

AKG

ACOUSTICS

STEREO MIKROFON
STEREO MICROPHONE
MICROPHONE STEREO
MICROFONO STEREO
MICRÓFONO ESTÉREO



C 522 MS

Bedienungshinweise
User Instructions
Mode d'emploi
Istruzioni d'uso
Modo de empleo



General Description:

The C 522 MS presents a stereo microphone containing three condenser microphone transducers in close proximity to each other. One capsule has **cardioid response** and is **forward facing**. The other two capsules have also cardioid response and are mechanically arranged back-to-back facing toward left and right. They are electrically wired out-of-phase **resulting in a figure-of-eight** response required for the M-S-recording technique.

The acoustics of the microphone is well suited for voice and music recordings and will result in a high degree of intelligibility.

The well-balanced distribution of weight guarantees easy handling without physical fatigue during the work. The transducer as well as the electronics are elastically suspended in the housing and physically isolated against the connector to prevent handling and cable noise.

The all-metal housing and the steel wire-mesh front grille will take the kind of punishment quite often encountered during reporter work. The separate windscreen included in the delivery should be used when working outdoors.

The microphone has a built-in rechargeable battery which may be either recharged with simple mains-powered charging devices or from phantom power supplies having 9 to 52 volts (acc. to DIN 45596) in buffer-operation.

The output of the microphone is of low impedance, electronically balanced and may work into balanced or non-balanced amplifier inputs.

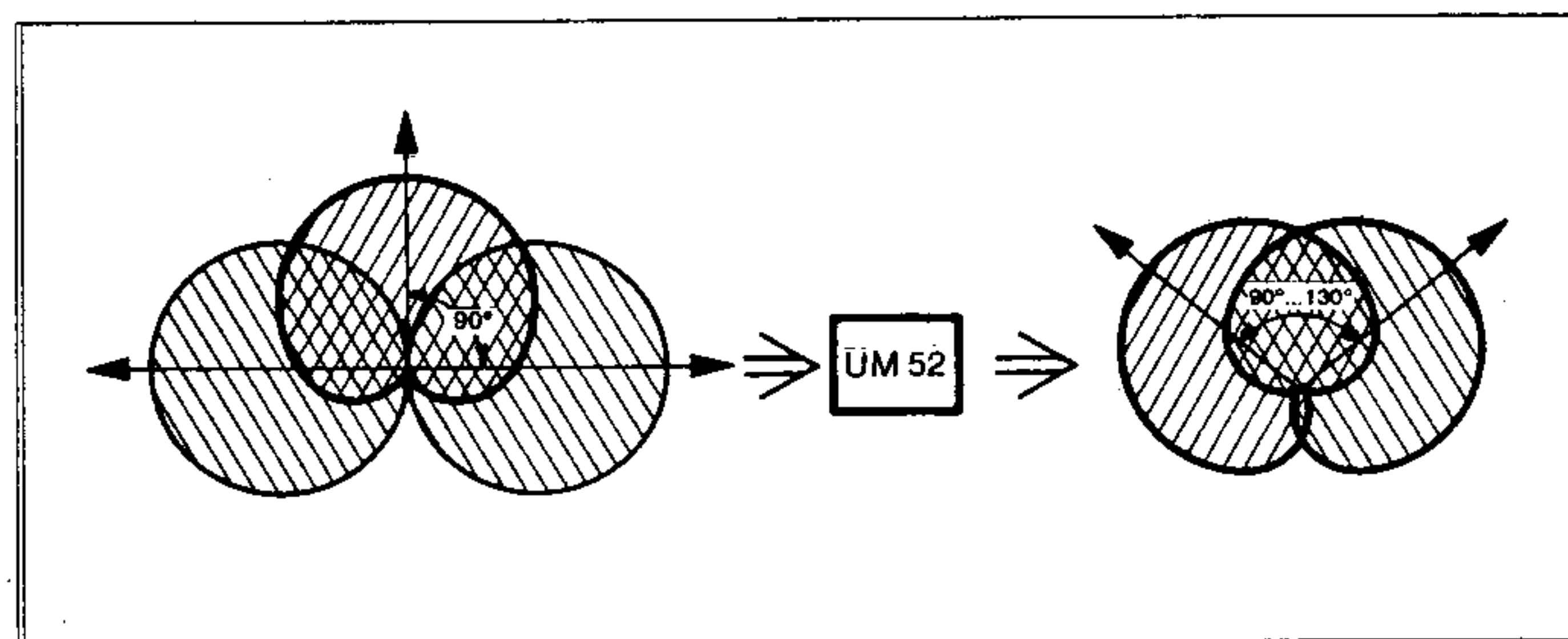
Included in the delivery are a snap-on stand adapter (SA 41/1), an elastic shockmount (H 30), a foam-type windscreen (W 52) and two connecting cables for the operation with professional equipment having XLR-3 connectors and to connect the matrix-box UM 52.

To have all the accessories ready for use at all times, we have provided you with a carrying case with room for all these items.

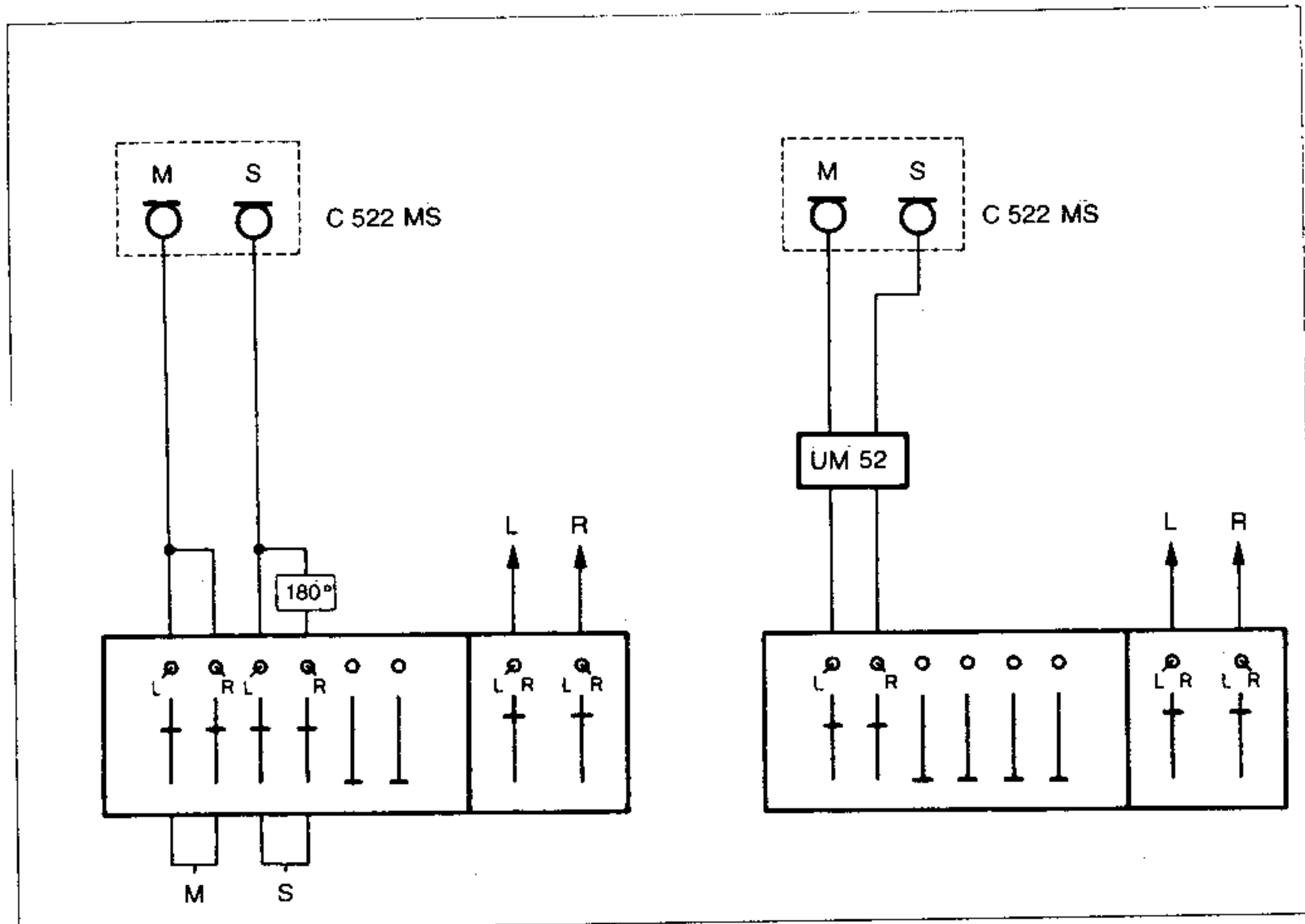
Applications:

