

PRODUCT DATA

Prepolarized Pressure-field ¼-inch Microphone — Type 4944

Prepolarized Pressure-field ¼-inch Microphone Type 4944 is specially designed for high-level and high-frequency measurements. By using new materials and a new way of mounting the diaphragm, the microphone is geared to withstand rough handling. The assembly of the microphone in a clean room environment ensures that the microphone can be used in high-humidity environments and still produce reliable results. Type 4944 can be used with sound level meters to measure high sound pressure levels.

USES

- High-level measurements
- High-frequency measurements
- Flush mounting
- Connects to DeltaTron Preamplifiers

FEATURES

- Sensitivity: 1.0 mV/Pa
- Frequency: 4 – 70000 Hz
- Dynamic Range: 30 – 170 dB(A)
- Temperature: –40 to 150°C
(–40 to 302°F)
- Polarization: 0V



Use of Type 4944

A pressure-field microphone is designed to be used in small closed couplers or close to hard reflective surfaces or flush-mounting. The sensitivity has been optimised to allow measurement of high sound pressure levels without clipping in the DeltaTron[®] preamplifier.

Design and Robustness

The shape of the microphone front ensures excellent microphone performance when flush-mounted. The laser-welded diaphragm on the microphone housing ensures that the sensitivity is resistant to rough handling during flush mounting. The robustness of the microphone makes it capable of withstanding the IEC68–2–32 1 metre drop.

Microphone Data Disk

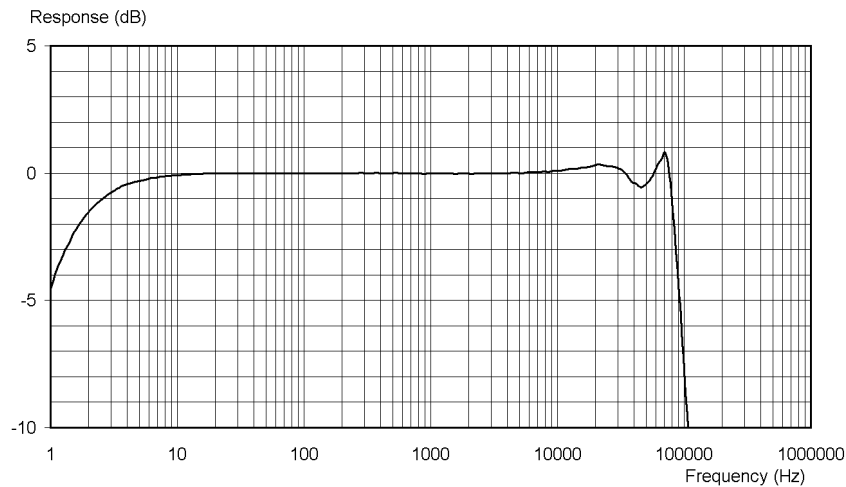
The microphone is supplied with a 3½-inch microphone data disk. This disk carries all individual calibration data as well as random-incidence and pressure-field corrections. The influence of the ¼-inch Nose Cone UA 0385 is also available.

Calibration

The sensitivity can be calibrated at 250Hz using Pistonphone Type 4228 with ¼-inch Adaptor DP 0775. The pressure-field response can be measured using Actuator UA 0033 with Adaptor DB 0264. The pressure-field response is equal to the actuator response.

4944

Fig. 1
Type 4944 pressure-field response without grid



Specifications – Prepolarized Pressure-field ¼-inch Microphone Type 4944

Typical Uses: For measurements in confined spaces and small cavities. High-level, high-frequency measurements. Optimised for flush mounting
Nominal Diameter: ¼-inch
Open Circuit Sensitivity (250 Hz): -60 ± 3 dB re 1 V/Pa, 1.0 mV/Pa
Polarization Voltage: 0 V
Frequency Response*:
Pressure-field response 4 Hz to 70 kHz: ± 2 dB. In accordance with IEC 61094-4 WS3P
Lower Limiting Frequency (-3 dB): 0.3 Hz to 3 Hz
Pressure Equalization Vent: Side vented
Diaphragm Resonance Frequency: 60 kHz (90° phase-shift)
Capacitance (Polarized 250 Hz)*: 5.0 pF at 250 Hz
Equivalent Air Volume: 0.25 mm³ (250 Hz)
Cartridge Thermal Noise: 30 dB(A) 37 dB (Lin, 20–100 kHz)
Upper Limit of Dynamic Range (3% Distortion): >170 dB SPL
Maximum Sound Pressure Level: 182 dB (peak)

Temp. Coefficient (250 Hz): +0.008 dB/°C (-10 to 50°C, 14 to 122°F)
Pressure Coefficient: -0.003 dB/kPa, typical
Operating Humidity Range: 0 to 100% RH (without condensation)
Influence of Humidity: <0.1 dB in the absence of condensation
Vibration Sensitivity (<1000 Hz): 69 dB equivalent SPL for 1 m/s²
Magnetic Field Sensitivity: 10 dB SPL for 80 A/m, 50 Hz field
Estimated Long-term Stability: >1000 years/dB at 20°C (68°F), > 2 hours/dB at 150°C (302°F)

Environmental

Operating Temperature Range: -40 to 150°C (-40 to 302°F)
Storage Temperature: In case: -30 to 70°C (-22 to 158°F)
 With data disk: 5 to 50°C (41 to 122°F)

*Individually calibrated

Dimensions

Diameter with Grid: 7 mm (0.28 in)
Diameter without Grid: 6.35 mm (0.25 in)
Height with Grid: 10.5 mm (0.41 in)
Height without Grid: 9 mm (0.35 in)
Thread for Preamp Mounting: 5.7 mm -60UNS

Note: All values are typical at 23°C (73.4°F), 101.3 kPa and 50% RH, unless measurement uncertainty or tolerance field is specified. All uncertainty values are specified at 2σ (i.e., expanded uncertainty using a coverage factor of 2)

CE compliance with EMC Directive

Ordering Information

Type 4944 Prepolarized Pressure-field ¼-inch Microphone
Includes the following accessories:
 BC 5002 Microphone Data Disk[†]

Type 2671 ½-inch DeltaTron Microphone Preamp
 DP 0775 Calibration Adaptor for ¼-inch microphones
 DB 0264 ½-inch to ¼-inch Adaptor for UA 0033
 UA 0033 Electrostatic Actuator
 UA 0385 Nose Cone for ¼-inch microphones
 UA 0035 ¼-inch to ½-inch Microphone Adaptor
 UA 1588 ¼-inch Microphone Holder

Optional Accessories

Type 2670 ¼-inch Microphone Preamp

[†]Quote microphone serial number if re-ordering

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