

# MICROTECH GEFELL

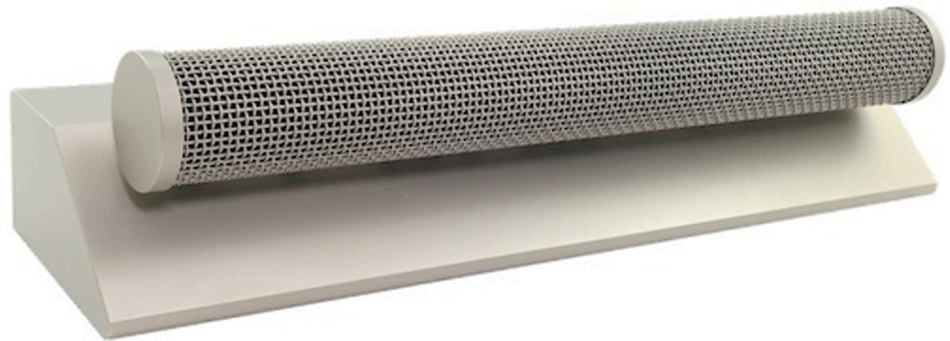
microphones & acoustic systems - founded 1928 by Georg Neumann



## PEM 975

### Cardioid-Plane-Microphone

with non-rotational symmetrical directivity



## User Manual

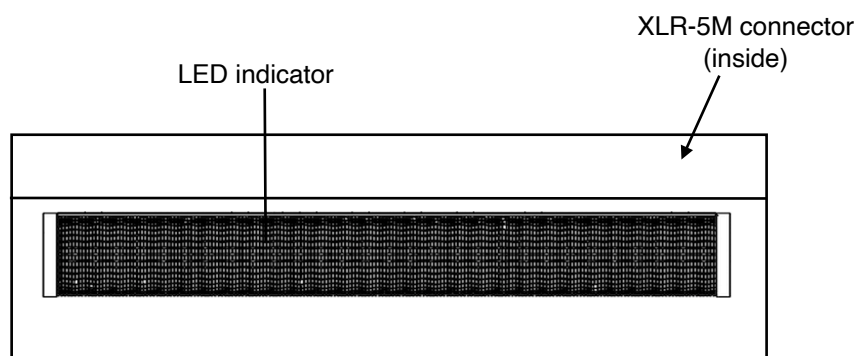


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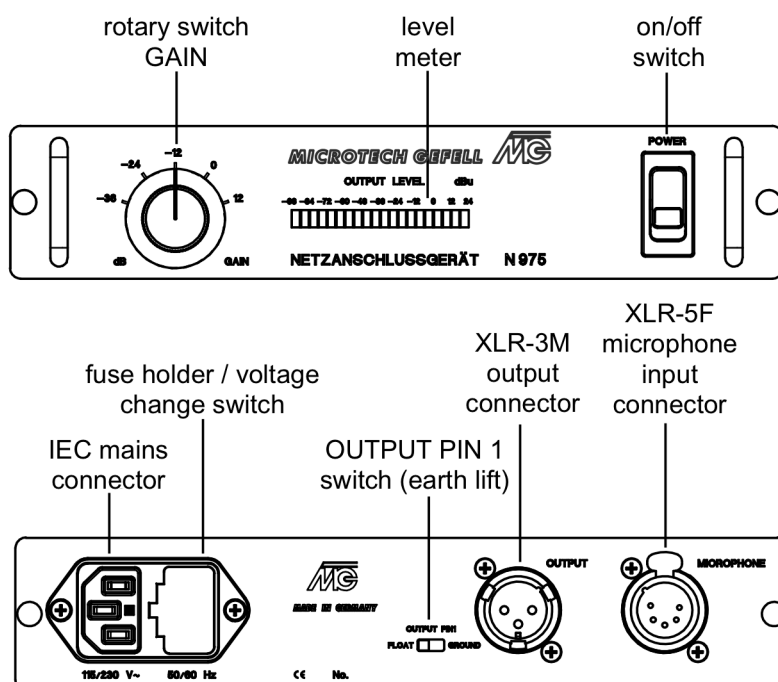
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## Operating elements

