

Product Data

2237A Controller™ — Integrating Sound Level Meter

USES:

- Control of noise levels in the workplace
- Sound power measurements
- Surveys of environmental noise
- Complaint investigation

FEATURES:

- Conforms with IEC 651 (1979) and 804 (1985) Type 2;
IEC 1672 (Draft, June 1996) Class 2

- Conforms with BS5969 and BS6698 Type 2I
- Conforms with ANSI S1.4-1983 and Draft S1.43-199X Type 2
- Simultaneous RMS and Peak measurements (with independent frequency weightings)
- Measures L_{eq} , Peak, MaxP, MaxL, MinL, SPL, and Inst
- 40 records of stored results
- Back-lit display
- Five built-in languages: English, German, French, Spanish, Italian

Description

The 2237 Controller is a Type 2 sound level meter. It is designed to be quick and easy to use when taking environmental noise and occupational health related measurements.

Measurements are displayed on a large LCD screen, which includes a quasi-analogue bar that shows the current sound pressure level.

The instrument features two parallel independently weighted detectors. This enables it to display both RMS and Peak readings simultaneously.

Intuitive User-interface

The clearly marked arrows and symbols on the front panel, combined with the large LCD screen (with back light), make the sound level meter very easy to learn and use. The display is clear and concise. Clear instructions and warnings guide you through your measurement.

Real-time Clock

The 2237 Controller has a real-time clock and calendar, which marks each measurement with the date and time.

Data Storage & Processing

The instrument is capable of storing up to 40 records of measurement re-

sults. Each record stores the date, measurement time, L_{eq} , MaxP, MaxL, MinL and overload status. These results can be transferred in a spreadsheet-compatible format via the built-in serial interface to a PC. Measurement results can also be output to a portable printer as you take them.

Fast & Easy Calibration

To calibrate the 2237 Controller, simply fit a calibrator to the sound level meter and press a button. The sound level meter calculates the required correction factor and calibrates automatically.

Convenient Downloading

The instrument comes with communication software that runs on a PC under Windows. Its graphical interface makes it simple to download measurement records and display them in a spreadsheet program.

AC Output

The linearly-weighted AC output enables you to make a direct calibrated recording (on Digital Audio Tape, for example), which can be used later for complete acoustical analysis. It also enables headphone monitoring.



960250e

Specifications 2237A

STANDARDS:

Conforms with: IEC 651 (1979) and 804 (1985) Type 2; ANSI S1.4 – 1983 and Draft S1.4.3, 6th September, 1992 Type 2; BS 5969 and BS 6698 Type 2; IEC 1672 (Draft, June 1996) Class 2.

MEASURING RANGES:

Range (dB)	Max. Peak level	Upper limit (RMS) for signals with crest factor = 5 (14 dB)
30 – 100	103	89
50 – 120	123	109
70 – 140	143	129

NOISE FLOOR:

Below measurement range; less than 30 dB.

DETECTORS:

Simultaneous RMS and Peak with independent frequency weightings

Linearity Range: 70 dB

Pulse Range: 73 dB

Non-linear Distortion: insignificant

Peak Detector Rise Time: typically 50 μ s

FREQUENCY WEIGHTING:

RMS: A, according to Type 2 tolerances

Peak:

C, according to Type 2 tolerances

Linear: 31.5 Hz – 8 kHz (–3 dB)

MICROPHONE:

Type 4137 Prepolarized Free-field 1/2" Condenser Microphone

Sensitivity: –30 dB re 1V/Pa \pm 2 dB

Frequency Range: 8 Hz to 10 kHz \pm 2 dB

Capacitance: 12 pF

TIME WEIGHTINGS:

Fast, Slow, and Impulse according to Type 2 tolerances

PARAMETERS:

Types: L_{eq} , MaxP, MaxL, MinL, Peak, SPL, Inst.

