

MICROPHONES FOR HAND-HELD EQUIPMENT

MICROPHONE SELECTION

Basically there are three different kinds of sound fields for which a microphone can be calibrated/optimised (free-field, diffuse-field and pressure-field). Free-field microphones are the choice for most sound level meters. Optimisation for diffuse (random) fields can be done either by mounting a mechanical random-incidence corrector on the microphone, or by simply selecting a suitable random-incidence microphone. Some sound level meters have a built-in filter that compensates for the difference between the free-field and diffuse-field response, thus also allowing the use of a free-field microphone for diffuse-field measurements.



MICROPHONES FOR SOUND LEVEL METER

Sound Level Meter Type	Original Microphone Type	Replacement Type (if needed)
2221	4176	4176
2222	4176	4176
2225	4129	4176
2226	4129	4176
2230	4155	4940
2231	4155	4940
2234	4155	4940
2235	4176	4176
2236	4188	4188
2237	4137/4176	4137/4176
2238	4188	4188
2239A	4188	4188
2240	4188	4188
2250	4189	4189
2260	4189	4189
Other Replacements		
	4155	4189
	4165	4190
	4133/4149	4191
	4134	4192
	4147	4193

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MICROPHONES



Type Number		4137	4176	4188	4189	4190	4191
Diameter	Inch	1/2	1/2	1/2	1/2	1/2	1/2
Optimised		Free-field	Free-field	Free-field	Free-field	Free-field	Free-field
Nominal Open-circuit Sensitivity	mV/Pa	31.6	50	31.6	50	50	12.5
Polarization Voltage*	V	0	0	0	0	200	200
Optimised Frequency Response ± 2 dB	Hz	8 to 12500	7 to 12500	8 to 12500	6.3 to 20000	3.15 to 20000	3.15 to 40000
Dynamic Range with Preamplifier Type	dB(A) to dB	15.8 to 146 (2669)	14 to 142 (2669)	15.8 to 146 (2669)	15.2 to 146 (2669)	15 to 147 (2669)	21.4 to 161 (2669)
Inherent Noise	dB (A)	14.2	13.5	14.2	14.6	14.5	20
Capacitance	pF	12	12.5	12	13	16	18
Venting		Rear	Rear	Rear	Rear	Rear	Side
Lower Limiting Frequency(-3dB)	Hz	1 to 5	5 to 5	1 to 5	2 to 4	1 to 2	1 to 2
Operating Temperature Range	°C	-30 to 125	-30 to 100	-30 to 125	-30 to 150	-30 to 150	-30 to 300
Temperature Coefficient	dB/°C	+0.005	-0.004	+0.005	-0.001	-0.007	-0.002
Pressure Coefficient	dB/kPa	-0.021	-0.02	-0.021	-0.01	-0.01	-0.007

* 0V Prepolarized

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Type Number		4192	4193	4940
Diameter	Inch	1/2	1/2	1/2
Optimised		Pressure-field	Low-frequency	Free-field
Nominal Open-circuit Sensitivity	mV/Pa	12.5	12.5	50
Polarization Voltage*	V	200	200	0
Optimised Frequency Response ± 2 dB	Hz	3.15 to 20000	0.07** to 20000	6.3 to 20000
Dynamic Range with Preamplifier Type	dB(A) to dB	20.7 to 161 (2669)	20.7 to 161 (2669)	15.2 to 146 (2669)
Inherent Noise	dB (A)	19	19	14.6
Capacitance	pF	18	18	14
Venting		Side	Side	Rear
Lower Limiting Frequency(-3dB)	Hz	1 to 2	0.01 to 0.05	2 to 4
Operating Temperature Range	°C	-30 to 125	-30 to 150	-30 to 150
Temperature Coefficient	dB/°C	-0.002	-0.002	-0.001
Pressure Coefficient	dB/kPa	-0.007	-0.005	-0.01

* 0V Prepolarized

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