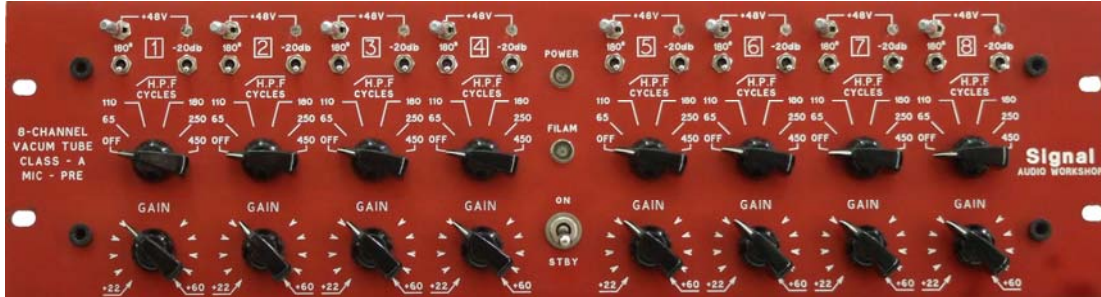


CH-8 Vacuum tube 8-Channel Microphone pre



OWNER'S MANUAL



Signal Audio Workshop

53 Abarbanel ST.
Tel Aviv 66089 Israel
P.O.B 5169 TLV 61051
Office: 972-3-6820892
Fax: 972-3-6824716
www.signal-audio.com

CH-8 Owner's Manual

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Dear customer,

I'd like to personally thank you for the confidence that you have shown in Signal Audio Workshop by purchasing the CH-8. You acquired the latest generation of Microphone pre amp which is unequal in its design and specification.



I am confident that working with the CH-8 will open new worlds of manipulating audio signals with a tool like no other. In order to produce the full potential of this sophisticated tool I strongly encourage you to read and understand this manual thoroughly.

The CH-8 is truly a unique piece of equipment with Tube heart and analog soul.

Every piece of gear **Signal AWS** makes is meticulously hand crafted in our workshop, we consider the development and assembly as a form of art and take great pride in the final product.

The CH-8 is a result of a two year development period in which we researched the fundamentals of Microphone pre amps topologies, in an effort to innovate and achieve the CH-8 outstanding Sonic capabilities.

For the input stage we designed a custom Mu-metal input transformers for maximum signal linearity along with the sonic benefits of the transformer's character. We specially designed a Tube CLASS A input stage for its second harmonic performance in order to match the needs of digital recording to the warm sound of analog equipment.

All signal path stages are pure CLASS-A with tubes circuitry and transformers for each channel take this uncompromised structure to the highest level of sonic excellence.

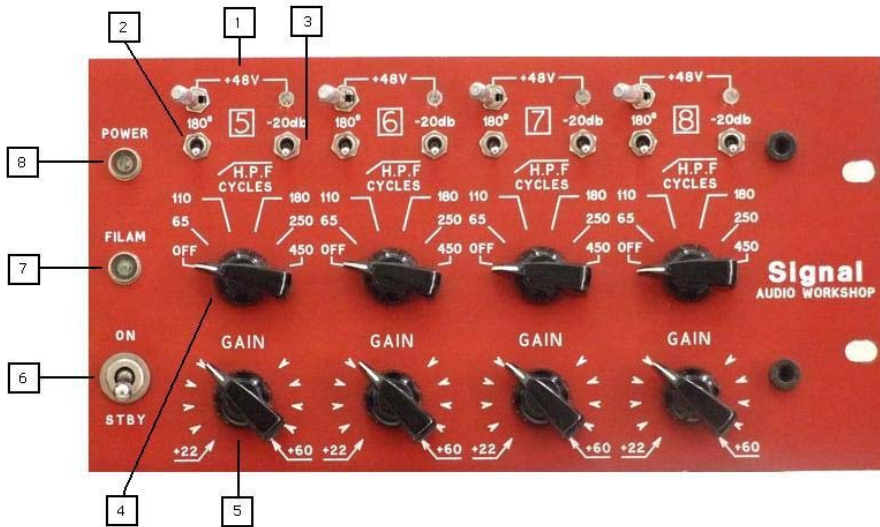
These features make this revolutionary tool outstand any other in today's market!

I hope you will enjoy working with the CH-8 as much as we enjoyed making it for you!

