

130M23 ARRAY MICROPHONE

for Acoustic and Electro-Acoustic Test



APPLICATIONS

- Audible frequency band testing
- Affordable multichannel measurements
- Automotive in-car measurements
- Microphone array measurements

HIGHLIGHTS

- Low cost per channel
- Integrated preamplifier
- Excellent phase matching
- TEDS compliant
- Sensitivity: 14 mV/Pa
- Frequency Response: (± 2 dB): 20 Hz to 20 kHz
- Dynamic range: 30 dBA–143 dB
- Temperature: -10° to $+50^{\circ}$ C
- Polarization: Prepolarized (0 V dc)

Audio Precision offers a selection of measurement microphones designed to provide ready solutions for our customers working in acoustic test.

130M23 1/4" array microphone

The value-priced 130M23 array microphone is an excellent choice for large channel count applications, being a cost-effective alternative to higher-end, class-one test and measurement microphones. The 130M23 is a single-piece unit that includes a built-in preamplifier, and is suitable for measurements within the normal human hearing range. Excellent phase matching characteristics across multiple microphones make the 130M23 a good choice for microphone array applications.

The 130M23 is designed to operate on ICP[®] sensor power, and can be used with most 2–20 mA constant current power (CCP) microphone power supplies, including the APx1701. It carries embedded TEDS calibration and identification data; the microphone output is available on an SMB jack.

Prepolarized free-field measurement microphones

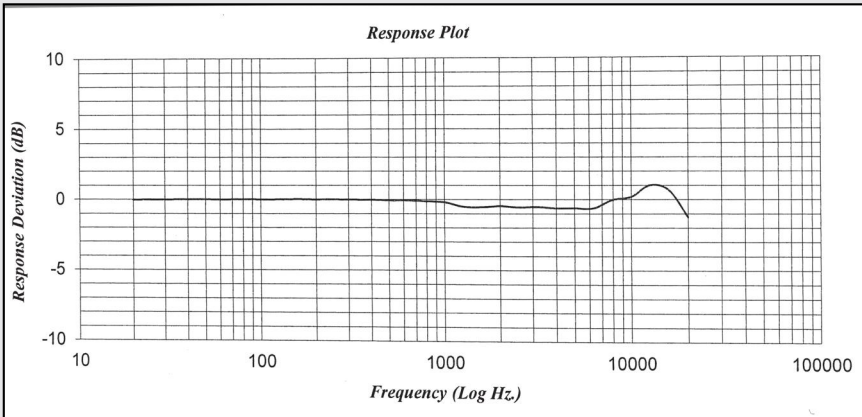
The capacitor (or *condenser*) transducer element in a condenser microphone must carry a charge to function. The 130M23 microphone element is prepolarized to provide this charge, and does not require a polarizing voltage from the power supply, unlike measurement microphones that require a high (often +200 V dc) polarizing voltage. This brings several advantages: less expensive power supplies, simpler two-conductor cabling, and improved performance in high-humidity environments.

A free-field microphone is designed for use in a reflection-free environment such as an anechoic chamber, or out-of-doors. The microphone is compensated for the effect of its presence in the sound field, and should be pointed directly at the sound source (0°).

TEDS (Transducer Electronic Data Sheet) compliant

Each Audio Precision measurement microphone and microphone system is TEDS programmed to the IEEE 1451.4 standard for SMART transducers, V1.0 format. TEDS data contain microphone identification and calibration information that can be read by a connected instrument, such as the Audio Precision APx1701 Transducer Test Interface. Read about the APx1701 on the reverse.

AUDIO PRECISION MODEL 130M23 ARRAY MICROPHONE



Typical free-field response of the microphone with the grid cap at 0 degree incidence. The corrected free-field curve is shown.

KEY SPECIFICATIONS

Description	1/4" free-field array microphone
Application	Array use, general audible frequency band testing
Nominal Diameter	1/4"
Dimensions	0.28" diameter, 2.33" length
Sensitivity	14 mV/Pa
Frequency Range (± 2 dB)	20 Hz to 20 kHz
Phase match (50 Hz to 100 Hz)	$\pm 5^\circ$
Phase match (100 Hz to 3 kHz)	$\pm 3^\circ$
Phase match (3 kHz to 5 kHz)	$\pm 5^\circ$
Phase match (5 kHz to 10 kHz)	$\pm 10^\circ$
Inherent Noise	<30 dBA re 20 μ Pa
Dynamic Range (3% THD)	>143 dB re 20 μ Pa
Mating Connector	SMB coaxial
TEDS Compliant	Yes
Power	CCP 2–20 mA, 10–14 V dc
Recommended Cable	CAB-BNC-SMB-10



ARRAY MOUNTING

Using 079B32 array holders, multiple 130M23 microphones can be mounted in array on arbitrary arrangements of vertical and horizontal 1/2" rods.

