

½" Prepolarized Free-field Microphone Type 4966

Type 4966 is designed for high-precision, free-field measurements where a microphone with high sensitivity is required. Being prepolarized, Type 4966 can be used with both CCLD[‡] and classical Brüel & Kjær preamplifiers.



160180

Uses

- Precision sound-measurements
- General purpose sound-measurements
- Electroacoustic measurements

Features

- Sensitivity: 50 mV/Pa
- Frequency: 5 Hz to 20 kHz
- Dynamic Range: 14.6 to 144 dB
- Temperature: -30 to +150 °C (-22 to +302 °F)

Description

Type 4966 is a robust and stable free-field microphone cartridge designed for high-precision acoustic measurements. It is developed and refined for measurements where a high sensitivity microphone with a full 20 kHz bandwidth is preferred and is optimized for use with the protection grid in place. Type 4966 is prepolarized, so it is well suited for use in battery-operated equipment and environments with high humidity.

Because this microphone is optimized for free-field environments, it has a flat free-field response at 0° incidence. This makes Type 4966 ideal for use in anechoic chambers or far away from reflective surfaces, such as buildings, and for general electroacoustic measurement purposes, such as loudspeaker and microphone measurements.

Manufacturing and Stability

The press-fitted, stainless-steel diaphragm of Type 4966 ensures superior long-term stability and mechanical robustness, withstanding the 1 m drop test according to IEC 60068-2-32.

All Brüel & Kjær measuring microphones are assembled in a clean room. This ensures that the microphones maintain their low noise floor and high stability even in environments with a combination of high humidity and high temperature.

TEDS Microphone

Type 4966-H-041 is a transducer electric data sheet (TEDS) combination of Type 4966 and High-temperature CCLD Microphone Preamplifier Type 1706. The TEDS template is based on IEEE P1451.4 and programmed with the loaded sensitivity of the actual cartridge. This combination can be used for measurements up to 125 °C (257 °F) making it suitable for use in a broad range of applications. Brüel & Kjær offers a

selection of cables, including cables for use at higher temperatures.

TEDS microphones are considered one unit because the cartridge is sealed to the preamplifier in production.

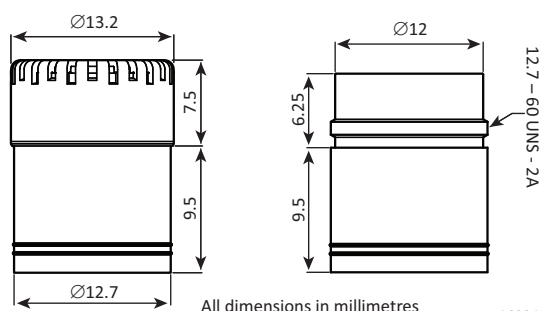
Individual Calibration Data

All calibration data for Brüel & Kjær transducers is now available electronically. Find calibration charts and correction factors at bksv.com/calibrationdata and select Search Calibrations.

Calibration charts include information about the open-circuit sensitivity, the frequency response in a free field and the electrostatic actuator response.

Correction factors contain individual calibration data at 1/12-octave frequencies and technical information, such as the influence of different accessories and the microphone's response in different sound fields. For example, use data and the REq-X feature of PULSE™ for a real-time correction under different measurement situations to increase measurement accuracy.

