

PRODUCT DATA

10 kHz Array Microphone — Type 4957

Uses

- Measurements using STSF, NAH and Beamforming
- Array measurements
- Simultaneous recording of time signals in medium to large microphone arrays, for example, simulated pass-by measurements
- Cost-effective in-car measurements

Features

- Sensitivity: 11.2 mV/Pa (–39 dB re 1 V/Pa)
- Frequency range: 50 – 10000 Hz
- Dynamic Range: 32 – 134 dB
- Built-in DeltaTron® preamplifier with TEDS – IEEE 1451.4 V.1.0
- Specified phase-matching
- Clips directly into existing Brüel & Kjær array systems



- Detachable cable with SMB coaxial plug
- Dimensions: 34 mm long, 7 mm diameter
- Temperature: –10 to +55°C (+14 to +131°F)

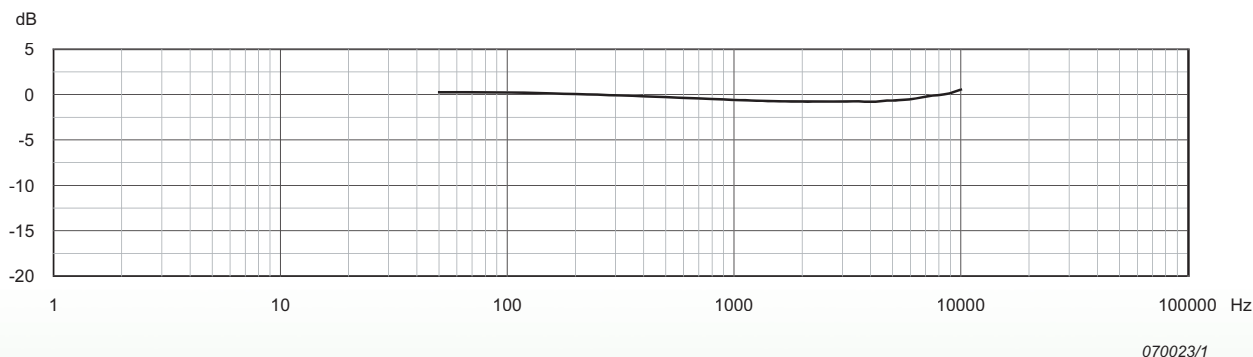
Description

Array Microphone Type 4957 is a ¼-inch prepolarized microphone suited for use in systems requiring a large number of microphones, for example, beamforming arrays, STSF measurements, and non-stationary STSF measurements. These microphones have specified and stable phase-matching over wide ranges of temperature and humidity.

The microphone preamplifier is of the industry standard DeltaTron (constant current line drive) type allowing the use of only one cheap coaxial cable for signal, power supply, and TEDS.

A rugged protection grid provides an integrated heat shield. The microphone is front-vented for pressure equalization.

Fig. 1 Typical free-field response



Specifications – Type 4957

Specifications	Value
Guaranteed Specifications*	
Sensitivity	–39 dB re 1 V/Pa $\pm$ 3 dB, 11.2 mV/Pa (@ 250 Hz)
Free-field Frequency Response (re 250 Hz)	$\pm$ 2 dB, 100 Hz to 5 kHz $\pm$ 3 dB, 50 Hz to 10 kHz
Inherent Noise	<32 dB SPL (A-weighted)
Upper Limit of Dynamic Range	134 dB (THD <3%)
Phase-matching relative to a factory reference	< $\pm$ 5°: 100 Hz to 3 kHz < $\pm$ 10°: 3 kHz to 10 kHz
General Specifications†	
Inherent Noise (A-weighted)	32 dB (–10 to +40°C, +14 to 104°F) 37 dB (–10 to +55°C, +14 to 131°F)
Output Impedance	<150 Ω
Output Voltage: Voltage Swing DC Bias	>5 V _{pp} 12 V $\pm$ 4 V
Max. Load: 5 kHz, 134 dB	30 nF corresponding to 300 m cable
Output Socket	SMB coaxial plug
Polarization Voltage	Prepolarized
TEDS	IEEE 1451.4 V.1.0 Template I27-0-0-0U
Environmental	
Operating Temperature Range	–10 to +55°C (+14 to 131°F)
Storage Temperature	–25 to +70°C (–13 to +158°F)
Operating Humidity Range	0% – 90% RH without condensation
Vibration Sensitivity (20 to 1000 Hz)	Approx. 50 dB equivalent SPL for 1 m/s ² axial acceleration
Magnetic Field Sensitivity	40 dB SPL for 80 A/m, 50 Hz field
Physical	
Diameter	7 mm (–1/4")
Length	34 mm (1.33")
Weight	3.8 g (0.11 oz.)

* **Note:** Guaranteed specifications are measured at 23°C (73.4°F). All uncertainty values are specified at 2 σ (that is, expanded uncertainty using a coverage factor of 2). Measured with 4.5 mA current generator with an open loop voltage of 28 V

† **Note:** General specifications are typical values

Ordering Information

Type 4957 10 kHz Array Microphone is supplied in a rugged box. 1 to 6 microphones come in a standard microphone box. 7 or more microphones come in a multi-microphone mini suitcase.

Optional Accessories*	
AO-0563-Y-ZZZ	Cable, SMB to SMB, right-angled
AO-0564-Y-ZZZ	Cable, BNC to SMB, right-angled
AO-0587-Y-ZZZ	Cable, BNC to SMB, straight
Arrays	
WA-0806	Integral Connection Array
WA-0807	Flexible Connection Array
WA-0808	Vertical In-line Array
WA-0890	Spoked Wheel Array for Beamforming
WA-1536	Hand-held Array for NS-STSF, 64 pos./30 mm spacing
WA-1558	Sector Wheel Array for Beamforming
WA-1565	Spherical Array
KE-4321	Suitcase for up to 48 Microphones
KE-4322	Suitcase for up to 128 Microphones
Calibration	
Type 4228	Pistonphone
DP-0775	1/4" Adaptor
WA-0728	6-microphone Adaptor for Pistonphone Type 4228
4957-CFF	Recalibration

* Cables are available in different lengths. The ordering system follows a simple yet flexible structure. Up to 99.9 m, the cable length can be specified in tenths of a metre (decimetre) and from 100 m in steps of 1 m. Generally the order number is AO-XXXX-Y-ZZZ, where AO-XXXX is the basic cable number Y = D (decimetres) or M (metres) ZZZ is the length value



Compliance with EMC Directive and Low Voltage Directive of the European Community



Compliance with EMC Requirements of Australia and New Zealand

Safety EN / IEC 61010–1: Safety requirements for electrical equipment for measurement, control and laboratory use

EMC Immunity: EN/IEC 61000–6–2: Generic standards – Immunity for industrial environments.