. FEATURES

* Frequency and Time weighting are designed to meet IEC 61672 class 2.
* The meter with programmable integrating time provides precise linearity over a wide range (100dB) and displays **Leq** and **SPL** measurements.
* A & C weighting networks comply with standards.
* 0.5" standard microphone head.
* Time weighting (Fast & Slow) dynamic characteristic modes.
* Build External calibration VR.
* Auto range & Manual range selection.
* Condenser microphone for high accuracy & long-term stability.
* Memory function to store the Max. & Min. value.
* Hold and Peak Hold functions.
* Real time SD memory card Datalogger, it Built-in Clock and Calendar, real time data recorder, sampling time set from 1 second to 3600 seconds.
* Manual datalogger is available (set the sampling time to 0 second), during execute the manual datalogger function, it can set the different position (location) No. (position 1 to position 99).
* Innovation and easy operation, computer is not need to setup extra software, after execute datalogger, just take away the SD card from the meter and plug in the SD card into the computer, it can download the all the measured value with the time information (year/month/date/ hour/minute/second) to the Excel directly, then user can make the further data or graphic analysis by themselves.
* SD card capacity : 1 GB to 16 GB.
* LCD with green light backlight, easy reading.
* Can default auto power off or manual power off.
* Data hold, record max. and min. reading.
* Microcomputer circuit, high accuracy.
* Power by UM3/AA (1.5 V) x 6 batteries or DC 9V adapter.
* RS232/USB PC COMPUTER interface.
* Heavy duty & compact housing case.
* Leq, SPL, MAX, and MIN measurements.

2. SPECIFICATIONS

Circuit	Custom one-chip of microprocessor LSI circuit.
Display	LCD size : 51 mm x 30 mm LCD with green backlight (ON/OFF).
Measurement Type	**SPL** : Sound pressure level **Leq** : Equivalent Continuous Noise Level
Measurement Range	30 - 130 dB.
Resolution	0.1 dB.
Function	dB (A & C frequency weighting), Time weighting (Fast, Slow), Peak hold, Data hold Record (Max., Min.).
Accuracy (23 ±5 ℃)	Characteristics of " A " frequency weighting network meet ANSI S1.4-2014 / IEC 61672 -1 : 2013 class 2 Under 94 dB input signal, the accuracy are :

31.5	Hz	±3.0 dB
63	Hz	±2.0 dB
125	Hz	±1.5 dB
250	Hz	±1.5 dB
500	Hz	±1.5 dB
1 K	Hz	±1.0 dB
2 K	Hz	±2.0 dB
4 K	Hz	±3.0 dB
8 K	Hz	±5.0 dB

Remark :
The above spec. are tested under the environment RF Field Strength less than 3 V/M & frequency less than 30 MHz only.

Frequency Weighting Network	Characteristics of A & C. A weighting : The characteristic is simulated as "Human Ear Listing" response. Typical, if making the environmental sound level measurement, always select to A weighting. C weighting The characteristic is near the "FLAT" response. Typical, it is suitable for checking the noise of machinery (Q.C. check) & knowing the sound pressure level of the tested equipment.

Time weighting (Fast & Slow)	Fast - t = 125 ms
	* "Fast" range is simulated the human ear
	  response time weighting.
	Slow - t = 1 s
	* "Slow" range is easy to get the average
	   values of vibration sound level.
	*** Proposal to test FAST & SLOW Function ,Please use
	   the manual range mode**

Data hold	To freeze the measurement value.
Peak hold	To keep the peak (max.) measurement value.
Range selector	*Auto range :* 30 to 130 dB.

	Manual range :
	  2 range, 30 to 80 dB,
	  80 to 130 dB, 50 dB on each step,
	  with over & under range indicating.

Frequency	31.5 to 8,000 Hz.
Microphone type	Electric condenser microphone.
Microphone size	Out size, 12.7 mm DIA. (1/2 inch).
Data error no.	$\leqq$ 0.1 % no. Of total saved data typically.

