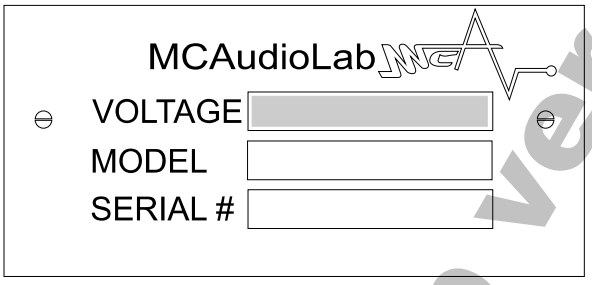
Thank you for chosing the MCAudioLab SHD2ch analog distortion unit.
This manual reports important information regarding the use of SHD2ch and we suggest you read it before using the unit to become familiar with all the controls it features.
If after unpacking the unit you find any damage, please immediately contact your dealer or supplier. We also suggest you retain the original packaging at least during the warranty periode in case you need to return the unit for service.



IMPORTANT

Fill in the boxes above with voltage, model and your serial number to personalize your unit . The informations and serial number can be found on the back of the product.

The serial number must be quoted in all comunication in order to obtain technical support and spare parts. Please register your new MCAudioLab product on “product registration” section in www.mcaudiolab.com web site

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INTRODUCTION

The MCAudioLab SHD2ch is basically a second order harmonic distortion generator. It is designed to give you many different colors to extend your palette of sounds.
The SHD2ch core is the vacuum tube that generate distortion processing signal passing through. Colors go from warmth, little compression, saturation to overdrive and heavy cutted shape. The circuit topology is hybrid: Input and output stage are transformerless while the distortion process is generated by a duble triode tube working in class A.
The performance of the SHD2ch is inherently reliant upon the volume and frequencie content of the audio signal going through it. It is useful to point out the guidelines that govern the way the SHD2ch may be used.

Each unit is built for a great and to last. All power supplies are fully regulated for long hum-free operation and highly filtered to avoid disturbances from the electricity mains.. Each unit is hand-built and meticulously tested and listened before shipment to the customer.

WARNING!

Before you start your new MCAudioLab unit, please read the following:
Any tube product is sensitive to a high sound pressure level environment. This may cause microphonics in a recording situation. Make sure you are able to fit shock mount and place the unit in isolation if necessary. Direct light will also effect tubes as well.
PLEASE be sure to have enough space between any stuff; this will ensure your tube unit will not be over heat. Over heating will cause damage to the tubes and shorten their life span.

Included in the box:
- The SHD2ch second harmonic distortion unit
- Power cord
- This instruction manual

SHD2ch model layout

FRONT PANEL

REAR PANEL

FEATURES

Two indipendent channel

Hybrid solid state/Valve class A, low noise circuitry

Hard bypass switch (each channel indipendently)

Peak LED meters for monitoring output level

LED meter monitoring the input signal

Output level control with +6dB gain

Fully balanced line level input and output, both XLR

Internal power supply (custom toroid power transformer)

UNIT SIZE:

Width: Standard 19 inches for rack mount installation

Height: Standard 3.50 inches or 2U rack space

Dimensions (W x H x D) 19" x 3.5" x 12.2”

Weight: 4 kg

TECHNICAL DATA **(each channel)**

Input line Impedance >10k Ohm

Balanced XLR Output (line level)

Recommended minimum load output Impedance: 600 Ohm

Maximum output Level +22 dBu

Output Low-Z, transformerless (electronically servo balanced)

Power Requirements:

230 Vac - 115Vac *(factory set)*

CONTROLS (each channel)

Input: This control allow you to feed the desired amount of signal to the valve input stage. If the signal level exceeds the maximum input swing allowed by the tube, a kind of overdrive figure is generated. The right input signal feeded to valve is monitorated by a three LED meter scale (for a fuller explanation see section: meters).
Input knob is basically used to adjust the volume of the channel's signal before it is sent to the next stage.

Output: turning this knob you set up the master output volume; the output signal level can vary from -inf to +6dB. The total amount of output signal is monitorated by peak LED meter (for a fuller explanation see section: meters).

S.H.D. Level
This is the control that set up the desired amount of second harmonic distortion.
Turning the knob clockwise you trim the amount of distortion starting from 0.5% to 99%.
The above percentages are referred to a signal not affected by clipping or overdriven.
N.B.: The second harmonic distortion generated by the tube stage overlaps the signal caming from the previous stage.

Bypass: the bypass switch temporary excludes the channel from the signal path.
When activated a red LED lights up.
Bypass switch act indipendently on each channel.

Meters

Input meters: a three LED scale monitors the signal feeding the valve input stage.
It consists of three different color LED: green, orange and red.
Please refer to this scale to avoid the input signal clips generating an overdrive distortion.
The maximum signal acceptance by the valve is monitorated by the orange LED (”MAX”).
When it lights up you are feeding the maximum signal to valve. Exceeding this the signal clipps.
When the green LED (”MIN”) is turned on the signal amount is linear (not affected by saturation/overdrive distortion).
The red LED (”OVR”), when turned of, gives warning that the signal you feed to the valve input stage is clipping generating overdrive distortion.

Output meters:
Three led indicates the amount of signal present at the XLR output according to +4dB standard:
The "sgn" green LED indicates that a signal of (at least) -15dB is on XLR out.
The "0dB" orange LED indicates that a signal of +4dB is on XLR out.
The "ovr" red LED indicates that a signal of +15dB or more is on XLR out.

Inputs & Outputs

Inputs and outputs are balanced XLR connectos on the rear panel.
There are two input sockets (one per channel) and two output plugs (one per channel). Input and output levels are the standard line level (+4dBv).