With Honor.
Oded Levy
Signal AWS

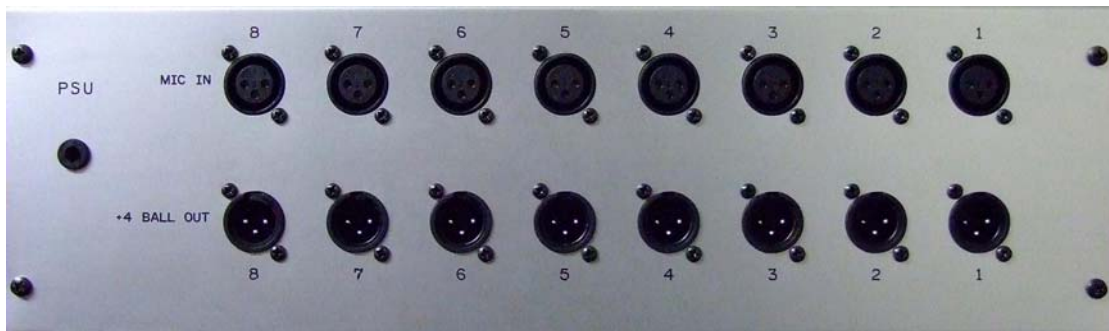


Front panel controls:



- 1) 48v phantom switch.
- 2) Phase reverse switch.
- 3) -20db input (reduction of high level input signals).
- 4) H.P.F. selectable five frequency rotary switch – changes low cut frequencies at 12db/oct.
- 5) Tube gain control from +22db to 60db.
- 6) Power on/standby switch.
- 7) Standby tube filament light indicator.
- 8) +300v power light indicator.

Rear panel:



Rear panel elements: 1-8 microphone in connectors located on the upper row and the pin's are ordered according to the diagram:

PIN1	GND
PIN2	HOT
PIN3	COLD

1-8 XLR balanced line output connectors located on the lower row with the same pin standard as in the diagram above.

Construction options:

Channel 1-2 DI input (optional)

Here you can see the DI input option on channels 1 & 2 constructed on the rear panel. Both hi-Z inputs are located between the channels I/O connectors and a special input select switch mounted for each channel. Hi-Z input impedance is 4.7 M Ohm optimized for best performance and is connected directly to the first tube in the signal chain.



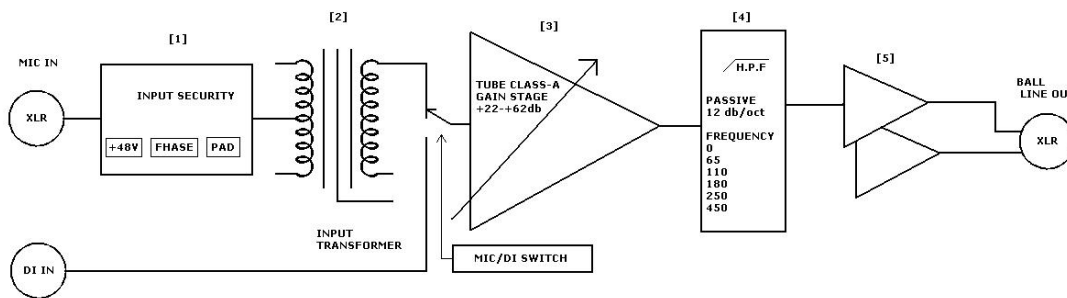
12 step rotary gain selector (optional)

12 step rotary gain selector optional with 3.3db steps constructed with metal film 1% resistors and sealed rotary selectors with silver coated contacts.



Signal chain:

This chapter details on the signal chains structure in order to help you better understand the CH-8.



(1) INPUT SECURITY

Designed for maximum optimization of all microphones with all standard features like +48v (phantom), phase reverse switch and -20db pad, especially designed for minimum sonic degradation. All these functions are preformed with special silver coated toggle switches for maximum rigidness of operation.

(2) INPUT TRANSFORMER:

High gain 200 ohm microphone input transformer matching to a high input impedance. Design for optimal reduction of most kinds of noise caused when microphones are connected. Ensure Electromagnetic Compatibility (EMC) standards compliance. Feature Mu-metal core for minimal harmonic distortion. Internal electrostatic shields for maximum common mode noise rejection at high frequencies. Multiple interleaved windings ensure low leakage inductance for excellent ultra high frequency response. Mu-metal can for magnetic shielding.

