

# PRODUCT DATA

## Prepolarized Free-field ½-inch Microphone — Type 4940

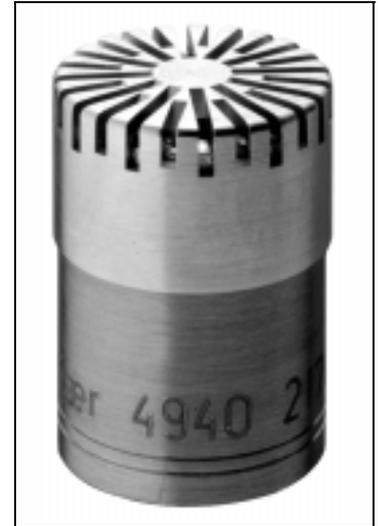
*Prepolarized Free-field ½-inch Microphone Type 4940 offers significant benefits when used with portable instruments. You can, for example, use small associated instruments with low power consumption. This prepolarized condenser microphone is particularly suitable for both outdoor and industrial environment measurements. It is also suitable for IEC 60651 Type 1 measurements and frequency analysis measurements.*

### USES

- Sound level meters
- Noise measurements according to IEC and ANSI standards
- Transport noise measurements

### FEATURES

- Wide dynamic range from 14.6 dB(A) – 146 dB (3% distortion limit)
- Low ambient temperature coefficient
- Individual calibration chart
- Individual data disk
- IEC 60651 Type 1 approved with Modular Precision Sound Level Meter Type 2231



### Robustness

The microphone is capable of withstanding the IEC 68232 1 metre drop test.

### Ageing and Assembly

Ageing at high temperature and the assembly of the microphone in a clean room environment ensure that the microphone can be used in high humidity environments and still produce reliable results.

### Microphone Data Disk

The microphone is supplied with 3½-inch microphone data disk. The disk includes all calibration data as well as free-field, random-incidence and pressure-field corrections. The influences of different accessories are also included.

### Calibration of Sensitivity and Frequency Response

The sensitivity can be calibrated at 250 Hz using Pistonphone Type 4228 with ½-inch Adaptor DP 0776. The actuator response can be measured using Actuator UA 0033. The free-field response can be obtained by adding the type-specific, free-field corrections to the actuator response.

### More Information

Further information on stability, effect of environmental influence, directional characteristics and detailed specifications can be found in The Microphone Handbook (BA5105).

# Specifications—Prepolarized Free-field ½-inch Microphone Type 4940

**Typical Use:** Sound Level Meter  
**Nominal Diameter:** ½-inch  
**Open Circuit Sensitivity (250 Hz)\*:**  $-26 \pm 1.5$  dB re 1 V/Pa, 50 mV/Pa  
**Polarization Voltage:** 0 V external  
**0° Incidence Free-field Response\*:**  
10 Hz to 8 kHz:  $\pm 1$  dB  
6.3 Hz to 20 kHz:  $\pm 2$  dB  
In accordance with IEC 61094-4 WS2F  
**Lower Limiting Frequency (-3 dB):** 2 Hz to 4 Hz  
**Pressure Equalization Vent:** Rear vented  
**Diaphragm Resonance Frequency:** 14 kHz (90° phase shift)  
**Capacitance (Polarized):** 14 pF at 250 Hz  
**Equivalent Air Volume:** 46 mm<sup>3</sup> 101.3 kPa  
**Cartridge Thermal Noise:** 14.6 dB(A), 15.3 dB(Lin)  
**Upper Limit of Dynamic Range (3% Distortion):** >146 dB SPL  
**Maximum Sound Pressure Level:** 158 dB (peak)

## ENVIRONMENTAL

**Operating Temperature Range:** -30 to 150°C (-22 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

**Temperature Coefficient (250 Hz):**  $-0.001$  dB/°C (-10 to 50°C, 14 to 122°F)  
**Pressure Coefficient:**  $-0.010$  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):** 62.5 dB equivalent SPL for 1m/s<sup>2</sup> axial vibration  
**Magnetic Field Sensitivity:** 6 dB SPL for 80 A/m, 50 Hz field

## DIMENSIONS

**Diameter with Grid:** 13.2 mm (0.52 in)  
**Diameter without Grid:** 12.7 mm (0.50 in)  
**Height with Grid:** 17.6 mm (0.68 in)  
**Height without Grid:** 16.3 mm (0.64 in)  
**Thread for Preamp Mounting:** 11.7 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  $2\sigma$  (i.e., expanded uncertainty using a coverage factor of 2)

  compliance with EMC Directive

## Ordering Information

Type 4940 Prepolarized Free-field ½-inch Microphone  
**Includes the following accessories:**  
BC 0224 Calibration Chart<sup>†</sup>  
BC 5002 Microphone Data Disk<sup>†</sup>

<sup>†</sup>Quote microphone serial number if re-ordering

## Optional Accessories

Type 2669B/L/C	½-inch Microphone Preamplifier
DP 0776	Calibration Adaptor for ½-inch Microphones
UA 0033	Electrostatic Actuator
BA 5105	The Microphone Handbook

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