



M 49 - M 50 -910-02-01



## APPLICATIONS

The Neumann condenser microphones M 49c and M 50c are studio microphones with excellent characteristics. The microphone M 49 c is used in broadcasting, films, disc recording, in post-sync studios and everywhere, where good results have to be achieved in spite of difficult acoustic conditions. As this microphone can be switched to three different directional characteristics, it can cope with almost any situation likely to arise.

The microphone M 50 c is a pressure transducer with omni-directional characteristic only and has proved very suitable for recording orchestras in acoustically favourable conditions by the one-mike technique.

## BASIC CHARACTERISTICS

Both microphones are of the same shape and size and belong to the standard range of Neumann microphones. They can be distinguished from one another by means of a red or white dot respectively above the NEUMANN sign. They are both of exceptionally robust construction.

The microphone capsule is underneath the removable wire mesh housing and is rubber mounted on a perspex cover. Underneath this cover is the microphone amplifier which, in turn, is mounted on a rubber plate. Due to this construction, the microphones are insensitive to low frequency disturbances such as floor vibration due to walking.

The supply voltage input and the signal output connections to the microphones M 49 c and M 50 c are made via an 8-pin Tuchel plug with bayonet locking. They are supplied under the numbers M 249c and M 250c with RF proof 7-pole standard couplings (Tuchel contact system).

## TECHNICAL DETAILS

The microphone amplifiers are equipped with the low noise Telefunken triode AC 701k and work as anode amplifiers feeding a transformer which is astatically wound to avoid hum pick-up.

The capsule of the microphone M 49c consists of two sections, each with a vacuum gold plated plastic diaphragm. Each half of the capsule works as a pressure gradient transducer with a cardioid characteristic. By means of suitable polarising voltages, the two cardioids can be added to give the three characteristics of omni-directional, cardioid and figure-of-8. The change-over is effected by means of a continuously variable potentiometer in the power supply unit enabling the recording engineer to select any intermediate position between omni-directional, cardioid and figure-of-8 from the control room.

The capsule of the microphone M 50c is equipped with a metal diaphragm and mounted inside a perspex sphere. It operates as an omni - directional pressure transducer. The frequency response of the microphone rises at the high frequency end evenly by about 5 dB without becoming too directional. With a diffuse sound field, this results in an almost linear frequency response from 40 to 15 000 cps.

The internal resistance of the output of the amplifiers is normally 200  $\Omega$ . By changing two links on the output transformer, the amplifiers can be easily changed to 50  $\Omega$  whereby the output voltage falls by 6 dB.

Microphones which have been connected for 50  $\Omega$  before leaving the factory are marked with a red dot on the identification plate.

A calibrating voltage for checking the amplifier can be fed via the centre pin of the 8-pin microphone connector.

## A C C E S S O R I E S

### Power Supply Unit NN 48b

The microphones can be fed from the mains by means of the portable power supply unit NN 48 b. The plate and heater voltages are stabilized and therefore independent of mains voltage fluctuations. The low frequency output voltage appears on a three pin socket and the unit is equipped with a mains-socket.

