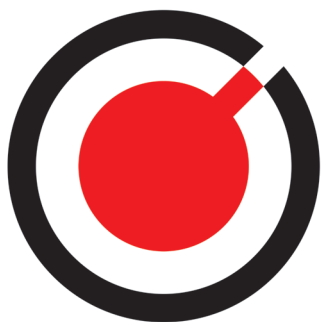# M-Patch 2.1

Manual

September 2012

SM PRO

SAFETY INSTRUCTIONS

CAUTION: To reduce the risk of electrical shock, do not remove the cover or rear panel of this unit. No user serviceable parts inside. Please refer servicing to qualified personnel only.

WARNING: To reduce the risk of fire or electrical shock do not expose this appliance to rain or moisture.

DETAILED SAFETY INSTRUCTIONS:
All safety and operation instructions of this manual should be read and adhered to before operation.

Retain Instructions:
Please retain all safety and operating instructions for future reference.

Follow instructions:
All operation and user instructions should be followed.

Water, liquid and Moisture:
The appliance should not be used near water, rain or other liquids. Make sure that no liquid can leak, spill or otherwise seep into the appliance.

Ventilation:
Please place the appliance so no obstacles interfere or impede the flow of air through the ventilation openings.

Heat:
The appliance should be situated away from other heat sources such as heaters, radiators, ovens, or other appliances that produce heat.

Power Source:
Make sure your appliance is set to the correct voltage for the country in which it will be use before switching the device ON.

Grounding and Polarization:
Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

Power-Cord Protection:
Power supply cords should be routed so that they are not likely to be walked on, pinched, damaged, worn, or rubbed by any other device or obstacle.

Cleaning:
The appliance should be cleaned only with a light soft cloth. Do not use any damaging or corrosive products on the unit.

Periods of inactivity:
The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time or in case a lightning storm occurs.

Damage Requiring Service:
The appliance should be serviced by qualified service personnel when:
- The power supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped, or the enclosure damaged.

Servicing:
The user should not attempt to service the appliance beyond that is described in the Operating Instructions.

All other servicing should be referred to qualified service personnel.

FOREWORD

Dear Customer, Thank you very much for expressing your confidence in SM Pro Audio products by purchasing this unit. The M-Patch 2.1 was designed to be a comprehensive "workhorse" test device for home, project and professional studios, live sound rental companies, repair centers, schools and fixed installations- in short, virtually any and all venues where audio products are used. Drawing on years of hands-on experience in the audio industry and valuable suggestions from our customers, our engineers have developed a product that we are certain will more then meet your expectations. As with all SM Pro Audio equipment, the M-Patch 2.1 was designed to provide you with a superb performance, excellent technical specifications and uncompromised audio quality at an extremely affordable price.

Regards, SM ProAudio

It should be pointed out, that extreme output volumes may damageyour ears and/or your headphone units. Turn down the LEVELcontrols before you switch on the unit.

PLACEMENT

The SM Pro Audio M-Patch 2.1 utilizes an electronic circuit. Be sure that there is enough air space around the unit for cooling. To avoid overheating, please do not place the units on high temperature devices such as power amplifiers or near other units which may have high frequency transmittance such as wireless devices.

MAINS VOLTAGE

The unit comes with a 12V - 16V DC power supply adaptor. Before you connect your unit to the mains, please make sure that your local voltage matches the voltage required by the unit! Any damage occurring as a result of an incorrect power supply selection may not be granted a warranty repair.

SM M-PATCH 2.1 MAIN FEATURES

Professional, multi-purpose passive volume attenuator with built in headphone amplifier.

