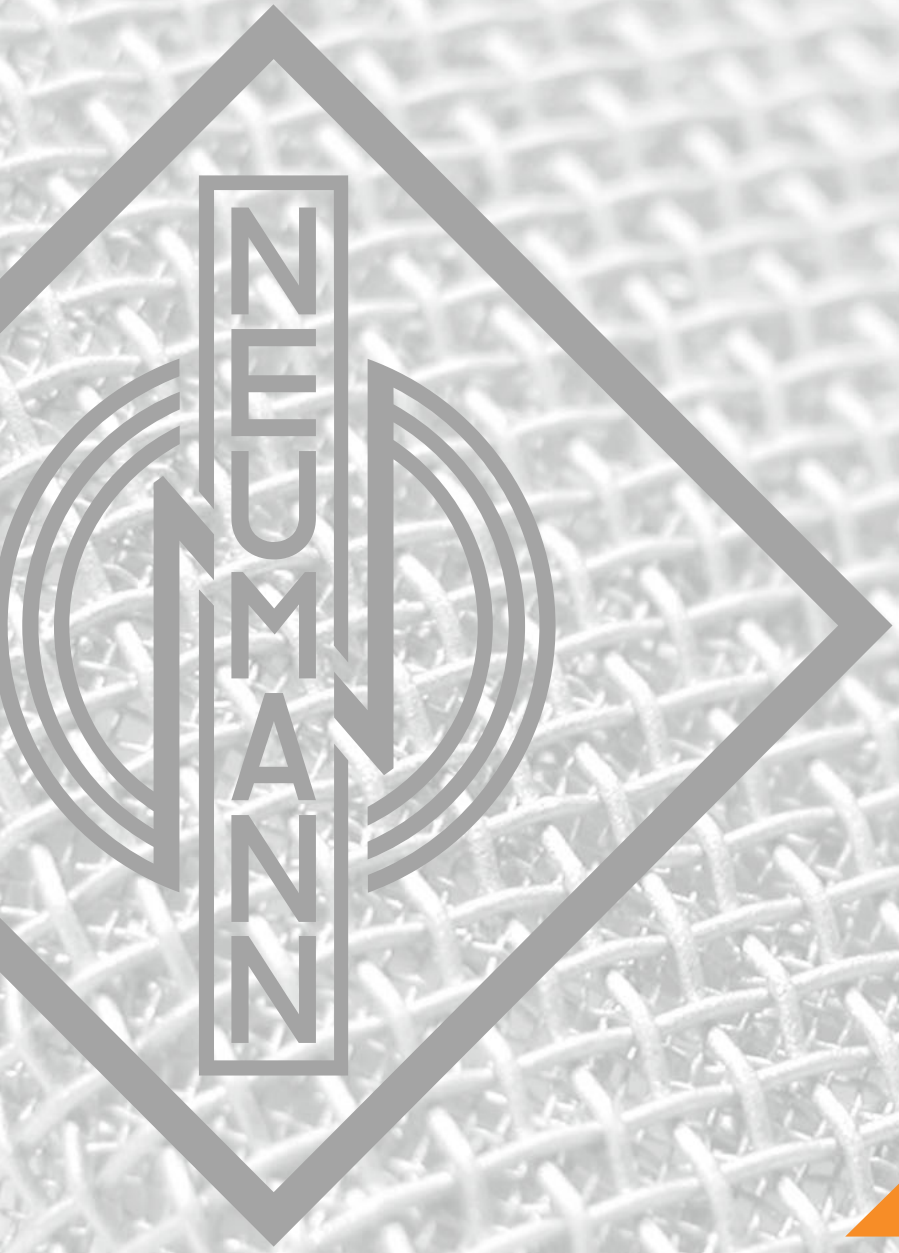
Product Information

M 149 Tube

Tube Microphone



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The M 149 Tube is a variable dual-diaphragm microphone. The K 49 capsule – well-known from the legendary U 47 and M 49 microphones – is followed by a tube functioning as an impedance converter. In contrast to earlier concepts – utilizing a transformer – the tube is complemented with a transformerless output circuit design.

The M 149 Tube can thus feed long microphone cables without any coloration.

