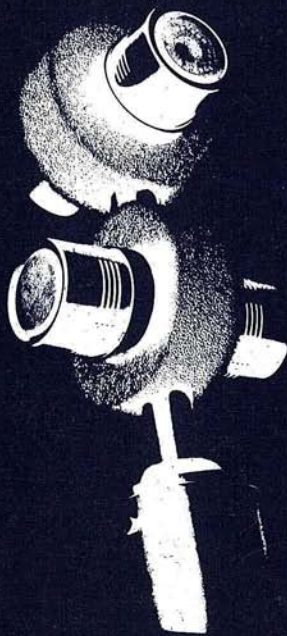


PMB Q

Made in the Federal
Republic of Germany

Description

condenser microphone for professional recording techniques
Stereo (XY/MS) / Quadro



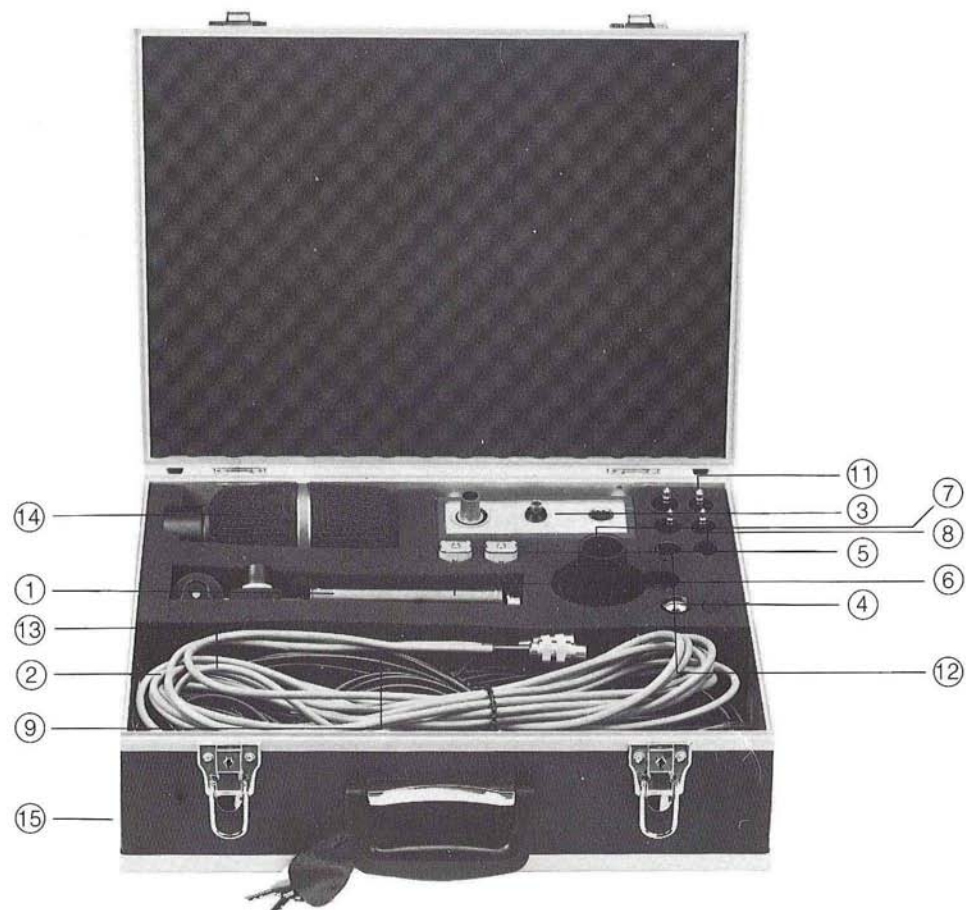
Peerless
HIGH-FIDELITY

A new stereo-quadro-microphone from Peerless-MB

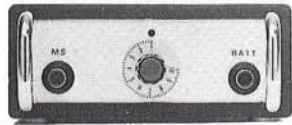
PMB-Q

(Made in the Federal Republic of Germany)

PMB-Q was developed especially to be used as main, stand-by and soloist microphone for stereo recording in XY- and MS-techniques as well as main microphone for recording in quadro.