Calibration VR	Build in external calibration VR, easy to calibrate on 94 dB level by screw driver. * Calibrated via external SOUND CALIBRATOR (SC-942, optional).	
Calibrator	B & K (Bruel & kjaer), MULTIFUNCTION ACOUSTIC CALIBRATOR Type 4226.	
Datalogger Sampling Time Setting range	Auto	1 second to 3600 seconds @ Sampling time can set to 1 second, but memory data may loss.
	Manual	Push the data logger button once will save data one time. @ Set the sampling time to 0 second. @ Manual mode, can also select the 1 to 99 position (Location) no.
Memory Card	SD memory card. 1 GB to 16 GB.	
Advanced setting	* Set clock time (Year/Month/Date,Hour/Minute/ Second) * Set sampling time * Auto power OFF management * Set beep Sound ON/OFF * Decimal point of SD card setting * SD memory card Format * Frequency weighting to A or C setting	
Over Indication	Show " - - - - ".	
Data Hold	Freeze the display reading.	
Memory Recall	Maximum & Minimum value.	
Sampling Time of Display	Approx. 1 second.	
Data Output	RS 232/USB PC computer interface. * Connect the optional RS232 cable UPCB-02 will get the RS232 plug. * Connect the optional USB cable USB-01 will get the USB plug.	
AC output	AC 0.5 Vrms corresponding to each range step. * Output impedance : 600 ohm.	

Power off	Auto shut off saves battery life or manual off by push button.
Operating Temperature	0 to 50 ℃.
Operating Humidity	Less than 85% R.H.
Power Supply	* Alkaline or heavy duty DC 1.5 V battery (UM3, AA) x 6 PCs, or equivalent.
	* DC 9V adapter input. (AC/DC power adapter is optional).
Power Current	Normal operation (w/o SD card save data and LCD Backlight is OFF) : *Approx. DC 8.2 mA.*
	When SD card save the data but and LCD Backlight is OFF) : *Approx. DC 34 mA.*
	* *If LCD backlight on, the power consumption will increase approx. 6 mA.*
Weight	323 g/0.71 LB.
Dimension	245 x 68 x 45 mm. (9.6 x 2.7x 1.8 inch).
Accessories Included	* Instruction manual... 1 PC * Hard carrying case, CA-06............................ 1 PC
Optional Accessories	* Sound calibrator (94 dB), SC-941. * Sound calibrator (94/114 dB), SC-942. * Sound wind shield ball, SB-01 * SD Card (4 GB) * USB cable, USB-01. * RS232 cable, UPCB-02. * Data Acquisition software, SW-U801-WIN. * AC to DC 9V adapter. * Soft carrying case, CA-05A.

3. FRONT PANEL DESCRIPTION
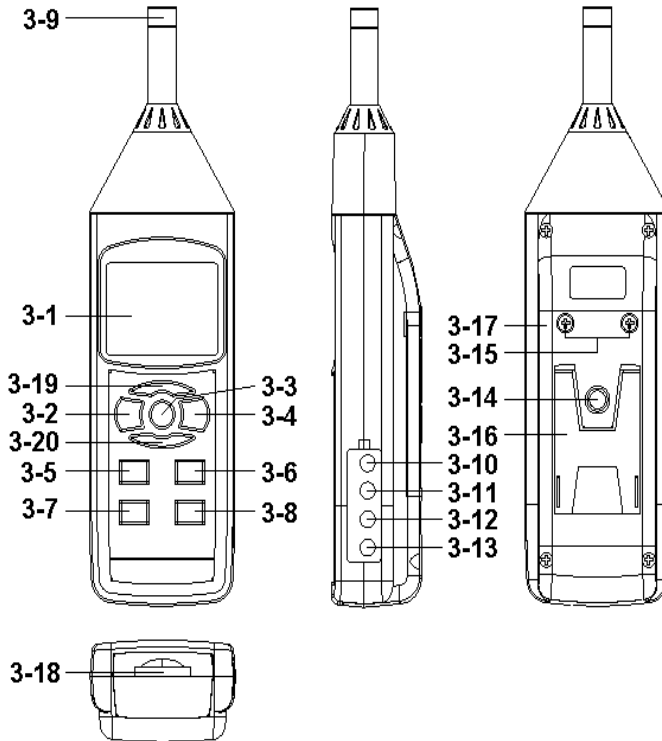
Fig. 1

3-1 Display.

3-2 Power Button(ESC, Backlight Button

3-3 Hold Button

3-4 REC Button

3-5 ▲ Button (Range Button)

3-6 ▼ Button (Fast/Slow/Peak Button)

3-7 Time Button (SET Button)

3-8 ENTER Button (Logger Button)

3-9 Microphone

3-10 AC output terminal

3-11 Calibration VR

3-12 RS-232 output terminal

3-13 DC 9V adapter socket.