1. Principle of M-S (coincidence) Technique:

The M-S-Technique dates back to the beginning of stereo recording. It makes use of a cardioid microphone pointed toward the middle of the recording area (the middle or M-channel) and a figure-eight microphone at right angles to the cardioid (the sides or S-channel).

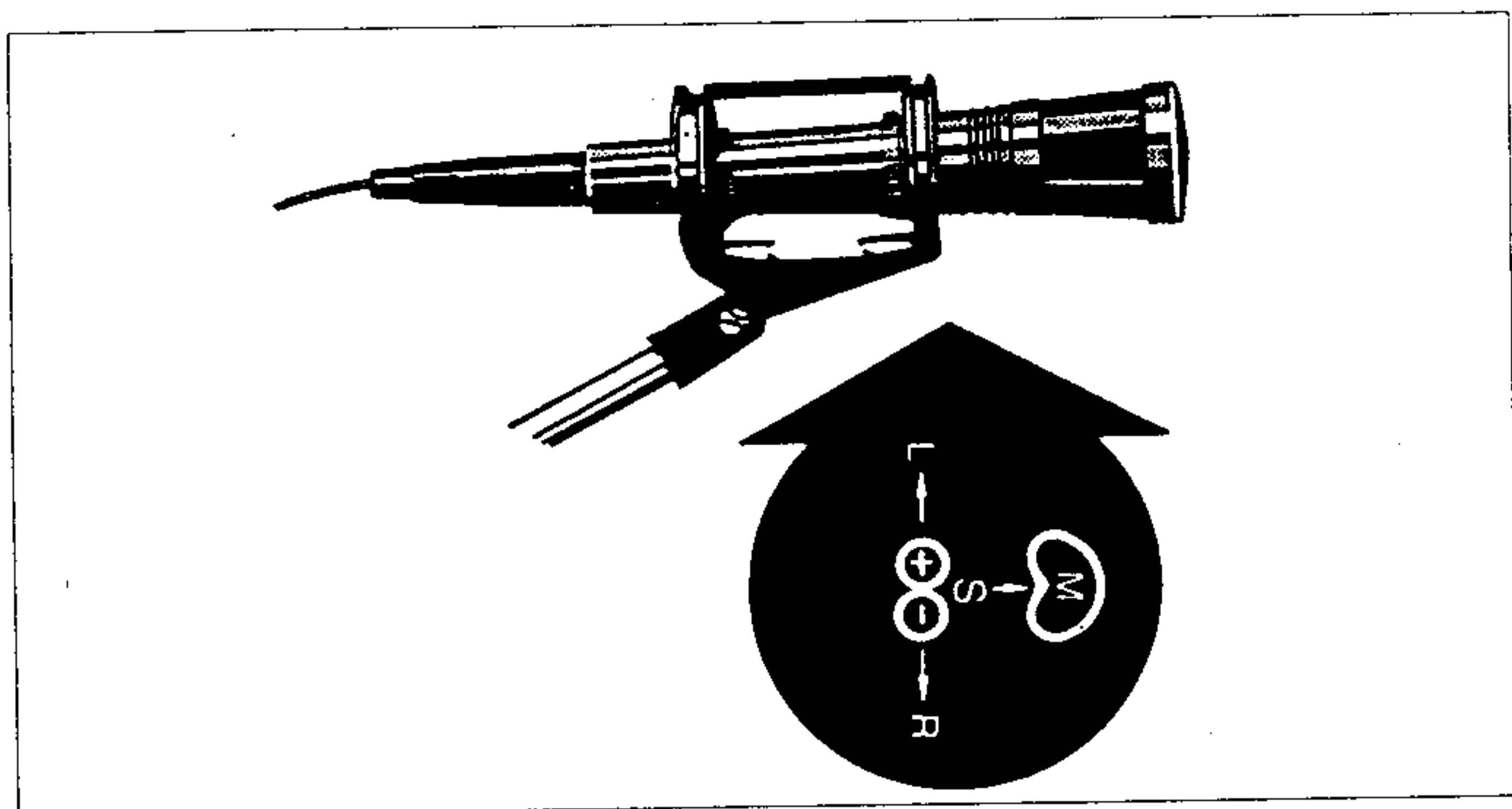


For stereo playback, M-S-signals must obviously be processed in some way to obtain Left-Right information. Mathematics tell us that the addition **M+S** provides the **left channel signal**, while **the right channel signal** is derived from the subtraction **M-S**. In practice, these "calculations" can be done either by connecting the M and S microphones to four mixer inputs as shown in the next figure or to the matrix box UM 52.



2. Boom Work:

For this kind of work we have supplied an elastic shockmount, which may be fastened to the boom by a 3/8" or 5/8" thread. Please refer to the enclosed manual for the H 30, explaining the use of this accessory.