Two slide switches are located below the large, acoustically very open headgrille.

The switch at the front allows selection one of nine directional patterns. The slide switch at the rear operates a seven-step high pass filter. It allows a very fine adjustment of the cut-off frequency.

Applications

There are nine polar patterns to choose from, making this microphone an ideal choice for a wide range of recording situations.

As its ancestors, the M 149 Tube is a superb vocalist microphone, not only because of the capsule, but also due to its modern circuitry, characterized by extremely low noise level.

Acoustic features

The M 149 Tube is addressed from the front, marked with the Neumann logo. Also on the front is the switch for the selection of the polar patterns.

The capsule is mounted elastically inside the headgrille to eliminate structure borne noise. The surface below the capsule is shaped like a cone to disperse any reflected sound from the acoustic upper half space. This avoids any interference with the primary sound arriving at the capsule directly.

A large headgrille surrounds the capsule. It is acoustically very open and therefore increases the sonic realism.

Polar patterns

The polar pattern switch selects one of nine directional patterns: omnidirectional, wide-angle-cardioid, cardioid, hypercardioid, figure-8, and one additional intermediate pattern between each major position.

Electrical features

The circuit of the M 149 Tube microphone has been developed to exceed traditional designs. We have selected a modern tube (triode) and combined its exceptional transmission characteristics with the advantages of our proven transformerless output circuit. The aim was to provide a more controlled environment for the audio signal on its path from the capsule to the output section.

The final stage is an integrated amplifier, especially designed for such applications. It features very low distortion (THD < 0.002 % at ± 10 V), very low self-noise, and high output current capability. As a result, the tube circuit is completely decoupled from the microphone output and its characteristic response curve will be unaffected by very high signal levels or varying load conditions.

The lower output impedance and higher output current capability allow cable lengths up to 300 m (1000 feet) without any degradation of the audio signal.

The tube amplifier changes the high impedance of the capsule and adds 10 dB of gain to the audio signal, providing optimum operating spec-

Technical Data

Acoustical operating principle	Pressure gradient transducer
Directional pattern	Omnidirectional, wide angle cardioid, cardioid, hypercardioid, figure-8 plus one intermediate position each
Frequency range	20 Hz...20 kHz
Sensitivity at 1 kHz into 1 kohm	34/47/62 mV/Pa[1]
Rated impedance	50 ohms
Rated load impedance	1000 ohms
Signal-to-noise ratio, CCIR[2] (rel. 94 dB SPL)	66/69/71 dB[1]
Signal-to-noise ratio, A-weighted[2] (rel. 94 dB SPL)	78/81/83 dB[1]
Equivalent noise level, CCIR[2]	28/25/23 dB[1]
Equivalent noise level, A-weighted[2]	16/13/11 dB-A[1]
Typical SPL (tube characteristic)[3]:	
for < 0,5% THD	120 dB
for < 5% THD	136 dB
Maximum output voltage	18 dBu
Dynamic range of the microphone amplifier cardioid:	
(A-weighted) for < 0,5% THD (for < 5% THD)	101 (121) dB
Powering	Power supply N 149 A
Microphone matching connectors	DIN8F
Power supply matching connectors	XLR3F
Weight	730 g
Diameter	70 mm
Length	201 mm

[1] Omnidirectional / cardioid / figure-8 [2] according to IEC 60268-1; CCIR-weighting acccording to CCIR 468-3, quasi peak; A-weighting according to IEC 61672-1, RMS [3] measured as equivalent el. input signal

ifications. The wide dynamic range is impressive, as peak output can be ±10 V, at 20 mA.

The ideal operating point of the tube is maintained throughout its entire life expectancy. Plate current and filament voltage are constantly regulated. A sensor circuit monitors and compensates for any voltage drop across the microphone cable. The tube is heated up slowly through inverse current limiting to guarantee long life. Optimum operating conditions are reached within a very short time.

Filter

A seven-position slide switch is located on the back of the microphone. It selects a high-pass filter, advancing in half-octave steps between 20 Hz and 160 Hz (–3dB). This filter is useful to suppress rumble from air-conditioning and in windy situations.

