

# 1/2" Microphone Preamplifier

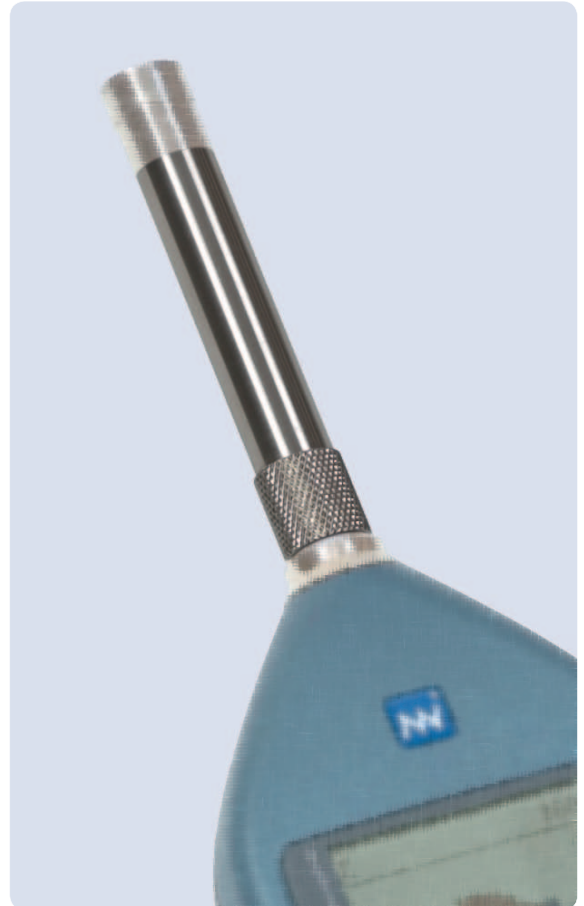
## Nor1209

### Applications

- Sound level meters
- General purpose
- Laboratory and field measurements

### Features

- Low noise
- High input impedance
- Wide dynamic range
- Wide frequency range
- Low output impedance
- System Check facility
- Large supply voltage range
- Detachable preamplifier cable



The microphone preamplifier Nor1209 has been designed for general use with most 1/2" condenser microphone of type WS2 or LS2 according to IEC 61094-4: Measurement microphones - Part 4: Specifications for working standard microphones.

The microphones may be pre-polarized or use externally supplied polarization voltage up to 200 V. By the use of adaptors, the preamplifier may be used for other microphone sizes. The frequency response covers the range from below 1 Hz to above 200 kHz.

The Nor1209 preamplifier may be mounted directly on a sound level meter like Nor140, or may be connected to the instrument by a suitable cable.

The preamplifier is equipped with the system check facility. By supplying a test signal voltage on one of the terminals, the capacitance of the microphone as well as the complete signal chain from the microphone cartridge to the indication of by the sound level meter may be checked.

The voltage gain of the preamplifier is very close to one or correspondingly 0 dB. As the input impedance is 10 GΩ, the attenuation due to loading of the source will mainly be determined by the low input capacitance.



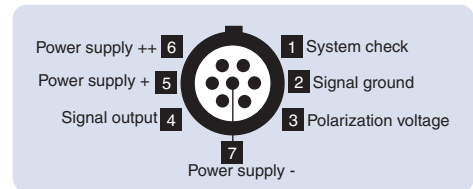
### Cables

Long cables have a capacitance that may limit the slew-rate of the output signal. This will reduce the upper frequency response for signals with large voltage swings. Such limitation will be a non-linear process and may therefore also disturb the low-frequency content of the signal. The table shows the maximum frequency in kHz for linear operation as function of the cable length and level.

Supply voltage $\pm 15$ V; Mic sens 50 mV/Pa; Cable 120 pF/m				
	10 m	20 m	50 m	100 m
136 dB	15	8	5	2
130 dB	40	23	12	7
120 dB	>100	70	33	16
110 dB	>100	>100	>100	25
100 dB	>100	>100	>100	>100

### Supply

For +120 V or  $\pm 60$  V supply, connect the positive power supply to pin 6. For +28 V or  $\pm 15$  V supply, connect the positive power supply to pin 5 as this will increase the driving capabilities of the preamplifier.



