

SIGNAL - THE FINAL FRONTIER



Signal

Audio Workshop

FINE HANDCRAFTED RECORDING EQUIPMENT CATALOGUE

www.signal-audio.com

TUBE COMPRESSOR



Gainrider Class A, Stereo All Tube Limiter Compressor and Dynamic Range Controller

This is our state of the art Tube Compressor, unequal in its design and specification. After 6 years of painstaking development, Inspired by the early tube compressor topologies like the Fairchild 670 Tube Compressor, we decided to embrace the variable bias topology as our signal path with pure tubes and transformers circuitry and no solid state components in the signal path. We combined these early giant compressors signal path topology with a new, up to date control mechanism for the side chain. In fact, in order to innovate and achieve the Gainrider's outstanding capabilities we have revolutionized the SIDE CHAIN system with unique features, superior reaction and accuracy that can provide sophisticated dynamic range processing. Our side chain psycho-acoustic approach features conventional Attack and Release functions, working alongside intelligent Crest Detectors that respond to complex music signals and not just the global levels, riding fine nuances in music like our ears do. The M.S (Mid Side Compression) is an extra feature that encodes stereo information to separately treat the center and sides information of a stereo signal. The Gainrider tube compressor is handcrafted with unprecedented attention to detail both internally and externally. The compressor features an embedded black panel with shimmering internal lettering and smooth gain reduction display. All these features take this uncompromised structure to the highest level of sonic excellence.

Specifications:

- Input Impedance: 10Kohms **Balanced**, (PIN 2 HOT).
- Output Impedance: >500 ohms **Balanced**, (PIN 2 HOT).
- MAX Gain: 28 db.
- MAX Input level: 36dbu for 1% THD (WITH NO GR).
- MAX Output level: 32dbu for 1% THD (WITH NO GR).
- Noise Floor: -91db @ 22-22khz typical.
- Distortion: @ Unity gain 1Khz +4dbu INPUT, THD+N=0.058% (WITH NO GR).
- Frequency Response: -/+1db from 20HZ to 20Khz.
- Attack Time: 0.2 to 70msec.
- Recovery Time: 0.07 to 2 sec.
- Operating Voltage: 230Vac @ 50Hz / 115Vac @ 60Hz.
- Power consumption: 40watts.
- Dimensions: H=3 Rack Units, W=19" ,D=13.4".

Features:

- 3 custom wound audio transformers for each channel.
- 3 tube balanced stages for each channel.
- All CLASS A balanced topology.
- Metal film resistors.
- Audio grade capacitors.

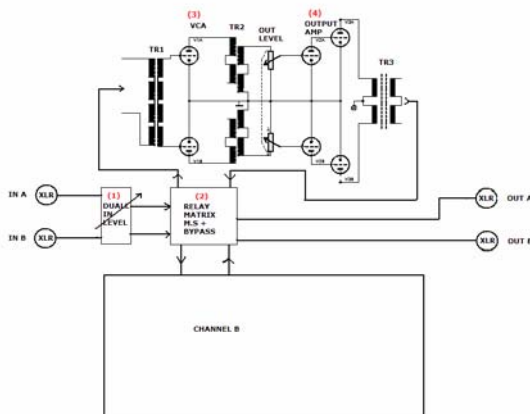
1. DC-T.H=DC-THRESHOLD: The input signal exceeded above this controlled threshold level goes into compression.
2. LOG-RATIO: Being a variable bias compressor means that the ratio of the signal being compressed gets higher with the amount of gain reduction. Therefore this knob adjusts the ratio's slope angle (from soft compression - to hard limiting).
3. ATTACK time: Sets the time it will take the VCA'S RMS DETECTOR to accomplish its desired compression.
4. RECOVERY time: Sets the time it will take the VCA'S RMS DETECTOR to recover from compression.
5. CREST-LEVEL: In any regular compressor, having an attack time means also that some amount of fast transients entered the VCA will not develop gain reduction. The longer the RMS ATTACK the more short peak transients missed by the VCA, for these purpose we implemented a CREST DETECTOR that detects those peaks and allows you to mix them with the RMS signal on its way to the VCA and you chose their level of mixing from 0% to 300% (why 300%? hear it ...)
6. CREST-RECOVERY: Enables you to give the CREST signal a private recovery time.



