

PRODUCT DATA

20 kHz Precision Array Microphone — Type 4958

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: 10 – 20000 Hz
- Dynamic Range: 28 – 140 dB
- Built-in DeltaTron® preamplifier with TEDS – IEEE 1451.4 V.1.0
- Excellent amplitude and 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

Precision Array Microphone Type 4958 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 excellent amplitude and phase-matching over wide ranges of temperature and humidity.

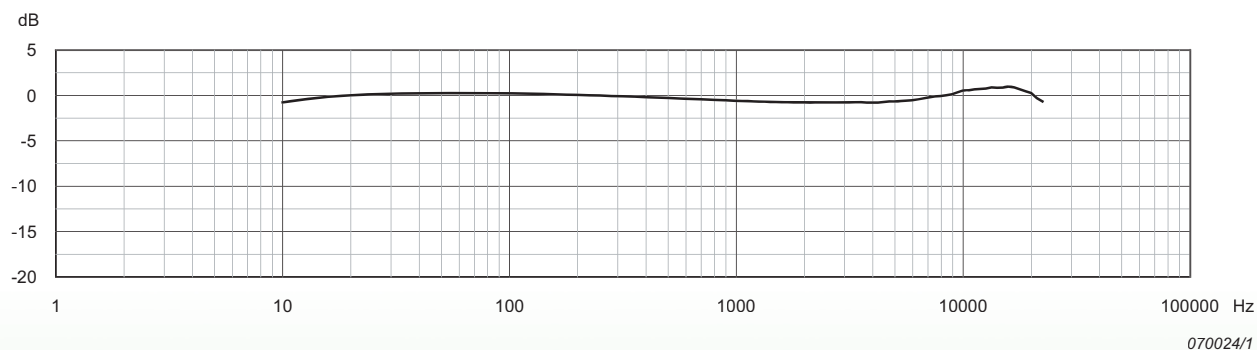
The TEDS (Transducer Electronic Data Sheet) contains information about the complex transfer function, hence enabling applications to calculate corrections for the individual transducer, resulting in more precise measurements. The microphone

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.

Type 4958 is a precision array microphone offering extended TEDS and excellent phase matching and amplitude linearity over a wider frequency range compared to Type 4957.

Fig. 1 Typical free-field response



Brüel & Kjær 

Specifications – Type 4958

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, 50 Hz to 10 kHz $\pm$ 3 dB, 10 Hz to 20 kHz
Inherent Noise	<28 dB SPL (A-weighted)
Upper Limit of Dynamic Range	140 dB (THD <3%)
Phase-matching relative to a factory reference	< $\pm$ 3°, 100 Hz to 3 kHz < $\pm$ 5°, 50 Hz to 5 kHz < $\pm$ 10°, 5 kHz to 10 kHz
General Specifications†	
Inherent Noise (A-weighted)	28 dB (–10 to +40°C, +14 to 104°F) 33 dB (–10 to +55°C, +14 to 131°F)
Output Impedance	<150 Ω
Output Voltage Max. Voltage Swing DC Bias Voltage	>14 V _{pp} 12 V $\pm$ 3 V
Max. Load: 5 kHz, 140 dB	30 nF corresponding to 150 m cable
Output Socket	SMB coaxial plug
Polarization Voltage	Prepolarized
TEDS	IEEE 1451 V. 1.0 template I27-0-0-1U
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 for reference use

Ordering Information

Type 4958 20 kHz Precision 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-XXX	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
4958-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 Emission: EN 50081–1: Generic emission standard. Part 1: Residential, commercial and light industry