Resolution: 0.1 dB


Updated: Once per second

MEMORY:

40 Records of Measurement Results

CLOCK:

Real-time (calendar) and measurement duration

	CE-mark indicates compliance with EMC Directive
Safety	EN 61010–1 (1993) and IEC 1010-1 (1990): Safety requirements for electrical equipment for measurement, control and laboratory use
EMC Emission	EN 50081–1 (1992): Generic emission standard. Part 1: Residential, commercial and light industry EN 50081–2 (1993): Generic emission standard. Part 2: Industrial environment CISPR 22 (1993): Radio disturbance characteristics of information technology equipment. Class B Limits FCC Rules, Part 15: Complies with the limits for a Class B digital device
EMC Immunity	EN 50082–1 (1992): Generic immunity standard. Part 1: Residential, commercial and light industry RF immunity implies that sound level indications of 50 dB or greater will be affected by no more than \pm 1 dB EN 50082–2 (1995): Generic immunity standard. Part 2: Industrial environment RF immunity implies that sound level indications of 60 dB or greater will be affected by no more than \pm 1 dB (see note below)
Note: This value is 14 dB better than the requirements of IEC 1672 (Draft, June 1996)	

VIBRATION SENSITIVITY:

< 80 dB with L-weighting at 1 m/s² horizontally

< 85 dB with L-weighting at 1 m/s² vertically

AC OUTPUT:

Short-circuit protected LEMO series 00 socket

Max. Output: 0.5V RMS

Output Resistance: 100 Ω

Output: Signal from preamplifier (unweighted)

DISPLAY:

4 line back-lit LCD showing:

- Input signal level – indicated with a quasi-analogue bar (updated 15 times per second)
- Selected parameter with level
- Warnings for overload and low battery
- Measuring range
- Time and frequency weighting
- Elapsed measurement time
- Menus for displaying and editing settings
- Stored measurement results can be recalled

BATTERIES:

Four 1.5V LR6/AA size alkaline cells

Lifetime: > 12 h (at Room Temperature)

EFFECT OF MAGNETIC FIELD:

80 A/m (1 μ sted) at 50 Hz gives < 34 dB

SERIAL INTERFACE:

Compatible with:

- EIA–574
- EIA–232–E with 25-pole adaptor

Baud Rate: 9600

Data Bits: 8

Stop Bit: 1

Parity: None

Handshake: XON/XOFF

ENVIRONMENTAL EFFECTS:

Storage Temp.: –25 to +60°C (–13 to +140°F)

Operating Temp.: –10 to +50°C (14 to 122°F)

Temperature Effect: < 0.5 dB (–10 to +50°C)

Humidity Effect:

< 0.5 dB for 30% < RH < 90% (at 40°C, 1 kHz)

PHYSICAL CHARACTERISTICS:

Size: 257×97×41 mm

Weight: 460 g (including batteries)

Ordering Information

Type 2237A Integrating Sound Level Meter

Includes the following accessories:

Type 4137: Prepolarized Free-field 1/2" Microphone

KE 0323: Shoulder Bag

UA 1236: Protective Cover

4 × QB 0013: 1.5 V LR6/AA alkaline cells

Optional Accessories

Type 4231: Sound Level Calibrator

Type 4226: Multifunction Acoustic Calibrator

Type 2322: Portable Printer

UA 1251: Tripod

UA 0801: Tripod

UA 1254: Microphone Holder (for tripod)

UA 0459: Windscreen (\varnothing 65 mm)

AO 0403: LEMO to BNC Cable

AO 0404: 9-pole to LEMO Cable (for 2318)

AO 1386: 9-pole Cable with 25-pole Adaptor (for serial printer)

Carrying Case:

KE 0325: Carrying Case with insert for sound level meter, Sound Level Calibrator Type 4231 and Tripod UA 1251 and printer Type 2322

Brüel&Kjær reserves the right to change specifications and accessories without notice

Brüel & Kjær 

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BP 1649–12