Equipment



Accessories



Description

- ① Microphone with screwed capsules (cardioid)
Code-no.: 92-6047
- ② 2 pcs connecting cables
(length 2,5 m or 7,5 m)
Code-no.: (2,5 m) 64-6123
(7,5 m) 64-6124
- ③ Connecting unit
Code-no.: 99-6045
- ④ Microphone capsules (sphere)
Code-no.: 82-6051
- ⑤ 2 pcs batteries
Code-no.: 99-6046
- ⑥ 4 pcs coloured foam bonnets
Code-no.: 99-6040, yellow
Code-no.: 99-6041, red
Code-no.: 99-6042, blue
Code-no.: 99-6043, green
- ⑦ Flexible suspension
Code-no.: 98-6033
- ⑧ Cable suspension
Code-no.: 98-6034
- ⑨ 4 pcs connecting cables, microphone-connecting unit (length 7,5 m each)
Code-no.:
yellow: 64-6125
red: 64-6126
blue: 64-6127
green: 64-6128

Accessories



Description

- ⑩ Coloured points for identification
Code-no.:
yellow: 16-6281
red: 16-6282
blue: 16-6283
green: 16-6284
(w.o. figure)
- ⑪ 4 pcs connecting adapter with incorporated transformer
XLR-socket: jack plug
Code-no.: 99-6047
- ⑫ Metallic retaining clip stand
Code-no.: 98-6035
- ⑬ Desk stand
Code-no.: 98-6036
- ⑭ Windscreen
Code-no.: 99-6044
- ⑮ Every ready case
see page 1
Code-no.: 99-6048
- ⑯ Microphone capsule replacement condenser
Code-no.: 82-6052
(w.o. figure)

1. Description

1.1. Microphone

Four changeable microphone capsules are mounted on the ends of two transverse arms. The transverse arms are moved up to 90° to each other. The upper transverse arm is rotatable to $\pm 30^\circ$.

The impedance transformers for the four microphone capsules are placed in the microphone housing. They are amplifiers equipped with low-noise field effect transistors in the usual connection technique. The outlet of the microphone is a low-resistance and asymmetric one.

The microphone is equipped with four first-class selected cardioid capsules (membrane is of gold-evaporated synthetic material foil).

These are cardioid capsules (condenser) with a phase shifter on the reverse of the membrane. The capsules are replaceable.

1.2. Connecting cables

The microphone is to be connected with the connecting unit with a special connecting cable.

plug: screwable, 6-pole

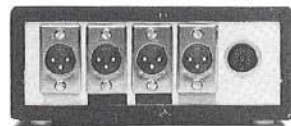
socket: screwable, 6-pole

cable: 5 conductor shielded cable, special cable (each conductor is shielded separately).

length: 7,5 m or 2,5 m

1.3. Connecting unit

The connecting unit contains an active switching for the transformation of a MS-stereo signal into a corresponding XY signal, four transformers to symmetrize the output connecting leads and two 22,5 V batteries (replaceable) for an self-powered continuous service of about 7 hours.



a b c d e



g h i f

- a) symmetric outlet for capsule a (red)
- b) symmetric outlet for capsule b (blue)
- c) symmetric outlet for capsule c (yellow)
- d) symmetric outlet for capsule d (green)
- e) microphone input for connecting cable (see pt 2)

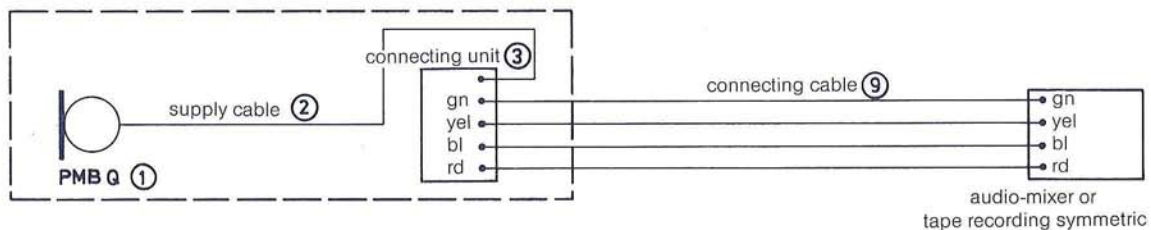
- f) screwed cap for battery compartment
- g) switch-over from XY-Quadro to MS stereophonie
- h) infinitely variable regulation of the width of the basis of the XY-signal when running in MS in the range from o "mono" to the full width. The XY-signal is available at the sockets a (red) and b (blue).
- i) switch-over from self-powered operation (battery, internal) to external operation (phantom feeding).