3-14 Tripod Fix Nut

3-15 Battery Cover Screws

3-16 Stand

3-17 Battery compartment/Cover

3-18 SD card socket

3-19 ►／ⅱ／■ Button

3-20 INTEG TIME Button

4. MEASURING PROCEDURE

4-1 Sound Pressure Level Measurements (SPL)

In SPL mode the display shows readings of
the sound pressure level.

1) Power ON the meter by pressing and holding the " Power
Button " (3-2, Fig. 1)for at least 1.5 seconds,
the meter's default function is " A frequency weighting ,
" SPL " " & " Fast time weighting "&" Auto range ". The
LCD display will show the Symbol " A.SPL, FAST , AUTO ".
Power OFF the meter by pressing and holding the " Power
Button " (3-2, Fig. 1) again for at least 1.5 seconds ,the meter will be OFF.

2) Frequency weighting select
How to select the frequency weighting (A or C), the
procedures please refer to chapter 7-7   page 21   .
Note :
a. The characteristic table of A,C weighting, please
   ref. page 25.
b. The characteristic of A weighting is simulated as the
   " Human Ear Listening " response.
   Typically always select the A weighting when makes
   environmental sound level measurement.
c. The C weighting characteristic is near the " FLAT "
   response. Typically it is suitable for checking the
   noise of machinery (Q.C. check) & knowing the
   real sound level of the tested equipment.

3) Determine proper measuring range by pressing and holding
the " ▲ Button " (3-5, Fig. 1) for at least 1.5 seconds.
until the desired range is shown (AUTO , 30 - 80 , 80 - 130 ,
AUTO) reading in the center of the range. If dashes appear
on the display select a new range , After power on the default
range is " Auto range " In the same time the LCD display
will show the text of " Auto " Under the auto range.

pressing and holding the " ▲ Button "(3-5, Fig. 1) again
 range will enter to the manual range (range 1,range 2)
and auto range in sequence ,There are still 2 manual ranges.
 for your choice :

> * *Manual range 1 , 30 - 80 dB range :*
>   Display will show the text of " 30 - 80 ".
> * *Manual range 2 , 80 - 130 dB range :*
>   Display will show the text of " 80 - 130 ".

4) According to various measuring sound source, select the
   Time Weighting (Fast or Slow or PEAK Fast) by pressing and
   holding the "▼ (Time Weighting) Button " (3-6, Fig. 1).

   Note :
   a. *If select the function of " Fast " time weighting, the*
      display will show the unit of " FAST".
   b. *If select the function of " Slow " time weighting, the*
      display will show the unit of " SLOW ".
   c. *If select the function of " PEAK FAST " time weighting, the*
      display will show the unit of " PEAK FAST " and will show
      maxmun reading .

4-2 Integrating Sound Level Meter Measurements (Leq)

In the **Leq** mode the display will shows the integrated
level for the run period readings.

1) Power ON the meter by pressing and holding the " Power
   Button " (3-2, Fig. 1)for at least 1.5 seconds,
    the meter's default function is " A frequency weighting ,
   " SPL " " & " Fast time weighting "&" Auto range ". The
   LCD display will show the Symbol " A.SPL, FAST , AUTO ".

2) Select the **Leq** mode by pressing and holding the " INTEG
    TIME button" (3-20 Fig 1)＞2 sec. select to the Leq MODEL .

3) Frequency weighting select

How to select the frequency weighting (A or C), the procedures please refer to chapter 7-7 page 21 .

4) According to various measuring sound source, select the Time Weighting (Fast or Slow) by pressing and holding the "▼ (Time Weighting) Button " (3-6, Fig. 1).

5) Select the desired Run Time.,There are 13 preset time settings available .

1 second	3 second	10 second	30 second	1 minute
5 minutes	8 minutes	10 minutes	15 minutes	30 minutes
1 hour	8 hour	24 hour		

Change the run time by pressing the" INTEG TIME button" (3-20 Fig .1) once, The run time will appear in the LCD below , then Press the " ▲ buttom"(3-5 Fig . 1) o r "▼ buttom" (3-6 Fig . 1) button to select the preset time setting.

Remark:

if want to do **Leq** data logger , Press" Enter button"(3-8 Fig . 1) > 1.5 seconds , into data logger function , then to execute the following actions.

