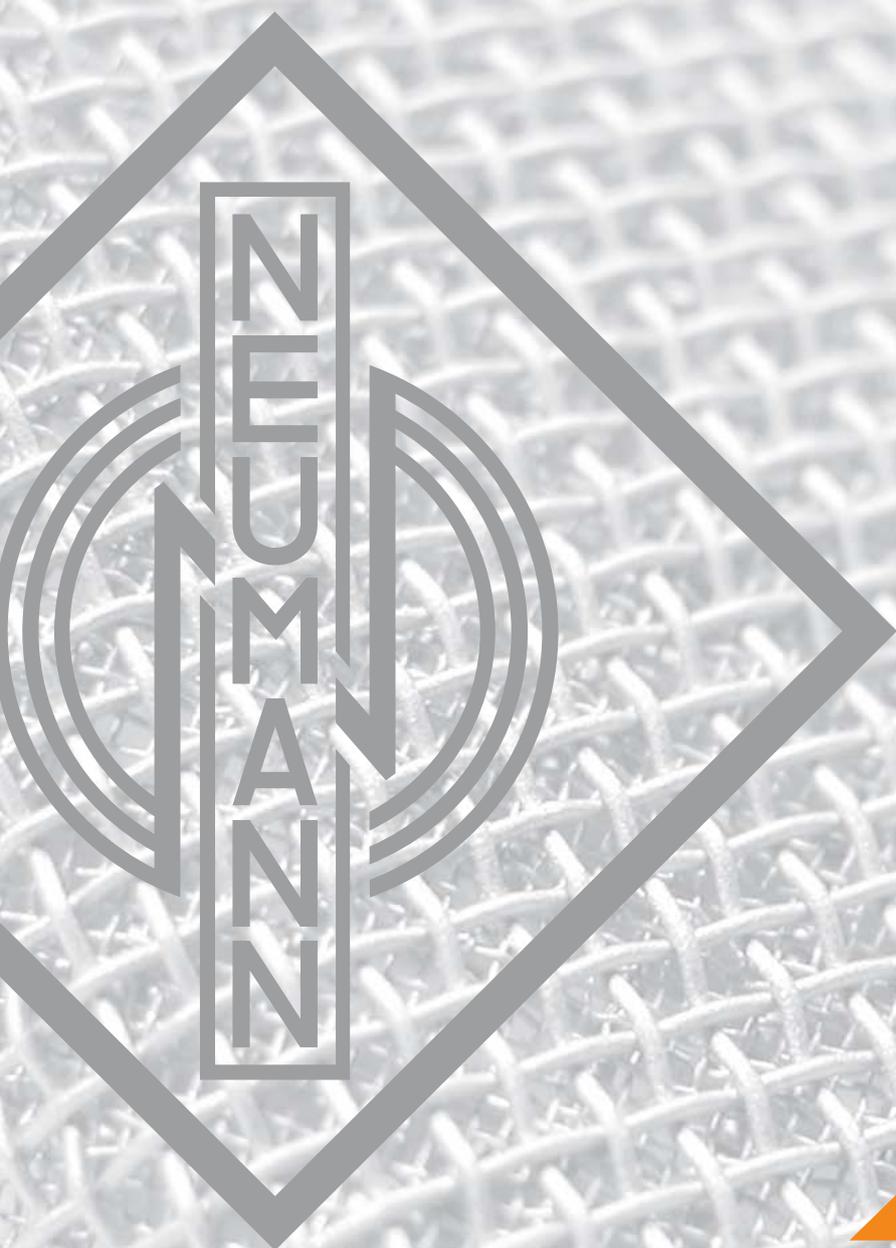


# TLM 170 R

▶ **Large Diaphragm  
Microphone**



[www.neumann.com](http://www.neumann.com)



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The design of the microphone is a registered design of the Georg Neumann GmbH in certain countries.



The TLM 170 R was the first microphone to use the successful fet 100 technology. Along with a balanced, transformerless output stage it features extremely low self-noise and an impressive dynamic range.

Five directional characteristics are selectable by means of a rotary switch. In the sixth position, marked "R", the directional patterns can be controlled remotely with the N 248 power supply. There is no special cable necessary for this purpose.

The microphone has at its rear a 10 dB attenuation switch for extremely high sound pressure levels, and a high-pass filter to suppress structure born noise.