1.4. Accessories

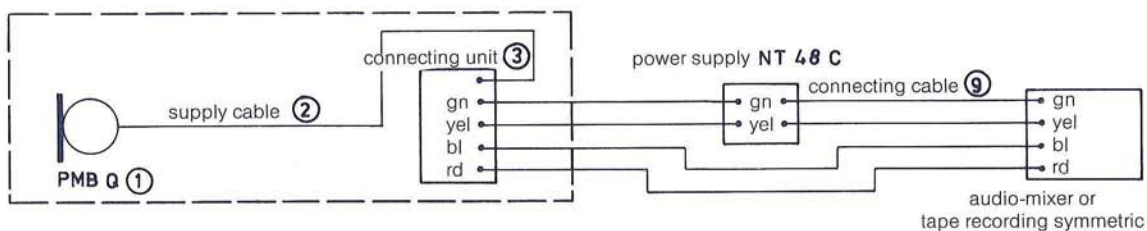
- ④ Exchangeable capsules (sphere) for the middle signal for MS-recording.
- ⑤ 22,5 V batteries (2 pieces) (Varta 72 Special, IEC 15F20 or similar) for internal feeding.
- ⑥ Coloured foam bonnets (4 pieces, different colours) to identify the microphone capsules (additionally to the colour rings fixed on the microphone). The foam bonnets do not have any acoustic influence.
- ⑦ Flexible suspension, applicable in conjunction with a floor or table stand (13) and the cable suspension (8).
- ⑧ Cable suspension. It enables the microphone to be hung directly from the cable. It is used together with the flexible suspension (7). The two holes on the side of the cable suspension enable simple lateral tightening.
- ⑨ Connecting cables (4 pieces), 7,5 m with XLR-socket and plug to link the connecting unit to the audio-mixer or to the tape recorder.
- ⑩ Colour points (different-coloured, adhesive) for identification at the audio-mixer input.
- ⑪ Connecting adapters (4 pieces) XLR-socket-jack plug 6,3 mm \varnothing . Simultaneous conversion from symmetrical to asymmetrical running method. Utilization mainly at asymmetrical inputs and audio-mixer or taps recorder.
- ⑫ Metallic retaining clips for table stand (13) or other stands (3/8"). First introduce cable into lateral slot, then press microphone down into jack.
- ⑬ Table stand for Round Table conversation applicable in conjunction with metallic retaining clips (12).
- ⑭ Wind-screen (metallic basket with filter foam insert, colour identification and fixing point on the shaft). Separate wind-screen in the marking zone by twisting towards the left, introduce microphone downwards into the lower half of the basket, stop it in the fixing slot with the fixing pin mounted on the microphone housing. In that way the correspondance of the coloured identification is achieved.

2. Examples of application

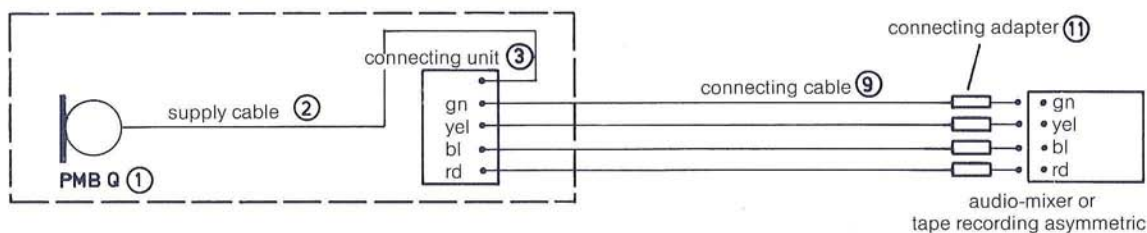
A) Example of application for external operation with phantom supply, 48 V, and internal operation with symmetrical input according to DIN 45596:



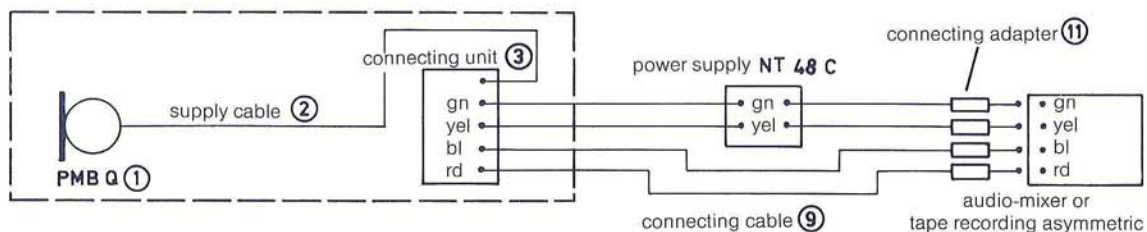
B) Example of operation from the mains supply with power supply unit NT 48C according to DIN 45596:



C) Example of application for operation independent of mains supply for units with asymmetric input:



D) Example of application for operation dependent upon power for units with asymmetric input:



- E) In the case of both examples of application (A and C) operation independent of the mains supply is possible for about 7 hours, thanks to the batteries which can be inserted into the connecting unit. This method is only advisable if no other power supply is available.