1. Press" ▶/Ⅱ/■ button"(3-19 Fig . 1) once to begin measuring, The run time counter will zero and begin counting While running the meter will Show " ▶ " Symbol at the display.

2. When the " ▶/Ⅱ/■ " button"(3-19 Fig . 1) is pressed again, the measurement will pause and the display will show " ‖ ", At the same time " ▶ " Symbol Disappear.

3. When the " ▶/Ⅱ/■ " button is pressed again, the measurement will continue , At the same time " ‖ " Symbol Disappear and the display will show " ▶ "Symbol, At a preset time interval has expired, and will display " ■ " Symbol , and Leq recording interval, the instrument will automatically stop.

6) When Integrating Time set to zero ,push " ▶/‖/■   buttom "
   (3-19 Fig . 1) once, meter to begin integral measurement,At the
    same time meter will Show " ▶ " Symbol at the display The run
   time counter will zero and begin counting While running the
    meter will Show " ▶ "Symbol at the display.
   When the " ▶/‖/■   button"(3-19 Fig . 1) is pressed again,
   the measurement and Integrating time counter will automatically
   stop , and the display will show and hold Integrating
    reading and show " ■ " Symbol, at the same time " ▶ "
    Symbol Disappear.

4-3 Data Hold

During the measurement, press the " Hold Button " (3-3,
Fig. 1) once will hold the measured value & the LCD will
display a " HOLD " symbol.
Press the " Hold Button " once again will release the data
hold function.

4-4 Data Record (Max., Min. reading)

1) The data record function records the maximum and
   minimum readings. Press the " REC Button " (3-4, Fig.1)
    once to start the Data Record function and there
   will be a " REC " symbol on the display.

2) With the " REC " symbol on the display :
   a) Press the " REC Button " (3-4, Fig. 1) once, the
      " REC MAX " symbol along with the maximum value
      will appear on the display.

b) Press the " REC Button " (3-4, Fig. 1) again, the " REC MIN " symbol along with the minimum value will appear on the display.

c) To exit the memory record function, just press the " REC " button > 2 seconds at least. The display will revert to the current reading.

4-5 LCD Backlight ON/OFF

After power ON, the " LCD Backlight " will light automatically. During the measurement, press the " Backlight Button " (3-2, Fig. 1) once will turn OFF the " LCD Backlight ".
Press the " POWER Button " once again will turn ON the " LCD Backlight " again.

*Remark ：In "REC" or "LOGGER" mode , Press the "Backlight Button" ＞ 2 seconds , Backlight will turn ON .

5. DATALOGGER

5-1 Preparation before execute datalogger function

a. Insert the SD card

Prepare a " SD memory card " (1 GB to 16 GB, optional),
insert the SD card into the " SD card socket " (3-18, Fig. 1).
The front panel of the SD card should face against the
the down case.

b. SD card Format

If SD card just the first time use into the meter, it
recommend to make the " SD card Format " at first. ,
please refer chapter 7-6 (page 21).

***If the SD card exist the trouble during format by the meter,
use the computer to reformat again can fix the problem.**

c. Time setting

If the meter is used at first time, it should to adjust the
clock time exactly, please refer chapter 7-1 (page 18).

d. Decimal format setting

The numerical data structure of SD card is
default used the " . " as the decimal, for
example "20.6" "1000.53" . But in certain
countries   (Europe ...) is used the " , " as the
decimal point, for example " 20, 6 "
"1000,53". Under such situation, it should
change the Decimal character at first, details
of setting the Decimal point, refer to Chapter
7-5, page 20.

5-2 Auto Datalogger (Set sampling time $\geqq$ 1 second)

a. Start the datalogger

Press the " ENTER Button (3-8, Fig. 1) over 2 seconds into
datalogger mode , The LCD will show the text "LOGGER"
and flashing , at the same time the measuring data along
the time information will be saved into the memory circuit.

b. Pause the datalogger

During execute the Datalogger function , if press the
" ENTER Button " (3-8, Fig. 1) once will pause the
Datalogger function (stop to save the measuring data
into the memory circuit temporally). In the same time
the text of " LOGGER " will stop flashing.

Remark :
If press the " ENTER Button " (3-8, Fig. 1) once again
will execute the Datalogger again, the text of " LOGGER "
will flashing .

c. Finish the Datalogger

During pause the Datalogger, press the " ENTER Button "
(3-8, Fig. 1) continuously at least two seconds, the " LOGGER "
indicator will be disappeared and finish the Datalogger.