(3) TUBE GAIN STAGE:

Vacuum tube CLASS A topology gain amplifier ranges from +22db to 62db (typical). Designed especially to deliver a constant sonic performance at all gain levels. This stage was especially tailored to preserve the delicate balance between transparency and 2nd harmonic THD. An optional 12 step rotary gain selector can be added with 3.3db steps, made with metal film 1% resistors and silver coated contacts.

(4) PASSIVE HIGH PASS FILTER:

12db/oct passive H.P.F. filter with five cutoff frequencies and hard wired bypass. Cutoff frequencies are 65, 110, 180, 250, 450 Hz. All frequencies filter electronics made from passive components with audio grade capacitors in order to preserve sonic excellence.

(5) OUTPUT STAGE:

Design to deliver a delicate balance between signal transparency and tube second harmonics. This stage was carefully tailored to provide all advantages of both tube oriented warm sound and solid state signal transparency. Highest grade of solid state electronics with +/-24v power supply. Transparently delivers full advantages of all previous stages.

All signal stages are made from metal film resistors and audio grade capacitors to preserve maximum sonic performance.

Psu 15 power supply:

The Psu 15 unit is an all discrete CLASS A topology, made with massive filterization designed especially for the lowest noise floor needed in microphone amplifying.

For a fact: Pre amps noise floor is constructed from the amp's self noise + its Psu noise floor.

Therefore noise floor issue is very important when dealing with a 60db gain machine. This is why we engineered an uncompromised Psu that is suitable to deliver an ultra low noise floor.

Features:

- +300 vdc B+ voltage highly regulated for tube plates.
- +50.4 vdc voltage for tube filaments (regulated).
- +48 vdc for phantom power (regulated).



+/-24 vdc for vcc to solid state electronics (regulated).

The Psu 15 can be internally modified for 220 or 115 vac operation (must be preformed by qualified technician!).

Always make sure that the unit operates on the correct mains voltage (230/115 VAC) before applying mains voltage!

Tips & Tricks:

1. stereo recording: one of the most common methods of recording stereo signals is done by locating two identical microphones in an x/y mode and the calibration of the gain should be done by the following steps:

A. Calibrate channel 1 gain to optimum recording level by viewing the "in level" meter on your recorder.

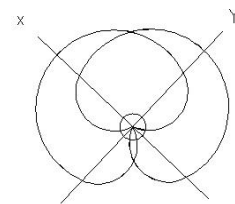
B. Repeat step A on channel 2.

C. Reverse the phase on channel 2.

D. Press mono on your control room monitoring system.

E. Re trim the gain on channel 2 to maximize phase cancellation between the two sides.

F. Return to normal phase and stereo mode.

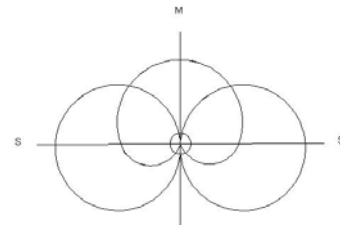


2. As a rule of thumb: calibrate record level will be done by viewing the recording level of the recorder and not other meters that may be on the recording chain (such as compressor etc`).
3. Some microphones may produce very high output level, therefore we recommend using the -20db pad switch, in cases of high S.P.L. recorded otherwise the channel may clip while recording.
4. Cutting environmental rumbles with the 65 Hz H.P.F. on male vocals is preferably done even without compensating low frequency with external EQ by wisely manipulating the proximity effect of cardioid microphones.
5. M-S recording technique: place 3 microphones (center, left & right) according to the diagram:

Reverse phase on left microphone.

Combine the three microphones on your mixer. The sides channels should be hard panned L<>R, and center panned to the center. The center microphone level in the resulted mix will affect the stereo images width

according to the balance between sides and center microphones.



Installing the unit:



Always install this unit in a properly grounded environment!
Do not expose the unit to humidity or dusty environment!
Do not expose the unit to heat sources and unventilated places!
Always make sure that the unit operates on the correct mains voltage. (230/115 VAC) before applying mains voltage!

Signal AWS will not be responsible for damages created by improper mains voltage issues.

