

SM
PRO



MBC502

500 SERIES OPTICAL COMPRESSOR

Operating Manual
V1.1



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1 SAFETY INSTRUCTIONS

CAUTION: Please ensure power to your 500 series power chassis is OFF before installing or removing your 500 series modules. Hot Swapping, (exchanging of 500 series modules with the power on) is NOT recommended. If the power is on whilst exchanging modules, the pins on the modules multipin connector may short and burn the regulator. For this reason, hot swapping of modules is not covered under the SM Pro Audio warranty.

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.

2 FOREWORD

Dear Customer,

Thank you for purchasing this SM Pro Audio product. Our MBC502 has been designed as a tool for use in home & professional studios, P.A. rental companies, Schools and in many other situations where audio products would be used.

With vast experience in the audio industry over a long period of time, and along with valuable suggestions from our customers, our engineers have developed a product that we know you will be satisfied with. We guarantee you uncompromising quality as well as excellent technical and audio properties at an extremely affordable price.

We hope you enjoy making music with SM Pro Audio!

2.1 IMPORTANT NOTES:

Every effort has been made to ensure all information provided in this manual is accurate at the time of writing.

SM Pro Audio is not liable for any incorrect information contained in this manual and extends no liabilities in regard to this manual other than those required by local law.

SM Pro Audio may update the contents of this manual at any time without prior notice. The latest version of this manual is available from the SM Pro Audio website at all times.

<http://www.smproaudio.com>

3 INTRODUCTION

MBC502 is a 500 series module that occupies 2 slots in your 500 series rack. It is a dual band optical compressor with a Linkwitz-Riley 4th order (24dB/octave) crossover.

Each channel – low frequency and high frequency offer control over level, compression amount, attack and release times. Switches allow you to mute one channel so that the other can act as a filter, with the filters centre frequency determined by the frequency selector knob. The VU meter displays the master output level, while gain reduction is shown on the LED meters. Last but not least: The MBC502 audio circuit uses LME49720 ultra-low distortion/low noise Op Amps, for clear, defined audio input and output quality.

3.1 UNBOXING

Your SM Pro Audio MBC502 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.

3.2 CONNECTING

The SM Pro Audio MBC502 is a 500 series compatible module, which connects to a 500 series power chassis via the rear multipin slot. **Please ensure the power is off before slotting your module into your 500 series power chassis.** Below is the feature layout of the multipin connector.

Terminal	1 CHASSIS
	2 OUTPUT 1 + (+4 Level)
	3 OUTPUT 2 + (-2 Level)
	4 OUTPUT -
	5 GND
	6 STEREO LINK
	7 INPUT 2 - (-2 Level)
	8 INPUT 1 - (+4 Level)
	9 INPUT 2 + (-2 Level)
	10 INPUT 1 + (+4 Level)
	11 GAIN TRIM RESISTOR
	12 +16V DC
	13 GND
	14 -16V DC
	15 +48V DC



4 OPTICAL COMPRESSOR

Why Optical Compression?

Optical compressors have a smooth gradual release curve making them pleasing to the ear, very musical. This style of release is not usually found on a solid state or tube compressor. In simple terms, the MBC502 optical compressor splits the signal between a sensor (resistor) and an LED light. The light then acts as an attenuator on your volume path, controlling the amount of gain reduction. The audio itself does not have any processing as such.

5 CHANNEL CONTROLS

Controls for each channel are:

5.1 LEVEL

The rotary knob control at the top of the MBC502 (labelled 0 to 10), controls the amount of output level on each channel.

5.2 MUTE

The white push buttons marked LOW MUTE & HIGH MUTE mutes the audio signal for its respective channel. The corresponding LED with light up when the channel is muted.

5.3 ROTARY COMPRESSION CONTROL

The (COMP) rotary compression control, sets the amount of compression. It expresses the difference between the input level change and the output level change. The higher the amount of compression, the smaller the dynamic range.

5.4 ROTARY ATTACK ENCODER

The (Att) rotary attack control allows for adjustment in milliseconds. Attack is the time it takes the compressor module to respond to the corresponding input signal before gain reduction occurs. Short attack times quickly bring down the level of the loud, fast transients in the audio signal; long attack times let more sound through before the compressor engages, resulting in a punchier sound.

5.5 ROTARY RELEASE ENCODER

The (Rel) release control sets the time in seconds it takes for the compressor module gain to return to the point of no gain reduction in the absence of audio program material. Short release times create a more exaggerated effect (“breathing”), whereas long release times have a more gradual decay.

5.6 MASTER LEVEL

The Master Level VU Meter displays the audio level.

5.7 GAIN REDUCTION DISPLAY

The GR display shows the amount of gain reduction on each channel.

5.8 COMPRESSION ON/OFF SWITCH

The white buttons under the GR LEDs are the channel compressor on/off switches. Simply turns the compressor stage on or off for each channel.