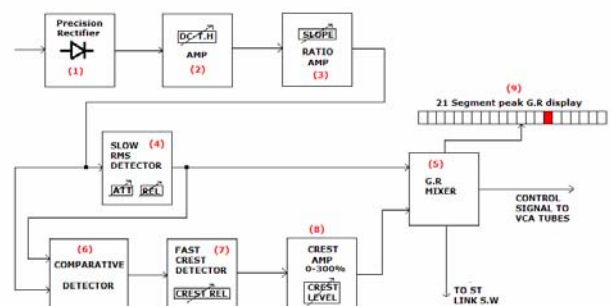
7. OUT-LEVEL: Allows you to amplify the output level in order to makeup for gain loses from compression.
8. IN-LEVEL: This is a variable input attenuator for both sides, ranging from -20db to 0db, enables you to set compression amounts to both sides simultaneously or altering the amount of signal to drive this tube instrument.

9. BYPASS: It's a HARD WIRED BYPASS switch for channel A.
10. ST-LINK: This switch engages both channels VCA signals for operating on stereo signals (It still means that both sides need to be tuned equally).
11. MODE: This switch affects the signal path, it has two operations. NRM MODE: both channels A and B are separate. This means, channel A is left and B is right, or dual mono, (just like any other normal compressor). M.S MODE (used only with stereo signals) means that channel A is now compressing the center of the stereo signal therefore it will be called L+R. And channel B will compress the sides of the stereo signal therefore it will be called L-R. (as seen on front panel). The output levels unlike any other compressor with M.S mode, allows you to tune the level of the MONO versus SIDES and controlling stereo image's width.
12. GAIN REDUCTION Meter: Peak meter with 21 segments especially designed to deflect these unique fast VCA movements.

signal chain:



side chain:



MIC PRE-AMPS



CH SERIES
Vacuum tube
CLASS A
microphone
pre amp
custom Mu-
metal
transformers.



A unique piece
of equipment
with Tube hart
and analog
soul.

The CH series Mic pre-amp is a result of a two year development period in which we achieved its outstanding Sonic capabilities. These revolutionary tools outstand any other in today's market, and provide innovative ways of manipulating audio signals like never experienced before.

Like all our products, the CH Mic pre`s are meticulously hand crafted in our workshop. For the input stage we designed a custom Mu-metal input transformers for maximum signal linearity along with 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.

In order to take this uncompromised structure to the highest level of sonic excellence the signal path stages are made pure CLASS A with tubes and transformers for each channel. All signal stages are constructed from the highest audio grade materials: metal film resistors, audio grade capacitors etc`.

These features assure maximum sonic performance and a big smile on your face!

Specifications:

- 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: +27dbm/600 ohm (on balanced output).
- Noise Floor: -91db @ 22-22khz (typical).
- Frequency Response: 20-20kHz +/- 0.3db, 15-40kHz +/- 2db.
- Gain: 62db continuously variable from +22 to +62db.
- Dimensions CH-8: H=3 units, W=19",D=13.4".

CH-8 External massive regulated power supply unit:

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

Features:

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



MP-4 **4-channel** **Solid-state** **Transformerless** **Microphone** **Pre-amp**

Although tubes and transformers will often complement digital sound, they should not be the only color on your paint-box! Using a transparent Mic pre-amp followed by a “colored” component will leave only the latter’s impact on the sound. Since “colored” compressors are widely used, there was a need for a transparent Mic pre-amp. Even when recording more dynamic material, some engineers route their signal through compressors with no gain reduction, just for the “color”. An accurate, transparent, solid-state Mic pre-amp doesn’t have to sound “cold”, if it’s well designed. As with our other products, this unit performs extremely well in the ultrasonic range we find crucial for a rich, detailed and focused sound image. As a matter of fact, it’s almost flat up to 120Khz. With a clear mid-range, fast rise time and “tons” of headroom, the MP-4's rich and punchy sound is very popular in drum and guitar recordings.

