IBF-MP1r Microphone Preamplifier

User Guide

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microphone preamplifier

User Guide

(C) Wolfgang Frank

Design and Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use. Whenever a doubt about safety issues arises from this product, please inform us immediately for technical consultation.

Contents

Quick Guide to using the MIC-Amp

All of us get in a hurry to use a new device. We want you to fully understand how to use the mic amp and avoiding user faults.

Step 1

Open the batterie compartment and connect the batterie, accumulator or external voltage supply unit.
Note: The mic-amp has a build in reverse polarity protection avoiding damages caused by voltage supplies with wrong configurated ouput voltage polarity

Step 2

Check the power switch position and make sure it is in the off state. The power switch is part of the potentiometer function..

Step 3

Set the gain potentiometer to mid gain.

Step 4

Using shielded microphone cable, connect a microphone to the microphone input channel on the front panel.

Step 5

Connect the line output to the line input of the next device.

Step 6

Be Careful!
Turning power switch on or off, can produce a voltage spike in the line and/or power output. Protect your ears, speakers and equipment by being careful while the mic-amp line output is connected to the next device.

Step 7

Adjust the gain control with signal going into the microphone to give the desired output level. The indicator LED's can provide help in setting the right level. See section „amplitude calibration procedure“ in this manual. The Clip-LED has a characteristic somewhat between that of a peak and VU control (short attack and enlarged release time). It is a quasi reference and should force you into a lower gain setting if necessary.

Step 9

Be Careful and watch the gain setting! Is it realistic!
Most equipment connected to the mic-amp will clip before the mic-amp will. Your soundcard may be distorting on peak signals even though the mic-amp isn't. This is because the soundcard line inputs being overloaded with too much signal coming from the mic amp's line output. Turn down the mic-amps gain control until distortion stops.

Introduction

General Description
The IBF-MP1r is a portable, battery-powered microphone preamplifier with bias supply for electret microphones and designed for 20Hz to 20kHz audio bandwidth. This quality mic pre is ideal for audio recording and acoustic measurement purposes such as speaker and roomacoustic measurements.

With its rugged mechanical and electrical construction, compact size and high-quality components, the IBF-MP1r is extremely durable and easy to use. This highly reliable mic preamp will provide years of superb audio performance under regular conditions.

Installation

Locating the unit
Keep the mic-amp physically separated from other electronic equipment that produce electrical fields. As a high gain device, hum and noise pickup is possible through chassis and associated cable. Placing the unit away from transformers, power amplifiers, etc. will help to avoid pickup of those unwanted signals.

Signal and supply connections
All necessary connections on the mic-amp are made via RF phono jacks. Both the microphone input connectors and line output connectors are female. In addition a power output (3.5mm jack) and an DC-IN (1.3mm connector) jack can be found on the right side of the device.

Operational Notes

Power Switch
The power switch is a built in function of the gain potentiometer. When power is switched on or off, high level audio "pops" on the output connectors are likely.
This is a function of DC voltage turning on or off to the circuitry and can also be seen on the indicator LED's. Care must be taken to ensure that these "pops" do not damage equipment or ears associated with the mic preamp ouputs. It is a good idea to lower the sound level of the associated equipment.

Clipping Indicator
The Mic-Amp has a build in clipping indicator that can provide assistance in setting the gain control.
It has a characteristic somewhat between that of a peak and VU control (short attack and long release time). It is a quasi reference and should force you into a lower gain setting if necessary.

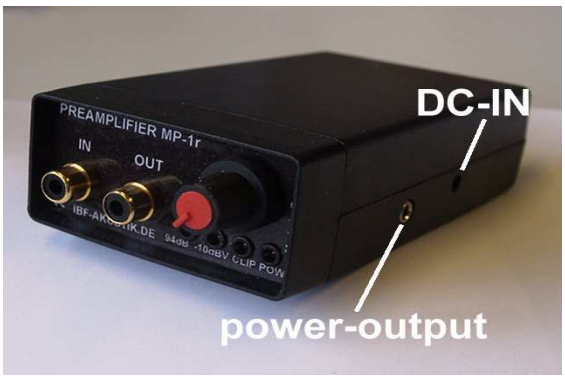
Acoustic calibration procedure (94dBspl-LED and -10dBV-LED)
Place the microphone near to your speaker (approx. 10“ away).Playback a 1kHz Signal from a testsignal CD or playback a 1kHz-wav-file through your computer-soundcard (connection soundcard – stereo assumed). Increase loudness until you get the green 94dBspl-LED signal. From this point: vary loudness until the LED indicates with full itensity. SPL setting is done.

