TLM 102

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1. Introduction

This manual contains essential information for the operation and care of the product you have purchased. Please read the instructions carefully and completely before using the equipment. Please keep this manual where it will be accessible at all times to all current and future users.

Additional information, in particular concerning available accessories and Neumann service partners, can always be found on our website: www.neumann.com. Information about service partners can also be obtained by telephone: +49 (0) 30 / 41 77 24 - 0.

The following related files are available in PDF format in the Downloads section of our website www.neumann.com:

- Operation with Unbalanced or Center Tap Grounded Inputs
- Some Remarks on Microphone Maintenance

The Neumann online forum on our website enables Neumann users worldwide to share their experiences. Through its integrated archive function, the forum has developed into an extensive knowledge pool.

2. Safety instructions

The microphone has the intended purpose of converting acoustic signals into electrical signals.

Connect the microphone only to microphone inputs and devices which supply 48 V of phantom power in accordance with IEC 61938.

Repairs and servicing are to be carried out only by experienced, authorized service personnel. Unauthorized opening or modification of the equipment shall void the warranty.

Use the equipment only under the conditions specified in the "Technical data" section.

Allow the equipment to adjust to the ambient temperature before switching it on.

Do not operate the equipment if it has been damaged during transport.

Always run cables in such a way that there is no risk of tripping over them.

Unless required for operation, ensure that liquids and electrically conductive objects are kept at a safe distance from the equipment and its connections.

Do not use solvents or aggressive cleansers for cleaning purposes.

Dispose of the equipment in accordance with the regulations applicable to the respective country.

3. Brief description

The TLM 102 is a condenser studio microphone with transformerless (TLM) circuit technology and a cardioid directional characteristic.

The transformerless design of the TLM 102 permits exceptionally clean sound transmission with no coloration, as well as a maximum dynamic range with low self-noise.

The microphone houses a large diaphragm capsule. It has a linear frequency response up to approximately 6 kHz, above which there is a broad, flat presence boost.

4. Scope of delivery

TLM 102 (bk):

- TLM 102 (bk) microphone
- SG 2 stand mount
- Operating manual
- Wooden box

TLM 102 (bk) Studio set:

- TLM 102 (bk), microphone
- EA 4 elastic suspension
- Operating manual

bk = black

5. Setup

Mounting the microphone

Attach the microphone to a stable, sturdy stand. Use an elastic suspension, if necessary, for the mechanical suppression of structure-borne noise. For this purpose set the microphone into the inner cage from above, and secure it to the inner cage with the threaded nut. If required, use a windscreen or popscreen from our range of accessories in order to suppress wind or pop noise.

Connecting the microphone

Caution: An incorrect supply voltage can damage the microphone!

Attach the microphone only to a power supply unit, a microphone preamplifier, a mixing console or other equipment which has phantom power with 48 V (P48), in accordance with IEC 61938. Any P48 power supply equipment can be used which supplies at least 3.5 mA per channel.

Caution: Very loud noise can damage loudspeakers or your hearing!

Minimize the volume of connected playback and recording equipment before connecting the microphone.

Using a suitable cable, connect the microphone to the microphone input of the audio equipment to be used for subsequent processing, or to the designated P48 power supply equipment. Information concerning connector assignment can be found in the "Technical data" section.

Cable lengths of up to approximately 300 m between the microphone and the subsequent amplifier input have no effect on the frequency response of the microphone.

When connecting the cables, ensure that the connectors are locked correctly. Run the cables in such a way that there is no risk of tripping over them.

Address the microphone from the side on which the Neumann logo is located.

Gradually increase the volume of the connected equipment

Set the gain of the connected equipment so that no distortion occurs at the highest sound pressure level.

Suppressing noise interference

The frequency response of the TLM 102 extends below 20 Hz. The microphone is of course correspondingly sensitive to low-frequency interference such as structure-borne noise and wind or pop noise. Depending upon the situation, the use of an elastic suspension, a windscreen and/or a popscreen is therefore recommended.

Sound test

Simply speak into the microphone. Do not blow into the microphone or subject it to pop noise, since this can easily result in hazardous sound pressure levels.

6. Shutdown and storage

Before switching off the microphone or disconnecting the cables, reduce the volume of connected equipment.

Only then should the phantom power be switched off.

Disconnect the cables.

When disconnecting a cable, always pull only on the connector and not on the cable itself.

Microphones which are not in use should not be allowed to remain on the stand gathering dust. A microphone which is unused for a prolonged period should be stored under normal atmospheric conditions, and should be protected from dust. For this purpose, use a lint-free, air-permeable dust cover or the original packaging of the microphone.

7. Troubleshooting

Problem	▸ Possible causes	▸ Solution
Microphone not operating	The phantom power supply voltage is not switched on at the mixing console or at the power supply equipment	Check the corresponding channel settings
	The power supply equipment is not connected to the power supply line or there is no battery	Check the connection to the power supply line or check the battery of the power supply equipment
No signal transmission	The microphone is not connected to the correct microphone amplifier input of the subsequent equipment	Check the signal path
		If necessary, activate the appropriate input on the corresponding channel of the mixing console
Distorted sound	Incorrect input sensitivity or gain setting of subsequent amplifier	Decrease the input sensitivity or gain of the subsequent amplifier so as to provide sufficient headroom
	Wind effects	Use an appropriate windscreen (accessory)
	Plosives	Use an appropriate popscreen (accessory)
	Transmission of structure-borne noise	Use a suitable elastic suspension (accessory)
Sound is muffled and reverberant	Incorrect directional characteristic	Check to ensure that the microphone is being addressed from the correct side, as designated by the Neumann logo.