### Power Supply Unit N 52t

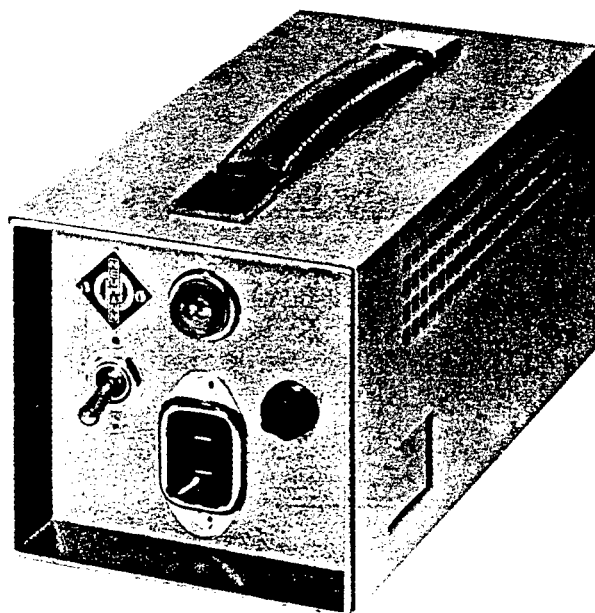
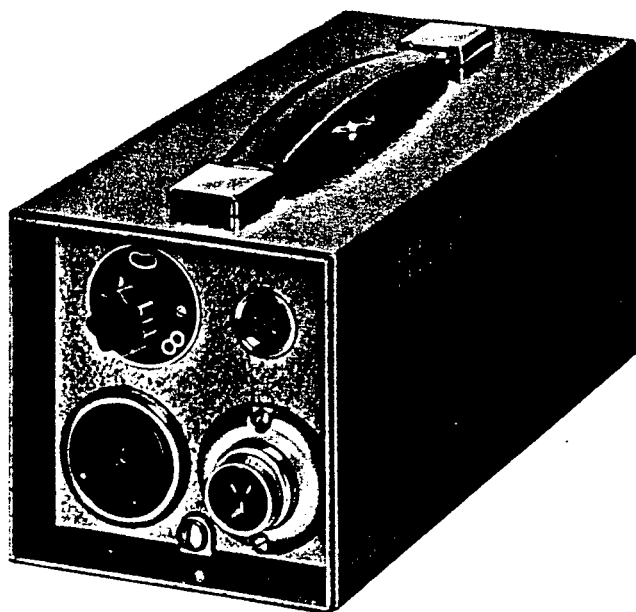
The circuit of this power supply unit is transistorized and printed. The N 52t is made as a plug-in unit enabling up to ten units to be mounted side by side by means of a rack mounting frame type S 167.

### Battery Unit BB 50

When there are no mains available, the microphones can be fed by means of the battery supply unit BB 50. The unit BB 50 has the same dimensions and technical data as the power supply unit NN 48 b but it is equipped with a 4-cell gas tight accumulator and a transistor DC converter.

NN 48b

Mains voltage.....	117/127/220/240 V ± 10 % 50/60 cps
Fuses.....	80 mA for 117/127 V 50 mA for 220/240 V DIN 41 571
Valves.....	1 neon stabilizer 150 B 2 (VALVO)
Power consumption.....	11 watts
DC output voltages.....	4 V 100 mA 114 V 0.79 mA 0 ... 120 V
Hum voltages.....	≤ 10 μV and ≤ 8 μV respectively
Neon pilot lamp.....	Rafi 110 V No. 2855
Dimensions.....	220 x 100 x 100 mm
Weight.....	2.2 kg