OPTIONAL ACCESSORIES

APx1701	Transducer Test Interface
CAB-BNC-SMB-10	10' BNC to SMB coaxial cable
CAB-BNC-3	3' BNC to BNC coaxial cable
079B10	1/4" microphone holder
079B32	1/4" array holder (for 1/2" diameter rod)
482A21	ICP® power supply/signal conditioner, 1 channel, unity gain, AC mains powered
480C02	ICP® power supply/signal conditioner, 1 channel, unity gain, battery powered
480B21	ICP® power supply/signal conditioner, 3 channels, x1, x10, x100 gain, battery powered
488B10	AC mains adapter for 480B21
CAL200	Sound level calibrator, 1 kHz, 94 dB SPL and 114 dB SPL, 1/2" diameter
ADP024	1/4" adapter for CAL200
CAL250	Sound level calibrator, 250 Hz, 114 dB SPL, 1" and 1/2" diameter
ADP021	1/4" adapter for CAL250

CALIBRATION AND WARRANTY

Audio Precision measurement microphones are made in the United States. The microphones are manufactured to the highest standards, using a combination of systematic quality control, the finest materials, and clean-room assembly. The products are exposed to an extensive aging program in climate-controlled test chambers to ensure the most stable product. Each unit is qualified and comes with a traceable calibration certification, and is backed by a five-year warranty.

APx1701 TRANSDUCER TEST INTERFACE



If you are making acoustic measurements with your 130M23 and an APx analyzer, consider adding an APx1701 Transducer Test Interface to your setup. The APx1701 provides the correct power to the preamplifier and will read the TEDS data and pass it on to the APx500 measurement software. The 1701 also features a high-performance two-channel power amplifier optimized for acoustic test, switchable hardware for loudspeaker impedance measurements, and complete control and automation integration with the APx500 measurement software.

Audio Precision 130M23 Array Microphone

Complete Specifications

	ENGLISH	SI	Notes
Performance			
Nominal Microphone Diameter	1/4"	1/4"	
Frequency Response Characteristic (at 0° incidence)	Free-Field	Free-Field	
Frequency Response (± 2 dB)	20 to 20,000 Hz	20 to 20,000 Hz	
Phase Match (50 Hz to 100 Hz)	$\pm 5^\circ$	$\pm 5^\circ$	
Phase Match (100 Hz to 3 kHz)	$\pm 3^\circ$	$\pm 3^\circ$	
Phase Match (3 kHz to 5 kHz)	$\pm 5^\circ$	$\pm 5^\circ$	
Phase Match (5 kHz to 10 kHz)	$\pm 10^\circ$	$\pm 10^\circ$	
Sensitivity (@ 250 Hz)	14 mV/Pa	14 mV/Pa	
Sensitivity (± 3 dB) (@ 250 Hz)	-37.1 dB re 1 V/Pa	-37.1 dB re 1 V/Pa	
Inherent Noise (A Weighted)	<30 dB(A) re 20 μ Pa	<30 dB(A) re 20 μ Pa	
Dynamic Range (High)	150 dB	150 dB	[2][1]
Dynamic Range (3% Distortion Limit)	>143 dB	>143 dB	
TEDS Compliant	Yes	Yes	[3]
Environmental			
Temperature Range (Operating)	+14 to +122 °F	-10 to +50 °C	
Temperature Effect on Output (-10 to +50 °C)	<0.7 dB	<0.7 dB	[1]
Influence of Axial Vibration (1 m/s ²)	60 dB re 20 μ Pa	60 dB re 20 μ Pa	[1]
Electrical			
Excitation Voltage	18 to 30 VDC	18 to 30 VDC	
Constant Current Excitation	2 to 20 mA	2 to 20 mA	
Output Bias Voltage	9 to 14 VDC	9 to 14 VDC	
Output Impedance	<52 Ohm	<52 Ohm	
Physical			
Housing Material	Stainless Steel	Stainless Steel	
Electrical Connector (Output)	SMB coaxial socket	SMB coaxial socket	
Size (Diameter x Length) (overall)	0.28 in x 2.33 in	7.0 mm x 59.1 mm	
Weight	.26 oz.	7.4 gm	[1]
Notes			
[1] Typical.			
[2] Max without clipping.			
[3] TEDS Capable Digital Memory and Communication, compliant with IEEE 1451.4			

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