3. Installation and operation of the microphone PMB-Q

3.1. Microphone and connecting unit in symmetric operation

In operation the microphone is basically connected with connecting cable (2) to the connecting unit (3) (2,5 m or 7,5 m). The unit microphone-connecting unit can be linked up to the corresponding recording units by means of the connecting cables (9) supplied or usual microphone cables.

The functional method (power supply) can be chosen with button i on the connecting unit (3).

If button i (external) is not depressed the power is provided by an external phantom supply directly from audio-mixer or an external supply unit. It is sufficient for the power supply if one (better 2) connecting lead(s) is (are) linked up between connecting unit (3) and audio mixer or supply unit. When running with an external supply unit this must be ground in the connecting line audio-mixer-connecting unit.

External feeding unit: power supply unit NT 48 C.

If no external supply is available the microphone can then run with 2 22,5 V batteries (5) with button i depressed for about 7 hours.

To avoid unnecessary battery consumption the connecting unit (3) should be switch to external while not running.

3.2. Microphone and connecting unit under asymmetric operation

The remarks in point 1 are valid for linking up of the microphone to the connecting unit and the choice of the power supply.

With external feeding through the supply unit NT 48C the connecting lead supply unit-asymmetric input is linked up with the connector adapter (11). In this case the connecting leads (9) are symmetric.

With internal feeding batteries incorporated in the connecting unit the unit microphone-connecting unit can be directly linked up to the inputs of asymmetric units by means of the connecting cables supplied and the connector adapter (11). In this case the connecting leads (9) are asymmetric.

Important: For the different functional methods described, according to your location use reduced length of cable, to avoid pick-up from local transmitters.

4. Recording techniques

4.1. General

According to the desired recording method (quadro/XY-stereo or MS-stereo) the function button (g) on the connecting unit (3) must be placed into the corresponding position.

If the button (g) is not depressed the NF signals of four capsules are directly available at the male sockets a, b, c and d on the rear panel of the connecting unit (3) for quadro or stereo recording. Under position "MS" (button g is depressed) a MS-signal coming from the microphone is transformed into the corresponding XY-signal. The width of the stereo signal can be set with the basis regulator. The XY-signal can be obtained at sockets a (red) and b (blue).

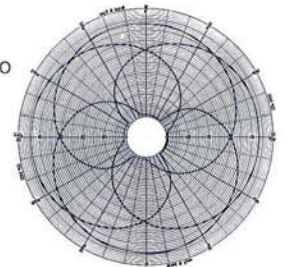
4.2. Quadro:

Place corresponding button (g) into position "XY/quadro". Output signals are directly available at the four outlets of the connecting unit (3).

Microphone capsules and male sockets are identified with the same colour.

- a capsule red
- b capsule blue
- c capsule yellow
- d capsule green

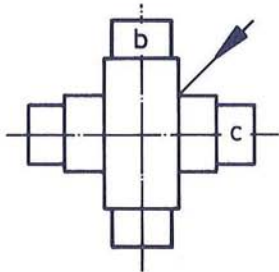
polar diagramm Quadro



4.3. XY:

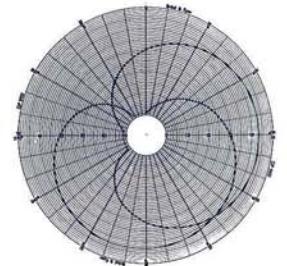
Place corresponding button (g) into position XY/quadro. Output signals are in this case also separately available at the four outlets of the connecting unit (3).

The two capsules — next to neutral middle aimed at the sound source — can be used for XY recordings.



- e.g. b = blue
c = yellow
- In the adjacent example these two capsules are the ones which are next to the middle.

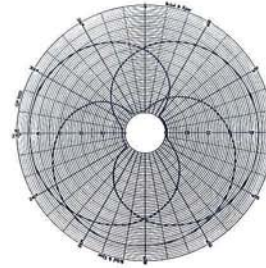
polar diagramm XY



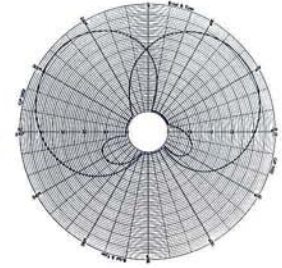
4.4. MS:

Place button (g) into position MS. By means of the electric switching in the connecting unit (3) the MS signal picked up by the microphone is transformed into a XY-signal and is available at sockets a (red) and b (blue) on the rear panel of the connecting unit (3).