Dual L/R Balanced Combination XLR–1/4" TRS Inputs Dual L/R Unbalanced RCA Inputs Dual 1/8" (3.5mm) TRS Stereo Inputs Dual Balanced XLR Master Outputs Dual Balanced XLR L/R Outputs Balanced XLR Subwoofer Output with Optional Variable Crossover L/R Balanced Sub/Crossover Returns Three Independent Rotary Analog Stereo Volume Controls 1/4" TRS Stereo Headphone Output Headphone Volume Control 1/4" TS Remote Mute Input Five Output Selector Switches with Mutes Stereo/Mono Summing Switch Master Mute Switch

1. INTRODUCTION

In purchasing the new M-Patch 2.1, you have acquired a passive volume control device of high class that meets the demands of the most professional studios.

An affordable high-quality problem solver for mixer-less DAW and nonlinear video production environments, the M-Patch 2.1 provides an ideal desktop or rack mount stereo level control solution for any monitoring or distributed sound application.

The M-Patch 2.1 is a multi-channel stereo attenuator using passive circuitry designed for users wishing to work without outboard mixers or bit-degrading digital volume attenuators. The M-Patch 2.1 provides stereo level control solutions for any monitor or distributed sound application. Featuring two rotary controls for precise two x stereo channel level adjustments, and housed in a desktop or rack-mountable sized chassis, the M-Patch 2.1 main volume controller is designed from discrete 0.5% resistors with a switched mechanism which is far more accurate then the standard variable resistors which are used in other products especially at lower volumes. It features the ability to return the signal from the subwoofer back into the M-Patch 2.1 and control it, along with the left/right monitors, from the master volume attenuator. Plus A dedicated mute switches make it easy to A/B mixes with or without the subwoofer.

2. THE DESIGN CONCEPT

2.1 High quality components and design
The philosophy behind SM ProAudio products guarantees a no-compromise circuit design and employs the best choice of components.

2.2 Inputs and outputs
All inputs and outputs are secured firmly to the exterior chassis housing. This ensures robust quality and confidence in performance under all conditions.

3. INSTALLATION

Your SM Pro Audio M-Patch 2.1 was carefully packed in the factory and the packaging was designed to protect the unit from rough handling. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred in transit.

If the unit is damaged, please do not return it to us, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted. Shipping claims must be made by the consignee.
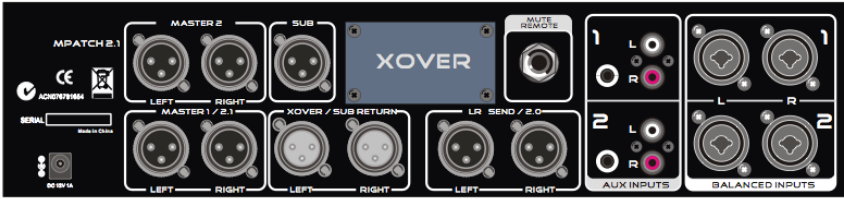
3.1 Desktop or Rack-mount installation
The SM Pro Audio M-Patch 2.1 can sit comfortably on your desktop. We also include a versatile pair of rack mounting ears.
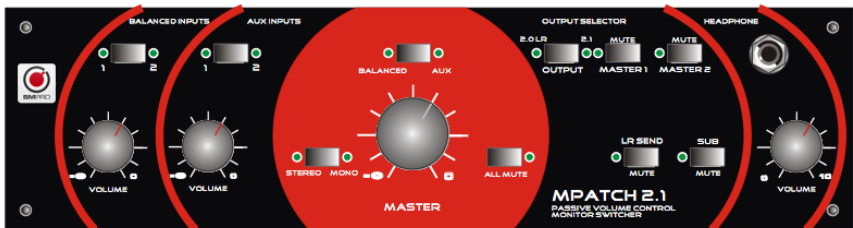
3.2 Audio input Connections
The M-Patch 2.1 features four (4) separate input channels named "Aux" & "Balanaced". The connections are found on the rear panel. (Input section on rear panel of M-Patch 2.1).

* Note: The M-Patch 2.1 accepts mic or line level input signals. Do notconnect your power amplifier outputs to the M-Patch 2 inputs!