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### Applications

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The TLM 170 R condenser microphone is a large diaphragm microphone with multiple polar patterns. Its sound has a very transparent characteristic, in contrast to some of our other microphones that have a distinct personality.

Therefore, this microphone is used for many diverse applications in professional recording studios, in broadcasting, film and television, and for semiprofessional productions. The polar patterns can be selected either at the microphone itself, or controlled remotely through the special N 48 R-2 power supply.

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### Acoustic features

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The microphone is addressed from the front, marked with the Neumann logo. The large diaphragm capsule inside the headgrille has a

#### Features

- Local and remote controlled large diaphragm microphone
- Pressure-gradient transducer with double membrane capsule
- Five directional characteristics: omni, wide angle cardioid, cardioid, hypercardioid, figure-8
- Patented circuitry for remote and local switching of directional characteristics
- Switchable low frequency roll-off and 10 dB preattenuation
- Tiltable, elastically suspended bracket mount

very smooth frequency response for all polar patterns over a wide acceptance angle. The curves are flat and parallel to the 0° frequency curve up to 10 kHz within an angle of ± 100°.

As a result the TLM 170 R has a very even diffuse-field response for all polar patterns. This is important in a reverberant environment, as more reflections arrive at the microphone from different directions. The acoustic information is not affected in its tonal quality when recorded by the microphone. This characteristic is achieved without resorting to corrective resonance effects.



Therefore, the microphone maintains an excellent impulse response reproducing all transient phenomena of music and speech without any coloration.

The capsule is elastically mounted to avoid any structure borne noise that could interfere with its operation.

## Polar patterns

In addition to the usual directional polar patterns: omnidirectional, cardioid, and figure-8, we have added a hypercardioid and wide-angle cardioid characteristic. When compared to the standard cardioid pattern, the hypercardioid characteristic suppresses sound from the side more efficiently. The wide-angle polar pattern is especially useful to record large sound sources.

## Remote control

The N 248 controls the polar pattern remotely by varying the phantom voltage. The range is ± 3 V of the nominal 48 V value. (According to DIN standard a range of ± 4 V is permissible.)

The rotary switch on the microphone must be in the position R (= remote control). In this switch position the TLM 170 R microphone analyses the absolute value of the phantom power and selects the corresponding polar pattern. A standard 3-pin microphone cable is used, similar to the microphone's conventional operation. Cable lengths may be up to 300 m (1000 feet).

## Electrical features

The letters TLM stand for "transformerless microphone". With TLM technology the usual output transformer is replaced by an electronic circuit.

As with traditional transformers, it ensures good common mode rejection, and prevents RF interference, that may influence the balanced audio signal.



## Technical Data

Acoustical operating principle	Pressure gradient transducer
Directional pattern	Omnidirectional, wide angle cardioid, cardioid, hypercardioid, figure-8
Frequency range	20 Hz...20 kHz
Sensitivity at 1 kHz into 1 kohm	8 mV/Pa
Rated impedance	50 ohms
Rated load impedance	1000 ohms
Signal-to-noise ratio, CCIR <sup>1)</sup> (rel. 94 dB SPL)	68 dB
Signal-to-noise ratio, A-weighted <sup>1)</sup> (rel. 94 dB SPL)	80 dB
Equivalent noise level, CCIR <sup>1)</sup>	26 dB
Equivalent noise level, A-weighted <sup>1)</sup>	14 dB-A

Maximum SPL for THD 0.5% <sup>2)</sup>	144 dB
Maximum SPL for THD 0.5% with preattenuation <sup>2)</sup>	154 dB
Maximum output voltage	10 dBu
Dynamic range of the microphone amplifier (A-weighted)	130 dB
Supply voltage (P48, IEC 61938)	48 V ± 4 V
Current consumption (P48, IEC 61938)	3 mA
Matching connector	XLR3F
Weight	625 g
Diameter	60 mm
Length	152 mm

<sup>1)</sup> according to IEC 60268-1; CCIR-weighting according to CCIR 468-3, quasi peak; A-weighting according to IEC 61672-1, RMS <sup>2)</sup> measured as equivalent el. input signal



### Operational safety

All exposed surfaces of the capsule, including the diaphragms, are at ground potential. This technology makes them highly immune to electrical and atmospheric interference and contamination through dust particles.

