

Operating Manual

M 222 with NT 222 DC

made by *Elvo* exclusively for



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Supplied Equipment:

- 1 Transport Case
- 1 Tube Microphone Amplifier M 222 (without capsule)
- 1 Power Supply NT 222 DC with Preamplifier / Filter
- 1 Microphone Cable KS 5 U, 5 m, for connecting the M 222 to the NT 222 DC
- 1 Miniature Mains Wall Plug MAINY with full input range 90 .. 240 V_{AC}
(U.S. / Japan: with mains adapter plug, the earth pin may be cut if necessary)
- 1 Separate power plug allows a customer-made battery connector cable
- 1 Popscreen B5
- 1 Microphone Clamp SG20

Features:

- Tube Microphone Amplifier with Power Supply / Preamplifier / Filter
- Fits for any SCHOEPS Colette Series capsule and all the Active Accessories such as CUT1, KC, RC, GVC and the BLM03C
- Same dimensions as SCHOEPS CMC- microphone amplifier
- High sensitivity: 38 mV/Pa (with SCHOEPS omni MK2S, GAIN "0 dB")
- Frequency range: 15 Hz - 30.000 Hz (measured with SCHOEPS omni MK2S)
- Maximum sound pressure level (with omni MK2S): 142 dB (GAIN "0 dB")
- Maximum output level (at 0.5 % THD): 9.5 V_{rms} (19.6 dBV) into 600 Ω (TUBE DIRECT: 3 V_{rms} into 1 kΩ or more)
- GAIN: TUBE DIRECT(-10 dB) / 0 dB / 10 dB / 20 dB / 30 dB
- GAIN position "TUBE DIRECT" without any semiconductors in the signal path
- FILTER (switchable): 60 Hz (12 dB/oct), 150 Hz (6 dB/oct)
- GROUND LIFT switch insulates power supply ground from analog ground
- HARMONICS switch emphasizes the typical "tube sound"
- All signal switches with gold-plated contacts
- LEDs "ON", "OVERLOAD" (10 dB Headroom), "GROUND LIFT"
- Portable operation, powered by AC mains (included) or external (car) battery (not included) 12 V, 350 mA
- Output M 222: XLR-5 (gold-plated), transformerless, true balanced
- Input NT 222 DC: XLR-5 (gold-plated), balanced, transformerless, 10 kΩ
- Output NT 222 DC: XLR-3 (gold-plated), balanced, transformerless, output impedance 50 Ω allows cables up to several hundred meters ("TUBE DIRECT": 500 Ω up to 40 m cable), possible unbalanced operation without loss of level
- Solid construction (metal case)

Installation:

Plug the power supply cable of the MAINY Adapter into the NT 222 DC. Please note the additional information in the MAINY package. When the NT 222 DC is switched off the MAINY has an extremely low stand-by power consumption, so it can always stay connected to mains. For external (car) battery-powering use the included power plug (center pin +, ring -) to create your individual adapter cable. External DC should be 10 .. 14 V and must not exceed 16 V. Current consumption is about 250 mA (first moments after switch-on: 350 mA max.)

WARNING: Accumulators are able to deliver very high short circuit currents. When using an accumulator, an additional 1 A fuse **must** be inserted between the + pole of your battery and your cable to avoid short-circuit damage to your equipment.

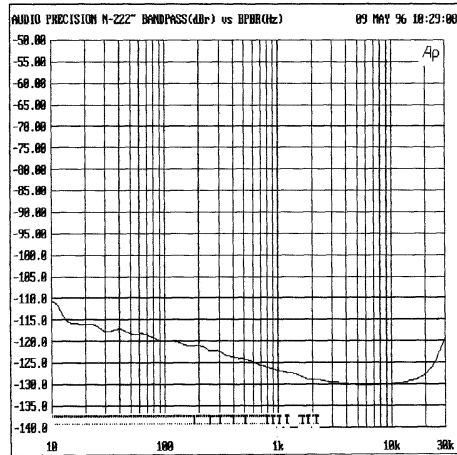
Connect your new Tube Microphone Amplifier M 222 via the included Microphone Cable KS 5 U (5 m) to the NT 222 DC. Screw the SCHOEPS Colette capsule of your choice or the wanted Active Accessory onto your M 222 DC. Keep in mind that when using any Active Accessory your signal path does not start with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

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: 28 dB CCIR qps (NT 222 DC position "TUBE DIRECT", M 222 measured with SCHOEPS omni MK2S)

Noise level of the M 222 with NT 222 DC in position "TUBE DIRECT"
 "HARMONICS OFF"
 "FILTER 150 Hz OFF"



Common Mode Rejection: typ. 35 dB ("TUBE DIRECT")
 typ. 50 dB ("GAIN 0 ... 30 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 DC: 20 m

Output NT 222 DC:

- a) GAIN position "TUBE DIRECT" 20 m
- b) GAIN position "0-10-20-30 dB": 200 m

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 DC to the microphone input of your equipment (GAIN position "TUBE DIRECT") or the line input (GAIN 0 - 10 - 20 - 30 dB). For unbalanced operation the pins 3 and 1 of your XLR-3 cable have to be bridged at the end of the mike cable (next to your recording equipment).