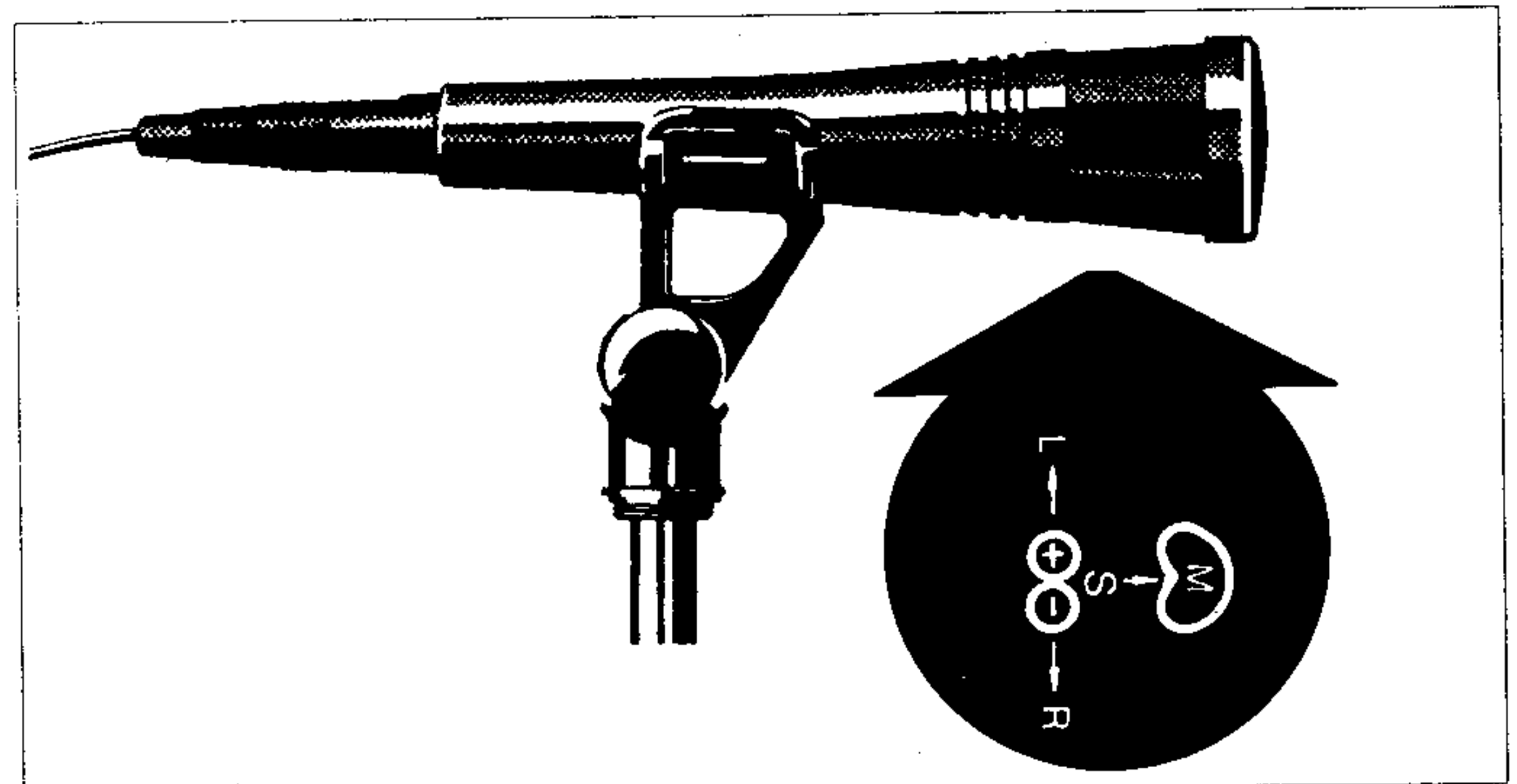


For correct left/right orientation, be sure to mount the microphone in such a way that the symbols shown always face up.

3. Applications on Microphone Stands:

To mount the microphone on floor or table stands, a stand adapter is enclosed. The SA 41/1 may be pushed onto the microphone following the routine shown on the related sketch explaining the handling of this accessory.