Power
Use this switch to turn the unit on and off.
Controls primary AC power to the unit. The primary power is applied to the SHD2ch circuits when the Power switch is in the up position. The power toggle switch connect or disconnect the phase wire of main AC power supply (IEC connector on the rear). When off, the apparatus is not completely disconnected from AC power source. Detach IEC power cord if the unit is unutilized for a long period.

GROUND LIFT
When it is activated unlinks pin 1 from signal ground (GND) to avoid hum. Ground lift acts on XLR out connector only.

EARTH LIFT
The ground switch on the rear panel selects the ground signal path.
In the (1) position the SHD2ch internal signal ground is connected directly to the mains earth and chassis. In the (2) position the signal ground is lifted from the mains earth.
Normally the switch position shoul be set on (1); If the output signal is affected with "hum" noise when SHD2ch is connected to other devices, try the GND lift position (2).
Note: Chassis is permanently earth connected via centarl pin of IEC socket. The earth is also connected with a standard plug on the rear of each unit.

AC Plug
PE1 uses a standard, detachable IEC power cord. Insert the AC power cord firmly into this socket.
caution: please check to see what voltage your PE1 is set to. The voltage setting is marked on the serial badge on the rear panel. Make sure the voltage is properly set for your area before applying AC power to the unit. Check that this complies with your local supply; if not, please notify MCAudioLab before powering up. Your PE1 has been factory set to the correct mains voltage for your country. If you plan to take the unit to countries with a different mains voltage you will need to send the PE1ch to the MCAudioLab Service Center for the correct transformer primaries wiring conversion and fuse changing.

Do not attempt to defeat the safety ground connection!

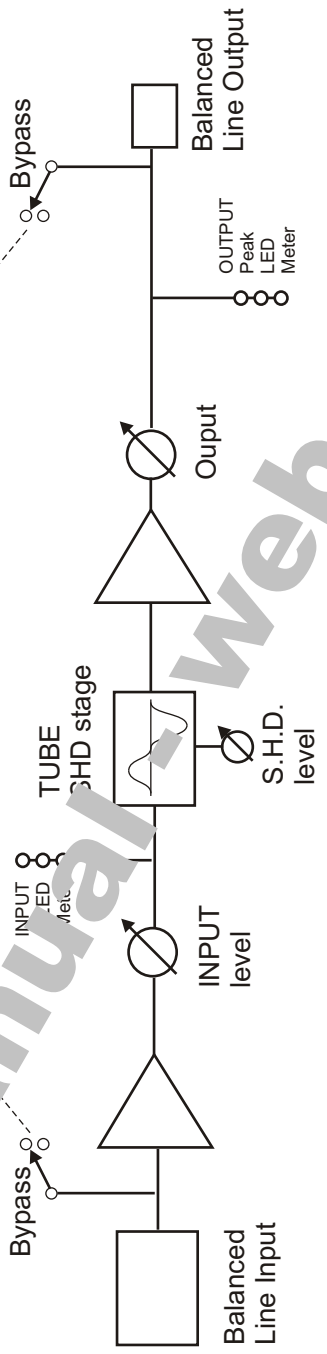
Fuse
This unit employs an external AC line fuse (easy access to change your fuse, as necessary) to help protect it from damages due to overload conditions. If the fuse fails, replace it. If the fuse fails repeatedly, discontinue use of the unit and contact MCAudioLab for service information.
Remove the power cord before checking or changing the fuse.
To avoid any permanent damage replace fuse with the same rate and type only.

Survival Tips For Tube Equipment:

To prolong tube life, observe these simple recommendations:
After using the equipment, allow sufficient time for it to properly cool down prior to moving it. A properly cooled gear prolongs tube life due to the internal components being less susceptible to the damage caused by vibration.
Allow the tube to warm up to room temperature before turning it on. The heat generated by the tube elements can crack a cold glass housing.
Protect the gear from dust and moisture. If liquid gets into, or if the gear is dropped or otherwise mechanically abused, it must be checked out in an authorized service center before using it.
Proper maintenance and cleaning in combination with routine checkups by your authorized service center or dealer, will ensure the best performance and longest life for your tube audio gear.

CAUTION: Tube replacement should be performed only by qualified service personnel who are familiar with the dangers of hazardous voltages that are present in tube circuitry.

SHD2ch signal flow schematic



All XLR connectors are wired according to AES standard: pin 1 is ground (GND), pin 2 is “high” or “+,” and pin 3 is “low” or “-.” A positive voltage on pin 2 of the input will result in a positive voltage on pin 2 of the output (with the Phase Reverse switch set to Normal).
Grounding and Shields:
The Input XLR connectors pin 1 (GND) are directly connected to equipment ground. The GND is connected to pin 1 of the output connectors and to earth depending on earth-lift switch position.

Limited 1 year warranty

During the warranty period, MCAudioLab will repair or replace defective parts with new ones, at no additional charge.

This warranty does not extend to any equipment that has been damaged or rendered defective as a result of accident, misuse, or abuse; by the use of parts not manufactured or supplied by MCAudioLab or by unauthorized modification of the equipment. Vacuum tubes are excepted from the warranty, but are warranted for 90 days from date of purchase. Except as expressly set forth in this Warranty, MCAudioLab makes no other warranties, express or implied, including any implied warranty of merchantability and fitness for a particular purpose

Warranty Repair

If the SHD2ch should develop a problem during the warranty period, contact the factory to return shipping instructions. We will repair and return your MCAudioLab equipment quickly.

Note that the warranty does not cover vacuum tubes, which must be periodically replaced.

How to contact us

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