

7. Specifications 2231

MICROPHONE:

Type: 1/2-inch B & K Prepolarized Condenser Microphone Type 4155

Nominal Sensitivity: 50 mV/Pa

Capacitance: 15 pF

Windscreen effect: <0,9 dB up to 10 kHz

POLARIZATION VOLTAGE: Selectable: 0V, 28V, 200V. Allows use of almost any microphone in the Brüel & Kjær range.

CALIBRATION:

Acoustical: With Sound Level Calibrator Type 4230 or Pistonphone Type 4228 or Multifunction Acoustic Calibrator Type 4226 by potentiometer adjustment

Electrical: With internal reference source by potentiometer adjustment

REFERENCE CONDITIONS FOR ACOUSTICAL CALIBRATION (AS OBTAINED WITH TYPE 4230):

Type of Sound Field: Free

Reference Incidence Direction: Perpendicular to microphone diaphragm

Reference SPL: 94 dB (re 20 μ Pa)

Reference Frequency: 1 kHz

Reference Temperature: 20°C

Reference Measuring Range: 110 dB FSD

WARM-UP TIME: <10s for 1 dB, <15s for 0,1 dB.

EFFECT OF HUMIDITY (AT 40°C AND 1000 Hz):

<0,5 dB for 30% <RH<90%

EFFECT OF TEMPERATURE:

Microphone: -0,006 dB/K typically

Complete instrument:

<0,5 dB (-10 to +50°C)

Operating range:

-10 to +50°C (+14 to 122°F)

Storage without batteries:

-20 to +70°C (-4 to 158°F)

EFFECT OF MAGNETIC FIELD:

80 A/m (1 Ørsted) at 50 Hz gives:
<25 dB (A) or <44 dB (Lin)

VIBRATION SENSITIVITY: 72 dB max. at 40 Hz and 1 ms⁻².

ELECTROMAGNETIC COMPATIBILITY:

Complies with Class B computing device of the American FCC (Federal Communications Commission) Rules.

BATTERIES:

Type: Four 1,5 V, LR6 or AA size Alkaline cells (B&K order No. QB 0013).

Life: approx. 8 hours

OVERALL DIMENSIONS AND WEIGHT:

370 x 85 x 47 mm (14,7 x 3,3 x 1,8 in)

1 kg (2,2 lb) with batteries

ACCESSORIES INCLUDED:

Half-inch Prepolarized Condenser

Microphone Type 4155

2,5 mm Mini-Jack Plug (x2) JP 0213

Windscreen UA 0237

Input Adaptor JJ 2614

Screwdriver QA 0001

Alkaline Cells (x4) QB 0013

20 dB Attenuator ZF 0020

Integrating SLM Module BZ 7110

ACCESSORIES AVAILABLE:

Interface Module ZI 9101

3 m Microphone Extension Cable AO 0027

Sound Level Calibrator Type 4230

Pistonphone Type 4228

Multifunction Acoustic Calibrator Type 4226

Carrying Case KE 0226

Power Supply ZG 0254

For details of the full range of Application Modules currently available, please contact your local Brüel & Kjær representative.

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MEASURING RANGE:
With standard microphone (Type 4155):

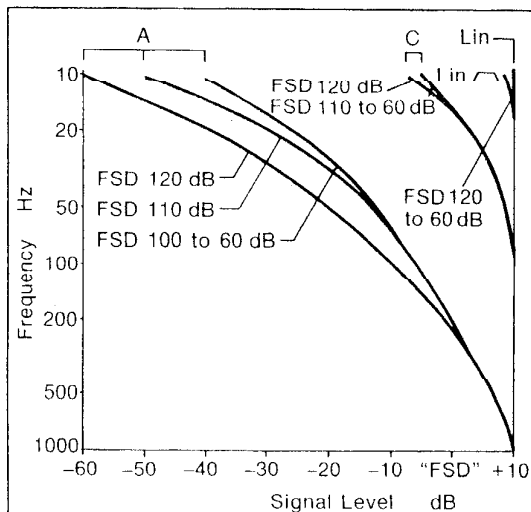
| FSD ¹ | Measuring Range | | |
|------------------|--|------------------------------|---|
| | Lower limit for S/N ratio -5 dB (A-weighting) ³ | Max. peak level ³ | Upper limit for signals of crest factor = 10 (20 dB) ³ |
| 60 | 24 | 73 | 53 |
| 70 | 24 | 83 | 63 |
| 80 | 24 | 93 | 73 |
| 90 | 30 | 103 | 83 |
| 100 | 40 | 113 | 93 |
| 110 | 50 | 123 | 103 |
| 120 | 60 | 133 | 113 |
| 130 ² | 70 | 143 | 123 |
| 140 ² | 80 | 153 | 133 |

¹ FSD on quasi-analogue display
² Only with attenuator ZF 0020 employed
³ Values may diverge slightly from nominal value depending on microphone K_G factor

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FREQUENCY WEIGHTING:
A, C weighting in accordance with IEC 651 Type 1 (and Type 0)
 Linear (10 Hz to 20 kHz)
 All-pass (1 Hz to 70 kHz)

DETECTOR:
Characteristics: RMS, peak
Linearity range: 70 dB
Pulse range: 73 dB
Crest factor capability: 13 dB at FSD



851128
 Lowest frequency for which the error resulting from non-linear distortion generated between the sound input and the signal output is less than +1 dB (and no overload is indicated). The lowest frequency is given as a function of the measured signal level.

TIME WEIGHTING CHARACTERISTICS:
"I": to IEC 651 type 1 (type 0)
"F": to IEC 651 type 1 (type 0)
"S": to IEC 651 type 1 (type 0)
"Peak": rise time < 50 μs
Max. Hold decay rate: 0 dB/s (digital)

L_{eq} RESPONSE TIME FOR CONSTANT INPUT SIGNAL:
 1 s after reset.

CONVERTIBILITY:
Loading: To load, insert module. Remove module after loading into internal memory. Every application module has its own frontplate.
Capacity: 8 kbyte ROM for general routines, tables etc. 16 kbyte RAM for application software and data storage. 32 kbyte RAM for data storage. Battery back-up of RAM.
Interface: Via optional Brüel & Kjær Serial Interface Module ZI9101. Open circuit signal level ± 5 V (min. Send level ± 2 V, min. Receive level ± 1 V).

DISPLAY:
Digital: 4 digits, 14 segments, liquid crystal, 8 mm high, resolution 0,1 dB
Quasi-analogue: 60 dB scale with 2 dB resolution for monitoring current SPL (RMS or Peak). In differential display mode, display ± 3 dB relative to value of current SPL.
Additional functions:
 Overload occurring: †
 Overload has occurred: ^
 Battery near low level: BAT flashing
 Battery low level: BAT flashing plus † (cannot be reset)
 Overrange: O
 Underrange: U
 Selected value outside allowable range: * * * *

AC OUTPUT:
 1 V RMS for full scale (3,5 V for full range), output impedance < 100 Ω, short circuit protected, mini-jack socket.

DC OUTPUT:
 3 V for full scale (3,5 V for full range; 5 V to indicate overload condition), 0 V bottom scale, 50 mV/dB, output impedance < 100 Ω, short circuit protected, mini-jack socket.

RESET FUNCTION:
Reset All: Max./min. detectors, L_{eq}, L_{EA,T} and overload detector are reset
Reset Max./Min.: Only max./min. detectors are reset
 Automatic Reset occurs when certain key settings are changed