Now you have to set the preamplifier gain.
Increase gain from lowest value until the yellow –10dBV LED glows with full itensity.

Calibration is done: Now you know, that 94dBspl gives you a –10dBV output signal.

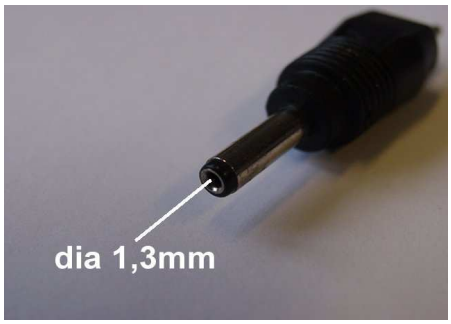
You can now continue with your measurement software settings/calibration.

Note: The LED-signal is low pass filtered (500Hz-3dB). Therfore calibration must be done with a 1kHz signal.



Power output
Both 3.5mm mono or stereo plugs can be used. Signal is applied to the tip, gnd to the sleeve. No signal is applied to the ring-contact when using a 3.5mm stereo plug.

Batteries and external Voltage supplies
The IBF-MP1r is designed to operate on one 9 V battery or accumulator or external 9V power supply (It contains a reverse polarity protection device). Due to the power consumption of approximately 20 mA and supply by battery power dictates applying power only as required or using a plug-in power supply.
We recommend using plug-in power supplies with a stabilized output voltage. Types without that feature normally have a higher voltage output at low current consumption. This can damage the preamp or parts of it. Using „unstabilized“ plug-in power supplies also can cause additional noise in the signal path. Use a connector with a 1.3mm hole.



Hole: +9V
Sleeve: gnd

Note: The audio performance, respectively the maximum output voltage swing doesn‘t depend on the batterie voltage which drops down during it's life-time.

Appendices

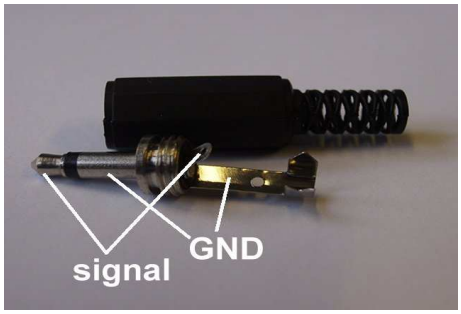
Controls, Connectors and Indicators

GAIN CONTROL (built in rotary power switch)
Selects the amount of gain from input to output.

MIC IN
unbalanced MIC-Input accepts microphone level signals, Both input channels use RF Phono jacks recommended for semi permanent connections in audio applications.

LINE OUT
unbalanced line level signals via RF Phono jacks. Minimal Load resistance 2kOhms

POWER OUT
Unbalanced. Has low impedance drive capabilities. Lower output level compared to Line out.



POWER LED / Low Batt indicator
LED illuminates green when the unit is powered. Same LED flashes when Battery voltage is too low for regular operation.

CLIPPING INDICATOR LED
LED illuminates red at clipping

94dBspl-LED
LED indicates green when a 94dBspl signal was fed to the related microphone (Amplifier is factory set for accurate level control).
LED-off : signal < approx 93dBspl
LED-on : signal approx 93 to 95dBspl (corresponding itensity varies low-high-low. A high itensity signals „near 94dBspl“)
LED-weak : signal > approx 95dBspl

-10dBV-LED
LED indicates yellow when the amplifier output gives you a –10dBV consumer level
LED-off : signal < approx -12dB
LED-on : signal approx -12 to -8dBV (corresponding itensity varies low-high-low. A high itensity signals „near –10dBV“)
LED-weak : signal > approx -8dB

Note: (0dBV=1Vrms / -10dBV=0,316Vrms

POWER Switch
Is part of the gain control potentiometer. Powers the unit when the switch is moved from the marked OFF-position.