Remark :
When the battery is under the low battery condition
(show the low battery indicator), the Datalogger
function is disable.

5-3 Manual Datalogger (Set sampling time = 0 second)

```
a. Set sampling time is to 0 second
```

Press the " ENTER Button (3-4, Fig. 1) at least 1.5 seconds , the LCD will show the text " LOGGER and P = no ", then press the " ENTER Button " (3-8, Fig. 1) once, the " LOGGER " will flashing once, at the same time the measuring data along the time information, will be saved into the memory circuit.

> **Remark :**
> * **Upper Display will show the Position/Location no. (P = 1 - 99) .**
> * **During execute the Manual Datalogger, press the " ▲ Button " (3-5, Fig. 1) or " ▼ Button " (3-6, Fig. 1) to set the measuring position (1 to 99, for example room 1 to room 99) to identify the measurement location.**

```
b. Finish the Datalogger
```

Press the "ENTER Button " (3-4, Fig. 1) continuously at least two seconds, the " LOGGER " indication will be disappeared and finish the Datalogger.

5-4 Check time and sampling time information
During the measurement if press " TIME Button " (3-7, Fig. 1) ones, the LCD display will present the time and sampling time information of Year/Month/ Date , Hour/Minute/Second, and sampling time informationin in second unit.

5-5 SD Card Data structure

1) When the SD card is used into the meter, the SD card
   When the first time, the SD card is used into the meter,
   the SD card will generate a folder :

   ### SLC01

2) If the first time to execute the Datalogger,
   under the route SLC01\, will generate a new
   file name SLC01001.XLS.
   After exist the Datalogger, then execute again,
   the data will save to the SLC01001.XLS until
   Data column reach to 30,000 columns, then
   will generate a new file, for example SLC01002.XLS
3) Under the folder SLC01\, if the total files more
   than 99 files, will generate anew route, such as
   SLC02\ ....
4) The file's route structure :
   SLC01\
      SLC01001.XLS
      SLC01002.XLS

      ....
      SLC01099.XLS
   SLC02\
      SLC02001.XLS
      SLC02002.XLS

      ....
      SLC02099.XLS
   SLCXX\

      ....
      ....
   *Remark : XX : Max. value is 10.*

6. Saving data from the SD card to the computer (EXCEL software)

1) After execute the Data Logger function, take away the SD card out from the " SD card socket " (3-18, Fig. 1).
2) Plug in the SD card into the Computer's SD card slot (if your computer build in this installation) or insert the SD card into the " SD card adapter ". then connect the " SD card adapter " into the computer.
3) Power ON the computer and run the " EXCEL software ". Down load the saving data file (for example the file name : SLC01001.XLS, SLC01002.XLS) from the SD card to the computer. The saving data will present into the EXCEL software screen (for example as following EXCEL data screens) , then user can use those EXCEL data to make the further Data or Graphic analysis usefully.

EXCEL data screen (for example)

	A	B	C	D	E	F	G	H
1	Place	Date	Time	Value	Unit	Integral Time	Value	Unit
2	1	2000/1/23	19:59:14	90.8	SPL dB			
3	2	2000/1/23	19:59:15	89.8	SPL dB			
4	3	2000/1/23	19:59:17	89.2	SPL dB			
5	4	2000/1/23	19:59:19	86.5	SPL dB			
6	5	2000/1/23	19:59:21	92.4	SPL dB			
7	6	2000/1/23	19:59:23	88.5	SPL dB			
8	7	2000/1/23	19:59:25	89	SPL dB			
9	8	2000/1/23	19:59:27	86.8	SPL dB			
10	9	2000/1/23	19:59:29	85.1	SPL dB			
11	10	2000/1/23	19:59:31	95	SPL dB			
12	11	2000/1/23	19:59:33	90.2	SPL dB			
13	12	2000/1/23	19:59:35	89.5	SPL dB			
14	13	2000/1/23	19:59:37	90.4	SPL dB			
15	14	2000/1/23	19:59:39	111.9	SPL dB			
16	15	2000/1/23	19:59:41	92.8	SPL dB			
17	16	2000/1/23	19:59:43	98.3	SPL dB			
18	17	2000/1/23	19:59:45	105.1	SPL dB			
19	18	2000/1/23	19:59:47	85.7	SPL dB			
20	19	2000/1/23	19:59:49	85.8	SPL dB			
21	20	2000/1/23	19:59:51	84.3	SPL dB			
22	21	2000/1/23	19:59:53	93.3	SPL dB			
23	22	2000/1/23	19:59:55	85.5	SPL dB			

