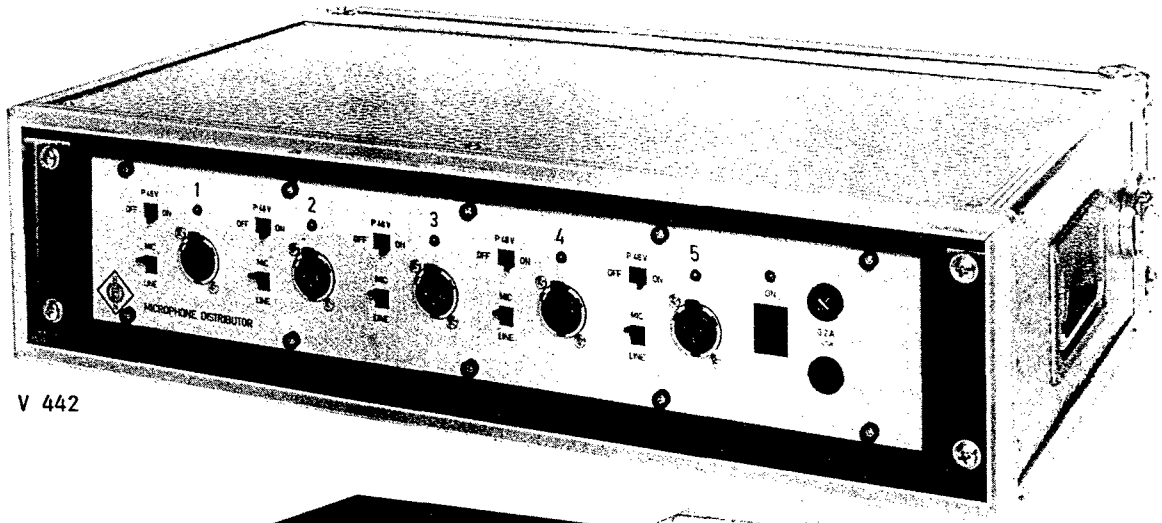
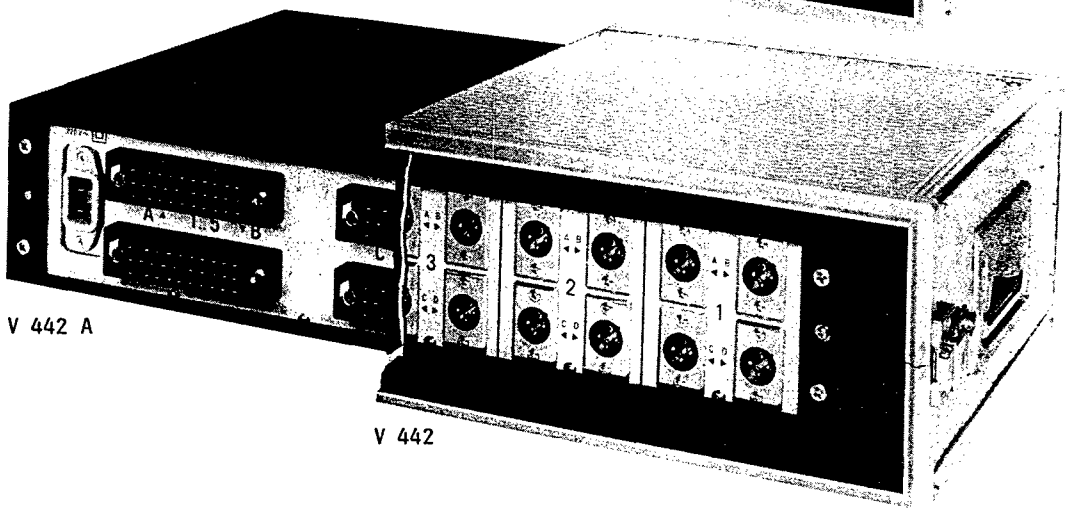
Georg Neumann GmbH | Berlin

33711 80203

V442 Microphone Isolation Amplifier (portable)
V442 A Microphone Isolation Amplifier (for rack mounting)



V 442



V 442 A

V 442

Isolation amplifier for a non-reactive distribution of a microphone or line level signal to several outputs.

- Hi-pot isolation of the inputs among themselves as well as against the outputs, chassis/0-volt, and power line input: 2.5 kV at 50 Hz.
- Inputs selectable for microphone and line level.
- Built-in switchable 48 volt Phantom Powering.
- Separate input and output amplifiers.
- Max. output level at 0.1% THD: +22 dB. Outputs short circuit proof.

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The V 442 Microphone Isolation Amplifier has five inputs.
Each of these may be switched to mike or line level.
The 48 V Phantom Powering required by condenser microphones is generated separately for each input. It may be also switched on or off separately and independent of the individual MIC or LINE setting.