3.2.1 Balanced inputs
The balanced main inputs feature XLR bal/unbalanced combo connectors for L&R input signal. This input is perfect for connection to your main audio interface devices. Simply connect your cables directly to the unit with either XLR or ¼" TS/TRS cables. You are then able to select between these 2 Balanced inputs and attenuate their input signal.

3.2.2 Aux inputs
The Aux input channels features two different connection possibilities in the form of 2 x RCA (L&R) and a stereo 3.5mm mini-jack input. These connections are perfect for devices such as a CD players line output or a 3.5mm stereo mini-jack connection from your PC's standard soundcard.

* Note: You can connect up to six different devices to the three physical connector possibilities simultaneously. The input selector on the front panel allows selection of the desired input!
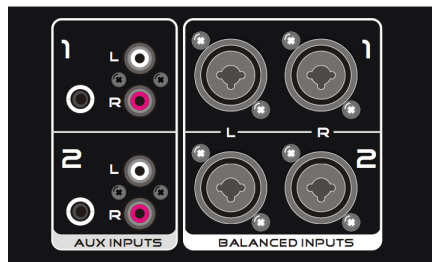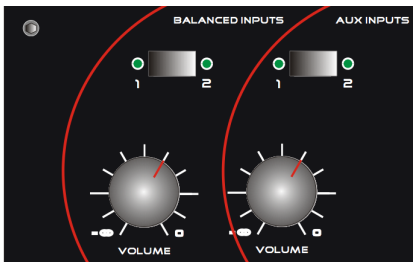
3.3 Analog audio outputs
The M-Patch 2.1 features three (3) pairs (L&R) of XLR balanced analog output connectors on the rear panel plus a subwoofer balanced XLR output.

Connect these outputs to your destination device (active monitors, digital recorder, or wherever you need the attenuated output signal sent).

* Note: It is possible to activate or deactivate each desired output pair via the output selector switches' on the front panel. It is possible to have both master 1 & master 2 outputs active at the same time. This is very useful when connecting the outputs to a recording device and a monitoring device simultaneously!

The Subwoofer direct output can be used to connect to an active subwoofer speaker or via a power amp to a passive subwoofer, NO cross over is installed inside the M-Patch 2.1 (we will be releasing cross over modules at a later time which can fitted to the M-Patch 2.1).

One of the unique features of the M-Patch 2.1 is the ability to use Active Subs which have cross overs built in them for the full range satellite speakers. In this situation, you would connect the MASTER 1 output to the Active subwoofer;s inputs and then the outputs of these to the XOVER/SUB Return input on the M-Patch 2.1, then use the LR Send/2.0 output to connect to your satellite speakers.

** NOTE: Do not connect amplified inputs to the M-Patch 2.1!*

2.1 setup

ACTIVE SUBWOOFER WITH CROSS OVER   ACTIVE L/R SPEAKERS
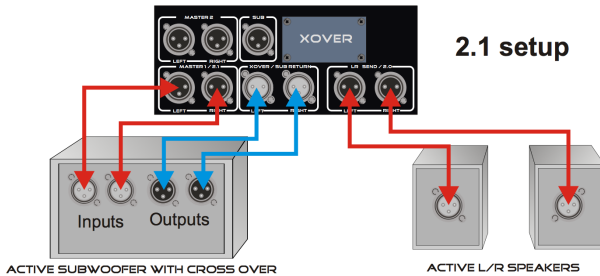
4. FRONT PANEL CONTROLS

4.1 Master Section
The master section lets you select between the BALANCED or AUX inputs, select MONO or STEREO listening mode for your monitors as well as MUTE all the outputs.

The main attenuator is made from precision 12 step switch which has 6 separate precision resistor networks to enable accurate attenuation of Left/Right and Subwoofer controls simultaneously in a passive manner.
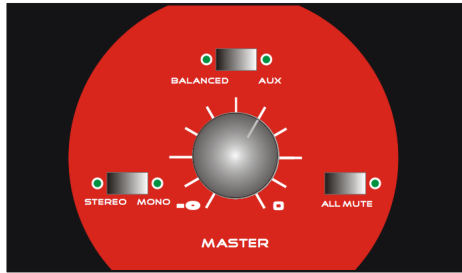
4.2 Headphone amplifier

A headphone amplifier is provided for monitoring the audio signal selected by the ‚Input Selection' control switches.