Attention must be paid to the fact that the capsule a (red) is aimed at the sound source.



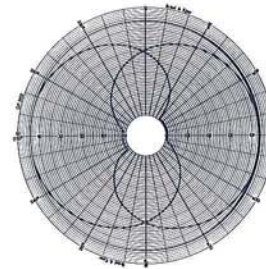
Polar pattern of the single microphone capsules under MS-operation



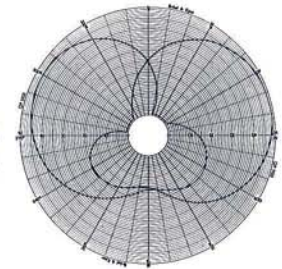
Polar pattern of XY-output signal under MS-operation

MS (alternative)

Place button (g) into position MS. Capsule a (red) is to be exchanged for the omnidirectional capsule (4) supplied. In this case too XY-signal is available at sockets a (red) and b (blue) on the rear panel of the connecting unit through the electric switching.



Polar pattern of single microphone capsules under MS-operation



Polar pattern of XY output signal under MS-operation

Lateral attribution in MS-operation:

The lateral attribution depends upon the position of the microphone. Under operation (standing, capsules are above housing) X-signal is obtained at socket a (red), Y-signal at socket b (blue).

When running (hanging, capsules are under housing) X-signal is obtained at socket b (blue), Y-signal at socket a (red).

Choice of the base width

The desired base can be set at regulator (h) of the connecting unit. The possibility of setting is only available under MS-operation. It is possible to regulate base width from "0" to full width.

In regulator position "9" the basis width corresponds to the polar pattern 4.4.

5. Possibilities of application

5.1. General

From a technical point of view PMB-Q corresponds to four complete microphone condensers which are incorporated in a housing. These four microphones can be employed either separately or in conjunction.

XY/quadro:

Button (g) in position XY/quadro. In afore mentioned position all four microphones can be employed separately.

MS:

Button (g) of connecting unit (3) in position MS.

NF-signals of capsules a, b, d are combined at the connecting unit in such a way that X and Y can be obtained from sockets a, b.

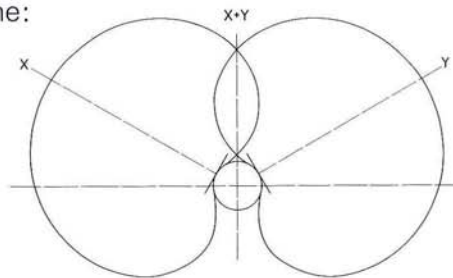
5.2. Stereo recording in XY techniques

Pick-up angle 60° – 120° : capsules a (red) and b (blue) are in service. The aperture angle can be changed at the microphone by twisting the upper transverse arm. Neutral middle (see pt 4.3.) is aimed at the sound source to be picked up.

Pick-up angle 180° : capsule a (red) and c (yellow) or b (blue) and g (green) can be employed. Both capsules chosen for recording must be aimed at the sound source.

XY-functional method of the microphone:

sound source left = only x
sound source right = only y
sound source middle = x and y



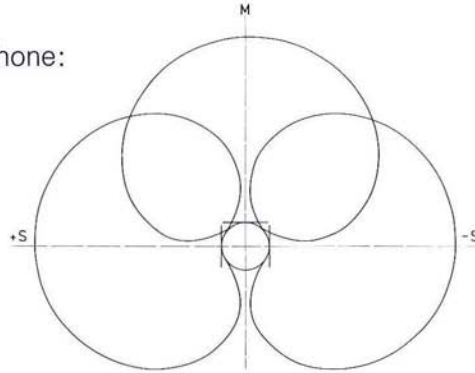
5.3. Stereo recording in MS-technique:

In MS-stereo recordings microphone (a = red), which is aimed at the sound source, picks up M-signal (middle and sound signal). The directional pattern of the microphone is usually cardioid in some cases a pressure microphone is employed. With PMB-Q the cardioid capsule a (red) can be replaced with the omnidirectional capsule (4) supplied.

A second microphone pair (b = blue and d = green) with figure-of-eight polar pattern transverse to the sound picks up S-signal (lateral or directional signal).

A corresponding XY-signal results from the addition and subtraction of these two signals. This transformation happens automatically in the connecting unit (3) by placing button into position MS (button g). By means of base regulator (h) the portion of the S-signal can be changed and herewith base width of the recording (see pt 4.4).

