

Operating Manual

M 222 with NT 222 AC

made by *Elvo* exclusively for



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Supplied Equipment:

- 1 Wooden Transport Case
- 1 Tube Microphone Amplifier M 222 (without capsule)
- 1 Power Supply NT 222 AC with filter, attenuator, line driver
- 1 Microphone Cable KS 5 U, 5 m for connecting the M 222 to the NT 222 AC
- 1 Popscreen B5
- 1 Microphone Clamp SG20

Features:

- Tube Microphone Amplifier with Power Supply / Filter / Attenuator / Line Driver
- Fits to any SCHOEPS Colette Series capsule and all the Active Accessories such as CUT1, KC, RC, GVC and BLM03C
- Same dimensions as SCHOEPS CMC microphone amplifier
- Frequency range: 10 Hz - 30.000 Hz (measured with SCHOEPS omni MK2S)
- Maximum sound pressure level (measured with omni MK2S into 10 k Ω load): 142 dB SPL without attenuation
- FILTER (switchable): 150 Hz (6 dB/oct) ("P 48": 30 Hz)
- 5 - step HARMONICS switch emphasizes the typical tube sound
- Switchable line driver "P 48" allows cable lengths up to 200 m connected to a phantom-powered microphone input
- Output switchable to unbalanced operation
- All signal switches with gold-plated contacts
- LEDs "ON", "P 48" (line driver), "UNBAL." (unbalanced operation)
- AC mains 220 V or 110 V, 3 VA
- Output M 222: XLR 5 (gold-plated), transformerless, balanced
- Input NT 222 AC: XLR 5 (gold-plated), balanced, transformerless
- Output NT 222 AC: XLR 3 (gold-plated), balanced, transformerless, output impedance 500 Ω allows cables up to 40 m ("P 48": 50 Ω up to 200 m cable), possible unbalanced operation without loss of level, connectable to *any* microphone input (with or without powering, balanced or unbalanced, middle or high impedanced)
- Solid construction (metal case)
- Complete set with wooden case, cables, popscreen and clamp

Installation:

Please assure that your mains voltage corresponds to the value marked at the rear panel of your NT 222 AC.

WARNING: Never open the case with a mains cord connected to the mains. Severe damage may occur by electrical shock. If there are any doubts concerning the proper function of the unit always pull out the mains plug first.

Connect your new Tube Microphone Amplifier M 222 via the included Microphone Cable KS 5 U (5 m) to the NT 222 AC. Screw the SCHOEPS Colette capsule of your choice or the wanted Active Accessory onto your M 222. Keep in mind that when using any Active Accessory your signal path does not start with the tube but with the FET of your KC, RC, CUT1 or BLM03C.

For close speech with cardioids or outdoor use in light wind with omnidirectional capsules put the included B5 on your microphone. For stronger wind, we recommend the SCHOEPS hollow foam windscreens B5D and W5D. The clamp SG 20 fits to any 3/8", 1/2" or 5/8" thread.

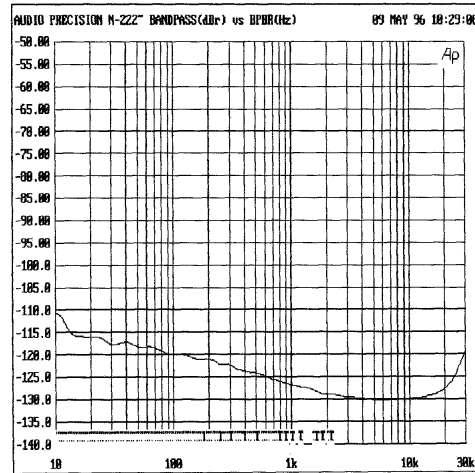
Connect the output of the NT 222 AC to the microphone input of your equipment.

Notes:

For troublefree operation we always recommend balanced operation, making the cables as short as possible and avoiding proximity to mains cables. If these must be crossed, then please do so at right angles. Indoor use only. Always keep dry. Never connect any other than the SCHOEPS M222 microphone to this power supply as this may cause severe damage to the other microphone.

Subject to change without notice.

Equivalent Noise Level: typ. 28 dB CCIR qps (NT 222 AC all switches "OFF", "HARMONICS 0", M 222 measured with SCHOEPS omni MK2S)



Noise level of the M 222 with NT 222 AC
All switches "OFF", "HARMONICS 0", no load

Common Mode Rejection: typ. 35 dB ("P 48": 50 dB)

Warmup Time: 20 seconds (before starting a recording wait 10 minutes until the tube has reached a stable temperature to avoid thermal "clicks")

Cable KS 5 U: The included microphone cable (5 m) is flexible and has a low capacitance, gold-plated pins and a 100% shield. It can be extended by standard high-quality stereo microphone cables (XLR 5).

Use of longer cables: Using cables with a low capacitance (as all SCHOEPS cables) it is possible to extend the enclosed KS 5 U up to the following total length:

Connection M 222 to NT 222 AC: 20 m
Output NT 222 AC: 20 m
with "P 48": 200 m

For unbalanced operation the pins 3 and 1 of your XLR-3 cable may be bridged at the end of the microphone's cable (next to your recording equipment).