8. Technical data and connector assignments

Permissible atmospheric conditions[1)]
Operating temperature range ..... 0 °C to +70 °C
Storage temperature range ..... –20 °C to +70 °C
Humidity range ..... 0 % to 90 % at +20 °C
0 % ... 85 % at +60 °C

Acoustical op. principle ..... Pressure gradient transducer
Directional pattern ..... Cardioid/
Frequency range ..... 20 Hz to 20 kHz
Sensitivity[2)] ..... 11 mV/Pa
Rated impedance ..... 50 ohms
Rated load impedance ..... 1000 ohms

Signal-to-noise ratio[3)], CCIR[4)] ..... 73 dB
Signal-to-noise ratio[3)], A-weighted[4)] ..... 82 dB

Equivalent noise level, CCIR[4)] ..... 21 dB
Equivalent noise level, A-weighted[4)] ..... 12 dB-A
Max. SPL[5)] for THD < 0.5 % ..... 144 dB
Max. output voltage for THD > 5 % ..... 13 dBu
Power Supply ..... P48[6)]
Current consumption ..... 3.5 mA
Required connectors ..... XLR 3 F
Weight ..... 210 g
Dimensions ..... Ø 52 x 116 mm

94 dBSPL equiv. to 1 Pa = 10 µbar
0 dB equiv. to 20 µPa

The microphone has a balanced, transformerless output. The 3-pin XLR connector has the following standard pin assignments:

Pin 1: 0 V/Ground
Pin 2: Modulation (+phase)
Pin 3: Modulation (–phase)

9. Selected Accessories* (see photos in appendix)

Elastic Suspensions

EA 1 .....ni .....Cat. No. 008449
EA 1 mt.....blk .....Cat. No. 008450

Auditorium Hanger

MNV 87 .....ni .....Cat. No. 006804
MNV 87 mt.....blk .....Cat. No. 006806

Stand Mounts, Misc. Mechanical Adapters

DS 120 .....blk .....Cat. No. 007343
SG 2.....blk .....Cat. No. 008636

Table and Floor Stands

MF 4 .....blk .....Cat. No. 007337

Foam Windscreens

WS 2 .....blk .....Cat. No. 008637

Popscreen

PS 15 .....blk .....Cat. No. 008472

Power Supply

N 248.....blk .....Cat. No. 008537

Connecting Cables

IC 3 mt .....blk .....Cat. No. 006543
IC 4.....ni .....Cat. No. 006547
IC 4 mt .....blk .....Cat. No. 006557

Adapter Cables

AC 25 .....Cat. No. 006600

Meaning of color codes:
ni = nickel, blk = black, gry = grey

[1] All values are for non-condensing humidity. The values are valid for clean and well-looked-after microphones or microphone capsules, respectively. Any kind of pollution of capsules and membranes may restrict the said values.
[2] at 1 kHz into 1 kohm rated load impedance.
[3] re 94 dB SPL
[4] according to IEC 60268-1; CCIR-weighting acccording to CCIR 468-3, quasi peak; A-weighting according to IEC 61672-1, RMS
[5] THD of microphone amplifier at an input voltage equivalent to the capsule output at the specified SPL.
[6] according to IEC 61938

* Detailed descriptions and additional articles can be found in our accessories catalog or at: www.neumann.com

EA 1 (mt)

MNV 87

DS 120

SG 2

MF 4

WS 2

PS 15

N 248

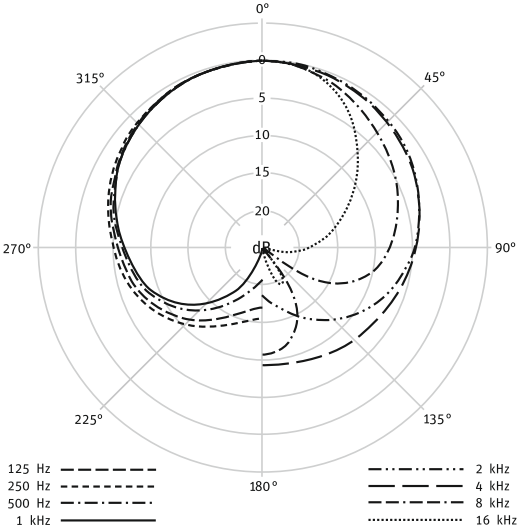
IC 3 mt

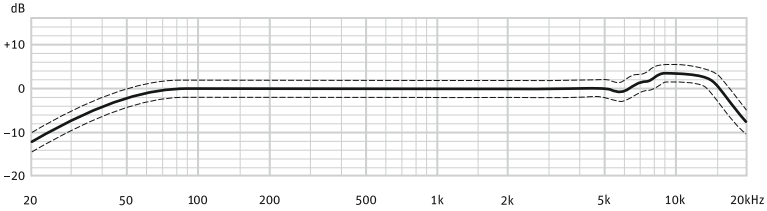
IC 4 (mt)

AC 25

10. Frequenz- und Polardiagramme

10. Frequency responses and polar patterns





gemessen im freien Schallfeld nach IEC 60268-4,
measured in free-field conditions (IEC 60268-4)

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CE

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Die Georg Neumann GmbH erklärt, dass dieses Gerät die anwendbaren CE-Normen und -Vorschriften erfüllt.

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CE

Declaration of Conformity
Georg Neumann GmbH hereby declares that this device conforms to the applicable CE standards and regulations.

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