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

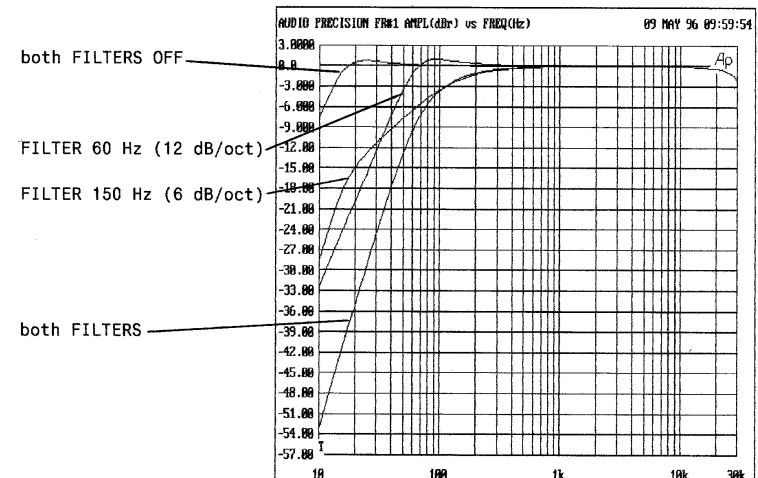
Avoid the GAIN 10 to 30 dB position when using a *microphone* input as the output level of the NT 222 DC might be too high.

FILTER 150 Hz (6 dB/oct):

This filter compensates the proximity effect of pressure-gradient transducers or infrasonic signals caused by light wind. It cuts off frequencies below 150 Hz at a slope of 6 dB/oct and can also be used in the "TUBE DIRECT" position.

FILTER 60 Hz (12 dB/oct): (not at "TUBE DIRECT")

For outdoor use with wind or close speech in reverberant rooms this filter 60 Hz (12 dB/oct) prevents the effect of infrasonic disturbances. When using your M 222 DC as a hand-held microphone always switch it on. In the OFF position an infrasonic filter 15 Hz (12 dB/oct) is permanently in the circuit.



GAIN:

Amplification may be selected from -10 dB (TUBE DIRECT) for microphone level to 0 dB - 10 dB - 20 dB - 30 dB for line level. The resulting maximum Sound Pressure Level measured with a SCHOEPS omnidirectional transducer MK2S is 142 dB ("TUBE DIRECT" and "0 dB"), 132 dB ("10 dB"), 122 dB ("20 dB") und 112 dB ("30 dB"). Sensitivity with this capsule is 38 mV/Pa in the "0 dB" position. The "TUBE DIRECT" setting with which there are no semiconductors whatsoever in the signal path offers pure tube technique without transformers or transistors.

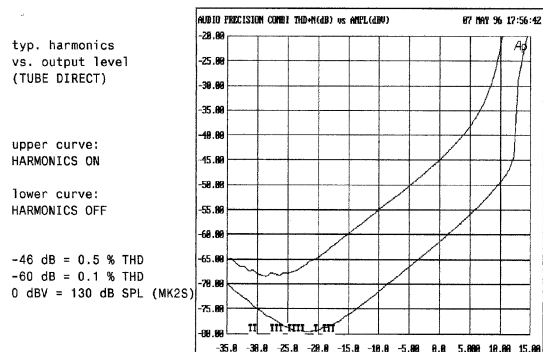
GROUND LIFT:

When using the same accumulator for several units (for example two NT 222 DC for stereo recording), ground loops may cause hum or other noise. In such case you can insulate the switching power supply ground from the analog ground by switching on the GROUND LIFT. One unit's ground always should stay connected to the accumulator.

CAUTION: Inappropriate use may cause hum or other noise. If in doubt, always choose the OFF position (i.e. yellow LED "GROUND LIFT" is off).

HARMONICS:

This switch alters the Q-point of the tube, causing the gradual increase of harmonics to set in earlier in order 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.

Technical Data

M 222 with NT 222 DC:

Max. Output Level: 9.5 V_{eff} into 600 Ω ("TUBE DIRECT": 3 V_{eff} into 1 kΩ)

Indicators: green LED: "ON"
red LED: "OVERLOAD" (10 dB headroom)
yellow LED: "GROUND LIFT"

Microphone Powering: Heating 4 V (open loop 5 V), anode voltage 60 V (1 mA)

Max. Input Level: 3 V_{rms} into 10 kΩ (transformerless, balanced)

Output Impedance: 50 Ω (transformerless, balanced or unbalanced)

Load Resistance: min. 200 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)

Powering: 10 - 14 V DC, max. 16 V DC, max. 350 mA, internal DC reverse protection, center pin +, ring -

Fuse: 315 mA slow (soldered inside the NT 222 DC)

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