

PRODUCT DATA

Brüel & Kjær[®] Microphones

¼" Pressure-field Microphone Type 4941

Type 4941 is specially designed for measurement of very high levels. The robust construction of the microphone allows it to sustain burst pressure up to 201 dB without damage. Type 4941 is externally polarized and works with Brüel & Kjær classical preamplifiers.



Uses:

- Gunshot noise measurements
- Fireworks noise measurements
- Rocket noise measurements
- General high-intensity measurements

Features:

- Sensitivity: 0.09 mV/Pa
- Frequency: 4 Hz to 20 kHz
- Dynamic Range: 59 to 184 dB
- Temperature: -40 to +150 °C (-40 to +302 °F)
- Polarization: 200 V external

Use of Pressure-field Microphones

Pressure-field microphones are optimized to have a flat frequency response in a pressure field. Pressure-field microphones should be used for making measurements in small, closed couplers or close to hard, reflective surfaces. Type 4941 is suited for all very high level measurements up to 20 kHz. If used in free-field conditions, Type 4941 should be used at a 90 degree angle of incidence and without the protection grid. Under these conditions, the free-field response will typically be within ±2 dB, up to 20 kHz.

Manufacturing and Stability

A laser-welded, extra thick and robust, stainless-steel diaphragm together with a special back-plate design ensure long-term stability and mechanical robustness.

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

Polarization Voltage

Type 4941 requires an external polarization voltage and must therefore be used with a classical preamplifier. Externally polarized microphones may be used at higher temperatures without severe changes in sensitivity.

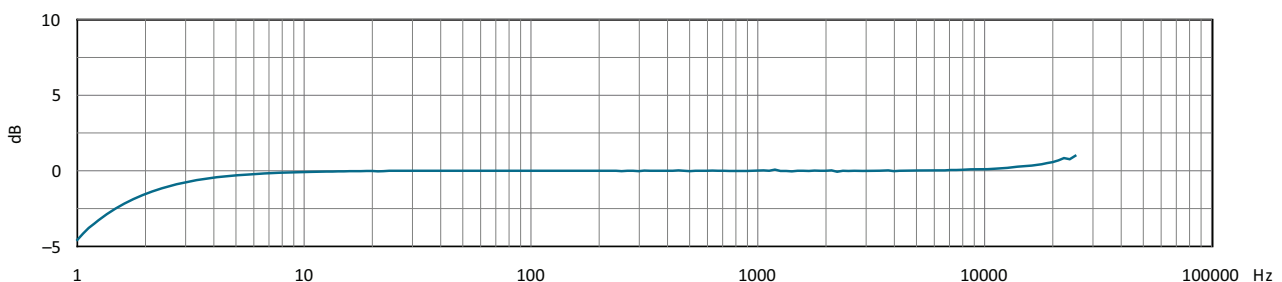
TEDS Microphones

Type 4941 is available in TEDS combinations with different Brüel & Kjær classical preamplifiers. The TEDS microphone is considered one unit and has been sealed in a clean environment. The TEDS is programmed with the loaded sensitivity of the actual cartridge and the data is therefore readily available in the transducer. The default TEDS template is to IEEE P 1451.4 but TEDS to IEEE 1451.4 is available on request.

Individual Calibration Data

Each Type 4941 comes with an individual calibration chart including information about the open-circuit sensitivity and the pressure-field frequency response.

Fig. 1 Typical pressure-field response of the microphone without protection grid. The low-frequency response is valid when the vent is exposed to the sound field



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Specifications – ¼" Pressure-field Microphone Type 4941

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

IEC 61094-4 Type Designation	None
Polarization Voltage	200 V
Open-circuit Sensitivity (250 Hz)*	0.09 mV/Pa, –81 dB ±2 dB re 1 V/Pa
Pressure-field Response*	4 Hz to 20 kHz: ±2 dB
Lower Limiting Frequency (–3 dB)*	0.3 to 5 Hz
Pressure Equalization Vent	Side vented
Polarized Cartridge Capacitance*	3.3 pF at 250 Hz
Upper Limit of Dynamic Range† (3% Distortion)	>184 dB SPL
10% Distortion Limit†	>194 dB (peak)
Max. Sound Pressure Level	201 dB (peak)
Influence of Magnetic Fields	80 A/m, 50 Hz: Max. <4 mV A-weighted
Environmental	
Operating Temperature Range	–40 to +150 °C (–40 to +302 °F)
Storage Temperature (in microphone box)	–30 to +70 °C (–22 to +158 °F)
Storage Temperature (with mini-CD)	5 to 50 °C (41 to 122 °F)
Operating Humidity Range	0 to 100% RH (without condensation)
Influence of Humidity	<0.1 dB in the absence of condensation
Physical	
Diameter with Grid	7 mm (0.27")
Diameter without Grid	6.35 mm (0.25")
Height with Grid	10.5 mm (0.41")
Height without Grid:	9 mm (0.35")
Thread for Preamp Mounting	5.7 mm – 60 UNS

* Individually calibrated

† Valid in the specified frequency range. Due to a system resonance above 60 kHz, the dynamic range is reduced by 20 dB above the specified frequency range

COMPLIANCE WITH EMC DIRECTIVE



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Ordering Information

Type 4941 ¼" Pressure-field Microphone

includes:

- Calibration Chart*

TEDS Combinations

4941-A-011	Type 4941 with Preamp Type 2670
4941-C-002	Type 4941 with Preamp Type 2669-C and Adaptor UA-0035

Optional Accessories

Type 2670	¼" Microphone Preamp
Type 4231	Sound Calibrator
Type 4228	Pistonphone
Type 4226	Multifunction Acoustic Calibrator
DP-0775	Calibration Adaptor for ¼" microphones, use with Type 4228 or Type 4231
DB-0264	Actuator Adaptor for calibration, ¼" microphones to UA-0033
UA-0033	Electrostatic Actuator for ½" microphones
UA-0035	Adaptor, ¼" microphone to ½" preamp, length 72.5 mm
WA-0371	¼" to ½" Adaptor, length 32 mm
UA-0122	Flush Mounting Kit, ¼" microphone to ½" preamp, includes flexible adaptor with right-angle connector
UA-0123	Flush Mounting Kit, ¼" microphone to ½" preamp, includes flexible adaptor with straight connector
EU-4000	¼" Angle Piece
UA-0385	Nose Cone for ¼" microphone
WQ-1099	Windscreen for ¼" microphone, 65 mm diameter
WQ-1133	Windscreen for ¼" microphone, ellipsoid

Calibration Services

MIC-CAI	Microphone Accredited Initial Calibration
MIC-CAF	Microphone Accredited Calibration
MIC-CFF	Microphone Factory Standard Calibration
MIC-CTF	Microphone Traceable Calibration
MIC-TEDS-CFF	Factory Standard Calibration for TEDS microphone + preamp combination
MIC-TEDS-CTF	Traceable Calibration for TEDS microphone + preamp combination

* State transducer serial number if re-ordering

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