SLC01001

EXCEL graphic screen（for example）
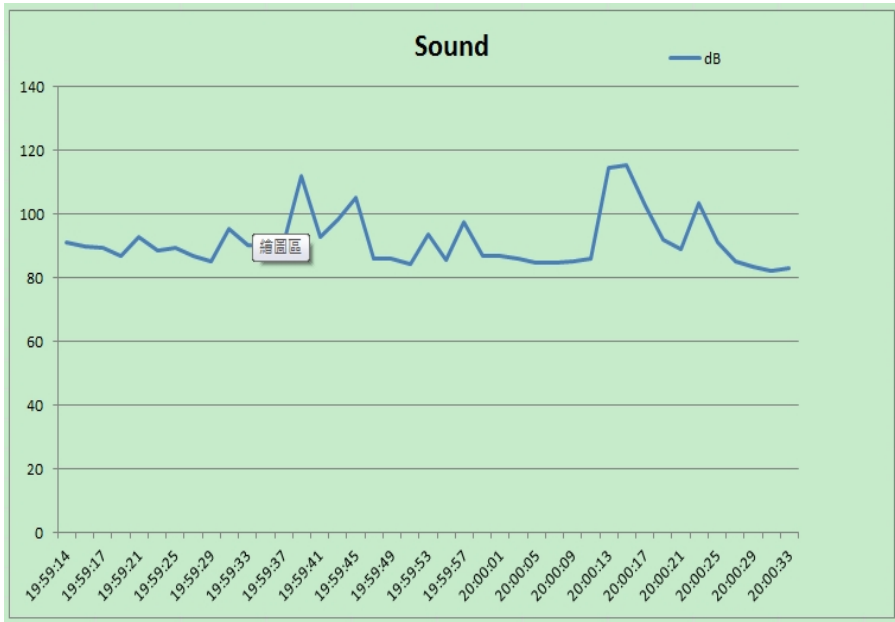
7. ADVANCED SETTING

Under do not execute the Datalogger function,
press the " TIME Button " (3-7, Fig. 1) continuously at
least 1.5 seconds will enter the " Advanced Setting " mode.
then press the "TIME Button " (3-7, Fig. 1) once a while
in sequence to select the seven main function, the lower
display will show :

DATE…… Set clock time (Year/Month/Date, Hour/Minute/
Second)
SP-T......... Set sampling time (0～3600 sec.)
POFF....... Auto power OFF management
BEEP....... Set beeper sound ON/OFF
DEC......... Set SD card Decimal character
SD- F........ SD memory card Format
A ………. Select the Frequency weighting to A or C

*During execute the " Advanced Setting " function,
if press " POWER Button " (3-2, Fig. 1) once will exit
the " Advanced Setting " function, the LCD will
return to normal screen.*

*7-1 Set clock time (Year/Month/Date,
    Hour/Minute/ Second)*

When the lower display show " DATE "

1) Use the " ▲ Button " (3-5, Fig. 1) or " ▼ Button "
(3-6, Fig. 1) to adjust the value (Setting start from
Year value). After the desired value is set, press the
" Enter Button " (3-8, Fig. 1) once will going to
next value adjustment (for example, first setting
value is Year then next to adjust Month, Date, Hour,
Minute, Second value).

2) After set all the time value (Year, Month, Date, Hour,
   Minute, Second),
   the screen will jump to " Sampling time "
   setting screen (Chapter 7-2).
   Remark :
   After the time value is setting, the internal clock will
   run precisely even Power is off (The battery is under
   normal condition, no low battery condition).

7-2 Set sampling time (seconds)

When the lower display show " SP-T "

1) Use the " ▲ Button " (3-5, Fig. 1) or " ▼ Button " (
   3-6, Fig. 1) to adjust the value (0～3600 sec.)

   Remark :
   If select the sampling time to " 0 second ", it is ready
   for manual Datalogger.

2) After the Sampling value is selected, press the
   " ENTER Button " (3-8, Fig. 1) will save the setting
   function with default.