In addition, the filter provides an effective tool to control the audio signal when the microphone is used at close distance and therefore proximity effect alters the program material.

Delivery Range

The specifically designed new N 149 A power supply unit feeds the M 149 Tube through an 8-core cable. The output connector for the audio signal is a 3-pin XLR. The output signal is balanced.

The microphone comes as a set in a high-quality aluminum case, together with the 8-core microphone connecting cable, the N 149 A power supply with plug-in mains unit, the EA 170 full elastic microphone suspension and a dust cover.

Features

- *Switchable tube microphone*
- *Transformerless circuitry*
- *High output level*
- *Pressure gradient transducer with the M 49 capsule*
- *Acoustically very open wire mesh cage*
- *Nine directional characteristics: omni, wide angle cardioid, cardioid, hypercardioid, figure-8, and one intermediate position each*
- *7fold switchable low frequency roll-off*

Delivery Range

M 149 Tube Microphone
N 149 A Power supply unit with power cable,
EA 170 Elastic suspension,
KT 8 Microphone cable,
Aluminium case,
Dust cover

Single: *M 149 Tube Microphone, Wooden box*

Catalog No.

M 149 Tube (230 V, EU)	*ni*	*008390*
M 149 Tube (117 V, US)	*ni*	*008399*
M 149 Tube (230 V, UK)	*ni*	*008403*
M 149 Tube Single	*ni*	*008391*

Selection of Accessories

Auditorium hanger, MNV 87	*ni*	*006804*
Auditorium hanger, MNV 87 mt	*blk*	*006806*
Table stand, MF 3	*blk*	*007321*
Table stand, MF 4	*blk*	*007337*
Stand extension, STV 4	*blk*	*006190*
Stand extension, STV 20	*blk*	*006187*
Stand extension, STV 40	*blk*	*006188*
Stand extension, STV 60	*blk*	*006189*
Popscreen, PS 15	*blk*	*008472*
Popscreen, PS 20 a	*blk*	*008488*
Microphone cable, IC 3 mt	*blk*	*006543*
Adapter cable AC 25	*blk*	*006600*

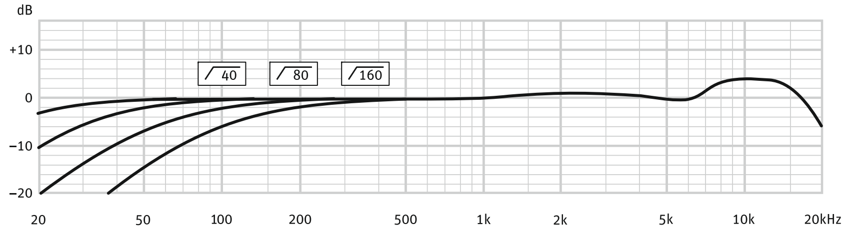
A complete survey and detailed descriptions of all accessories are contained in the accessories catalog.

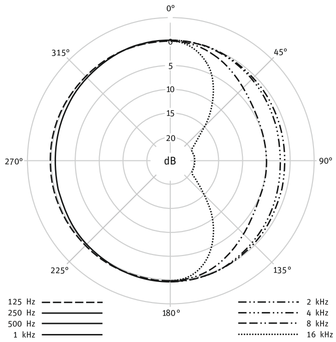
Meaning of color codes:
blk = black ni = nickel

Application Hints

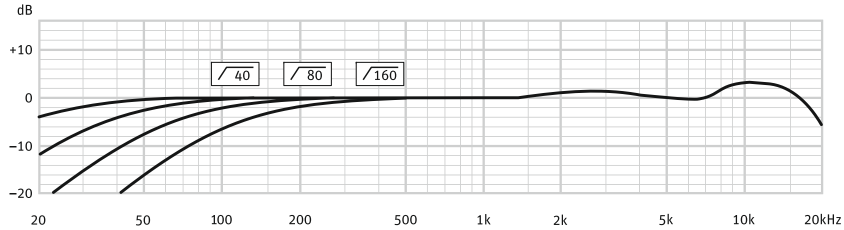
- *Universal tube mic*
- *Its warm and yet transparent sound gives volume and presence to a vocalist*
- *A wide range of adjustments provide the most subtle differentiation of sound, especially in the range of proximity effect*
- *Mic for broadcasting, dubbing, and voice-over*
- *Spot mic for close miking of solo instruments, especially strings, wind instruments, and piano*

