

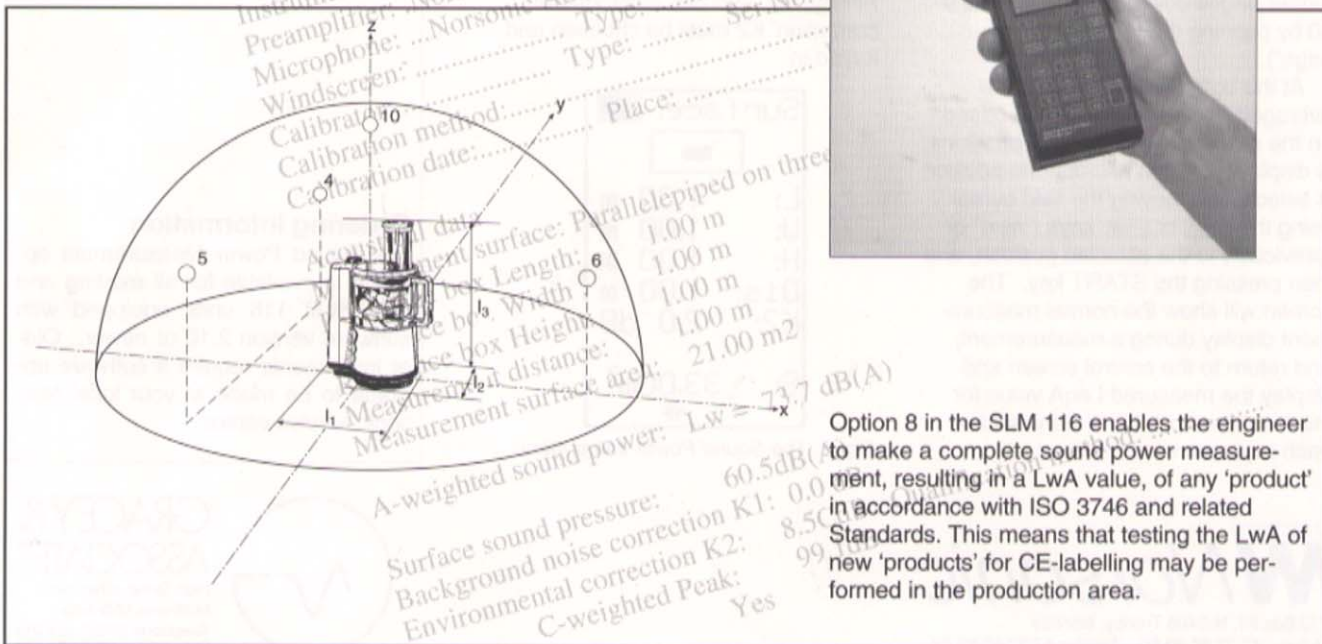
SOUND POWER MEASUREMENTS using the SLM116 with option 8

Uses:

- Engineering and Survey measurements of the LWA (A-weighted sound power level)
- CE-marking of new products

Features:

- Sound Power measurement according to ISO 3746 / EN23746 / ANSI S12.36-1990
- Selection of 6 hemispherical or parallel-piped surfaces
- Includes correction for background noise
- Includes correction for acoustic environment
- Checks the directivity
- Checks for possible impulsive noises
- Measures additionally the L_{PeakC} level
- Prints the final report



Option 8 in the SLM 116 enables the engineer to make a complete sound power measurement, resulting in a LwA value, of any 'product' in accordance with ISO 3746 and related Standards. This means that testing the LwA of new 'products' for CE-labelling may be performed in the production area.

Ground Rules

The SLM 116 may be used wherever the 'product' under test can be placed on a reflecting plane. It may be placed in the middle of a floor, against a wall or in a corner. Depending on the situation, the operator specifies a hemisphere or a parallelepiped around the product.

The SLM 116 is then turned on and calibrated using a standard calibrator such as the Norsonic type 1251.