7-3 Auto power OFF management

When the lower display show " POFF "

1) Use the " ▲ Button " (3-5, Fig. 1) or " ▼ Button "
   (3-6, Fig. 1) to select the upper text to " YES " or
   " NO ".

   YES - Auto Power Off management will enable.
   NO - Auto Power Off management will disable.

2) After select the upper text to " YES " or " NO ", press the
   " ENTER Button " (3-8, Fig. 1) will save the setting
   function with default.

7-4 Set beeper sound ON/OFF

When the lower display show " BEEP "

1) Use the " ▲ Button " (3-5, Fig. 1) or " ▼ Button "
   (3-6, Fig. 1) to select the upper text to " YES " or
   " NO ".

   YES - Meter's beep sound will be ON with default.
   NO - Meter's beep sound will be OFF with default.

2) After select the upper text to " YES " or " NO ", press the
   " ENTER Button " (3-8, Fig. 1) will save the setting
   function with default.

   Remark :
   After execute the datalogger function, the buzzer sound
   will off automatically to prevent any interference of
   the measurement.

7-5 Decimal point of SD card setting

The numerical data structure of SD card is default used
the " . " as the decimal, for example "20.6" "1000.53" .
But in certain countries   (Europe ...) is used the " , " as
the decimal point, for example " 20,6 " "1000,53".
Under such situation, it should change the Decimal
character at first.

When the lower display show " DEC "

1) Use the " ▲ Button " (3-5, Fig. 1) or " ▼ Button "
   (3-6, Fig. 1) to select the upper value to " USA " or
   " EURO ".

USA - Use " . " as the Decimal point with default.
EURO - Use " , " as the Decimal point with default.

2) After select the upper text to " USA " or " EURO ",
press the " ENTER Button " (3-8, Fig. 1) will save the
setting function with default.

7-6 SD memory card Format

When the lower display show " SD-F "

1) Use the " ▲ Button " (3-5, Fig. 1) or " ▼ Button " (
3-6, Fig. 1) to select the upper text to "YES " or
" NO ".

YES - Intend to format the SD memory card
NO - Not execute the SD memory card format

2) If select the upper to " YES ", press the " ENTER Button
" (3-8, Fig. 1) once again, the Display will show text
" YES ENTER " to confirm again, if make sure to do the
SD memory card format, then press " Enter Button "
once will format the SD memory clear all the existing
data that already saving into the SD card.

7-7 Frequency weighting to A or C setting

When the lower display show " A "

1) Use the " ▲ Button " (3-5, Fig. 1) or " ▼ Button " (
3-6, Fig. 1) to select the lower text to "A " or
" C ".

A - A Frequency weighting selection.
C - C Frequency weighting selection.

2) After select the lower text to " A " or " C ",
   press the " ENTER Button " (3-8, Fig. 1) will save the
   setting function with default.

   Note :
   a. *The characteristic table of A, C weighting, please*
      ref. page 25.
   b. *The characteristic of A weighting is simulated as*
      the " Human Ear Listening " response.
      Typically always select the A weighting when makes
      environmental sound level measurement.
   c. *The C weighting characteristic is near the " FLAT "*
      response. Typically it is suitable for checking the
      noise of machinery (Q.C. check) & knowing the
      real sound level of the tested equipment.

8. POWER SUPPLY from DC ADAPTER

The meter also can supply the power supply from the
DC 9V Power Adapter (optional). Insert the plug of
Power Adapter into " DC 9V Power Adapter Input Socket "
(3-13, Fig. 1). The meter will permanent power ON
when use the DC ADAPTER power supply (The power
Button function is disable).
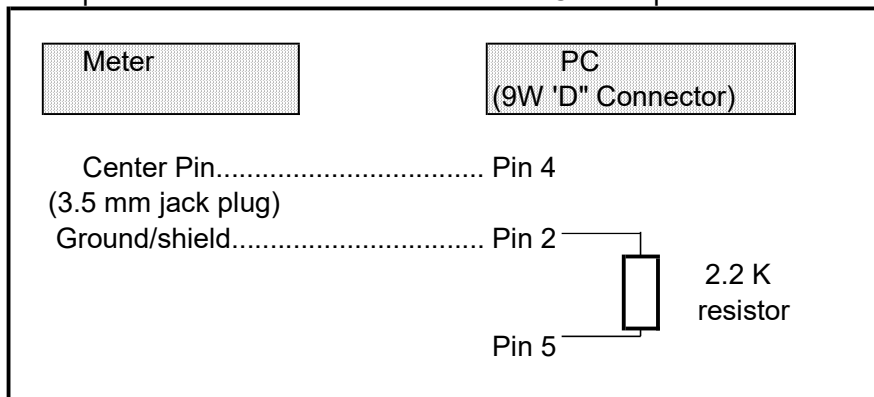
9. BATTERY REPLACEMENT

