

PRODUCT DATA

¼" DeltaTron® Pressure-field Microphones — Types 4944-A and 4944-B

Types 4944-A and 4944-B are ¼" Prepolarized Pressure-field Microphones laser welded to ¼" DeltaTron preamplifiers. The preamplifier connects to CCLD input conditioning and supports IEEE P 1451.4 V 0.9 TEDS (Transducer Electronic Data Sheet).

USES

- High-level measurements
- High-frequency measurements
- Flush mounting
- Arrays in wind tunnels

FEATURES

- Sensitivity: 0.9 mV/Pa
- Frequency: 16 – 70000 Hz
- Dynamic Range: 48 dB(A) – 169 dB
- Temperature: –20 to +100°C (–4 to +212°F)
- TEDS: IEEE P1451.4



- SMB or 10–32 UNF socket
- Connects to CCLD input

Description

Uses of Types 4944-A and 4944-B

A pressure-field microphone is designed to be used in small closed couplers, close to hard reflective surfaces or flush-mounted. The sensitivity has been optimised to allow measurements of high sound pressure levels without clipping in the built-in 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.

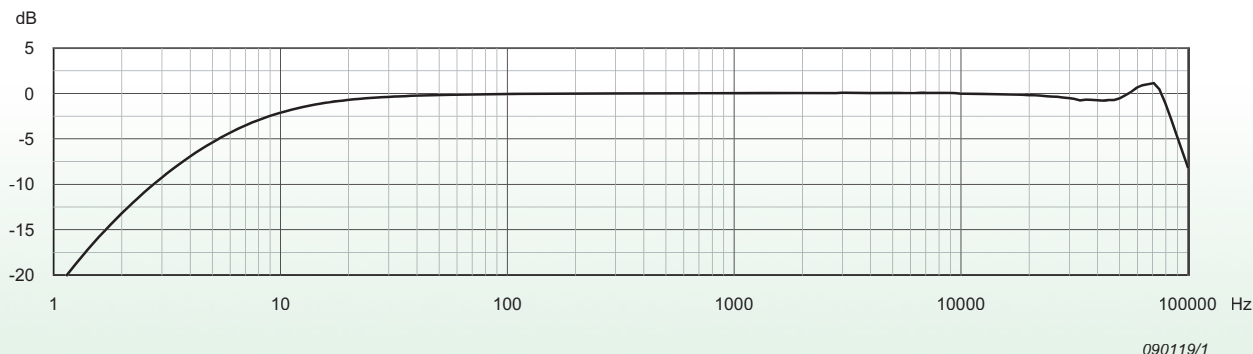
Microphone Data CD

The microphone is supplied with a mini-CD. This mini-CD carries all individual calibration data as well as random-incidence and free-field corrections. The influence of ¼" Nose Cone UA-0385 is also available.

Calibration

The sensitivity can be calibrated at 250 Hz using Pistonphone Type 4228 with ¼" 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.

Fig. 1 Type 4944-A pressure-field response without grid



Specifications – Types 4944-A and 4944-B

Specification	Value [†]
General Specifications	
Nominal Diameter	¼"
Sensitivity (250 Hz)	–61 ±3 dB re 1 V/Pa, 0.9 mV/Pa
Frequency Response [†]	
Pressure-field Response	16 Hz to 70 kHz: ±2 dB
Lower Limiting Frequency	(–3 dB): 7 Hz to 9 Hz
Pressure Equalization Vent	Side vented
Diaphragm Resonance Frequency	60 kHz (90° phase-shift)
Equivalent Air Volume	0.25 mm ³ (250 Hz)
Thermal Noise	48 dB(A), 58 dB (Lin, 20 - 100 kHz) ^a
Upper Limit of Dynamic Range	>169 dB SPL (3% Distortion)
Maximum Sound Pressure Level	182 dB (peak)
Power Requirements	DeltaTron Supply 2 to 20 mA, nom. 4 mA
DC Output Level	12 V ±2 V
Max. Output Voltage	7 V peak for $f \leq 70$ kHz (4 mA supply)
Output Impedance	<90 Ω, typ. 60 Ω
Environmental	
Operating Temperature Range	–20 to +100°C (–4 to +212°F)
Storage Temperature	
In case	–25 to +70°C (–13 to +158°F)
With data CD	5 to 50°C (41 to 122°F)
Temperature 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 90% 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/s ²
Magnetic Field Sensitivity	<48 dB(A), 58 dB (Lin, 20 – 100 kHz for 80 A/m, 50 Hz field)
Estimated Long-term Stability	>1000 years/dB at 20°C (68°F) and dry air >40 years/dB at 20°C (68°F) and 90% RH >1 year/dB at 50°C (122°F) and 90% RH
Physical	
Diameter with Grid	7 mm (0.28")
Diameter without Grid	6.35 mm (0.25")
Length with Grid	65 mm (2.56")
Length without Grid	63.5 mm (2.50")
Output Socket	4944-A: SMB coaxial socket, male 4944-B: 10–32 UNF socket

* **Note:** All values are typical at 23°C (73.4°F), 101.3 kPa, 50% RH and ≥4 mA power supply, 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)

† Individually calibrated

Ordering Information

Type 4944-A ¼" DeltaTron Pressure-field Microphone with SMB socket
Type 4944-B ¼" DeltaTron Pressure-field Microphone with 10–32 UNF socket
Include the following accessories:

- BC-5002: Microphone Data CD^{*}

Optional Accessories	
Type 4231	Sound Calibrator
DP-0775	Calibration Adaptor for ¼" Microphones
DB-0264	½" to ¼" Adaptor for UA-0033
UA-0033	Electrostatic Actuator
UA-0385	Nose Cone for ¼" Microphones
UA-1588	¼" Microphone Holder
AO-0587-D-030	SMB – BNC Cable 3 m (10 ft.)
ZG-0328 (for Brüel & Kjær 7-pin sockets)	DeltaTron Power Supply
Service Products	
4944-CAF	Accredited Calibration
4944-CFF	Factory Standard Calibration (included with delivery)



Compliance with EMC Directive[†] and Low Voltage Directive of the EU
Compliance with the EMC requirements of Australia and New Zealand

* Quote microphone serial number if re-ordering
† Without conducted RF noise

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HEADQUARTERS: Brüel & Kjær Sound & Vibration Measurement A/S · DK-2850 Nærum · Denmark
Telephone: +45 7741 2000 · Fax: +45 4580 1405 · www.bksv.com · info@bksv.com

Local representatives and service organisations worldwide

Brüel & Kjær