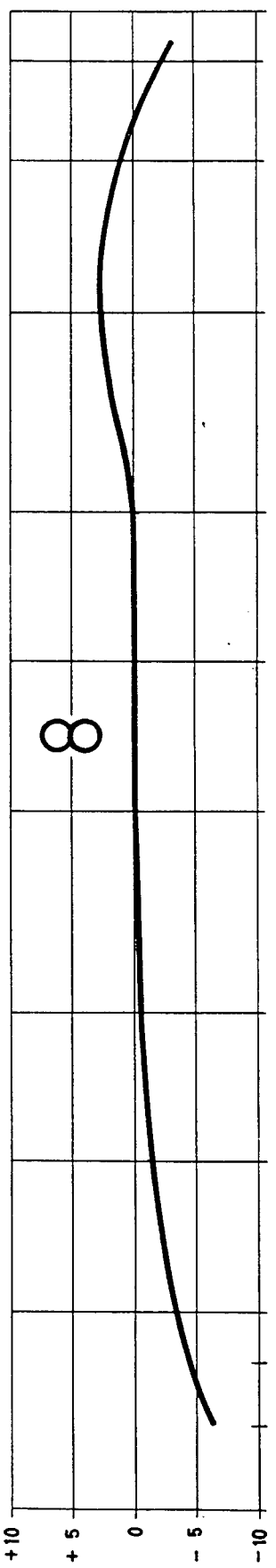
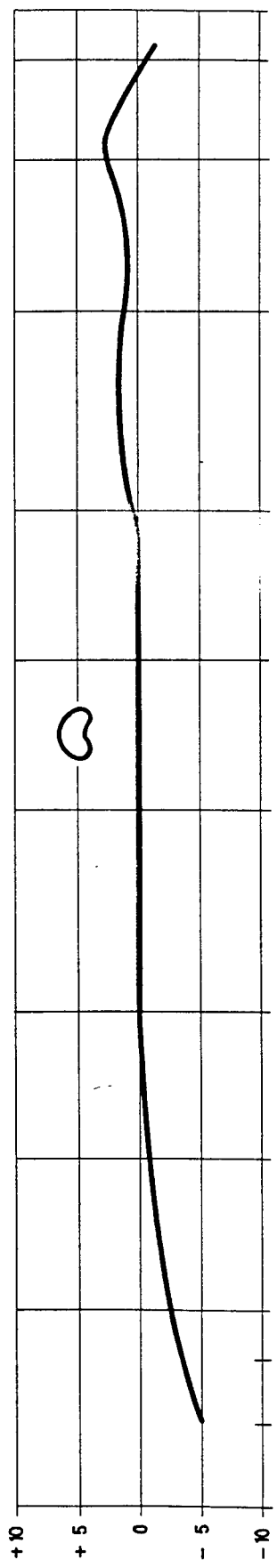
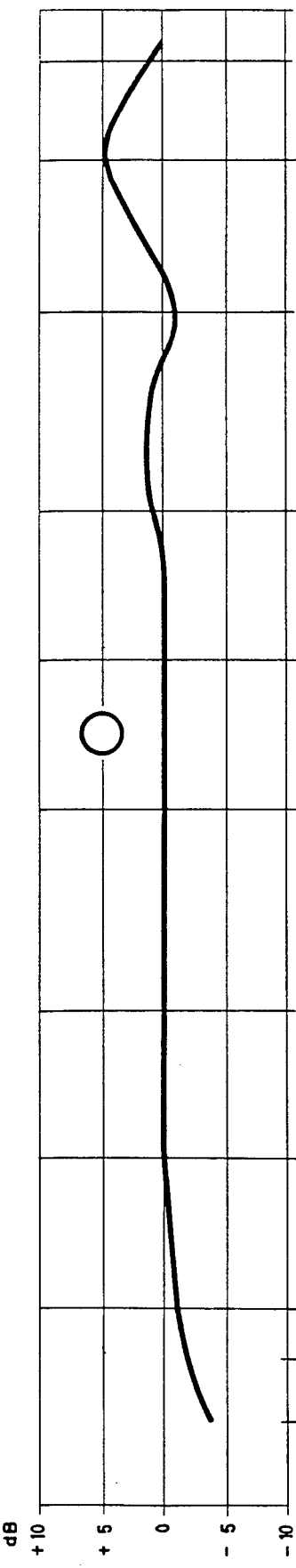
# TECHNICAL DETAILS

## M 49c

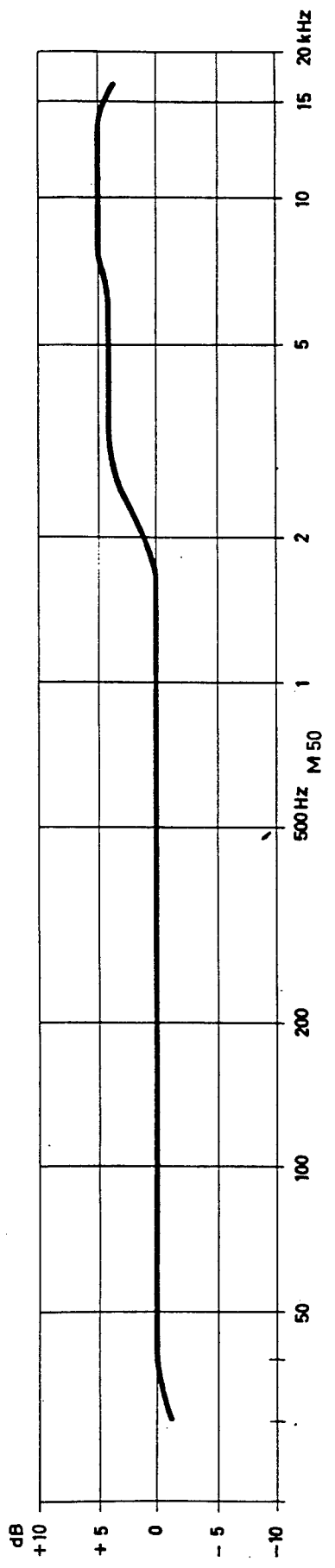
Accoustical operation...	Combination of two pressure gradient transducers which can be electrically switched to omnidirectional, cardioid and figure-of-8 characteristic
Frequency response.....	40 ... 16 000 cps
Output levels.....	Omni :0.45 mV/ $\mu$ b into 1000 $\Omega$ Cardioid :0.6 mV/ $\mu$ b into 1000 $\Omega$ Figure-of-8:0.8 mV/ $\mu$ b into 1000 $\Omega$
Electrical load resistance.....	$\cong$ 1 000 (250) $\Omega$
Electrical source resistance.....	200 (50) $\Omega$ $\pm$ 20 %
Capacitance of capsule.....	app. 2 x 80 pF
Total noise voltage.....	$\cong$ 14 $\mu$ V
Weighted noise voltage (DIN 45 405).....	$\cong$ 4 $\mu$ V
Equivalent loudness.....	$\cong$ 32 dB (dB above $2 \cdot 10^{-4}$ $\mu$ b) (DIN 45 405)
Max. sound pressure for .5% distortion at 40 cps, 1 kcps and 5 kcps.....	$\cong$ 125 dB (dB above $2 \cdot 10^{-4}$ $\mu$ b)
Gain of microphone amplifier at 1 kc/s.....	0 dB
Valves.....	1 x AC 701 k (Telefunken)
Dimensions.....	length 163 mm diameter 80 mm
Weight.....	.8 kg