Simply connect a pair of headphones to the ¼" TRS headphone connector socket and use the rotary headphone volume control knob to adjust the volume level to your desired setting.

Note: Use of the headphone amplifier requires the connection of the external power supply.

4.3 Output selector switches

2.0LR/2.1 selector: When the M-Patch 2.1 is used as per the 2.1 setup below, this switch (IN 2.0LR position) enables you to route the audio signal directly to the L/R satellite speakers without going thru the subwoofer and it's cross over, basically giving you full range output.

In the 2.1 position the audio signal will first flow to the subwoofer then back into the M-Patch2.1 (XOVER/SUB RETURN) and out to the Satellite speakers. This effectively gives you a way of switching between a 2.0 and 2.1 speaker configurations.

Master 1 MUTE: A Mute switch for MASTER 1 output
Master 2 MUTE: A Mute switch for MASTER 2 output
LR SEND MUTE: A Mute switch for LR SEND / 2.0 output
SUB MUTE: A Mute switch for the SUBWOODER output
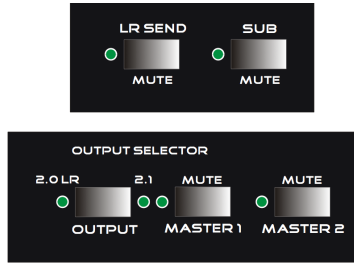
5. APPLICATION

Using the M-Patch 2.1
You can use M-Patch 2.1 anywhere you want to trim the amount of gain; ie, reduce the volume of analog audio signals. For example, you could use one to trim the output of a microphone pre-amplifier. With its high-quality potentiometers and master attenuator switch, the M-Patch 2.1 passes signal more accurately, and sounds better than most built-in volume controls. Another use might be to trim the levels of a 5.1 or greater multi-channel monitor system - either one pair of channels, or two, or all of them. You can also use the M-Patch 2.1 to trim the output level of a Digital to Analog Converter like those found in high end pre-amplifiers. It is also useful as a local volume control for distributed audio systems. The possibilities are endless!

Handy applications... The M-Patch 2.1 is great for those times when you prefer to monitor directly from the outs on your sound card or audio interfaces main outputs directly to your monitors. When your monitors are on they are normally extremely loud. As a result, you may become a bit frustrated as the volume is often simply too high to be comfortable. Your only choice is to hook up through an external mixer and attenuate the signal or to attenuate the signal in the computer outputs, thereby degrading your bit-levels. Neither solution is completely satisfying. Mixers add color to the signal and reducing the digital output in the computer will compromise the fidelity of your audio.

Simple steps for your home workstation… Typically you should connect the output of your soundcard or audio interface to the input of the M-Patch 2.1 using RCA, TRS or XLR jacks. You could also connect multiple connections at the same time if required. For example, connect the outputs of your audio interface to the balanced combo connectors, and your soundcards mini-jack output to the stereo 3.5mm AUX input on the M-Patch 2.1 You could also connect your CD or other line level device to the AUX RCA inputs. This enables you to level balance two input sources by passive attenuation!
Connect XLR cables from the outputs of the M-Patch 2.1 to your active monitors or the amplifier that powers the monitors. Remember you have two (2) output destinations as well as a subwoofer output so if you have two different monitor pairs (near-field & far field (room speakers)) you can connect one pair to output 1 (L&R), and the other pair to output 2 (L&R) and share the same sub.
Turn the volume all the way up on your monitors or amplifier, set your software & software volume control panel to Zero dB, and use the M-Patch 2.1 on your desktop to control your monitor level.
Simple, effective, transparent!