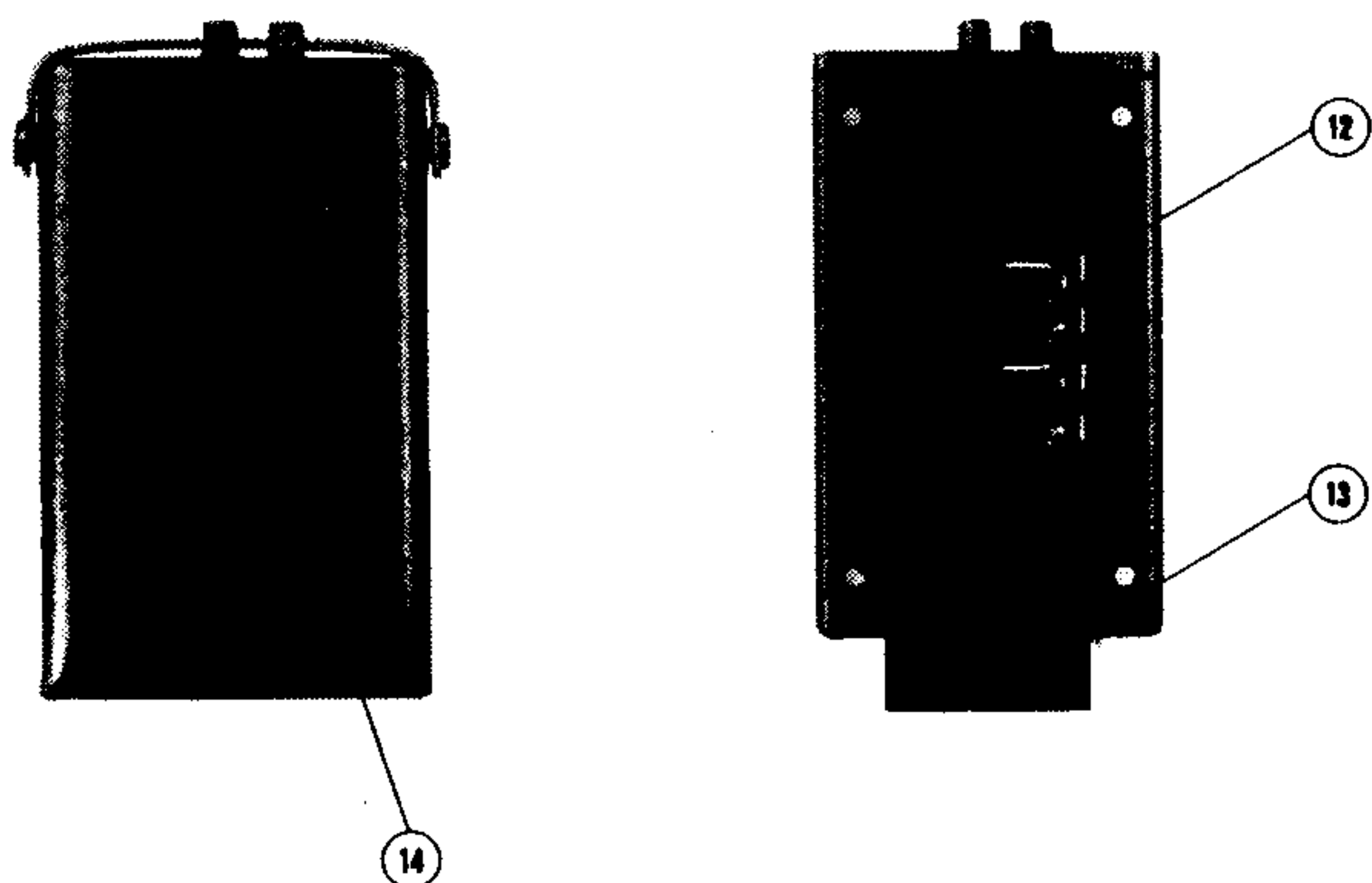
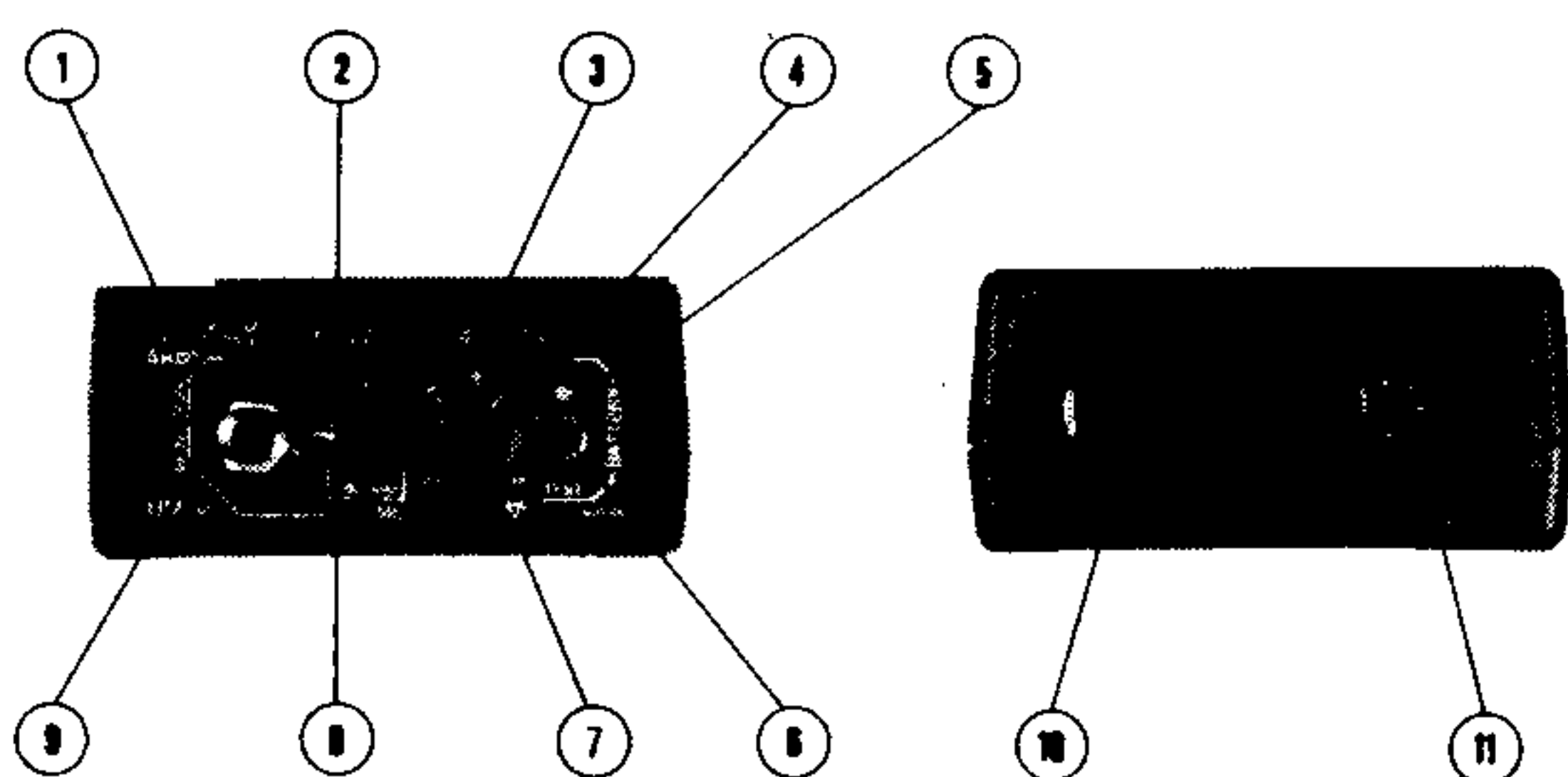
For correct left/right orientation, be sure to mount the microphone in such a way that the symbols shown always face up.



4. Outdoor Work:

The included foam-type windscreen may be easily pushed onto the microphone head by slightly turning the microphone at the same time. The windscreen should be always used outdoors to prevent noise or drop-outs generated by sudden gusts of wind or microphone movements.

5. The Usage of the Matrix UM 52:



- ① Selector switch to monitor either the Mid (mono) or the Left/Right (stereo) signal
- ② Bass cut / output attenuator
- ③ Selection of output signal in M/S or X/Y when input signal from the microphone in M/S
- ④ Battery on/off switch
- ⑤ Battery test LED
- ⑥ Test button for the batteries in use
- ⑦ S/M level balance (change of recording angle)
- ⑧ Volume control for the headphone output
- ⑨ Headphone output (1/4" stereo jack)
- ⑩ Input connection (to connect with microphone)
- ⑪ Output connection (to connect with recording equipment)
- ⑫ Battery compartment holding two 9 volt-batteries (type IEC 6F22)
- ⑬ Self-locking lid for the battery compartment
- ⑭ Carrying bag

The UM 52 provides the following functions:

- a) convert the input signal – M/S (mid-side) microphone signal – into a X/Y (left-right) output signal to be used for sound recording or transmission in broadcasting
- b) change of the recording angle of the microphone through continuous variation of the side signal versus the mid-signal S/M (dB)
- c) headphone monitoring of the mid (mono) signal or the left-right (stereo) signal with built-in headphone amplifier and volume control
- d) switchable bass-cut and -10 dB output attenuation of the microphone signal
- e) testing facility for the batteries required for the monitor amplifier

Operation of the Matrix Box UM 52:

First of all two 9 volt batteries (preferably Alkaline types) should be inserted into the battery compartment as shown and then tested using the test button on the front. If the light emitting diode illuminates, the battery compartment should be closed and the remaining connections may be made.

The microphone may be connected to the matrix box with the cable MK 52/3 S. The matrix box output may be connected to the recording equipment with the cable MK 52/3.