BATTERY Compartment
Requires one 9V battery, accumulator or plug-in power supply for operation. Due to the 20 mA Power requirements we recommend the use of a accumulator instead of a battery.

Note: Plug-in power supply. Use a type which can give you an electronically stabilized 9V supply voltage (Unstabilized Power supply can cause damages and/or hum and noise).

Specification

Number of preamplifier channels - 1 Mic
Connectors - RF phono jacks for both inputs and outputs
Input - unbalanced, capacitor coupled, input impedance >2kOhm
Output - unbalanced, capacitor coupled, min load 2kOhm, short circuit protected, guaranteed output level without clipping +3dBV (full battery) Note: 0dBV=1Vrms
Power output – 3.5mm connector , low impedance drive capability (ideal for driving long cables and head/earphone), reduced output level -5dB
Gain Range - up to 52 dB input to output
Frequency Response - 20 Hz - 20 kHz, +-0.2 dB (relative to 1 kHz)
Output Clipping Level - 4Vpp (2 k• load)
Clipping indicator LED - Red indicates clipping short attack time, long release time. Bipolar detection
THD < 0,02% , THD & Noise < 0.04% , SNR > 70 dB
Bias Supply - typ. 2.5V coupled via 2.7kOhm resistor
Power - 1x 9V batterie, plug-in power supply connector
Power LED - Green indicates power ON, blinking LED indicates low batt. (Vbatt < 7V)
Acoustic REF LED - 94dB acoustic reference LED (off / bright / weak *indicates* < = > 94+-1 dBspl)
-10 dBV LED – Consumer Level reference LED (off / bright / weak *indicates* < = > 10+-2 dBV)
Polarity - Mic input to line output is non-inverting.
Operating Temperature Range
0 to 40 degrees Celsius (32 to 104 degrees F)
Power up delay – approx. 10 sec
Dimensions
34 mm x 68 mm x 120 mm (h x w x d) (1 11/32" x 2 11/16" x 4 23/32")
Weight (unit only)
120 grams (4 1/8 oz.) *battery removed*

CE Conformity Statement

I declare under my sole responsibility, that the product microphone preamplifier "IBF-MP1r" combined with the microphone "IBF-EMM8" is in conformity with the following european standard: EMC Directive no. 89/336 EEC.

This is documented by accordance with the following standards:

EN 50081-1
EN 50082-1
EN 55011 (CISPR 11)
EN 55022 (CISPR 22)

Viernheim/Germany , 10 . 06 . 2002

(This decalaration of conformity is suitable to the European Standard EN 45014,
"General criteria for suppliers declaration of conformity")

Limited Warranty

IBF (engineering office Wolfgang Frank) warrants the IBF-MP1r preamplifier against defects in material and workmanship under normal use and service for a period of 2 years from date of original purchase. We will repair or replace the product at no charge provided that the product is returned, shipping prepaid, to the manufacturer.

This warranty does not apply if, in our opinion, the product has been damaged due to abuse, misuse, misapplication, accident or as a result of service and modification by other than an authorized dealer.

For all service, including warranty repair, please send the IBF-MP1r, along with proof of purchase date to:

Safety clause and unauthorized applications

Products manufactured and/or sold (abrreviated products) by Ingenieurbüro Frank, Germany (abbreviated ibf-akustik) are not designed for use as a component in any life support, life safety, or other comparable application. Our products should not be used in any application where the failure or faulty performance of the product might create a risk of personal injury or death. Buyer assumes all risk of loss, damage or injury alleged to arise from the failure or faulty performance of a ibf-akustik product in any unauthorized application. Buyer agrees to indemnify and hold harmless ibf-akustik, and its directors, employees, agents, representatives and sales partners, from and against any and all claims, costs, damages, losses and expenses including attorney fees which arise from or are elleged to have been caused by any claim for personal injury or death connected with buyer's use of a ibf-akustik product in any unauthorized application, including claims which allege that ibf-akustik has been negligent in connection with the design or manufacture of the product.

Ingenieurbüro Frank (ibf-akustik) (28.02.02)