Product Information

M 149 Tube

Tube Microphone
The M 149 Tube is a variable dual-dia-
drphragm microphone. The K 49 capsule – well-
known from the legendary U 47 and M 49 
microphones – is followed by a tube func-
tioning as an impedance converter. In con-
trast to earlier concepts – utilizing a trans-
former – the tube is comple-
mented with a transform-
erless output circuit design. 
The M 149 Tube can thus 
feed long microphone cables 
without any coloration.

Two slide switches are loca-
ted below the large, acousti-
cally very open headgrille.

The switch at the front allows 
selection one of nine direc-
tional 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 po-
lar patterns.

The capsule is mounted elas-
tically inside the headgrille to 
eliminate structure borne noi-
se. The surface below the cap-
sule is shaped like a cone to 
perse any reflected sound 
rom the acoustic upper half 
ace. This avoids any interfe-
ence with the primary sound 
rriving at the capsule directly.

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

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 characteris-
tics: omni, wide angle cardioid, 
cardioid, hypercardioid, 
figure-8, and one intermediate 
position each
• 7-fold switchable low frequency 
  roll-off
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.

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* |
| Rated impedance | 50 ohms |
| Rated input impedance | 1000 ohms |
| Equivalent SPL CCIR 468-3 | 28/25/23 dB* |
| Equivalent SPL DIN/IEC 651 | 16/13/11 dB-A* |
| S/N ratio CCIR 468-3 | 66/69/71 dB* |
| S/N ratio DIN/IEC 651 | 78/81/83 dB* |
| Typical SPL (tube characteristic): for < 0.5% THD | 120 dB |
| for < 5% THD | 136 dB |
| Maximum output voltage | 18 dBu |
| Dynamic range of the microphone amplifier cardioid: DIN/IEC 651 | 101 (121) dB |
| DIN/IEC 651 | 101 (121) dB |
| Powering | Power supply N 149 |
| Matching connectors: Microphone | DIN8F |
| Power supply | XLR3F |
| Weight | 730 g |
| Diameter | 70 mm |
| Length | 201 mm |

* Omnidirectional / cardioid / figure-8
The tube amplifier changes the high impedance of the capsule and adds 10 dB of gain to the audio signal, providing optimum operating specifications. 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 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 an attractive case, together with the 8-core microphone connecting cable, the N 149 power supply with plug-in mains unit, the EA 170 full elastic microphone suspension and a dust cover. Also included is a separate wooden box for protection and storing the microphone safely.

**N 149 V - Vintage Power Supply**

As requested by many recording engineers an optional power supply in the typical vintage design is available: The N 149 V. It handles all mains voltages from 100 V to 240 V, 50 or 60 Hz. Mains power is connected through a standard IEC 320 mains socket.

The three available versions of the N 149 V just differ in their mains power cable.

**Catalog No.**

- M 149 Tube Microphone
- N 149 Power supply with plug-in mains unit
- EA 170 Elastic suspension
- Connecting cable, Wooden box, Dust cover

**Selection of Accessories**

- Popscreen, PS 20
- Power Supply, N 149 V (EU) 12253.00101
- Power Supply, N 149 V (US) 12253.00201
- Power Supply, N 149 V (UK) 12253.00301

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