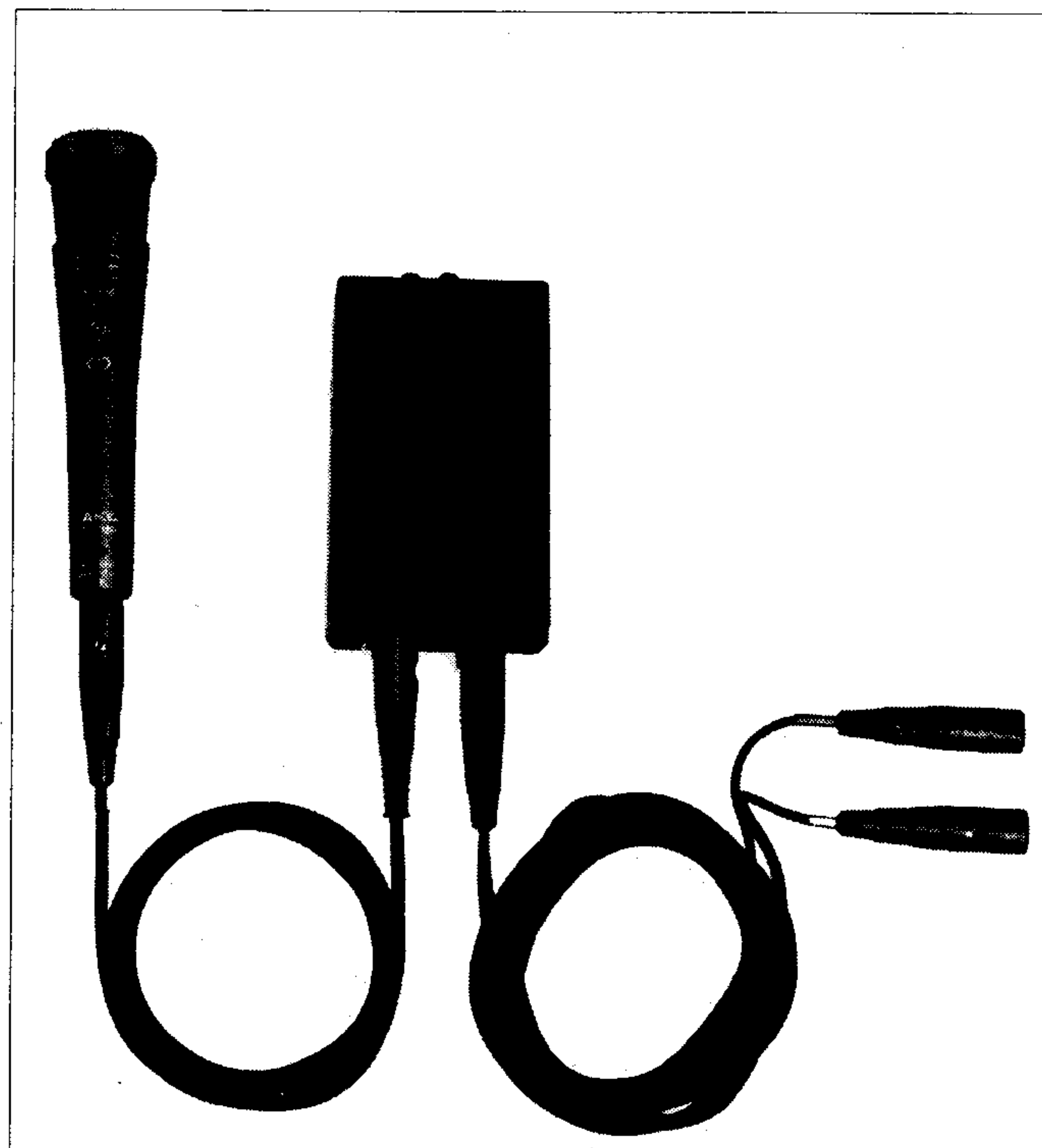
Stereo headphones should be connected to the matrix box to be able to monitor the mid signal in mono or the left-right signal in stereo, once the matrix box has been switched on. The volume control lets you optimize the loudness of the headphone signal. The stereo width control (S/M) lets you adjust the right recording angle suitable for the recording situation.

The equipment is now ready for recording. The microphone has to be mounted on a stand or on a boom and the decision has to be made, whether to use the provided bass-cut or output attenuation.

Normally, the selector switch M/S-X/Y will be in the **position X/Y** to convert the M/S microphone signal at the input of the UM 52 into a X/Y signal for recording.

The selector switch should be in **position M/S** should one decide to convert the signal in post production and not during the actual recording. In this case, the input signal will be transferred to the output unchanged. The stereo width control will have no function for the microphone signal but may still be used for monitoring purposes.

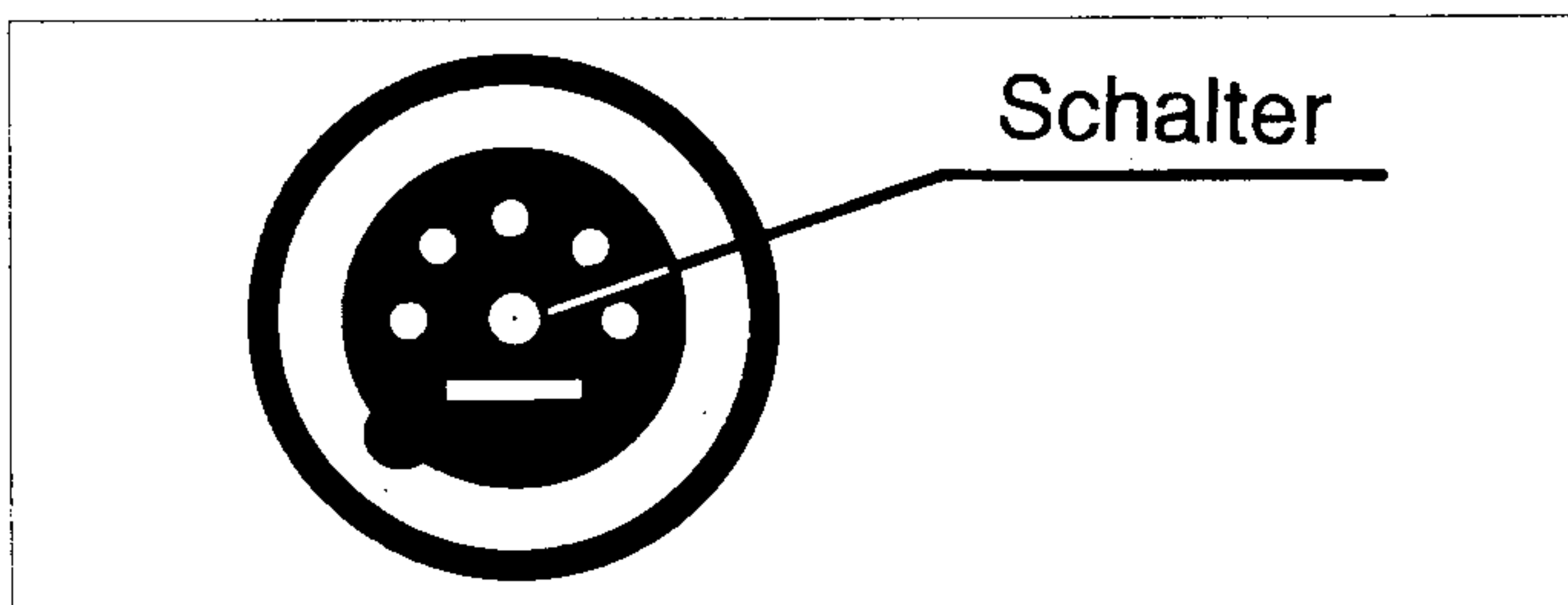
To adjust for mobile reporter work, the included carrying case may be slipped onto the UM 52 and can then be attached to belts or similar devices.



