

Microphone Cartridges



The key components that determines the accuracy of a sound level meter is the measurement microphone and its associated preamplifier. The effectiveness of these components in converting the acoustic signal into an electrical analogue set the maximum accuracy that can be achieved by the ensuing signal processing. Norsonic have a carefully balanced range of measurement microphones to suite a range of applications that complement modern instrumentation yet maintain traditional values.

Norsonic's range of microphones covers most application and can be used as direct replacement with other brands.

Full use has been made of modern materials which when coupled with traditional engineering skills produces microphones that meet all the requirements of the precision measurement standards yet are robust and resistant to corrosion. These microphones are used in conjunction with the Norsonic range of preamplifiers that closely couple to them and ensure perfect matching to the associated instrument with minimum disturbance to the acoustic field. The preamplifiers have the necessary signal handling capability and low self noise to allow full use to be made of the wide dynamic range of the microphones.

Calibration

Calibration of all Norsonic microphones is directly traceable to National and International Standards with particular attention being paid in the design to ensuring long term stability. Each microphone is delivered with an individual certificate of calibration giving all the key information relating to its performance. This includes the nominal sensitivity and frequency response along with the environmental data that relates to the calibration.

Norsonic Calibration Laboratory is an international accredited laboratory. This ensures that the quality of the measured values are at the highest possible level.

Free-Field Microphones

All Norsonic microphones are free-field types. A free-field microphone is designed to measure the sound pressure in the sound field, compensating for the influence of the presence of the microphone in the sound field. In effect, the microphone measures the sound pressure as it existed before the microphone was introduced in the sound field, i.e. free-field conditions. Applicable standard is IEC 61672 and the former IEC 60651. The free-field microphone should be pointed towards the sound source at a 0° angle of incidence.



Cartridge Overview

Below is a summary of our range of microphone cartridges.

Nor1225 is a ½” free-field high sensitivity microphone. A general purpose microphone covering the frequency range from 3.15Hz to 20 kHz. Correspond to the Class 1 of the sound level meter standard IEC 61672.

Nor1227 is a ½” free-field, high sensitivity self-polarised microphone for use in applications where environmental or safety considerations do not permit the use of 200-volt polarisation supplies, or as a general IEC 61672 Class 1 microphone in sound level meters with no polarisation voltage.

Nor1228 is a ½” free-field, high sensitivity, low cost self-polarised Class 1 microphone. Ideal for use in multi channels systems or other applications that requires a self polarised IEC 61672 Class 1 microphone at low cost.

Nor1229 is a ½” free-field, high sensitivity, low cost self-polarised Class 2 microphone. Ideal for use in multi channels systems or other applications that requires a self polarised microphone at low cost with Class 2 accuracy. Unlike most other low cost Class 2 microphones it features a nickel membrane and a stainless steel housing, ensuring low sensitivity to environmental parameters such as temperature, static pressure and humidity.

Selection chart microphone cartridges

Parameter	Unit				
		Nor1225	Nor1227	Nor1228	Nor1229
Cartridge size	”	½”	½”	½”	½”
Main standard		IEC 61672 Class 1	IEC 61672 Class 1	IEC 61672 Class 1	IEC 61672 Class 2
Polarisation voltage	V	200	0	0	0
IEC 61094-4 type Designation	—	WS2F Free-field	WS2F Free-field	WS2F Free-field	WS2F Free-field
Nomial sensitivity @ 250Hz	mV/Pa	50	50	50	40
Frequency Respons ±1dB ±3dB	Hz	5-10k	5-10k	20-10k	—
	Hz	3.15-20k	3.15-20k	12.5-16k	20-10k
Maximum SPL 3%	dB	146	146	146	146
Self noise Based on typical thermal noise	dB(A)	15	15	16	24
Response		Free field	Free field	Free field	Free field
Capacitance	pF	18	14	16	13
Effective front volume	mm ³	50	50	50	45
Temperature coeff. @250Hz -10 to +50°C -40 to +150°C	dB/°C	<-0.005	<-0.005	<-0.005	<-0.01
		<-0.01	<-0.01	—	—
Max. temperature	°C	150	120	80	80
Static pressure coeff @250Hz	dB/kPa	-0.0008	-0.0008	-0.004	±0.03
Realtive humidity NM = not measureable 0-100% RH no condensation	dB/%	NM	NM	-0.003	±0.006
Vibration sensitivity SPL for 0.1g perpendicular do dia- phragm	dB	62	62	62	65
Magnetic field effect SPL for field strength of 80A/m	dB	3.5	3.5	4	5
Diameter with protection grid	mm	13.2	13.2	13.2	13.2
Length with protection grid	mm	16.2	16.2	17.3	16.6
Weight with protection grid	g	6	6	9	7