Outside view

### Technical specification

**Frequency response** (18 pF/small signal): 20 Hz – 20 kHz:  $\pm 0,1$  dB

**Gain:** Typ -0,1 dB (-0,2 with 20 pF)

**Input impedance:** 10 G $\Omega$ , 1,4 pF

**Output impedance:** 50 ohm typical

**Noise (20 pF dummy mic.):** A-weighted < 2,2 $\mu$ V (typ 1,8 $\mu$ V)  
Lin (20 Hz – 20kHz) < 6  $\mu$ V (typ 3,8  $\mu$ V)

**Power supply:**

Single: 28 V (1mA) to 120 V (2,8mA)

Dual:  $\pm 14$  V(1 mA) to  $\pm 60$  V (2,8 mA)

**Maximum signal output voltage (peak):**  $\pm 10$  to  $\pm 50$  V (dep. on supply)

**Temperature:** -25 $^{\circ}$ C to +70 $^{\circ}$ C (operation)

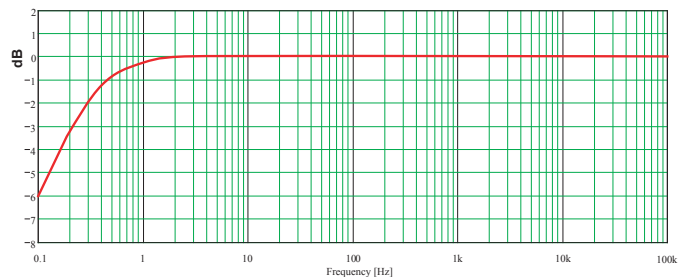
**Relative humidity:** 0 – 90%

**Length:** 83 mm

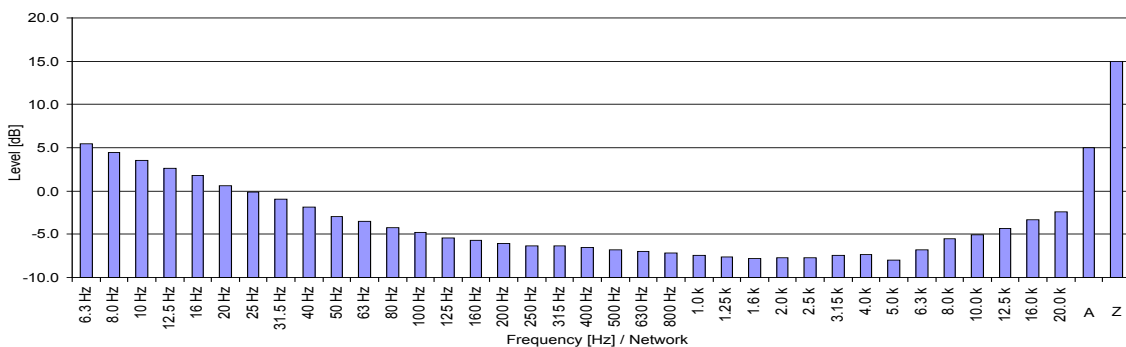
**Diameter:** Body: 12,7 mm/Ring: 14 mm

**Weight:** 36 g

**EC classification:** As for Sound level meter Nor140.



Frequency response Nor1209 (Cs = 20 pF)



**Noise considerations:**

The figure above shows the typical frequency spectrum of the inherent noise of the preamplifier Nor1209 in one-third octave bands for transducer impedance of 20 pF. The A- and Z-weighted levels are also shown. 0 dB corresponds to 1  $\mu$ V or to the sound pressure level when the microphone has the sensitivity 50 mV/Pa. Note that a real microphone with resistive impedances will have a higher noise level than a dummy microphone with similar capacitance.

Specifications subject to changes without notice.



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