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6. Technical Details for Operation:

a) The microphone should only be connected to the cable during actual operation. Otherwise, it will draw unnecessary current from the built-in battery. The battery on/off switch has been incorporated into the XLR-5 connector of the microphone and will interrupt the battery supply upon disconnection of the cable.



b) **Prior to the actual operation** of the microphone, one should ensure the loading condition of the built-in rechargeable battery. The LED marked "B-CHECK" should briefly flash during the connection of the cable indicating safe operation of the microphone for the next 10 hours. The battery has to be charged with a mains-powered charging device connected to the charging socket marked "B-CHARGE". Alternatively, the microphone may be operated immediately using any standard phantom power supplies in buffer-operation.

c) **How to charge the battery?** The built-in 4.8 volt ni-cd battery may be quite simply charged with any conventional mains-powered charging devices also used for electronic calculators, having a positive d.c. voltage of 6 to 12 volts at the center pin of a 3.5 mm miniature connector. This connector should be inserted into the charging socket marked "B-CHARGE" on the back of the microphone. The outer connection carrying the negative voltage will then be

connected to the microphones' housing. The usual charging time will be 12 to 14 hours. Should the battery be completely discharged (for example: due to self-discharge during long storage times) the recharging time will increase to about 24 hours. In any case, no "overcharging" can occur due to a protective circuit within the microphone.

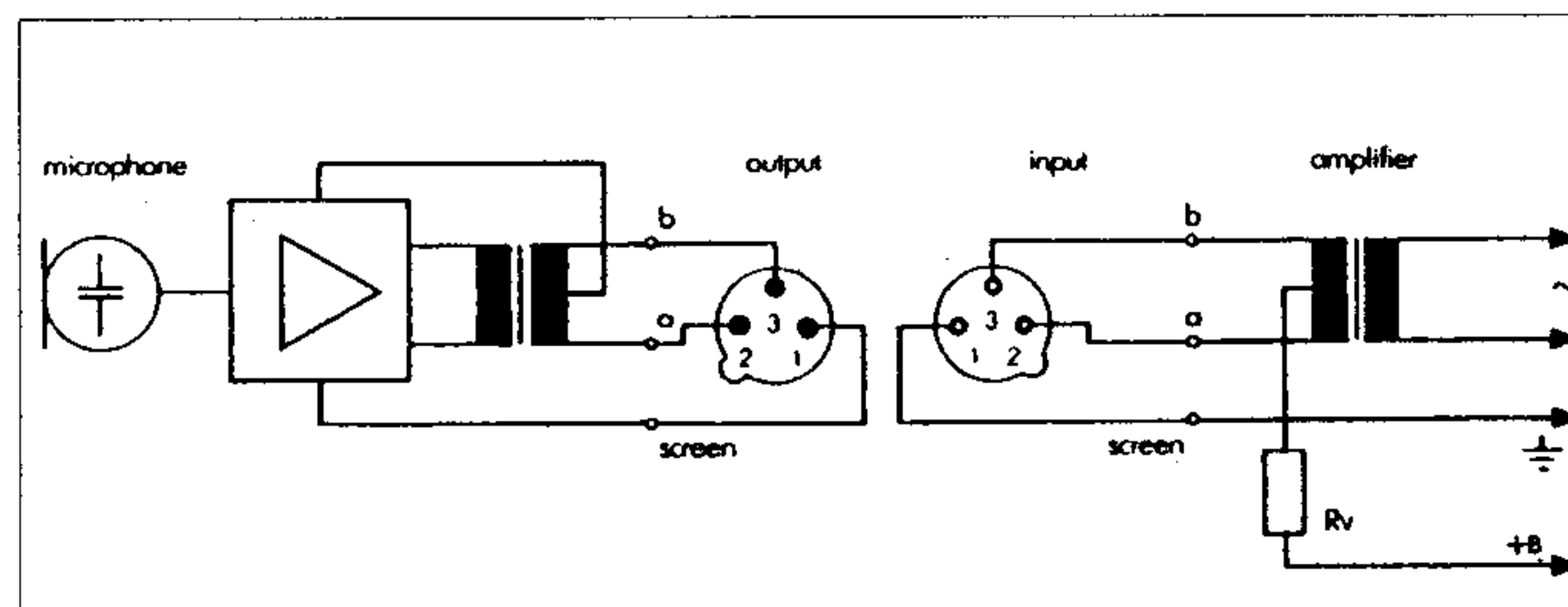
Please observe that the LED marked "B-CHECK" should continuously emit light during the charging process. Should this indication of a correct charging operation fail, please re-check the engagement of the 3.5 mm charging connector or whether the charging unit is supplied with the required mains voltage.

d) **The expected life-time** of the built-in battery should be approx. 10 years. The calculation is based on an average duty cycle including 1000 recharging cycles. Should a change of the battery become necessary, please refer to one of our service departments.

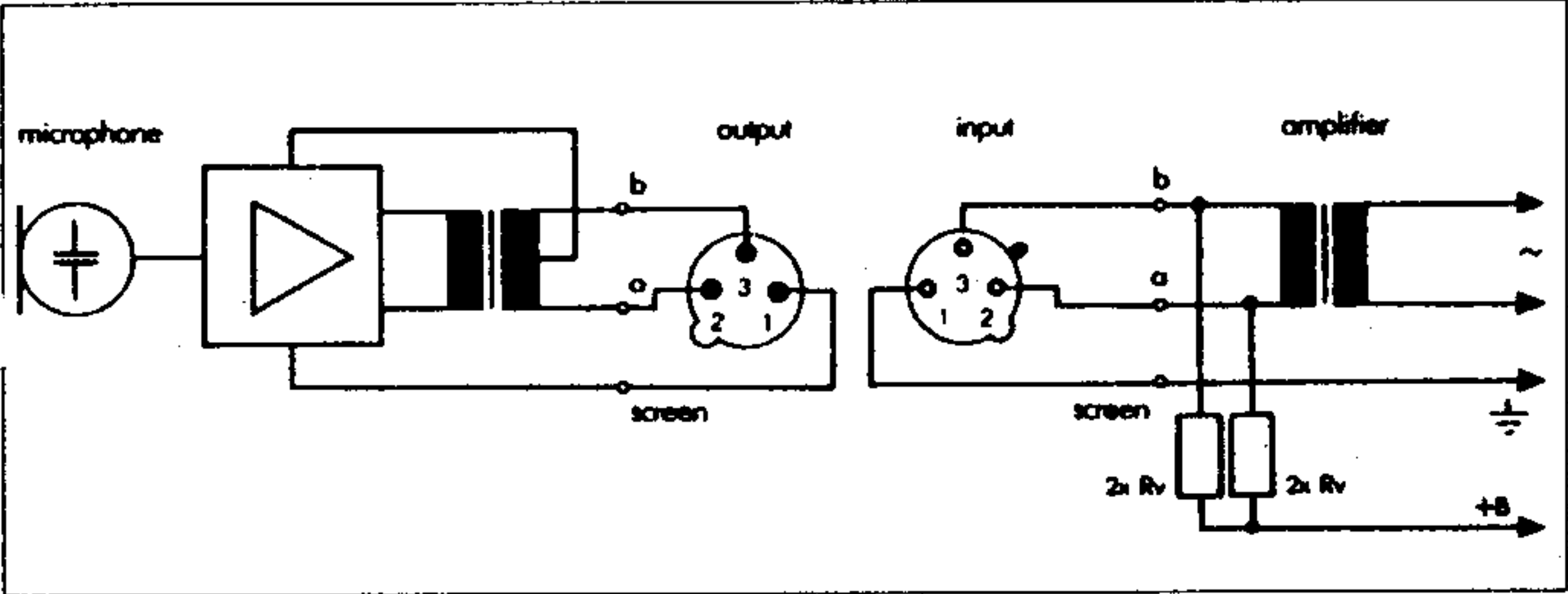
7. Powering Technique:

