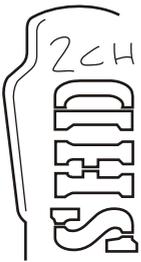


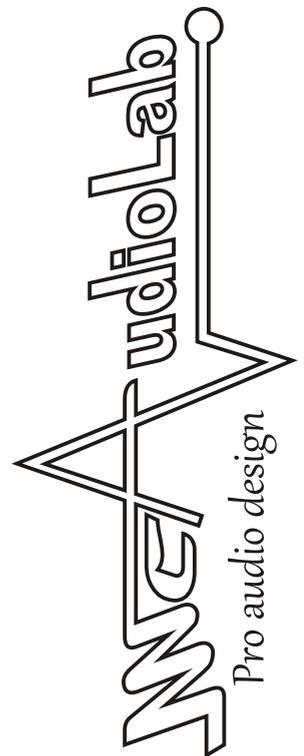
SHD2ch

dual mono

Second Harmonic Distortion



OPERATING INSTRUCTIONS



Thank you for purchasing the
MCAudioLab SHD2ch distortion unit

IMPORTANT

The voltage setting and the serial number are on the back of the unit.
The serial number must be quoted on every communication in order to get technical support.
Please register your new MCAudioLab product on “product registration” page on the
MCAudioLab website.

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INTRODUCTION

The MCAudioLab SHD2ch is a dual mono second order harmonic distortion generator. It is designed to deliver you many different colors to extend your palette of sounds.

The SHD2ch core is the vacuum tube that generates distortion, processing the signal passing through. Colors go from warmth, little compression, saturation to overdrive and heavy cutted shape. The circuitry is hybrid: Input and output stage are transformerless while the distortion process is generated by a double triode tube working in class A.

The performance of the SHD2ch is inherently reliant upon the volume and frequency content of the audio signal going through it. It is useful to point out the guidelines that governs 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.

The two channels of the SHD2ch have the same circuitry and features. One channel only is descibed on this manual; the other channel has the same specs and controls.

WARNING!

Before you start using your new MCAudioLab SHD2ch, 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.



FEATURES

Dual mono - two independent channels

Hybrid solid state/Valve, class A, low noise circuitry

Hard bypass switch (each channel independently)

Peak LED meters for monitoring output level

LED meter monitoring the drive signal

Active Output level control with +6dB gain

Fully electronically balanced line level input and output, both on XLR connectors

Internal linear power supply

UNIT SIZE:

Standard 19 inches for rack mount installation - 2U rack space

Depth: 33 cm

Weight: 4 kg

TECHNICAL DATA (each channel)

Input line Impedance >10k Ohm

Balanced XLR Output (line level)

Line Output Impedance: <50 Ohm

Recommended minimum load output Impedance: 600 Ohm

Maximum output Level +23 dBu

Frequency Response: 15 Hz - 65kHz

Distortion THD: > .05 @ 1 KHz

Output Low-Z, transformerless (electronically servo balanced)

Vacuum tube type: one 12AX7

Power Supply: Linear, solid-state

Power Requirements: 28 Watt

CONTROLS (each channel)

Input: This control is for feeding the desired signal amount 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 correct input signal feeded to the valve is monitored by a three LED meter scale (see section meters for details).
The Input knob sets the signal level delivered to the valve.

Output: turning this knob you set up the master output volume from -inf. to +6dB and the peak LED meter monitors the output signal (see section meters for details).

S.H.D. Level

This control sets up the amount of second harmonic distortion. Turning the knob clockwise you trim the amount of distortion starting from 0.5% up 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 coming from the previous stage.

Bypass: It is an hard (relay-driven) bypass. The channel keeps working when the bypass switch is on but the output is hard-connected to the input.
The red LED lights up when the switch is activated.
The two Bypass switch act independently on each channel and working if the unit is on.

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 the scale below to avoid the input signal clips generating an overdrive distortion.
When the green LED ("MIN") turns on, the signal amount is linear (not affected by saturation/overdrive distortion). You can control the amount of distortion by the S.H.D. knob. The maximum signal acceptance by the valve is monitored by the orange LED ("MAX"). When it lights up you are feeding the maximum signal to valve. If exceeding that amount the signal will clip.
As the red LED ("OVR") turns on, the signal you are feeding to the valve input stage is clipping and it is generating an overdrive distortion.