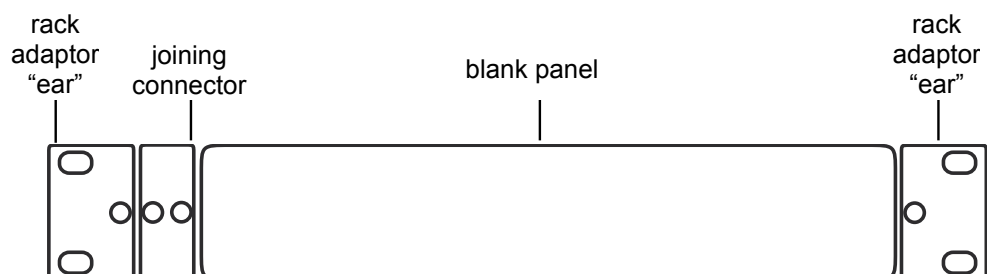
### PEM 975



### Power supply N 975



## Rackmount kit





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PEM 975  
Lectern-plane-microphone



2111142  
satin nickel



2111143  
dark bronze



## 1 Technical specifications

### Cardioid-Plane-Microphone PEM 975

Polar pattern	horizontal vertical	club shaped cardioid
Recording angle	horizontal vertical	30° 120°
Acoustic operating principle		Pressure gradient transducer
Frequency range		40 - 18,000 Hz
Sensitivity at 1 kHz, Gain 0 dB		775 mV/Pa
Rated impedance		40 Ω
Equivalent loudness level	CCIR 468-4 DIN EN 60268-4	24 dB 15 dB(A)
Max. SPL for THD 0,5	Gain 12 dB Gain 0 dB Gain -12 dB Gain -24 dB Gain -36 dB	104 dB 116 dB 128 dB 140 dB 152 dB
Output connector		Neutrik XLR-5M
Weight		1.07 kg
Length		343 mm
Diameter	Mesh Housing	38 mm 25 mm
Finish		satın nickel dark bronze

### Power supply N975

Power supply voltage		230/115 V AC ±10%, 50/60 Hz
Connectors	PEM 975 Audio output	XLR-5F XLR-3M
Weight		1.6 kg
Width		221 mm
Depth		170 mm
Height		45 mm

## 2 Delivery

Cardioid-Plane-Microphone	PEM 975	
Power supply	N 975	
Connection cable (10 m)	C 975.1	
IEC mains cable		
Rack mounting set		
Transit case 450 x 350 x 160 mm		
satin nickel		Order-No. 2111142
dark bronze		Order-No. 2111143

Prior to each use of the microphone make sure that all parts are in perfect condition.

We also recommend that the microphone is inspected for residual dust at appropriate intervals and to have Microtech Gefell GmbH examine it, if necessary.



### 3 Accessories

Microphone connection cable 10 m	C975.1	Order-No. 202224
Microphone connection cable 20 m	C975.2	Order-No. 202225
Microphone connection cable 30 m	C975.3	Order-No. 202226
Microphone connection cable with rt.angled plug 10m	C975.1 W	Order-No. 202227

Prior to each use of the microphone make sure that all parts are in perfect condition.  
We also recommend that the microphone is inspected for dust at appropriate intervals and to have Microtech Gefell GmbH examine it, if necessary.

## 4 About this manual

Please read this User Manual carefully before use to minimise the risk of physical injury or damage to property or to the equipment.

Keep this User Manual handy during installation and store it in a safe place in case it is needed by a user at a later date. If you are an installation company, please make sure this Manual is passed on to the customer on completion of the installation.

Please pass this User Manual on to any subsequent owners to ensure safe use of the product.

## 5 General Safety Instructions

### 5.1 Danger and information signs



#### **DANGER**

Warns of life threatening injuries from an electric shock.



#### **WARNING**

Warns of injuries.



#### **CAUTION**

Warns of damage to property.

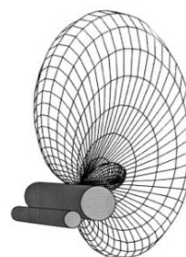
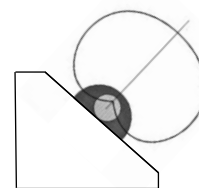


#### **INFORMATION**

Gives additional information.

### 5.2 Normal Use

The PEM 975 is a line array microphone with the main sound input direction perpendicular to the front of the microphone. It is not a rotationally symmetric polar-pattern, but a cardioid pattern at rt.angles to the microphone and a narrow 30° angle in the other direction.