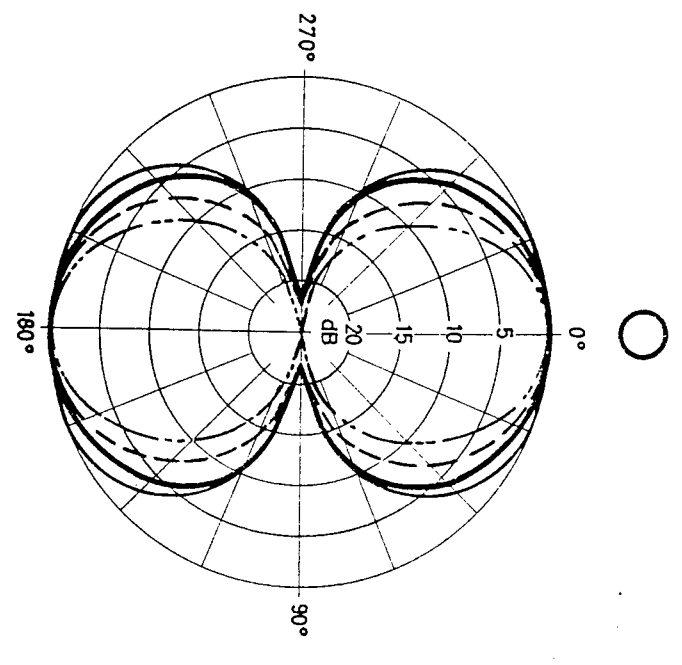
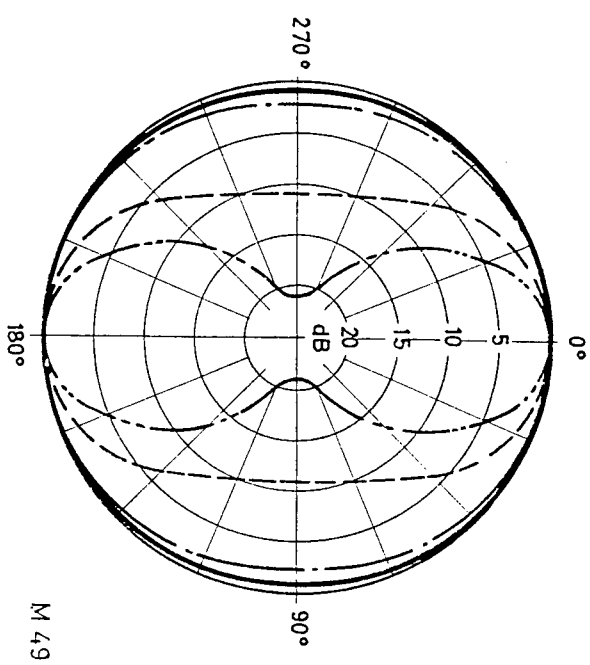
M 50c