Features & Specifications:

- Mic input impedance 300 ohm & 600 ohm on balanced out.
- Gain: continuously variable from +22db to +60db.
- -20 db pad SW, +48v phantom power switch, faze switch.
- Passive 2-state 12db/oct high-pass filters 75Hz, 160Hz & off.
- Frequency response 10Hz-40 kHz +/- 0.4 db/120khz-2db!
- Maximum output level: +27dbm on balanced out with 600 ohm load.
- Minimum signal path design (for maximum signal transparency).
- Only 2 dual-op amps per channel (balanced in to balanced out).

PRE & MONITOR CONTROLLER



CH2-M
Tube
Microphone pre
amp with DI
and Monitor
controller.

The CH2-M combines our 2 channel tube mic pre (CH-2) and its outstanding Sonic capabilities with DI inputs and a passive MCRC (Master Control Room Console).

This unit states a revolutionary approach to a "non-console working environment", offering a high-end, cost-effective solution for most modern computer-based personal project studios.

This unit covers all analog I/O's of a small DAW (Digital Audio Workstation):

Mic/line/instrument and monitor's outlet, all offer extreme audio performance in a unique solution. The CH2-M features a special, passive control-room source select & rotary stereo fader for CR level, connected to a dual speaker select SW. This allows plugging the pre-amp's rich, fat, 'tubby' sound to a computer while transparently monitoring it.

The passive monitoring route of the MCRC enables pure listening to your DAW without the use of any low-grade "traditional" analog console's channels & summing losses, and without a hard wired D/A's output playing its self-noise through the monitor system.

Specifications:

- 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 < 2%).
- MAX Output level: +31dbm/600 ohm (on balanced output).
- Noise Floor: -70db @ 22-22 khz (typical).
- Frequency Response: 20-20kHz +/- 0.3db, 15-40kHz +/- 2db.
- Gain: 62db continuously variable from +22 to +62db.
- Operating Voltage: 230Vac @ 50Hz / 115Vac @ 60Hz.

External massive regulated power supply unit.

- Output voltages: +300 vdc, +50.4 vdc, +48 vdc, +/-24 vdc.
- Operating Voltage: 230Vac @ 50Hz / 115Vac @ 60Hz.
- Fuse Type: 2 Amp slo-blo for 120 Volt mains.
1 Amp slo-blo for 230 Volt mains.
- Dimensions CH2-M: H= 3 units, W= 19", D=5".
- Dimensions Psu-15: W=5.5", H=4", D=11".

Features:

- 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.
- Solid state transformerless design balanced output stage.



MP-2 2 -channel Solid- state Transformerless Mic Pre-amp w/D.I and Monitor controller.

This unit combines 2 MP-4 Mic pre channels, 2 class-A DI inputs & a passive MCRC (Master Control Room Console).

This combined MCRC unit states a revolutionary approach to a "non-console working environment", offering the high-end, cost-effective solution for most modern computer-based personal project studios. This unit covers all analog I/O's of a small DAW (Digital Audio Workstation): Mic/line/instrument and monitor's outlet, all offer extreme audio performance in a unique solution.

The unit features a special, passive control-room source select & rotary stereo fader for CR level, connected to a dual speaker select SW. This allows the user to plug the pre-amp's rich, fat, 'tubby' sound to his computer while transparently monitoring it.

The passive monitoring route of the MCRC enables pure listening to your DAW without the use of any low-grade "traditional" analog console's channels & summing losses and without a hard wired D/A's output playing its self-noise through the monitor system.

Features & Specifications:

Pre amps:

- 300 ohm mic input impedance & 600 ohm on balanced out.
- Class-A discreet 10M ohm DI inputs on channels 1&2.
- Gain: continuously variable from +22db to +60db.
- -18 db pad SW, +48v phantom power switch, phase switch.
- Passive 2-state 12db/oct high-pass filters 75Hz, 160Hz & off.
- Frequency response 10Hz-40kHz +/- 0.4 db/120khz-2db!
- Maximum output level: +27dbm on balanced out with 600 ohm load.
- Minimum signal path design (for maximum signal transparency).
- Only 2 dual-op amps per channel (balanced in to balanced out).