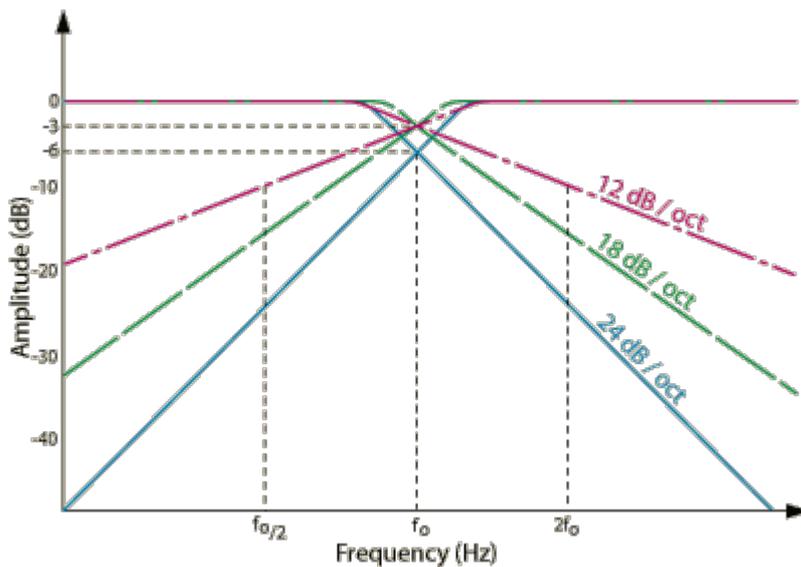
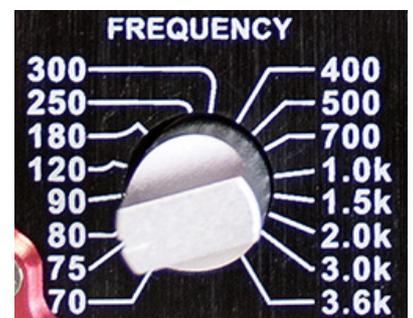
6 MASTER LEVEL

The Master level (labelled 0 to 10) is a rotary control that simply controls the Master input level to the compressor. Above the Master level is a Bypass switch. When tuned on, the LED will light and only the original signal will be heard without any compression.



7 FREQUENCY

The Frequency rotary control is the sweep that selects the frequency at which the low and high band compressor is crossed over. The MBC502 employs a Linkwitz-Riley 4th order (24dB/octave) crossover.



8 LET'S PLAY

The MBC502 opamps are in DIP8 sockets, this simply means that users can interchange between different types of opamps to achieve different results, and we would be happy if you report the results to us as well. Please note that any damage caused in this process cannot be covered under warranty.

9 SPECS

Audio Inputs

Mic input connector	XLR balanced
Impedance	3k Ohms
Mic input gain	10dB to 60dB
Phase reversal	switchable
Phantom power	+ 48V, switchable
Instrument input con.	1/4" jack unbalanced
Instrument input gain	0dB to 45dB

Audio Outputs

Connectors	XLR & 1/4" jack
Type	Balanced & Unbalanced

Amplitude Frequency Response

Line in	6Hz to 40kHz within 1dB
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Compressor

Photoresistive servo operated	
Ratio	Variable 1:1 - 10:1
Attack	1 ms – 100 ms
Release	0,1 s – 3 s

Filter

Xover:	70Hz – 3.6kHz
Slope:	24 dB

Meter

VU meter	-20 dBu – + 3 dBu
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Performance

THD (Unweighted) 1kHz	0.022%
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Power Supply

198ma from standard 500 series power chasis.

SM ProAudio is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or shown.

10 WARRANTY

10.1 WARRANTY REGISTRATION

To be protected by this warranty, please register your purchase using our online registration form at <http://www.smproaudio.com/index.php/en/service/register>

10.2 WARRANTY

SM ProAudio warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of **three (3) years** from the original date of purchase, in accordance with the warranty regulations 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 through its local distributor.

Warranty claims other than those indicated above are expressly excluded.

10.3 RETURN AUTHORIZATION NUMBER

To obtain warranty service, the buyer must: a. return the product to its place of purchase, or b. contact your local distributor, or c. email service@smproaudio.com BEFORE returning the product. All warranty requests must be accompanied by a description of the problem and an original purchase receipt. If you have previously registered your purchase (via the SM Pro Audio web site), you will then be issued with a return authorization number. If you have not previously registered your purchase, then you must forward a proof of purchase document (retail dealers invoice) before a return authorisation can be provided.

The product must then be returned in its original shipping carton, together with the return authorization number.

10.4 WARRANTY REGULATIONS

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.

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.

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.

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.

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

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.

10.5 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.

10.6 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.

11 FCC AND CE REGULATION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Any changes or modifications in construction of this device with are not expressly approved by the party responsible for compliance, could void the user's authority to operate equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense. If necessary, consult an experienced radio/television technician for additional suggestions.

12 CORRESPONDENCE

For technical support, warranty claims, and all other enquiries, please contact your local SM Pro Audio distributor.

Contact details of all SM Pro Audio distributors list can be found online at <http://www.smproaudio.com/index.php/en/dealers-distributors>

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