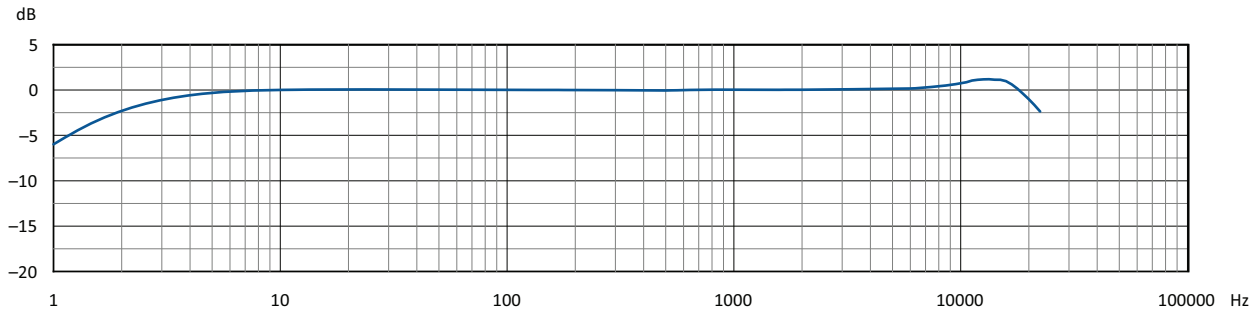
Fig. 1 Dimensions of Type 4966



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‡ CCLD: Constant current line drive, also known as DeltaTron® (IEPE compatible)

Fig. 2 Typical free-field response of the microphone cartridge with protection grid. The low-frequency response is valid when the vent is exposed to the sound field



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Specifications – ½" Free-field Microphone Type 4966

Type No.	4966
General	
IEC 61094–4 Type Designation	WS2F
Polarization Voltage	0 V (prepolarized)
Open-circuit Sensitivity (250 Hz)*	50 mV/Pa, –26 ± 1.5 dB re 1 V/Pa
0° Incidence Free-field Response*	10 Hz to 8 kHz: ±1 dB 5 Hz to 20 kHz: ±2 dB
Lower Limiting Frequency (LLF)(–3 dB)*	1 to 3 Hz
Pressure Equalization Vent	Rear vented
Cartridge Capacitance*	14 pF at 250 Hz
Pistonphone Correction (Type 4228 with DP-0776)	0.00 dB
Cartridge Thermal Noise	14.9 dB(A), 15.4 dB(Lin)
Upper Limit of Dynamic Range (3% Distortion)	>144 dB SPL†
Max. Sound Pressure Level	158 dB (peak)
Environmental	
Operating Temperature Range	–30 to +150 °C (–22 to +302 °F)
Storage Temperature In Microphone Box	–30 to +70 °C (–22 to +158 °F)
With Mini-CD	5 to 50 °C (41 to 122 °F)
Temperature Coefficient (250 Hz)	+0.003 dB/K (–10 to +50 °C, 14 to 122 °F)
Pressure Coefficient	–0.012 dB/kPa
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 1 m/s ² axial vibration
Magnetic Field Sensitivity	6 dB SPL for 80 A/m, 50 Hz field
Estimated Long-term Stability	<1 dB/1000 years in dry air at 20 °C (68 °F)
	<1 dB/2 hours in dry air at 150 °C (302 °F)
	<1 dB/40 years in 90% RH at 20 °C (68 °F)
	<1 dB/1 year in 90% RH at 50 °C (122 °F)

* Individually calibrated

† 137 dB (peak) with DeltaTron preamplifier and 24 V supply and 140 dB (peak) with ±15 V supply

All values are typical at 23 °C (73.4 °F), 101.3 kPa and 50% RH unless otherwise specified

Ordering Information

Type 4966 ½" Prepolarized Free-field Microphone‡

TEDS COMBINATION

Type 4966-H-041 Type 4966 with Type 1706‡

OPTIONAL ACCESSORIES

- Type 2669 ½" Microphone Preamplifier
- Type 1706 ½" CCLD Microphone Preamplifier (LLF: <3 Hz)
- Type 2671-W-001 ½" CCLD Microphone Preamplifier (LLF: <1.2 Hz)
- Type 2699 ½" CCLD Microphone Preamplifier, A-weighted
- Type 4231 Sound Calibrator
- Type 4228 Pistonphone
- Type 4226 Multifunction Acoustic Calibrator
- DP-0776 Calibration Adaptor for ½" Microphones
- UA-0033 Electrostatic Actuator
- UA-1260 ½" Angle Adaptor (approx. 80°)
- UA-0386 Nose Cone, ½" microphone
- UA-0237 Windscreen, ½" microphone, Ø 90 mm
- UA-0459 Windscreen, ½" microphone, Ø 65 mm

CALIBRATION SERVICES

- 4966-CAI Accredited Initial Calibration
- 4966-CAF Accredited Calibration
- 4966-CFF Factory Standard Calibration

COMPLIANCE WITH STANDARDS



‡ Calibration data can be found at bksv.com

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