Before switching on your NT 222 AC ensure that all volume controls are at zero to avoid damages to loudspeakers or headphones.

CUT 150 Hz:

This filter compensates the proximity effect of pressure-gradient transducers or eliminates infrasonic signals caused by light wind. It cuts off frequencies below 150 Hz at a slope of 6 dB/oct. The exact corner frequency depends on the input impedance of the following equipment. With the line driver "P 48" switched on (see below) this filter will work as an infrasonic suppression below 30 Hz. With the "CUT 150 Hz" switched OFF the frequency response will reach from 10 Hz up to 30 kHz (depending on the capsule type).

UNBAL.:

When connecting your Tube Microphone M 222 to an unbalanced input loss of level may occur. You can avoid this by switching on "UNBAL." (for **unbalanced** operation) or (maybe better near stronger magnetic or electrical fields) connect - phase (pin 3 of your XLR-3) and ground (pin 1 of your XLR-3) close to your recording equipment (with "UNBAL." switched OFF). But whenever possible you should prefer the balanced mode ("UNBAL." in the OFF position) for it offers a common mode rejection of at least 35 dB. This means the suppression of any influenced magnetic disturbances.

HARMONICS:

This switch alters the Q-point of the tube in 5 steps from "0" (off) to "4" (maximum), causing the gradual increase of harmonics to set in earlier to emphasize the typical tube sound.

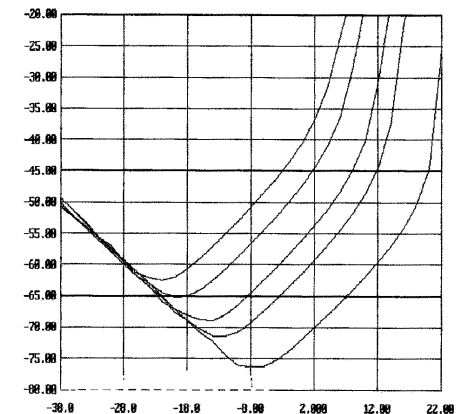
CAUTION: When switching this function put all volumes to zero as altering the Q-point will always cause a strong crackle.

typ. harmonics vs. output level
from left to right:

HARMONICS	4
	3
	2
	1
HARMONICS	OFF

-46 dB = 0,5 % THD
-60 dB = 0,1 % THD

0 dBV = 130 dB SPL (MK2S)



ATT. -10dB:

The Tube Microphone M 222 accepts sound pressure levels up to 142 dB without attenuation. Output voltage then can reach 10 V rms (measured with SCHOEPS omni MK2S, without load). This could overload your microphone inputs. Switching on "ATT. -10dB" will reduce the output level with the maximum sound pressure level remaining the same.

P 48:

In the "OFF" position there are no semiconductors whatsoever in the signal path of the M 222 with the NT 222 AC. This offers pure tube technique without transformers or transistors. Output impedance then is about 500 Ω that allows microphone cables up to 40 m total length. For operation with longer cables and/or use in strong magnetic fields you can switch on "P 48" adding a class-A transformerless and condenserless solid state output stage with an output impedance of 50 Ω for cables up to 200 m. This line driver is powered by the phantom power (12V - 48V) of the following microphone input.

This means: "P 48" is only possible when your equipment offers phantom-power. But with "P 48" OFF you can use **any** microphone input (phantom-powered or not, balanced or not, high or middle impedanced, even parallel feeding is possible - but for best results we recommend to switch off any powering).

Technical Data M 222 with NT 222 AC:

Mains voltage: 220 V (180 .. 240 V), one fuse 50 mA slow
110 V (90 .. 120 V), two fuses 50 mA slow
Change of mains voltage: Inside the NT 222 AC there are two sockets for fuses.
Plug in **one** fuse **between** the sockets for 220 V or **two** fuses **into** the sockets for 110 V.
On the PCB you will find further hints.

Power consumption: ca. 3 VA

Max. Output Level: 10 V_{eff} (switches "OFF", "HARMONICS 0", no load)

Indicators: green LED: "ON" (mains on)
red LED: "P 48" (line driver on)
yellow LED: "UNBAL." (unbalanced operation)

Microphone Powering: Heating 4 V (open loop 5 V), anode voltage 60 V

Output Impedance: 500 Ω ("P 48": 50 Ω)
transformerless, balanced or unbalanced

Load Resistance: min. 1 k Ω ("P 48": 600 Ω)
no damage by open loop or short circuit

Pin Assignment: Input: Pin 1 GND
Pin 2 + phase M 222
Pin 3 - phase M 222
Pin 4 + 4 V (open loop + 5 V)
Pin 5 + 60 V

Output: PIN 1 GND
PIN 2 + phase
PIN 3 - phase, may be bridged with PIN 1
for unbalanced operation ("P48" OFF)

Overall dimensions: 57 mm x 105 mm x 145 mm, metal case, Nextel gray