### Filter and attenuation

The TLM 170 R microphone has a 10 dB attenuation switch to prevent the input of the following unit from being overloaded.

A second switch at the rear allows to attenuate the frequency response below 100 Hz to suppress undesired structure borne noise.



### Use on tripods

The TLM 170 R is provided with a tilting side bracket to attach the microphone to booms or stands. The bracket is equipped with rubber elements that effectively protect the microphone from mechanical shock.

If necessary, it can be mounted on the other side of the microphone as well.

When using the IC 4 cable (for example to suspend the microphone from the ceiling with the MNV 87 auditorium hanger), the bracket and its holder need to be removed.

The microphone can then be connected to the swivel mount connector of the cable.



### Delivery Range

Microphone TLM 170 R (mt), Dust cover, Wooden box

**Stereo set:** 2x TLM 170 R (mt) Microphone, 2x EA 170 (mt) Elastic suspension, Dust cover, Aluminium case

### Catalog No.

TLM 170 R .....	ni .....	007165
TLM 170 R mt .....	blk .....	007166
TLM 170 R Stereo set .....	ni .....	008503
TLM 170 R mt Stereo set .....	blk .....	008504

### Selection of Accessories

Battery supply, BS 48 i .....	blk .....	006494
Power supply, N 248 EU .....	blk .....	008537
Power supply, N 248 US .....	blk .....	008538
Power supply, N 248 UK .....	blk .....	008539
Elastic suspension, EA 170 .....	ni .....	007271
Elastic suspension, EA 170 mt .....	blk .....	007273
Auditorium hanger, MNV 87 .....	ni .....	006804
Auditorium hanger, MNV 87 mt .....	blk .....	006806
Popscreen, PS 20 a .....	blk .....	008488
Windscreen, WS 87 .....	blk .....	006753
Microphone cable, IC 4 .....	ni .....	006547
Microphone cable, IC 4 mt .....	blk .....	006557

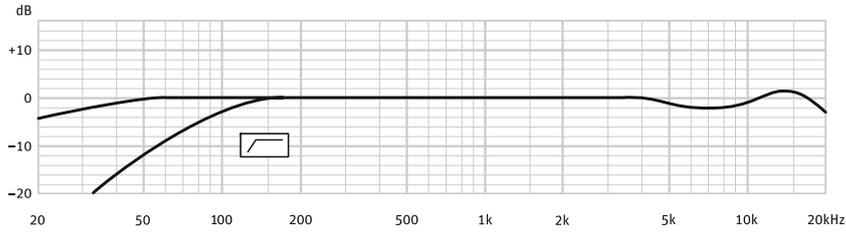
A complete survey and detailed descriptions of all accessories are contained in the accessories catalog.

Meaning of color codes:  
blk = black  
ni = nickel

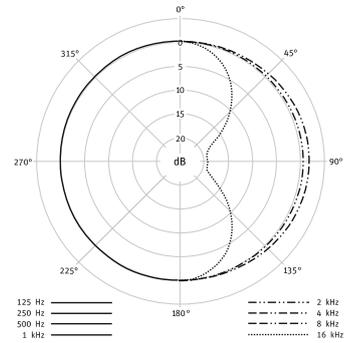
### Application Hints

- For universal use, very transparent, without coloration
- Announcer's mic for broadcasting, dubbing, voice-over
- Ideal mic for close miking of instruments with high sound pressure levels
- Spot mic for wind instruments, especially trumpet and saxophone, strings, piano, kick drum, guitar amps
- During recordings when the mic is in a location where it is difficult to change polar patterns, for example, suspended from a ceiling. A special remote control is available.

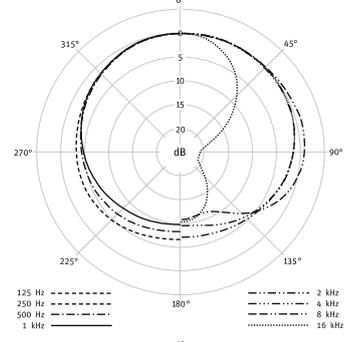
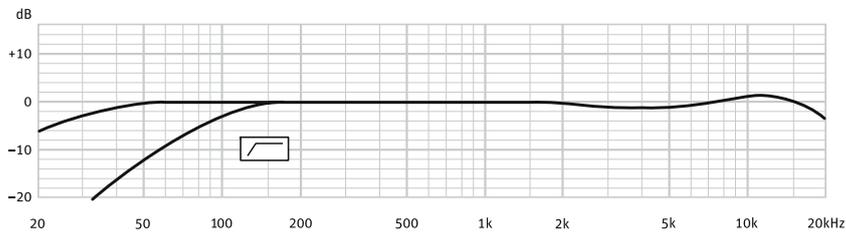
These are just some of the most common applications. We recommend additional experimentation to gain maximum use from this microphone.