Output meters:

Three LEDs shows the signal amplitude at the XLR output according to the +4dB standard:
The "sgn" green LED means a signal equal or greater than -15dB is on the XLR out.
The "0dB" orange LED means a signal equal or greater than +4dB is on the XLR out.
The "ovr" red LED means a signal of +15dB (or greater) is on the XLR out.

Inputs & Outputs

Inputs and outputs are balanced XLR connectos located 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.

The power is applied to the SHD2ch circuitry when the power switch is in the up position. Please remove the power cord if you plan not to use the preamp for a long period.

GROUND LIFT

When it is activated, pin 1 (signal ground on the XLR connector) is not connected to ground to avoid hum noise. Ground lift acts on XLR output connector only. Each channel features an independent ground lift switch.

AC Plug

The SHD2ch uses a standard, detachable IEC power cord. Insert the AC power cord firmly into this socket.

Caution: please check the voltage setting on your SHD2ch. The voltage setting is printed on a label on the rear panel. Make sure the voltage setting complies with your country voltage; if it does not comply, please notify MCAudioLab before powering up. Your SHD2ch unit has been factory set to the correct main voltage for your country. If you plan to take the unit to countries with a different main voltages, you will need to send the SHD2ch 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 has an external AC line fuse (easy access to change your fuse, as necessary) to protect it from damages due to overload conditions. If the fuse fails, replace it. If the fuse fails repeatedly, do not use the unit and contact MCAudioLab for service information.

Remove the power cord before checking or replacing the fuse.

To avoid any permanent damage replace the fuse with the same rate and type only.

Survival Tips For Tube Equipment:

After using the equipment, let it cooling down properly prior moving it. A properly cooled gear prolongs tube life due to the internal components being less susceptible to the damage caused by vibration.

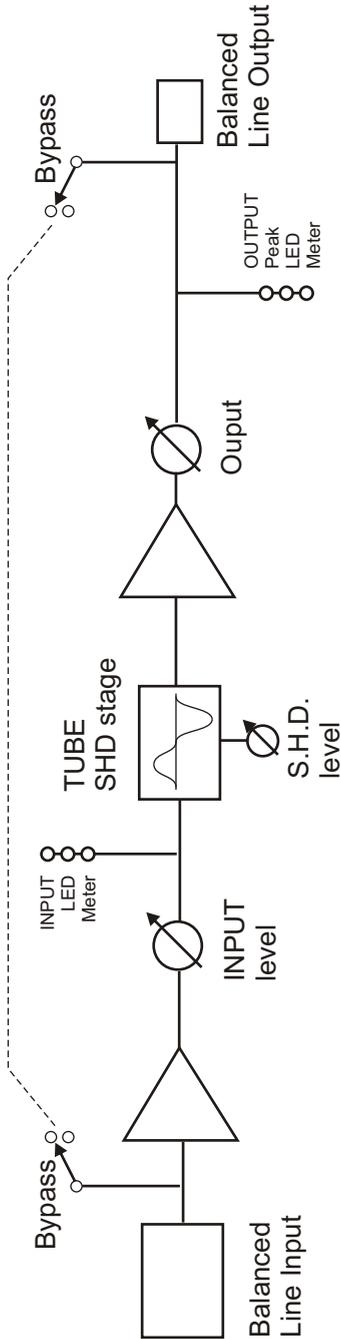
Be sure the tube has room temperature before turning it on. The heat generated by the tube elements can crack a cold glass housing.

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 both tubes and audio equipment.

CAUTION: Tube replacement should be performed when the power cord is unplugged from the unit. Capacitors keep the high voltage for long time after you switch the unit off. Do not try to replace the tubes before one hour from the last usage.

SHD2ch signal flow schematic



All XLR connectors are wired according to AES standard: pin 1 is ground (GND), pin 2 is the “high” or “+” and pin 3 is the “low” or “-”.
A positive voltage on pin 2 of the input will result in a positive voltage on pin 2 of the output.

Grounding and Shields

The pin 1 (GND) of the input XLR connector is directly connected to the equipment ground.
The GND is connected to pin 1 of the output XLR connector by the ground lift switch.

Note:

MCAudioLab shall not be liable for technical or editorial errors or omissions in this manual, nor for incidental or consequential damages resulting from the use of this material.
Features and specifications subject to change without notice.