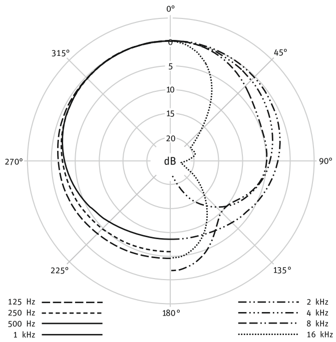
These are just some of the most common applications. We recommend additional experimentation to gain maximum use from this microphone.

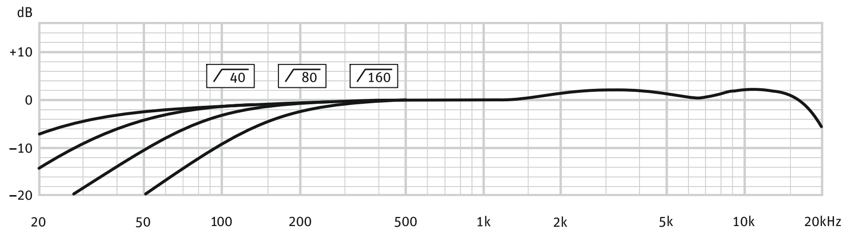


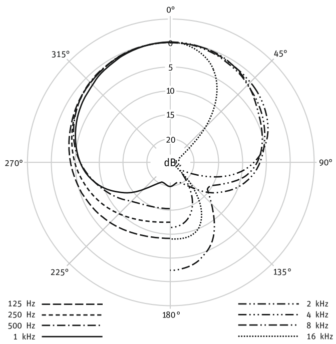


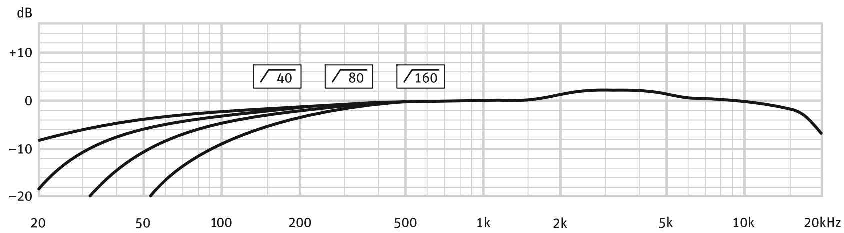
measured in free-field conditions (IEC 60268-4), tolerance ±2 dB

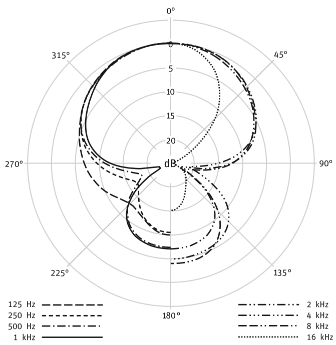


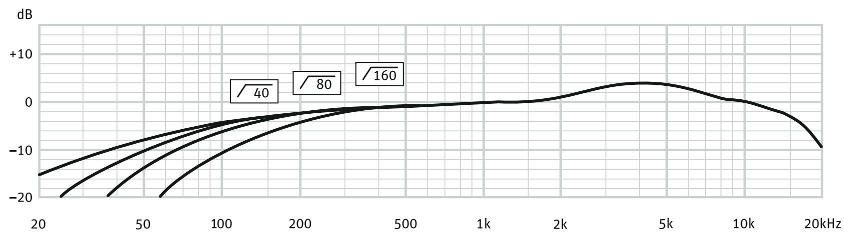


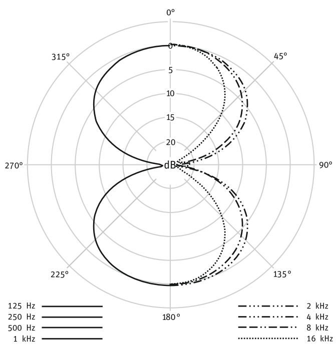












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