Measurement

When the SLM 116 is equipped with the option 8 for Sound Power measurements then a point 4: Power is displayed in the SETUP menu. On selecting this item the display shows the 'measurement control picture'.

Pos:	LeqA
1:	77.1
2:	62.6
3:	61.0
4:	71.3
5:	--
6:	--
7:	--
8:	--
ΣLeqA	72.3

Fig. 1: The Sound Power measurement control display.

The SLM 116 allows 1–40 microphone positions to be measured. The initial 'measurement control display' shows 8 positions, but this may be extended to further pages covering the positions 9–40 by pushing the key ("next page").

At the bottom of the screen, the averaged sound pressure level based on the measured microphone positions, is displayed. Each microphone position is selected by moving the field cursor using the or keys ("next" or "previous") to the selected position, and then pressing the START key. The screen will show the normal measurement display during a measurement, and return to the control screen and display the measured LeqA value for the measured positions at the end of each measurement.

Background Noise

A background noise measurement is required for calculating the background noise correction K1. On pushing the FUNC key, a 'background noise measurement control' picture is displayed. This test follows the same procedures as the sound power measurements.

However, as the background noise level in most situations varies little from one microphone position to another, it will normally be enough to measure the background noise level for one typical microphone position.

Measurement Surface

The Sound Power calculation requires the operator to select the correct measurement surface. This is done by pushing the SETUP key again, and choosing the corresponding selection in the sound power setup menu. The selected surface is indicated by 'H' for Hemispherical and 'P' for Parallelepiped with an additional 'w' or 'c' for 'products' placed against a wall or in a corner. The selected surface is also indicated by a simple diagram.

Depending on the selected surface, the measurement radius or distance from the reference box as well as the size of the reference box (i.e. the minimum square box that fits around the product under test) must be keyed-in. The calculated area S of the total measurement surface will then be displayed. Finally, the 'acoustic environment correction' K2 must be chosen and keyed-in.

Surface:	P
L:	1.00 m
W:	1.00 m
H:	1.00 m
Dis:	1.00 m
K2:	2.0 dB
S:	33.00m ²
	#

Fig. 2: The Sound Power setup menu.

Sound Power Results

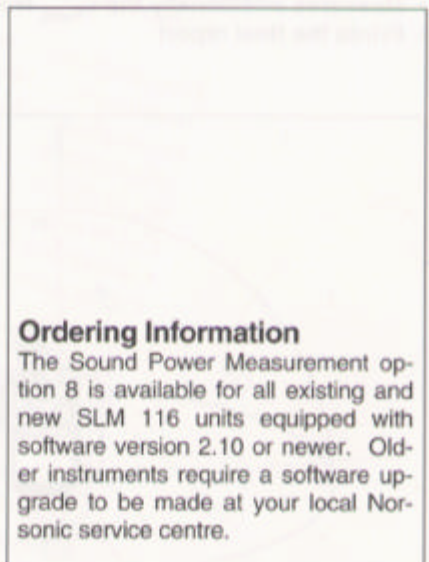
Based on the averaged sound pressure level of all the microphone positions, the measured background noise level and the selections and corrections made in the sound power setup menu, the SLM 116 displays the final LwA result by a simple push on the TBL key.

RESULTS
Surface: P
S: 33.00m ²
LeqA: 72.3
BGN: 52.8
K1: 0.0
K2: 2.0
Imp: Yes
PeakC: 113.5
LwA: 85.5

Fig. 3: The Sound Power results display.

In addition to the overall results, the impulsive noise values, the LpeakC level and the noise directivity of the 'product' for all microphone positions are found by sequential pushes of the TBL key.

The results may also be copied to a printer. The report includes necessary spaces for all the required measurement information to be written directly on the report by the user. On a second page, the individual results for each of the microphone position is printed.



Ordering Information

The Sound Power Measurement option 8 is available for all existing and new SLM 116 units equipped with software version 2.10 or newer. Older instruments require a software upgrade to be made at your local Norsonic service centre.