The C 522 MS may be also powered from any standard phantom power supplies acc. to DIN 45596. These standards specify a positive voltage on the audio lines versus the screen of the audio cable of 12, 24 or 48 volts.

Input circuitry incorporating transformer **with** center tap (ungrounded)



Input circuitry incorporating transformer **without** center tap (ungrounded)



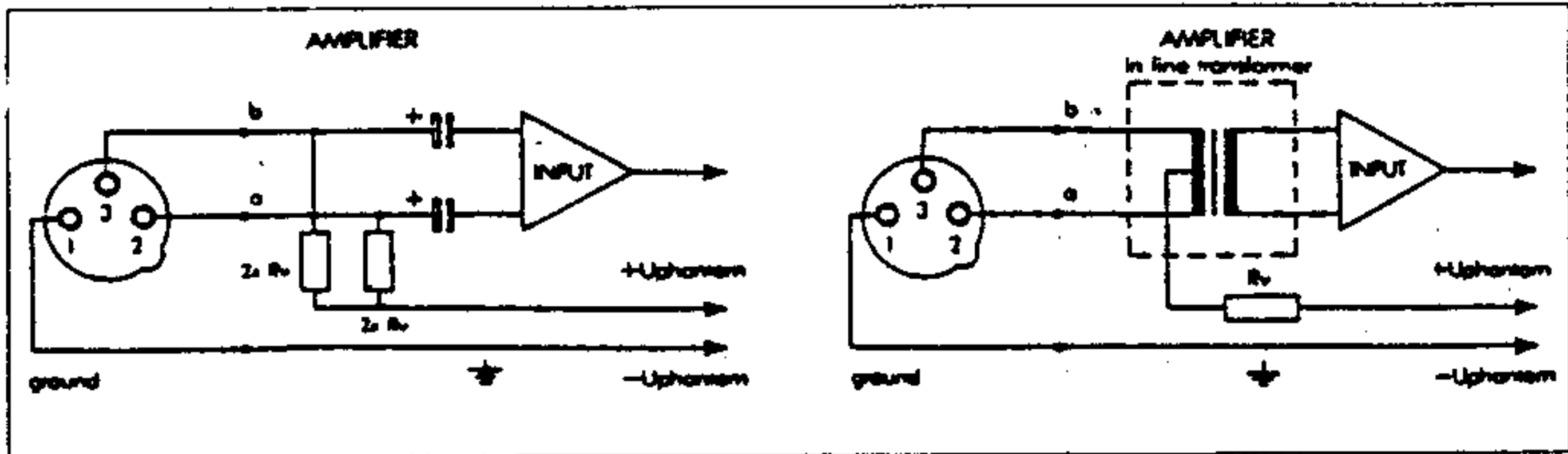
The resistors 2x Rv must have a tolerance not exceeding 0.5% in order to satisfy the symmetry requirement.

Standardized values for Rv and 2x Rv

+UB	Rv	2x Rv
12 V +/- 2 V	330 ohms	680 ohms
24 V +/- 4 V	680 ohms	1,200 ohms
48 V +/- 4 V	3,300 ohms	6,800 ohms

Phantom powering with unbalanced inputs

If only single ended (grounded) amplifier inputs or no input transformers are available, either capacitors or optional transformers must be wired into the audio lines to prevent leakage currents from entering the input stage.



Cleaning:

All metal surfaces may be safely cleaned from time to time with (methylated) spirit or alcohol.

Included Accessories:

- SA 41/1 Snap-on stand adapter
- H 30 Elastic shockmount
- W 52 Foam-type windscreen
- MK 52/3 3 m (10 ft.) connecting cable terminating into two XLR-3 connectors
- MK 52/3S 3 m (10 ft.) connecting cable to be used between microphone and matrix box UM 52
- UM 52 Matrix box with carrying case
- Durable carrying case for the microphone and all accessories.

Optional Accessories:

- N 62 E A.C. Power Supply Unit for one stereo microphone (two channels)
- N 66 E A.C. Power Supply Unit for three stereo microphones (six channels)
- B 18 Battery Supply Unit for one channel only (two required for stereo)

References to literature:

- The following literature is recommended for reading:
- D. Ramada: "The Case for Minimal Miking in Recording"; Stereo Review, Oct. 1981
 - B. Bartlett: "Stereo Miking Techniques"; Modern Recording & Music, Sept. 1980
 - C. Taylor: "Microphone Applications for Classical Recording"; Recording Engineer/Producer, Apr. 1979
 - J. Eargle: "Stereo Microphone Techniques"; dB-Magazine, June 1981
 - M. Gerzon: "Why Coincident Microphones?"; Studio Sound, March 1977

Specifications:

Microphone:

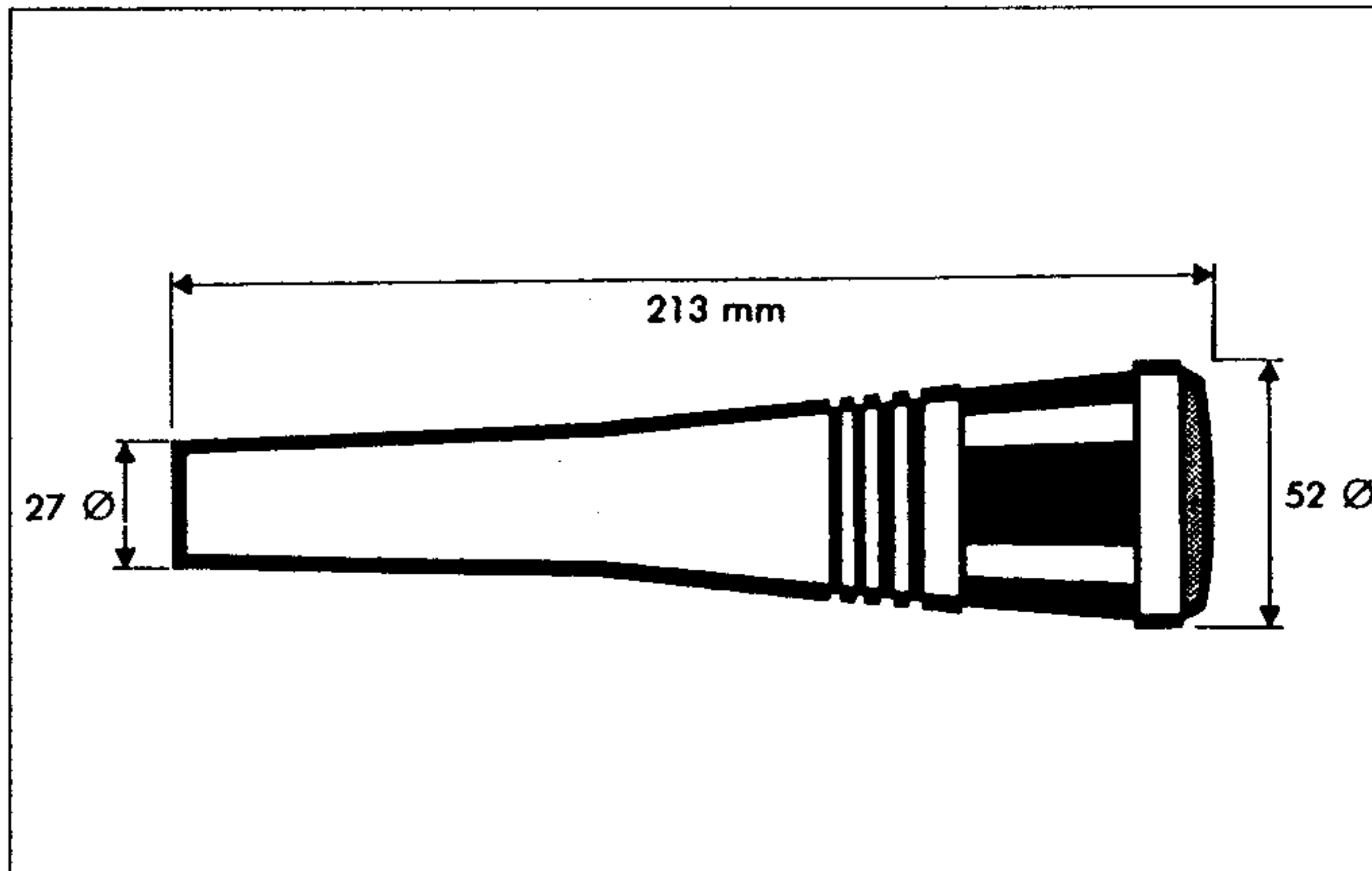
Transducer Type:	Three self-polarized condenser transducers; one forward aiming cardioid and one to the side pointing figure-of-eight for coincidence (M/S) recording technique
Polar Pattern:	cardioid and figure-of-eight
Frequency Range:	50 - 20,000 Hz ± 3 dB from published curve
Sensitivity at 1000 Hz:	25 mV/Pa Δ -32 dBV (re 1V/Pa)
Max. Deviation of Sensitivity between both Channels:	2 dB
Max. Sound Pressure:	50 Pa Δ 128 dB SPL (for 1000 Hz and THD of 1%)
Weighted Sound Pressure Level:	acc. to DIN 45405 (CCIR 468-2): 30 dB acc. to DIN 45412 (A-weighted): 20 dB-A
S/N Ratio acc. to DIN 45590 (ref. 1 Pa, A-weighted):	74 dB
Impedance:	200 ohms for each channel, electronically balanced
Recommended Load Impedance:	≥1000 ohms
Powering:	built-in rechargeable battery and/or phantom power supplies acc. to DIN 45596 with any voltage between 9 and 52 volts d.c.
Current Consumption:	approx. 1.5 mA/channel
Operating Time:	with no phantom power supply and fully charged battery approx. 50 to 150 hours (depending on duty cycle)
Connector:	5 pin XLR-type
Connection (acc. to DIN 45599):	pin 1 = ground pin 2+3 = audio (ch 1-mid system) pin 4+5 = audio (ch 2-side system)
Dimensions:	52/27 ø x 215 mm (ø x L) (2.05 ø x 8.5 inch)
Weight:	280 g (10 oz.) net

Matrix Box UM 52:

Input:	5 pin XLR-socket
Output:	5 pin. XLR-connector
Connections:	identical to microphone
Attenuator:	switchable to -10 dB
Filter:	switchable highpass with corner frequency of 150 Hz and slope of 12 dB/octave
Monitor Output:	1/4" stereo jack for headphones, switchable for monitoring the M (mid-mono) signal or L/R (stereo) signal
Impedance:	40 ohms
S/M Level Balance:	continuous between +6 and -9 dB, resulting in recording angles of 60° to 220°
Powering:	2 x 9 volt batteries (type 6F22) to power the headphone monitor amp

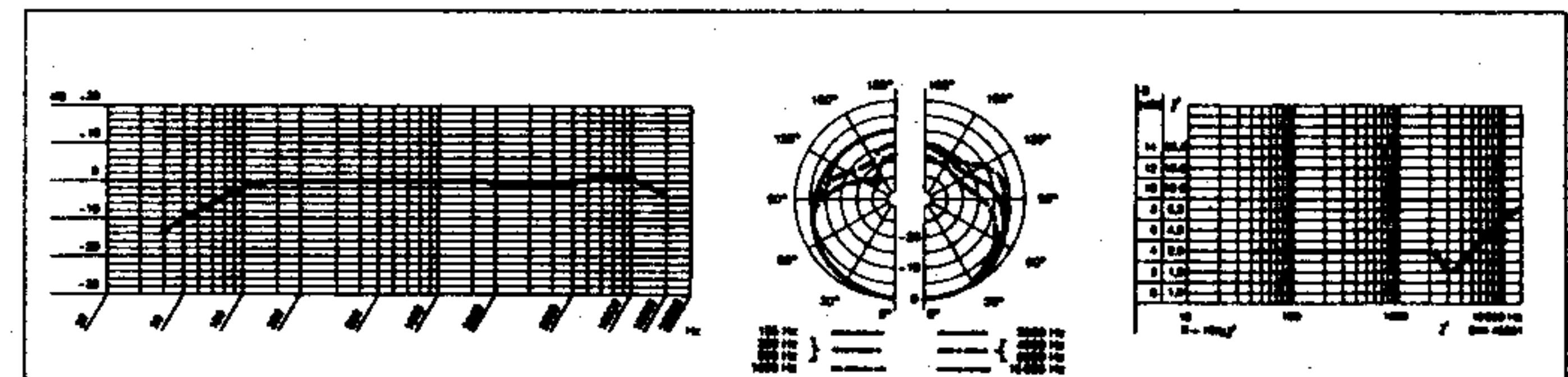
Any phantom voltage at the output connector is connected to the input socket for powering the microphone.

Dimensional Drawing:



Frequency/Polar Response:

M-channel



S-channel