There are four identical outputs associated with each input. The signal to be distributed is fed through an input amplifier to the parallel connected inputs of the four output amplifiers, and from there to the outputs. This arrangement guarantees the highest interaction attenuation.

It is an important feature of the Microphone Isolation Amplifier that it offers electrical isolation of the inputs against one another as well as against the outputs, to which the operating ground of a mixing console may be connected.
This measure is necessary to prevent possible voltage differences between the microphones and the electronic musical equipment used by musicians.

In normal studio operation, microphone housings are connected to the grounded console via the cable shield. In practice, however, it accidentally happens that due to a defect of some kind, one side of the ac power line may be inadvertently connected to the chassis of an electronic musical instrument. Simultaneous touching of a microphone and the instrument by the musician may lead to a fatal accident.
In order to prevent this, the input transformers were constructed to isolate 2.5 kV ac.

Grounding of the microphone cable shield is done capacitatively through a 2.5 kV ac tested capacitor whose capacitance is so dimensioned as to prevent any leakage current which would result from the above mentioned operation, from exceeding the value permitted by VDE. Static changing of the microphone housing is prevented through suited measures.
The 48 V Phantom Powering is generated separately for each microphone input.
As a result every input is hi-pot proof up to 2.5 kV 50 Hz, both against chassis/0 volt, operating ground and power input, as well as against one another.

The 0-volt connections associated with each output may be disconnected from the common equipment 0-volt by opening a link. The 0-volt connection to the connected output then leads only through a 0.022 µF capacitor. This permits the reduction of the effects of ground loops which might be formed by connecting several outputs, each with different ground potential.

The V 442 is delivered with these links in their closed position. All service tests are to be made on this unit with these links closed. The supply voltages of the individual distribution channels are individually fused for greater operating safety. Operational condition is indicated by an LED.

The V 442 is made according to "Safety Class II", and is tested to conform to VDE 0804/0860.
The V 442 is explicitly permitted to be used at german radio stations by certificate of the "Gesetzliche Unfallversicherung der Verwaltungs-Berufsgenossenschaft" (a legal authority taking care of working safety of technical equipment).

Available Versions

1) V 442 -portable, rugged instrument case; outputs at D 3 M Switchcraft connectors.

2) V 442 A -19" Version for rack mounting; outputs at 30-pole male multiconnector strips.
Inputs additional at a rear 30-pole female multiconnector strip.

3) Special versions:
   3.1. To be fitted with different connectors.
   3.2. Position MIC with 0 dB or +18 dB gain by choice.

Technical Data

Ref. level:	0.775 V ≙ 0 dB
Test frequency:	1 kHz sine wave

Frequency range: 40 Hz...15kHz ±0.5 dB

Switchable gain
R_{Gen} in position
MIC = 200 ohms pos. MIC = 18 dB ±0.5 dB
LINE = 50 ohms pos. LINE = 0 dB ±0.5 dB

R_{load} = 1 kohm per output

Input Data

Inputs: 5
balanced and floating, transformer with separate static shield winding

True input impedance
(40 Hz to 15 kHz) ≥ 1 kohm

Input common mode rejection at
15 kHz per IRT specifications 3/5 ≥ 60 dB

Hi-pot test of the inputs against one another, against the outputs, chassis/0 volt, mains input:
max. 2.5 kV 50 Hz for 2 sec.

Output Data

Outputs:	20 (4 per input) balanced and floating, transformer with static shield winding.
Output source impedance (40 Hz to 15 kHz)	≦ 200 ohm
Output common mode rejection at 15 kHz per IRT specifications 3/5	≧ 60 dB
Hi-pot of the outputs against chassis/0 volt:	max. 500 V/ 50 Hz/ 2 sec.
Max. output level into 1 kohm for THD = 0.5%, 1 kHz, 220 V ac power line:	≧ +23 dB
Permissible output loading:	≧ 1 kohm each output

T.H.Distortion at +22 dB output level

f =	40 Hz	6,3 kHz
	≦ 0.3 %	≦ 0.1 %

Weighted and Unweighted Noise Levels

Input termination = 200 ohm,
output termination = 1000 ohm
measured in MIC position
(DIN 45 405, issue 11.83 and CCIR 468/2)

P_{unwtd} ≦ -98 dB_{qs}
P_{wtd} ≦ -94 dB_{qps}

Channel separation at 15 kHz ≧ 90 dB
R_{Gen} = 200 ohm,
termination = 1 kohm

Interaction attenuation
Output 1 to n against output n-1,
R_{Gen} = 200 ohm; P_{unwtd} = +20 dB
output termination 1 kohm

$f_{interf.}$ =	40 kHz	1kHz	15kHz
	≧ 70 dB	≧ 90 dB	≧ 90 dB

Power Supply

ac mains nominal voltage:	220 V 50 Hz
Allowable power line error:	198...231 V
Power consumption at 220 V :	max. 20 VA
Phantom Powering for each input:	48 V per DIN 45 596
Environmental temperature range:	-20°...+50° C

Dimensions and Weight

V 442 Portable w x h x l	510 x 130 x 300 mm (20"x 5.1"x 11.8")
Weight:	approx: 13.5 kg
V 442 A 19" Rack w x h x l	435* x 90 x 265 mm *)+ mounting angle
Weight:	approx. 9.3 kg(20.5 lbs)

Required Mating Connectors

V 442 Portable

Inputs:	Switchcraft A3M or equiv.
Outputs:	Switchcraft A3F or equiv.

V 442 A 19" Rack

Inputs:	Switchcraft A3M and 30 pole male T 2070
Outputs:	30-pole female T 2071

Accessories supplied with the units:

Power cable per protective class II
(2) replacement fuses 0.2 A SLO-BLO
(2) replacement fuses 0.125 A SLO-BLO

Output Ground Isolation

In order to reach the 0-volt disconnecting links it is necessary to open the V 442 (A) Microphone Isolation Amplifier.
But this does not require the complete device with its housing to be removed from the rugged case resp. from the mounting rack.

For opening proceed as follows:

1. Remove those four fixing screws from the back of the housing, marked in figure 1.
   Push the chassis towards the front.

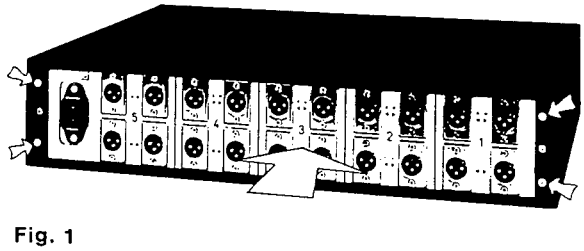

Fig. 1

2. Remove those ten screws from the bottom of the chassis, marked in figure 2, fixing the upward--folding hinged PC-board.
Turn the PC-board up.

3. Now the links are available, arranged in one row near the lower edge of the PC-board. Assigned to the channel-arrangement they count right to left 1a,b,c,d to 5a,b,c,d.

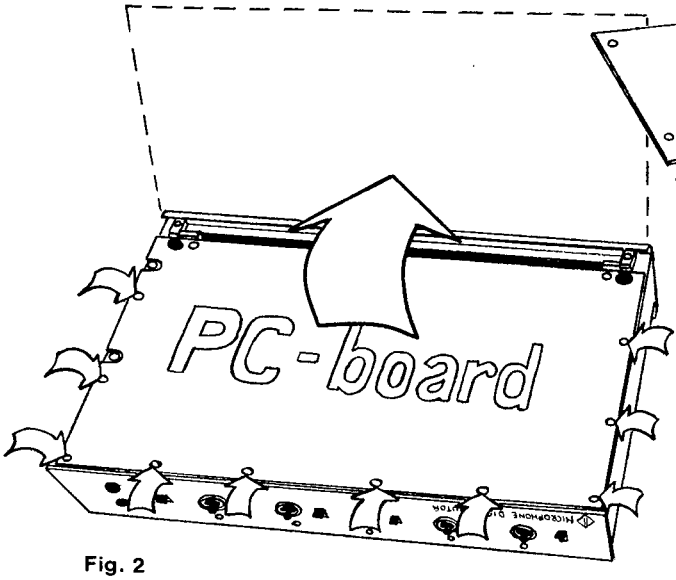

Fig. 2

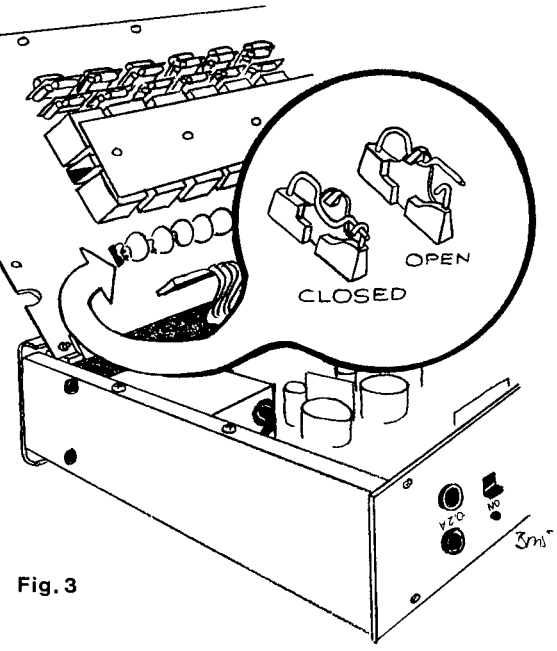

Fig. 3

Errors excepted. Specifications subject to changes without notice.