The microphone is designed to capture a person speaking at a lectern, podium, table, etc. Because of the cardioid characteristic in the vertical plane, it does not matter if the person is tall or short, or standing up or sitting down, it picks up equally well. It will reject the sound of anyone standing or sitting next to the speaker as the horizontal pick-up is very tight.

It is designed for indoor use, or for temporary outdoor use.

### 5.3 Unauthorised Use

This product should not be used by children or persons with impaired physical, sensory or mental abilities; nor by persons who have a lack of experience, unless they are being supervised.

### 5.4 Intended Use



#### **WARNING**

Do not expose yourself to extreme noise levels

**WARNING**

Place the microphone and the power supply unit in such a way that they are protected from being trodden on or falling down.

**WARNING**

Ensure that the cables are not strained through tension.

**DANGER**

Do not use the microphone or power supply after they have been dropped.

**CAUTION**

Repairs should only be carried out by the Microtech Gefell GmbH Service Department.

**CAUTION**

Place the microphone and power supply unit in a way that they are protected from being trodden on or dropped.

## 6 Initial Steps

### 6.1 Setting up the equipment

**CAUTION**

Intense and/or permanent heat exposure will destroy the microphone. Therefore, do not place it in locations with direct sunlight or near radiators or spotlights.

#### 6.1.1 Setting up the PEM 975

The PEM 975 is designed for permanent or temporary mounting.

For temporary mounting, the PEM 975 can be placed on the table, lectern, etc. We would advise using a vibration-absorbing mat underneath (EG: Sorbothane®, or similar) the microphone.

For permanent mounting the PEM 975 can be screwed to the surface required. For hiding the cable, a hole can be drilled in the surface before mounting the microphone.

#### 6.1.2 Setting up the N 975 power supply

1. Install the power supply in a well-ventilated dry place.
2. Install it so that it is protected from being knocked or dropped.

### 6.2 Installing the rack

The dimensions of the N 975 correspond to the 19" rack mounting standard for mounting in a standard rack or a built-in cupboard. The N 975 is half-width, so it can be mounted in a half-width rack, or two can be mounted side-by-side in a standard rack with the supplied rack ears. If a single N 975 needs to be mounted in a standard 19" rack, use the supplied blanking panel in the place of the second N 975.

**CAUTION**

In case of an insufficient mounting depth of the rack, there is the risk that the connectors at the rear of the N 975 could be damaged or bent. For this reason pay close attention to the mounting depth and allow sufficient space for the connectors and cables.



### CAUTION

If there are devices that get hot installed in the same rack or cupboard as the N 975, the N 975 is at risk of damage. Therefore sufficient ventilation must be provided to ensure a free air-flow to keep the devices cool.



### INFORMATION

The front panel always includes 4 screws (matched to the rack or cabinet) and 4 washers.

## 6.2.1 Installing the N 975 into a half-19" Rack

1. Remove the screws on the left and right of the front panel of the N 975 (see diagram below).



2. Attach the left and right rack "ears" to the front panel of the N 975, they positively click into place, and screw them tightly in place.



3. Slide the pre-assembled power supply unit into the rack and screw it securely in place (if necessary, read the instructions supplied with the rack).



## 6.2.2 Installing the N 975 into a 19" Rack

1. Remove the screws on the left and right of the front panel of the N 975.



2. Attach one of the rack "ears" to one side of the N 975, it will positively click into place, and screw it tight.



3. Attach the other rack "ear" to the blank panel, it will positively click into place, and screw it tight (if mounting two N 975 together, substitute the second N 975 in place of the blank panel after removing the left and right screws as described in 1. above).



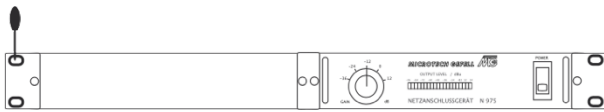
4. Place the joining connector on the other end of the blank panel (or second N 975) and screw it tight.



5. Place the pre-assembled blank panel (or second N 975) with the joining connector to the desired side of the N 975 (the blank panel can be mounted either side) and screw it tight.



6. Slide the pre-assembled power supply unit into the rack and screw it securely in place (if necessary, read the instructions supplied with the rack).



### 6.3 Connecting the equipment

1. Plug the XLR-5F connector of the microphone cable into the XLR-5M connector of the microphone until the connector clicks audibly into place.
2. Plug the XLR-5M connector at the other end of the microphone cable into the XLR-5F input connector of the N 975 power supply until it clicks audibly into place.
4. Plug the XLR-3F connector of the connection cable into the XLR-3M output connector of the N 975 power supply until it clicks audibly into place. Plug the XLR-3M connector at the other end of the connection cable into the XLR-3F input connector of the downstream equipment (eg: mixer, recorder, amplifier, etc.) until it clicks audibly into place.
5. Only after the above connections have been made, connect the power cable into the IEC mains connector of the N 975 and then into the mains power socket (switch on the power at this socket if it is a switched socket).
6. Switch on the N 975 power supply with the on/off power switch.



#### WARNING

It is important that the cables are installed safely and are not twisted nor crushed; also, they should be protected from being pulled or stretched if attached to moving parts.



#### INFORMATION

The light on the power switch lights up when the power supply unit is powered up.



#### INFORMATION

The N 975 power supply unit and the PEM 975 can warm up to approx. 35° C, this corresponds to the normal operating temperature.



#### CAUTION

The device can be damaged or destroyed if connected to the incorrect mains voltage. Therefore, please make sure that the N 975 power supply is set to the correct voltage for the country of use (see section 7.1: Setting the supply voltage).



#### CAUTION

If the amplification is set too high, there is the risk that the following equipment connected to the N 975 power supply unit will be destroyed. Therefore always set the rotary GAIN control to -36dB, before switching on the N 975.

### 6.4 Aligning the microphone

Behind the mesh of the PEM 975 is a green indicator LED.

1. Turn on the LED with the switch on the PEM 975 microphone.
2. This gives the speaker an indication that they are in the correct pick-up area of the PEM 975 microphone
3. Turn off the LED (optionally, it can be left on if people to be recorded wish to be assured that they are in the pick-up area).

The microphone is now ready for use.

NB: When setting up, it is useful to be aware of the microphone's polar-pattern.

Care taken in setting up will give the best results.

## 6.5 Disassembling and storing the microphone

### 6.5.1 Storage at the venue

1. Turn off the N 975 power supply with the on/off mains switch.

### 6.5.2 Storage in the transport case

1. Turn off the N 975 power supply with the on/off mains switch.
2. Remove the mains cable from the power socket and then from the N 975.
3. Unlatch the XLR-3F connector of the connection cable and unplug it from the XLR-3M output connector of the N 975.
4. Unlatch the XLR-3M connector of the connection cable and unplug it from the XLR-3F connector of the downstream device.
5. Press the PUSH button on the XLR-5F connection of the N 975 power supply and pull the XLR-5M connector of the microphone cable out of the socket at the same time.
6. Press the release button of the XLR-5F connector of the microphone cable and pull it out of the attached XLR-5M connector of the microphone.
7. Place the microphone and power supply unit into the designated recesses of the transport case.
8. If the installation was a temporary one, also store the cables in the cable area of the transport case – NB: take care in coiling the cables so they do not get twisted or damaged while being wound up.



#### INFORMATION

Package the PEM 975, N 975 and accessories in the transport case they were supplied in – this protects them from shock and damage. Store the case in a dry and ventilated place.

## 7 Individual settings

### 7.1 Setting the supply voltage

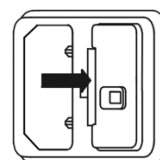
The N 975 is delivered as standard, set for a mains supply voltage of 230V. The operating voltage can be seen by looking at the small window in the fuse module. The voltage setting will need to be changed if your country uses a different supply voltage. The voltage change switch is part of the fuse holder next to the IEC mains connector on the back of the N 975. You will need a flat-headed screwdriver to open the fuse holder.



#### WARNING

Incorrect opening of the fuse holder / voltage change switch can cause damage, be very careful when opening it. It is important that you read the following instructions before you start. If any damage does occur to the N 975, send it to Microtech Gefell GmbH for repair (your local Microtech Gefell distributor can help you with this).

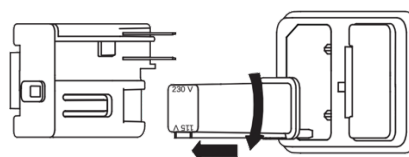
1. Carefully open the fuse holder cover with a screwdriver (see diagram).



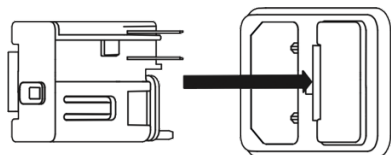
2. Remove the module and the white plastic fuse holder.

At the back of the white plastic fuse holder are the voltage indicators (230V / 115V).

3. Turn the fuse holder over (see diagram) and re-insert it into the module so that the correct voltage is visible from outside, showing through the window of the module.



4. Re-insert the module carefully until it clicks into place.



The N 975 will now operate only on the new voltage.

## 7.2 Setting the level ranges



### CAUTION

If the amplification is set too high, there is the risk that the following equipment connected to the N 975 power supply unit will be destroyed. Therefore, always set the rotary GAIN control to -36dB, before switching on the N 975.

With the 5-stage rotary GAIN switch, the amplification can be adjusted in steps of 12dB between -36dB and +12dB.

1. Set the PEM 975 up and do a test recording. The sound pressure level at the microphone should correspond to the operating level of the event. Watch the peaks and leave enough headroom so you don't have to re-adjust levels during recording or transmission.
2. Set the rotary GAIN control on the N 975 so that the correct level is sent to the following equipment.



### CAUTION

If the red LEDs of the N 975's level meter are flashing. The microphone is overmodulated and is sending a distorted signal to the output (OUTPUT). If this happens, reduce the GAIN setting of the N 975.

## 7.3 Setting grounding

The N 975 power supply is delivered as standard with pin-1 of the XLR-3M OUTPUT socket connected to GROUND. This means that the microphone ground (PEM 975 and N 975) is connected to the ground of the downstream device. Depending on the grounding of the following devices, so-called "ground loops" can develop. If this happens it is possible to disconnect the grounding between the N 975 and the following devices.

1. Slide the earth lift switch (OUTPUT PIN 1) on the back of the N 975 to the FLOAT position. This disconnects pin-1 of the XLR-3M OUTPUT connector from system ground.

## 8 Use of accessories

The PEM 975 is a self-contained microphone, the only accessory we would recommend is the use of a vibration-absorbing mat underneath the microphone to minimise any noise transmitted to the microphone by the presenter hitting the desk.

## 9 Cleaning and Maintenance

### 1.1 Cleaning

1. The PEM 975 and accessories should only be cleaned with a soft lint-free cloth.



### CAUTION

Never use chemicals nor aggressive or abrasive cleaners on the PEM 975 system as these could scratch or damage the microphone.



### CAUTION

Keep the microphone away from all forms of pollution that could damage the microphone.



#### **INFORMATION**

If the microphone grill becomes damaged or blocked in any way please contact the Service Department at Microtech Gefell GmbH (your local Microtech Gefell Distributor can help you with this).

## **9.2 Maintenance**

Before each use check the microphone and accessories to make sure that all parts are in perfect condition. For a permanent installation, the microphone and accessories should be checked on a regular basis to ensure that they are in proper condition and no mounting parts have become loose. For long term reliable use, Microtech Gefell GmbH recommends that the microphone be returned for checking and cleaning after an appropriate period of time.

## **10 Guarantee**

Microtech Gefell GmbH guarantee products against manufacturing defects for a period of two years from first sale (or for one year in the case of a second-hand item that has been checked and serviced by Microtech Gefell's Service Department before re-sale). In each case, starting from the date of invoice to the end user. The Guarantee excludes any defects or damage caused by negligent or improper treatment or incorrect installation or non-compliance with the specifications given by Microtech Gefell GmbH or the technical specifications specified on the relevant data sheets, or the use of inappropriate accessories or any modification of the original parts by the customer or their contractor, or by any third parties not commissioned by Microtech Gefell GmbH. Regular wear and tear is also excluded from the Guarantee.



## 11 Disposal of old equipment

**Protect the environment:** To avoid risk to health or the environment, this product should not be disposed of with normal household waste. At the end of its life cycle it should be brought to a recycling point for the recycling of electrical and electronic devices. For more information please contact your municipal authority or local government. This is an important contribution to recycling (EU directive 2002/96/EC).



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