6. SPECIFICATIONS

AUDIO INPUTS

Connectors   4 x XLR Combo connectors
                                2 x stereo RCA pair (L&R)
                                2 x stereo 3.5mm jack

AUDIO OUTPUTS

Output Connectors   3 x XLR output pairs
                                1 x XLR mono subwoofer output

HEADPHONE OUTPUT

Output Connectors   1 x 14" TRS stereo output
Frequency response   20Hz20Hz +/- 0.5dB
Maximum output level   320mW into 32Ω

POWER

                                External DC12-16V adaptor

*Note: Power is only required to operate the headphone amplifier and illuminate the units led indicators. All other functions of the M-Patch 2 will continue to function fully without the connection of the external power supply.

PHYSICAL

Dimensions (no rack ears)   37cm x 15.5cm x 8.5 cm
Net weight   approx. 2 kg

7. WARRANTY

7.1 Warranty Card

To be protected by this warranty, the buyer must complete and return the enc-
losed warranty card (signed/stamped by retail dealer) within 14 days of the date of
purchase to SM Pro Audio (see address below 3). Failure to return the card in due
time (date as per postmark) will void any extended warranty claims.

7.2 Warranty

7.2.1. SM Pro Audio warrants the mechanical and electronic components of this
product to be free of defects in material and workmanship for a period of one (3)
years from the original date of purchase, in accordance with the warranty regulati-
ons described below. If any defects occur within the specified warranty period that
are not caused by normal wear or inappropriate use, SM Pro Audio shall, at its sole
discretion, either repair or replace the product.
7.2.2. If the warranty claim proves to be justified, the product will be returned
freight prepaid by SM Pro Audio within Australia. Outside of Australia, the product
will be returned at the buyer's expense.
7.2.3. Warranty claims other than those indicated above are expressly excluded.

7.3 Return Authorization Number

7.3.1. To obtain warranty service, the buyer must call SM Pro Audio during normal
business hours BEFORE returning the product (Tel.: +61 3 9555 8081). All inqui-
ries must be accompanied by a description of the problem. SM Pro Audio will then
issue a return authorization number or by email to service@smproaudio.com
7.3.2. The product must be returned in its original shipping carton, together with the
return authorization number, to the following address:

SM Pro Audio
Service Department
W25, 26-28 Roberna St
Moorabbin
Melbourne, Victoria
Australia 3189

7.4 Warranty Regulations

7.4.1. Warranty services will be furnished only if the product is accompanied by an original retail dealer's invoice. Any product deemed eligible for repair or replacement by SM Pro Audio under the terms of this warranty will be repaired or replaced in the best possible manner.

7.4.2. If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship.

The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, SM Pro Audio shall not be held responsible for any cost resulting from such a modification/adaptation.

7.4.3. Free inspections, maintenance/repair work and replacement of parts are expressly excluded from this warranty, in particular if caused by inappropriate use. Likewise, the warranty does not cover defects of expendable parts caused by normal wear of the product. Expendable parts are typically pots, potentiometers, switches and similar components.

7.4.4. Damages/defects caused by the following conditions are not covered by this warranty:

- Misuse, neglect or failure to operate the unit in compliance with the instructions given in the user or service manuals.
- Connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used.
- Damages/defects that are caused by any other condition beyond the control of SM Pro Audio.

7.4.5. Any repair carried out by unauthorized personnel will void the warranty.

7.4.6. Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. SM Pro Audio will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 4 weeks after notification, SM Pro Audio will return the unit C.O.D. with a separate invoice for freight and packing. Such cost will also be invoiced separately when the buyer has sent in a written repair order.

7.5 Claim for Damages

Failure of SM Pro Audio to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of SM Pro Audio exceed the invoiced value of the product.

7.6 Other Warranty Rights

This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.

The information contained in this manual is subject to change without notice. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording of any kind, for any purpose, without the express written permission of SM Pro Audio.

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www.smproaudio.com