All audio connections balanced through XLR connectors with the pin list:

PIN1	GND
PIN2	HOT
PIN3	COLD

Maintenance:

Cleaning:

Do not clean the unit with water or with water soaked cloth.
Cleaning is best made with dry dusting brush and vacuum cleaner.
Dust and moisture are the primer enemy of switches and contacts within this unit. Avoiding them as much as you can will prolong the unit's life significantly.

Maintenance:

There are no user's serviceable parts inside the unit.
Opening and servicing this unit by someone who is not authorized by **Signal AWS** is strictly prohibited.
Technical service is made only by those who are authorized from **Signal AWS**.

We recommend replacement of vacuum tubes only when the unit has proven to not function correctly and according to the type of problem discovered.

Specifications:

Electronics structure (from in to out):

Phantom power (+48 V) switches.
Phase reverse & -18db pad switches.
Custom 200 ohm microphone input step-up transformers in Mumetal cases.
12AX7 tubes CLASS A design 62db gain amplifier.
Fully passive 12db/oct 5-state high-pass filters + bypass.
Filter frequencies: 65Hz, 110Hz, 180Hz, 250Hz & 450Hz.
High voltage solid state transformerless design balanced output stage.

Input Impedance:	200 Ohms Balanced, (PIN 2 HOT).
Output Impedance:	>50 Ohms Balanced, (PIN 2 HOT).
MAX Gain:	62 db (typical).
MAX Input level:	+2dbm (for THD of < 2%).
MAX Output level:	+31dbm/600 ohm (on balanced output).
Noise Floor:	-70db @ 22-22khz (typical).
Frequency Response:	20-20kHz +/- 0.3db, 15-40kHz +/- 2db.
Gain:	62db continuously variable from +22 to +62db.

External massive regulated power supply unit.

Output voltages:	+300 vdc, +50.4 vdc, +48 vdc, +/-24 vdc
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Operating Voltage:	230Vac @ 50Hz / 115Vac @ 60Hz.
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Dimensions CH-8:	H=3 units, W=19", D=13.4".
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Dimensions Psu-15:	W=5.5", H=4", D=11"
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Shipping weight:

All spec's at RL=6000ohm.

Info subject to change without prior notice!

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Limited Warranty

This product is warranted to the original consumer purchaser to be free from defects in materials and workmanship under normal installation, use and service for a period of one (1) year from the date of purchase as shown on the purchaser's receipt.

The obligation of Signal Audio Workshop under this warranty shall be limited to repair or replacement (at our option), during the warranty period of any part which proves defective in material or workmanship under normal installation, use and service, provided the product is returned to Signal Audio Workshop, TRANSPORTATION CHARGES PREPAID. Products returned to us or to an authorized Service Center must be accompanied by a copy of the purchase receipt. In the absence of such purchase receipt, the warranty period shall be one (1) year from the date of manufacture. This warranty shall be invalid if the product is damaged as a result of defacement, misuse, abuse, neglect, accident, shipping damage destruction or alteration of the serial number, improper electrical voltages or currents, repair, alteration or maintenance by any person or party other than our own service facility or an authorized Service Center, or any violation of instructions furnished by us. This one-year warranty is in lieu of all expressed warranties, obligations or liabilities.

ANY IMPLIED WARRANTIES, OBLIGATIONS, OR LIABILITIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL BE LIMITED IN DURATION TO THE ONE YEAR DURATION OF THIS WRITTEN LIMITED WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. IN NO EVENT SHALL WE BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, WHATSOEVER.

Some states do not allow the exclusion or limitation of special, incidental or consequential damages so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Warranty registration form

Please take the time to fill out this registration Form and send it to the address mentioned below. Or send this page threw e-mail to: **info@signal-audio.com**

**Signal Audio Workshop
53 Abarbanel ST.
Tel Aviv 66089 Israel
P.O.B 5169 TLV 61051**

Or send it by Fax: 972-3-6824716

Registering your product will allow you to get full warranty service plus product upgrades if there will be any at the warranty period, according to Warranty rules.

We would like to seize these opportunity to thank you once again for choosing Signal AWS as your product leader.

PRODUCT INFO:

Model: _____
Serial No: _____
Manufacturing date: _____
Supplier: _____

OWNER INFO:

Owner's name: _____
Company: _____
Address: _____
City: _____
State: _____
Zip: _____
Country: _____
Phone: _____
Fax: _____
e-mail: _____

Comments:

