



nike man

Dual Channel Microphone Preampfier

Owner`s Manual

Model 9523



SOUND PERFORMANCE LAB

Owner's Manual

by Hermann Gier, Paul White & Paul Lentzen

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Dear customer,

Thank you for the confidence you have shown towards SPL electronics GmbH by purchasing the SPL MIKEMAN. You have decided to use a tool of high performance which sets you in the position to have faster success and a better sound quality in your music productions.

As a typical SPL unit the MIKEMAN combines exemplary specifications and high manufacturing standard with excellent sound quality to provide you a precious component for studio and P.A. purposes. Please read this manual carefully to ensure you have all the information you need to use the MIKEMAN. We wish you every success.

Your Sound Performance Laboratory-Team

I would like to start with my thanks to all our staff, who created what is to be described here. The importance of their exceptional qualification and talents can't be overestimated. But the biggest thanks I owe their unbelievable engagement, creativity and productivity in realizing our projects.

Our products are often tested and compared in many publications and by our customers themselves and constantly valued with best results.

I would like to pass on this broad appreciation to those, who deserve it – my excellent colleagues.

Hermann Gier

Foreword

Thanks



Introduction

The recording industry has gone through some dramatic changes in the past years. The home recording market produces professional results with modest investments. Mainly inexpensive mixing consoles with lots of channels and 8-bus-option are being used. High class filtering and microphone preamplification are not incorporated in these systems. The "direct to DAT" recording philosophy has created another growing market. Sampling and direct cutting through quality mic preamps has become popular. The MIKEMAN is the ideal choice for both recording situations. It is the cost-effective entry into high performance preamplification and ideally suited to partner your favorite mic in getting the best possible performance on tape. It improves the sonic quality of small mixing consoles with two channels of superior preamplification and it is the ideal tool for "direct to DAT" applications.

The MIKEMAN is a dual channel microphone preamplifier with excellent noise and CCMR specs. It has a large input headroom (+26,5 dB), which makes limiting a less important issue. Microphone and line level signals can be preamplified up to +72 dB. Activating the padding switch attenuates the preamplifier stage by -35 dB. The superior phantom power supply for condensor microphones is also ideal for old tube microphones which need a very stable and clean +48 V phantom powering. The Phase Reverse switch is used to change the polarity of the microphone. PPM-meters displaying output values between -18 dB and +9 dB are also incorporated. The input and output stages can optionally be equipped with beyerdynamic transformers.

Operating Safety



Important security advices

The housing of the MIKEMAN has the standard 19" EIA format and occupies 1 unit (1 U = 44 mm) in your rack. When installing the unit in a 19" rack, the rear side of the unit needs some support, especially in a touring case. The MIKEMAN should not be installed near units which produce strong magnetic fields or extreme heat. Do not install the MIKEMAN directly above or below power amplifiers or digital processors. If possible, the MIKEMAN should be placed in an »analog rack« where the majority of (or all) the equipment installed is analog. This eliminates problems which could result from interfering high-frequency signals such as clock frequencies, MIDI or SMPTE control signals.

Check that the voltage details quoted on the back panel are the same as your local mains electricity supply. Use a minus (-) screwdriver to set the voltage selector to the voltage for the area in which the unit will be used.

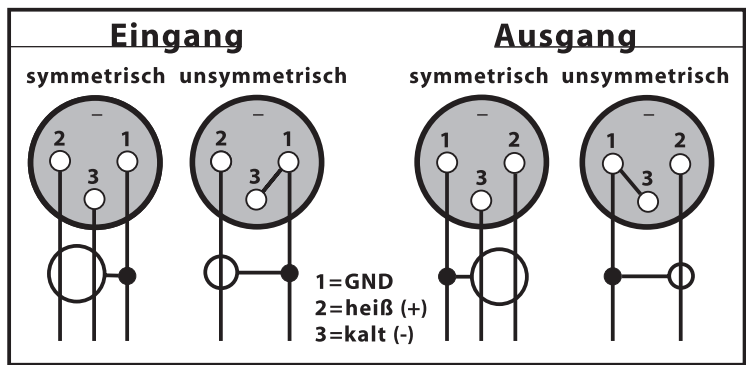
Never cover up the ventilation slots on the top of the unit. If, during operation, the sound is interrupted or indicators no longer illuminate, or if abnormal odor or smoke is detected, or if water is spilled on the unit, immediately disconnect the power cord plug and contact your dealer or an authorized service center.

Only clean your MIKEMAN with a soft, lint-free cloth. Use only standard cleaning agents. Never use alcohol or paint thinner, because they may damage the finish.

Connections

The MIKEMAN is equipped with two electronically balanced, female 3-pole XLR sockets to connect two microphones or a line signals. The outputs of the MIKEMAN are designed balanced on male XLR sockets as well as unbalanced on 1/4" jacks. The outputs can be used parallel to each other. This means that two output signals can be produced from one input signal.

The following diagram shows how to unbalance balanced wiring correctly:



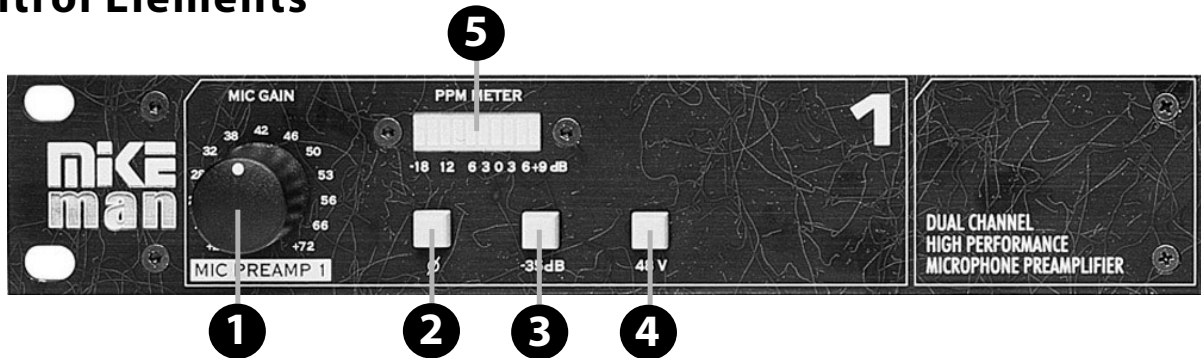
Condenser microphones with 48V phantom power **can not** be used unbalanced.

Both output stages operate in parallel, so it is possible to connect two different destination units simultaneously, for example to record to two different media at the same time or split the output between a mixer and effects processor.



Rearfront MIKEMAN, Model 9523

Control Elements



Mic Gain

1

The preamplifier stage of the MIKEMAN is based on the SSM 2017 semiconductor. The strengths of this particular component are its extremely low noise and distortion characteristics. Unlike discretely designed circuits, the SSM 2017 has 64 transistor functions (discretely up to 24), thus achieving a very high common mode rejection.

Preamplification of the input signal is determined by the MIC GAIN control. The control range of the preamplification values ranges from +22 dB to +72 dB. The maximum amplification value specified is a minimum value. The preamplifier stage provides up to +75 dB. This value can be lower, depending on the tolerance of the potentiometer, but it never falls below a value of +72 dB.

The maximum input level is +25,7 dB! This high input capability reduces the need of limiting.

When setting the MIC GAIN value, take note of the transducer type (condensator or dynamic microphone) and the free-field transmission factor of the microphone type. The sound pressure level of the sound source to be recorded, the distance to the microphone and the room acoustics are other factors which also have to be taken into account when setting the MIC GAIN potentiometer. The free-field transmission factor of a dynamic microphone is around 2 mV/Pa, that of a condensator microphone can be up to 20 mV/Pa, which equals an increase in the output level of 20 dB.

Phase Reverse

2

Pressing the phase switch (PHASE REVERSE) inverts the polarity of the microphone signal. When the switch has not been pressed (status LED is off), the polarity is »in phase«. Pressing the switch means that the polarity is »out of phase«.

Phase inversion can be used for a number of different reasons:

1. If, for example, the microphone signal of a singer or speaker is preamplified in the MIKEMAN and the monitor signal is folded back to the headphones, the singer or speaker cannot hear himself very well. Pressing the phase switch inverts the polarity of the microphone and consequently, of the headphone signal, and the singer or speaker can then hear himself on his headphones without having to increase the level.

2. The phase inversion feature is also very useful when the polarity of the XLR input jack has to be inverted to match the polarity of the microphone or the microphone cable. The pin assignment of the XLR connector is as follows: Pin 2 = hot (+) and Pin 3 = cold (-).

3. Sometimes it is desirable to swop the polarity of a microphone because of the sound.

The MIKEMAN can also be used as a gain-on amplifier for line signals. The input sensitivity of the preamplifier stage is reduced by 35 dB by pressing the -35 dB switch. The corrected preamplification value on the MIC GAIN control can be ascertained by subtracting 35 dB from the value set on the potentiometer.

Condensor microphones require a supply voltage of 48 V DC which supplies the microphone via the balanced audio lines (pins 2 and 3). When the supply voltage is switched on, a phantom circuit is formed whereby the 48 V DC supply voltage is applied simultaneously to the two supply lines (+/-) of the microphone and fed back via the cable screen.

There is no DC voltage between the two modulation lines which is why dynamic microphones can be used when the phantom voltage is switched on, without this doing the microphones any harm.

The influences of noise voltages which can superpose the DC supply voltage such as hum loops and parasitic currents in the cable screen are reduced by the phantom power supply. Moreover, this type of connection is particularly resistant towards RF.

As there is no potential difference between the +/- supply lines, the connection technique of the phantom supply is compatible with moving coil and ribbon microphones.

All microphones with balanced floating output, i.e. also microphones equipped with tubes can be used when the phantom voltage is switched on.

WARNING: It is essential to switch the phantom supply off if other types of microphones are used. A line signal source or an unbalanced microphone may only be used if the phantom supply is switched off.

The output peak levels (PPM values) are indicated on the LED display in steps of 3 dB from -18 dB to + 9 dB.

3 -35 dB

4 48 V Phantom Power

*Phantom power
according to
DIN 45 596 / IEC 268-15*

5 PPM Meter

Power Supply

A stable and well-filtered toroidal-core power supply provides the basis for good sound processing.

The GND LIFT switch helps to remedy hum loops.

Ample filtering, smoothings and calibrations make for stable, constant service voltage.

The phantom supply voltage is from a separate power supply with sophisticated filtering and selected components.

Special attention has been paid to the power supply of the MikeMan. The power pack is the heart of any unit, and the more accurately it works, the more this improves results.

The power supply is installed around a toroidal-core transformer which does not cause any electronic humming or mechanical sounds as a result of its minimum leakage field. The primary voltage can be switched between 230 V / 50 Hz and 115 V / 60 Hz.

A 3-pole standard IEC mains connection socket serves to connect a detachable 3-pole mains lead which is included in the scope of supply. Transformer, power cable and mains connector comply with the requirements of VDE, UL and CSA. The fuse rating is 200 mA.

The connection between ground and housing can be separated via the GND LIFT switching option. Hum loops can be remedied in this way.

On the secondary side of the power supply, an RC combination is used to filter out noise and hum voltages from the mains side. Both half-waves are smoothed with 2000 mF capacitors in the positive and negative voltage path.

An independent, self-contained power pack is used for the phantom power supply. It obtains unregulated AC voltage from 2 x 25 V coils in the transformer. This results in +/- 22.5 V DC via bridge rectifiers which are filtered with 1000 mF. The DC voltage is adjusted to exactly 48 V in the switching power supply (LM 311) downstream. It is then smoothed again and stabilized. The power supply current flows to the intrusion point via the PCB. An RC combination stabilizes the power supply again at this point. Two medicinal 6.81 kW resistors with a tolerance of only 0.1% are used as bridging resistors.

Specifications

Frequency range	15 Hz- 40 kHz +/- 0,1 dB
Overall frequency range	10 Hz-100 kHz +/- 0,5 dB
E.I.N.	126,6 dBm/dBu

CMRR (common mode rejection)

(Measuring set-up: load ohms 150 W, 0dB, measured at XLR-output)

CMRR -20 dBu	CMRR -60 dBu
100 Hz:	-80 dBu-80 dBu
1 kHz:	-80 dBu-80 dBu
10 kHz:	-73 dBu-80 dBu
20 kHz:	-68 dBu-80 dBu

THD & N (total harmonic distortion & noise)

(Measuring set-up: load ohms 150 W, measured at XLR-output)

Measurement A	Measurement B
Varying amplifications up to 0dBu	60dB amplifications; increase of generator output in 10dB steps
-60 dBu to 0 dBu = 0,064 %	-60 dBu = 0,064 %
-50 dBu to 0 dBu = 0,028 %	-50 dBu = 0,058 %
-40 dBu to 0 dBu = 0,017 %	-40 dBu = 0,018 %
-30 dBu to 0 dBu = 0,015 %	-30 dBu = 0,006 %
-20 dBu to 0 dBu = 0,062 % (-35 dB activ)	-20 dBu = 0,002 %
-10 dBu to 0 dBu = 0,025 % (-35 dB activ)	-10 dBu = clipping
0 dBu to 0 dBu = 0,017 % (-35 dB activ)	

Signal to noise

(Measuring set-up: load ohms 150 W, measured at XLR-output)

amplification	CCIR-469-2	A unweighted
72 dB	-55,85 dBqp	-60,07 dB
60 dB	-60,66 dBqp	-69,75 dB
50 dB	-68,57 dBqp	-77,55 dB
40 dB	-73,11 dBqp	-81,75 dB
30 dB	-74,79 dBqp	-83,18 dB
with -35 dB Pad:		
20 dB	-62,56 dBqp	-71,85 dB
10 dB	-69,83 dBqp	-78,68 dB

Input stage

Instrumentation amplifier, (differential), transformerless	electronically balanced
Nominal input level	+6 dB
Input impedance	200 Ohm to 1,2 kOhm
headroom before clip	+25,72 dBu

Output stage

Output 1: XLR, Instrumentation amplifier, electronically balanced (differential), transformerless,
Nominal output level +6 dB
Output 2: Jack, unbalanced
Nominal output level 0 dB
Output impedance (XLR/Jack) < 600 Ohm

Dimensions

Housing	Standard EIA 19"/1U, 482 x 44 x 237 mm
Weight	3,2 kg

Warranty

SPL electronics GmbH (hereafter called SPL) products are warranted only in the country where purchased, through the authorized SPL distributor in that country, against defects in material or workmanship. The specific period of this limited warranty shall be that which is described to the original retail purchaser by the authorized SPL dealer or distributor at the time of purchase.

SPL does not, however, warrant its products against any and all defects:

1) arising out of materials or workmanship not provided or furnished by SPL, or 2) resulting from abnormal use of the product or use in violation of instructions, or 3) in products repaired or serviced by other than authorized SPL repair facilities, or 4) in products with removed or defaced serial numbers, or 5) in components or parts or products expressly warranted by another manufacturer.

SPL agrees, through the applicable authorized distributor, to repair or replace defects covered by this limited warranty with parts or products of original or improved design, at its option in each respect, if the defective product is shipped prior to the end of the warranty period to the designated authorized SPL warranty repair facility in the country where purchased, or to the SPL factory in Germany, in the original packaging or a replacement supplied by SPL, with all transportation costs and full insurance paid each way by the purchaser or owner.

All remedies and the measure of damages are limited to the above services. It is possible that economic loss or injury to person or property may result from the failure of the product; however, even if SPL has been advised of this possibility, this limited warranty does not cover any such consequential or incidental damages. Some states or countries do not allow the limitations or exclusion of incidental or consequential damages, so the above limitation may not apply to you.

Any and all warranties, express or implied, arising by law, course of dealing, course of performance, usage of trade, or otherwise, including but not limited to implied warranties of merchantability and fitness for particular, are limited to a period of 1 (one) year from either the date of manufacture. Some states or countries do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state, country to country.

SPL electronics GmbH, D-41372 Niederkruechten, Germany

Your Notes

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