

½-inch Prepolarized Free-field Microphone Type 4950

Type 4950 is a prepolarized, free-field, ½-inch microphone specially designed for equipment intended for accurate and reliable sound measurements in accordance with IEC 61672 Class 1.

Uses

- Sound measurements according to IEC 61672
- Cost-effective sound measurements

Features

- Specially designed for Hand-held Analyzer Type 2250-L
- Sensitivity: 50 mV/Pa
- Frequency: 6.5 Hz to 16 kHz
- Dynamic Range: 15 to 142 dB
- Temperature: –30 to +100 °C (–22 to +212 °F)
- Polarization: Prepolarized
- Excellent long-term stability
- High resistance to humidity



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Description

Type 4950 is a prepolarized condenser microphone, designed for accurate and reliable sound measurements as required for sound level meters in accordance with IEC 61672 Class 1. The construction of Type 4950 makes it the ideal choice for cost-effective, portable instruments intended for use in all environments, including humid and polluted atmospheres. The microphone is rear-vented in order to balance out the static pressure; the venting also determines the lower limiting frequency.

Manufacturing and Stability

The use of a stainless-steel, press-fitted diaphragm guarantees both robustness and corrosion resistance. To further protect the sensitive diaphragm, the microphone is fitted with a removable protection grid.

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

Polarization Voltage

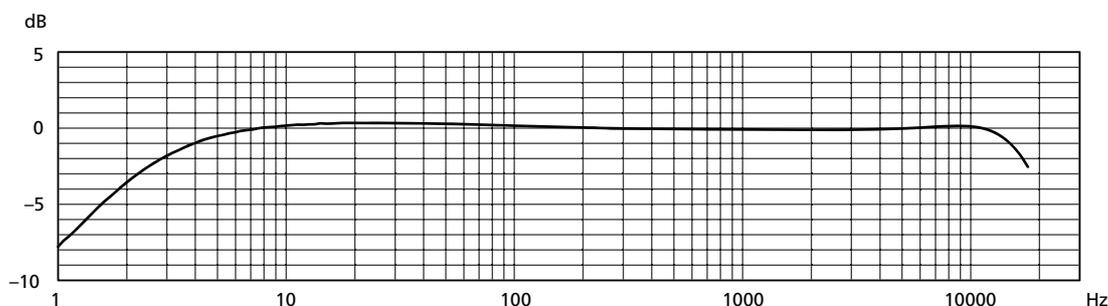
Type 4950 does not need an external polarization voltage, thus eliminating the need for cumbersome high-voltage DC supplies and at the same time enabling the use of inexpensive 2-wire system input (CCLD^{*}).

Individual Calibration Data

Type 4950 comes with a calibration chart showing typical frequency response and individual sensitivity value.

* CCLD: constant current line drive, also known as DeltaTron (IEPE compatible)

Fig. 1 Typical free-field response with protection grid



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Specifications – ½-inch Prepolarized Free-field Microphone Type 4950

		4950*
Dynamic Characteristics		
Polarization Voltage (prepolarized)		0 V
Sensitivity (at 250 Hz)		50 mV/Pa ± 2 dB
		-26 ± 2 dB, re 1 V/Pa
Free-field Frequency Response (at 250 Hz)		±2 dB, 6.5 to 16000 Hz
Lower Limiting Frequency		1 to 5 Hz
Venting		Rear
Cartridge Capacitance		12.5 pF
Cartridge Inherent Noise		A-weighting
		14.6 dB
Combined Noise Level (with Preamplifier Type 2669)		Linear weighting (20 Hz to 20 kHz)
		15.4 dB
Upper Limit of Dynamic Range (3% distortion)		A-weighting
		15.4 dB
Combined Noise Level (with Preamplifier Type 2669)		Linear weighting (20 Hz to 20 kHz)
		17.3 dB
Upper Limit of Dynamic Range (3% distortion)		> 142 dB, SPL (RMS)
Maximum Sound Pressure Level (peak)		> 160 dB
Diaphragm Resonance Frequency		12.5 kHz
Equivalent Air Volume (at 250 Hz)		65 mm ³
Calibrator Load Volume (at 250 Hz)		208 mm ³
Pistonphone Type 4228 Correction (with DP 0776)		+0.02 dB
Environmental Characteristics		
Operating Temperature Range		-30 to +100 °C (-22 to +212 °F)
Storage Temperature (in microphone box)		-30 to +70 °C (-22 to +158 °F)
Mean Temperature Coefficient (-10 to +50 °C at 250 Hz)		+0.005 dB/°C
Pressure Coefficient		-0.02 dB/kPa
Operating Humidity Range (without condensation)		0 – 100% RH
Influence of Humidity (in the absence of condensation)		<0.1 dB
Vibration Sensitivity (<1000 Hz)		63.5 dB, equivalent SPL for 1 m/s ² axial acceleration
Magnetic Field Sensitivity		30 dB, equivalent SPL at 80 A/m, 50 Hz field
Estimated Long-term Stability		at 20 °C, dry air
		<1 dB/1000 years
Estimated Long-term Stability		at 50 °C, 90% RH
		<1 dB/6 months
Physical Characteristics		
Diameter		with grid
		13.2 mm (0.52 in)
Height		without grid
		12.7 mm (0.50 in)
Weight		with grid
		14.9 mm (0.59 in)
Thread for Preamplifier Mounting		without grid
		14.0 mm (0.55 in)
Weight		7.8 g (0.28 oz)
Thread for Preamplifier Mounting		11.7 mm – 60 UNS

* Unless otherwise specified, the specifications are valid at 23 °C (73.4 °F), 101.3 kPa and 50% RH

Ordering Information

Type 4950 ½-inch Prepolarized Free-field Microphone

includes the following accessories:

- BC-0251: Calibration Chart*

OPTIONAL ACCESSORIES

Type 2669-B	½-inch Microphone Preamplifier, including cable with Brüel & Kjær 7-pin connector
Type 2669-C	½-inch Microphone Preamplifier, no cable
Type 2669-L	½-inch Microphone Preamplifier, including cable with LEMO connector
Type 2673	½-inch Microphone Preamplifier with insert voltage calibration
Type 2671	½-inch CCLD Preamplifier
Type 4228	Pistonphone
Type 4231	Sound Calibrator
Type 4226	Multifunction Acoustic Calibrator
DP-0776	½-inch Adaptor for Pistonphone Type 4228
UA-0237	Windscreen, diameter 90 mm
UA-0459	Windscreen, diameter 65 mm

For information on microphone calibration equipment and microphone accessories, please refer to the relevant product data.

COMPLIANCE WITH STANDARDS

 The CE marking is the manufacturer's declaration that the product meets the requirements of the applicable EU directives

 RCM mark indicates compliance with applicable ACMA technical standards – that is, for telecommunications, radio communications, EMC and EME

 China RoHS mark indicates compliance with administrative measures on the control of pollution caused by electronic information products according to the Ministry of Information Industries of the People's Republic of China

 WEEE mark indicates compliance with the EU WEEE Directive



* Microphone serial number is required for re-ordering calibration data