MS functional method of the microphone:



Transformation of a MS-signal into a XY-signal:

$$X = M+S, Y = M-S$$

source left: $X = M+(+S)$, S is added. $Y = M-(+S) = 0$

source right: $X = M+(-S) = 0$. $Y = M-(-S) = M+S$, S is added.

source middle: $X = M+0$. $Y = M-0 = M$

(These equations are only valid when M and S are equal.)

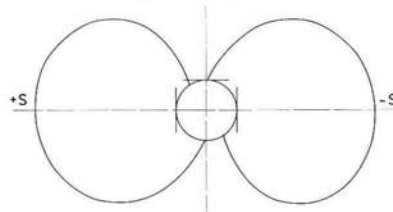
5.4. Recording in mono with "figure-of-eight" pattern

Place button (g) of connecting unit into position "MS" and basis regulator (h) into position "9".

By replacing capsule a (red) for a special capsule (special accessory: replacement capacity) with a "figure-of-eight" pattern is available at outlet a (red) or, with opposite polarity, at outlet b (blue) of the connecting unit.

The pick-up direction of the "figure-of-eight" pattern is transversal to the pick-up direction when recording in MS-stereo [direction capsule b (blue) — d (green)]. The "figure-of-eight" pattern is realized by the corresponding junction of capsules b (blue) and d (green).

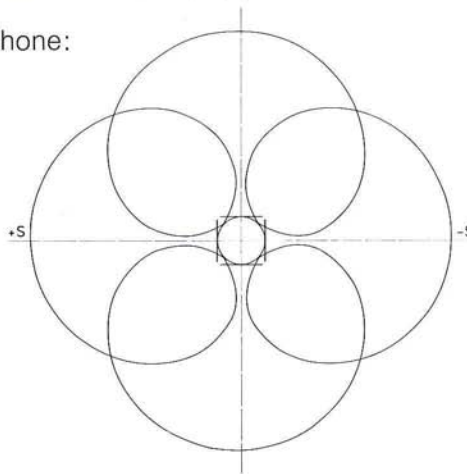
"Figure-of-eight" functional method of the microphones:



5.5. Quadro recordings:

Place button (g) of the connecting unit (3) into position XY/quadro. In this position of the button a sound signal is available for quadro recordings at each socket a, b, c, d.

"Quadro" functional method of the microphone:



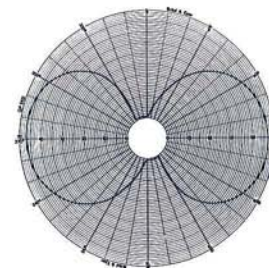
5.6. Special recordings (round table):

As the four capsules (a, b, c, d) of the microphone cover a range of 360° (s. pt. 5.5.) and 4 capsule directions can be separately regulated at the audio-mixer, PMB-Q is specially suited for "all around recording", as e.g. the recording of a conversation at a round table.

5.7. "Figure-of-eight" recording techniques:

Place corresponding button (i) into position MS. Exchange capsule (special accessory: replacement C, art.no. 82-6052) for capsule a (red).

At sockets a (red) and b (blue) a "figure-of-eight" with opposite polarity (+ and - cardioids) is available. Place regulator (h) into position "9".



6. Microphone PMB-Q in the practice (some tips)

1. The four foam bonnets (6) can serve the colour identification if they correspond to the colour rings on the microphones and colour points of the male sockets.
2. Marking of the regulator on the mixer
The adhesive colour points (e) enable a simple marking on the mixer of the regulators which belongs to the microphone capsule.

3. Installation of the microphone on a stand

The microphone is best fastened to the stand by means of a flexible suspension (7). The suspension offers a real protection against transmission of ground sound.

4. Suspension of the microphone

The delivered cable suspension (8) permits the suspension of the microphone directly from the cable. The suspension is employed in connection with the flexible suspension (7). For this purpose it is necessary to un-screw the thread of the flexible suspension. The cable suspension is then screwed in. The two holes on the side of the suspension (8) enable a simple tightening.

5. Orientation of the microphone

The microphone must be carefully oriented to the sound source. When picking up in XY the neutral middle between the two microphone capsules employed must be aimed at the sound source. When picking up in MS capsule a (red) is aimed at the sound source.

Caution: When picking up in MS and with hanging microphone (capsule below) the sides must be exchanged.

X-signal can be obtained at socket b (blue), Y-signal at socket a (red) (see pt 4.4.)

6. Battery power

In order to avoid unnecessary consumption of battery power the microphone should be switched off at the connecting unit by placing button "i" on "ext" during pauses.

7. Specifications

As microphone and connecting unit form a unit the following statements refer to the whole unit. Transmission qualities were measured in XY/quadro operation at the male sockets of the connecting unit (3).

