

Technical Note

Measuring low noise levels with the Nor140, Nor145 and Nor150



There is an increasing demand for measuring very low noise levels in buildings, machinery, vehicles, and other environments. The Nor140, Nor145 and Nor150 are well suited for these applications when used with low-noise microphones.

The Nor145 is normally supplied with either a Nor1227 or Nor1239 free-field microphone, while the Nor150 and Nor140 are supplied with a Nor1225 microphone. All are 1/2" 50 mV/Pa free-field microphones that comply with the requirements for a Class 1 sound level meter according to IEC 61672 and equivalent standards. Using these microphones, the typical noise floor is 19 dBA, and the recommended measurement range for A-weighted levels starts at 24 dBA.

Measurements below these levels require a dedicated low-noise microphone, which often needs adaptation for use with a sound level meter.

The Nor145 and Nor150 are already adapted for use with the GRAS range of low-noise microphone systems. The table below shows compatibility with the Nor140, Nor145, and Nor150. All units can be connected directly to the instrument unless otherwise noted in the table below.

Mic type	Microphone	Maximum voltage/dB/Pa the instrument can handle	Self noise	Supported by	Polarization
GRAS 40HF	1100 mV/Pa	110 dB	-2 dBA	Via GRAS12HF	200 V
GRAS 40HH & HT	800 mV/Pa	113 dB	6.5 dBA	150	200 V
GRAS 47HC	400 mV/Pa	100 dB	6.5 dBA	145, 150	0 V
GRAS 40HL	850 mV/Pa	110 dB	6.5 dBA	150, HL-N for 140	200 V
GRAS 40EN	50 mV/Pa	140 dB	9.6 dBA	140, 150	200 V
Rion UC-35P	1000 mV/Pa	96 dBA	4 dBA	-	0 V