1) When the left corner of LCD display show " ▱ ", 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) Loose the " Battery Cover Screws " (3-15, Fig. 1)
   and take away the " Battery Cover " (3-17, Fig. 1)
   from the instrument and remove the battery.
3) Replace with DC 1.5 V battery (UM3, AA,
   Alkaline/heavy duty) x 6 PCs, and reinstate the cover.
4) Make sure the battery cover is secured after changing
   the battery.

10. RS232 PC SERIAL INTERFACE

The instrument has RS232 PC serial interface via a 3.5
mm terminal (3-12, Fig. 1).

The data output is a 16 digit stream which can be
utilized for user's specific application.

A RS232 lead with the following connection will be
required to link the instrument with the PC serial port.

Meter	PC (9W 'D" Connector)

    Center Pin.................................. Pin 4
(3.5 mm jack plug)
 Ground/shield................................ Pin 2 ─┐
                                                      │ 2.2 K
                                                     [ ] resistor
                                       Pin 5 ─────────┘

The 16 digits data stream will be displayed in the following format :

D15 D14 D13 D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0

Each digit indicates the following status :

D15	Start Word
D14	4
D13	When send the display data = 1
D12, D11	Annunciator for Display
	dB = 17
D10	Polarity 0 = Positive 1 = Negative
D9	Decimal Point(DP), position from right to the left 0 = No DP, 1= 1 DP, 2 = 2 DP, 3 = 3 DP

D8 to D1	Display reading, D1 = LSD, D8 = MSD
	For example :
	    If the display reading is 1234, then D8 to
	    D1 is : 00001234

D0	End Word

RS232 FORMAT : 9600, N, 8, 1

Baud rate	9600
Parity	No parity
Data bit no.	8 Data bits
Stop bit	1 Stop bit

11. CALIBRATION

1) Prepare the optional " SOUND CALIBRATOR ", such as " SC-941 " or " SC-942 " (set range to 94.0 dB). Power on the Sound Calibrator & plug calibrator output socket into the " Microphone " head (3-9, Fig. 1) of the Sound Level meter.
2) Select manual range to "80- 130 dB ".
3) Select " Time Weighting " at " Fast " position.
4) Select " A " weighting.
5) Adjust the " Calibration VR " (3-11, Fig. 1) carefully with a " - " screw driver until the display reading value within " 94 +/- 0.2 " dB.

12. FREQUENCY WEIGHTING CHARACTERISTICS OF A & C NETWORKS

Frequency	A Weighting Charac.	C Weighting Charac.	Tolerance (IEC 61672 Class 2)
31.5 Hz	-39.4 dB	-3 dB	±3.0 dB
63 Hz	-26.2 dB	-0.8 dB	±2.0 dB
125 Hz	-16.1 dB	-0.2 dB	±1.5 dB
250 Hz	-8.6 dB	0 dB	±1.5 dB
500 Hz	-3.2 dB	0 dB	±1.5 dB
1 KHz	0 dB	0 dB	±1.0 dB
2 KHz	+1.2 dB	-0.2 dB	±2.0 dB
4 KHz	+1 dB	-0.8 dB	±3.0 dB
8 KHz	-1.1 dB	-3 dB	±5.0 dB

13. TIME WEIGHTING (FAST / SLOW) CHARACTERISTICS

Charac.	Max. response ref. continuous signal	Tolerance (IEC 61672 Class 2)
F (Fast)	- 1.0 dB	+ 1.0 dB , - 2.0 dB
S (Slow)	- 4.1 dB	±2.0 dB

14. PATENT

The meter (SD card structure) already get patent or patent pending in following countries :

Germany	Nr. 20 2008 016 337.4
JAPAN	3151214
TAIWAN	M 358970
	M 359043
CHINA	ZL 2008 2 0189918.5
	ZL 2008 2 0189917.0
USA	Patent pending

160909-SL4035SD