Frequency response 20–20.000 Hz

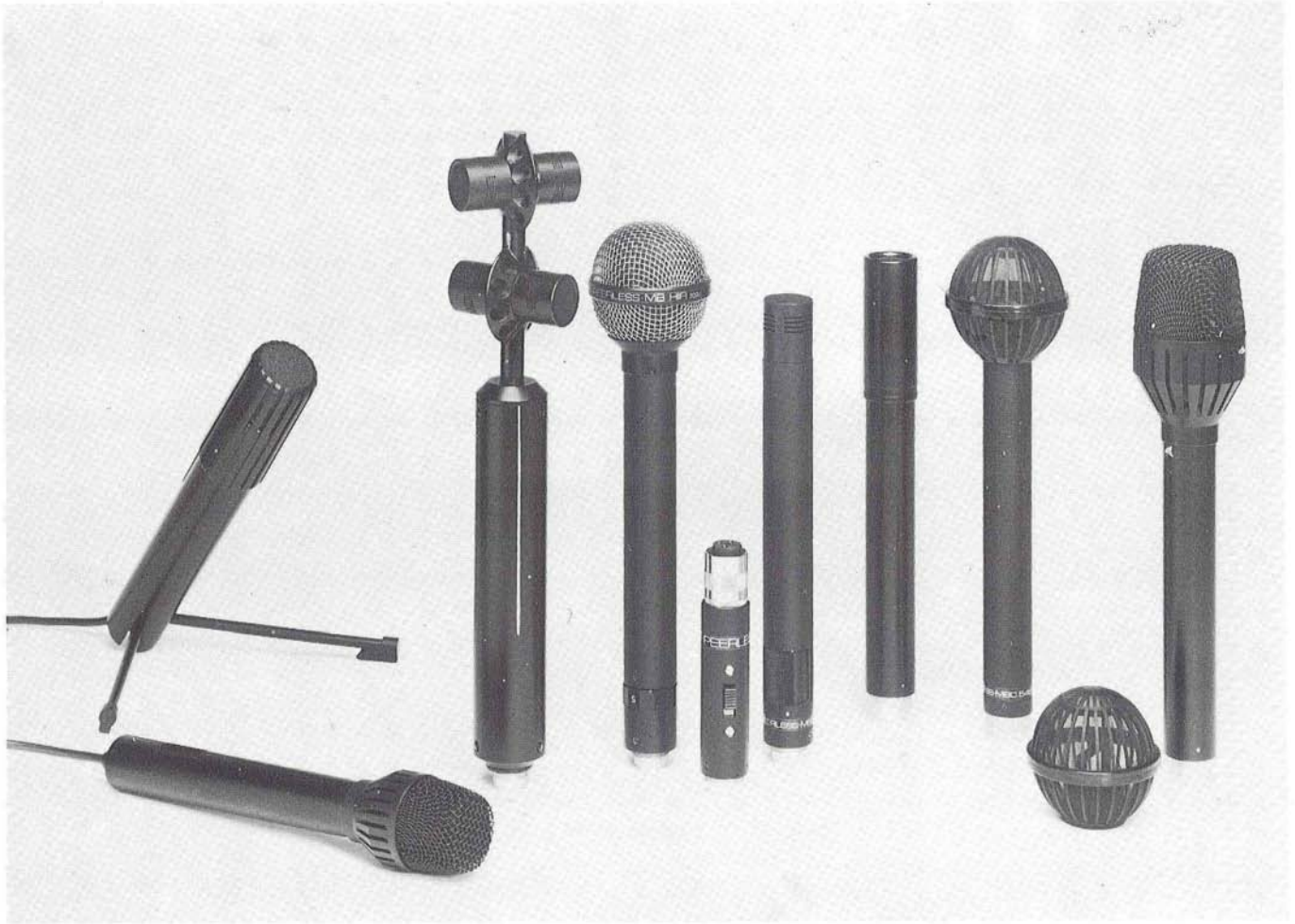
Kind of supply acc. to DIN 45596 (48 V phantom)

Specifications measured, employing two supply cables

Frequency response with cardioid pattern	curve is enclosed
Frequency response with omnidirectional pattern	curve is enclosed
Difference between the channels	max $\pm 1,5$ dB
Directional pattern	cardioid or omnidirectional
Sensitivity	0,8 mV/ubar or 8 Pa
Electrical internal resistance (outlet connec. unit)	ca. 200 ohm/1 kHz
Nominal terminating impedance	≥ 1.000 ohm
Signal-to-Noise Ratio	74 dB
Compensation loudness level	20 dB
Maximal sound pressure	124 dB
External supply	48 V (+4–10 V)
Internal supply	
Voltage	2x22,5 V
Type of battery	Varta 72 Special (IEC 15 F20 or similar)
Running time of the batteries	with XY/Quadro ca. 7 hrs with MS ca. 5 hrs
Power consumption (of microphone with connec. unit)	with XY/Quadro 3 mA with MS 4 mA running
Weight of microphone	ca. 360 g
Dimensions	150x120x165 mm
Length of special cable	2,5 m or 7,5 m
Plug and socket on connecting unit (3)	XRL
Weight of the case with microphone and accessories	6,9 kg

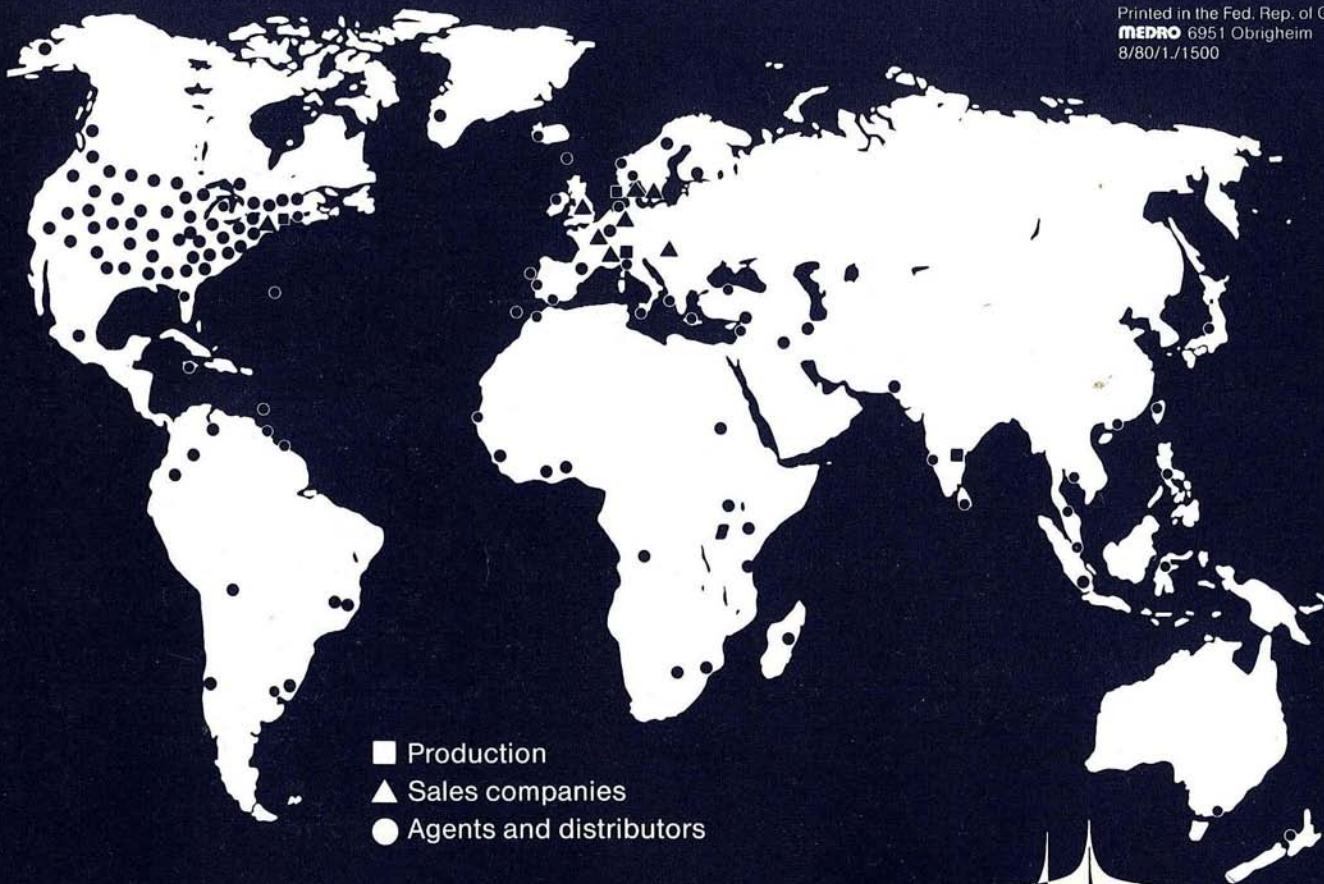
Personal notes

Personal notes



Should you wish to know more about our microphone programme write to us.

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8/80/1/1500



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