Accoustical operation.....	Pressure transducer
Frequency response.....	40 ... 16 000 cps
Output level.....	1.5 mV/ $\mu$ b into 1000 $\Omega$
Electrical load resistance.....	$\cong$ 1 000 (250) $\Omega$
Electrical source resistance.....	200 (50) $\Omega \pm 20 \%$
Capacitance of capsule.....	app. 75 pF
Total noise voltage.....	$\cong$ 16 $\mu$ V
Weighted noise voltage (DIN 45 405).....	$\cong$ 7 $\mu$ V
Equivalent loudness.....	$\cong$ 28 dB (dB above $2 \cdot 10^{-4} \mu$ b) (DIN 45 405)
Max. sound pressure for .5% distortion at 40 cps, 1 kc/s and 5 kc/s.....	$\cong$ 126 dB (dB above $2 \cdot 10^{-4} \mu$ b)
Gain of microphone amplifier at 1 kc/s.....	app. - 1 dB
Valves.....	1 x AC 701 k (Telefunken)
Dimensions.....	length 163 mm diameter 80 mm
Weight.....	.8 kg
<u>CABLES C 26 and C 28s</u>	
Standard length.....	10 m
Diameter.....	app. 7 mm
Weight.....	1.0 ... 1.3 kg
Thread on stand connector.....	1/2" and 5/8" - 27

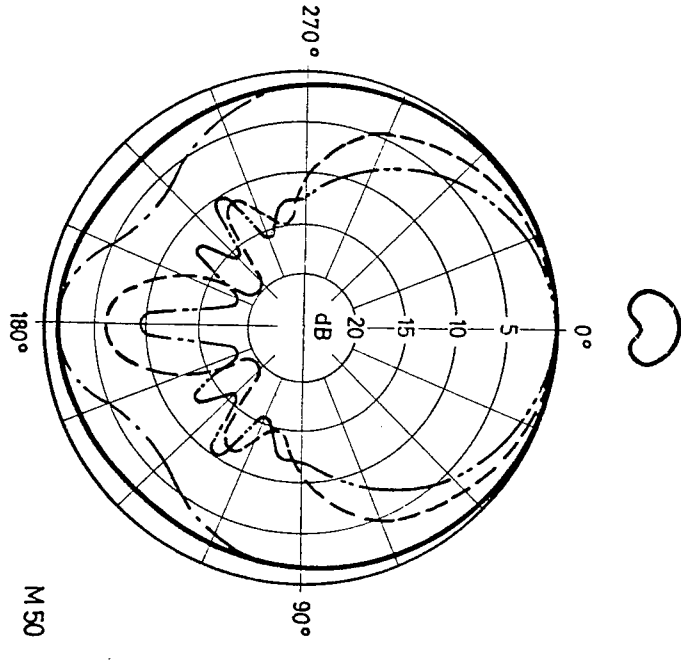
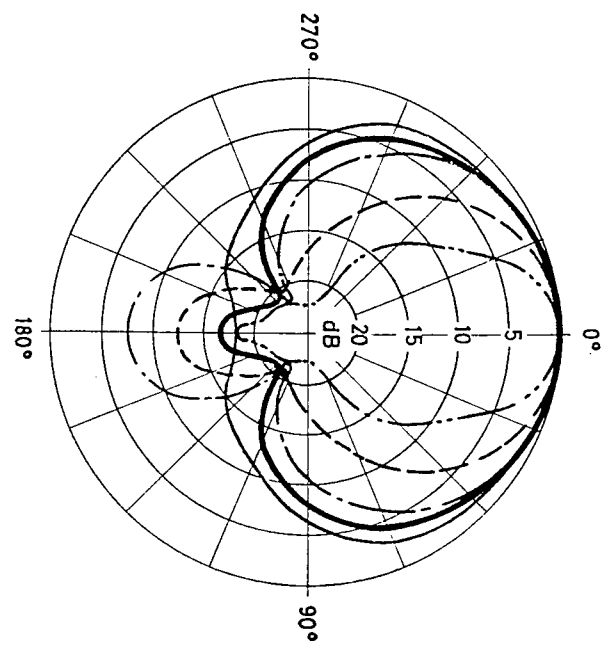


M49





- 100 Hz
- 1 000 Hz
- 5 000 Hz
- 10 000 Hz
- 15 000 Hz





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