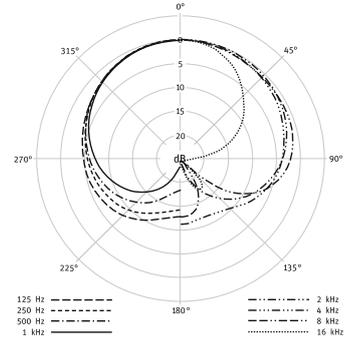
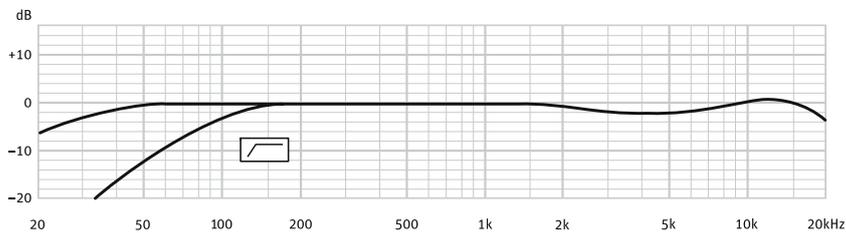
measured in free-field conditions (IEC 60268-4), tolerance  $\pm 2$  dB



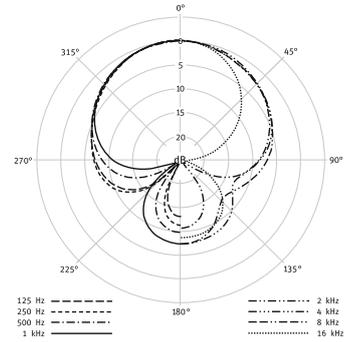
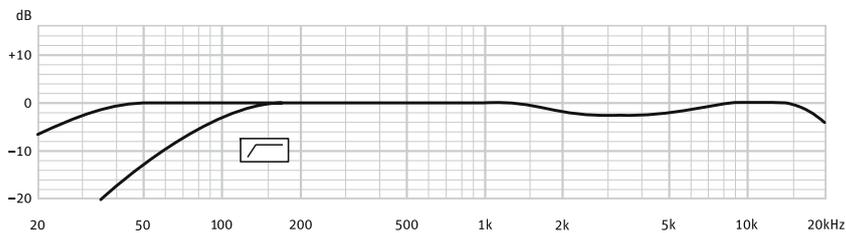
125 Hz ——— 2 kHz  
 250 Hz - - - - - 4 kHz  
 500 Hz - · - · - 8 kHz  
 1 kHz ——— 16 kHz



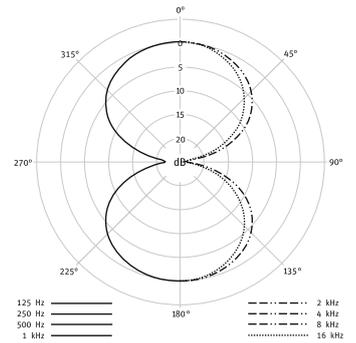
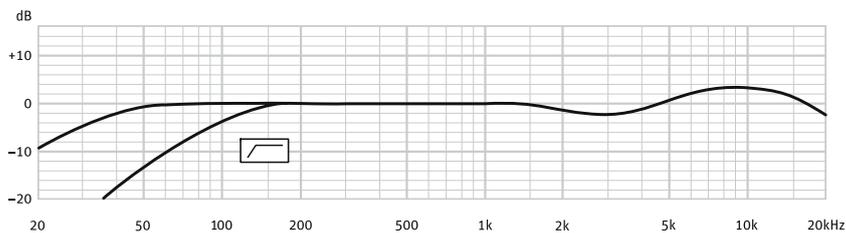
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