Control-room section:

- 3 stereo source input select.
- Mono sum switch for monitoring L+R.
- Dim switch.
- Control room level knob w/large & accurate scaling.
- Speaker select for 2 pairs of monitors.
- Fully passive I/O ¼" connectors (back panel).
- Specially designed for monitoring & maximum signal transparency.

All internal routing functions are passive & terminated.

SUMMING UNIT



passivmix
Fully passive
16/2
summing
unit.

How many times have you thought about buying an analogue mixing console and while digging into that option you find out that it can only be accomplished with a considerable money investment (in the console itself, a wiring system, maintenance, large studio space, etc.). This is why we came up with the idea of putting an analogue summing buss in a box followed by a tube or transistorized pre amp that functions as a summing amplifier. This combination of simplicity in signal path offers purity and separated stereo image with unparalleled results, even when compared to top quality mixing consoles!

This unit sums 16 line inputs (expandable to 32) from your D/A converter into 1 balanced stereo pair. The summing process is accomplished by two balanced passive mix busses, one for the left and one for the right channel. Passive summing is a process that by nature attenuates the signal therefore a summing amplifier is required. That's why the mix out signal from this unit appears as a Mic level output and should be connected to a microphone preamp that will serve as a summing amplifier. This means you can choose your summing amplifier (tube/transistorized)! Furthermore you can choose your summing headroom in order to squeeze and warm up your mix with a tube preamp or go loose and clean by working on a higher headroom setup.

The analogue mix-out from the preamp out can then be recorded on a separate 2-TK recorder so you won't have to "bounce" your mix back to the computer and the conversion of your mix into 16bit 44.1Khz will be performed on an analogue tube summing buss instead.

Specifications:

- 16 balanced line inputs via 1/4" TRS connectors.
- Line in impedance: 10K (balanced).
- 2 balanced Mic level Mix outputs via XLR connectors.
- Mix out impedance: 200 ohm balanced.
- Special rotary "Headroom Select" knob allows you to select the optimal driving level into the preamp's Mic in.
- Headroom modes are: 0db, -6db, -12db.

Features:

- Pan switch for inputs 1-4 (hard panned/dual center).
- Buss link connection allows cascading two units for a 32 inputs summing system.
- Special Phantom +48V D.C. blocking mechanism on Mix outputs for protecting your D/A'S analog line out's from preamp's Phantom power.
- 24K gold plated 1/4" line input sockets.

Master Control Room Console



MCRC
Fully passive
monitor controller.

Controlling your monitor environment is what this unit is all about. Specially designed to meet today's needs in a non console working environment, including all basic functions needed in small DAW - source select, mono, cut, dim, monitor level, monitor select & T.B.

This genuine tool allows you to maximize your monitoring capabilities while preserving maximum purity of signal path. The MCRC features a special, passive control-room source select & rotary stereo fader for CR level, connected to a dual speaker select SW to allow maximum signal transparency between your DAW and monitoring system. The passive monitoring route of the MCRC enables pure listening to your DAW without the use of any low-grade "traditional" analog console's channels & summing losses, and without a hard wired D/A's output playing its self-noise through the monitor system. MCRC enables you to use maximum output level of D/A converters and therefore hearing your monitors at maximum bit rate at all times.

Features:

- 3 stereo source input select.
- Mono sum switch for monitoring L+R.
- Dim switch.
- Control room level knob with large & accurate scaling.
- Talk-back/slate system with internal TB mic.
- Speaker select for 2 pairs of monitors.
- Fully passive I/O ¼" connectors (back panel).

HEADPHONE CONTROLLING UNIT



OMNIQUE 4 Channels Headphones & Talkback Controller

There are only few instruments out there that can be titled as true problem solvers. This genuine unit entitled its name as a true problem solver for commercial studios that want to offer the benefits of four separate headphone mixes in a live recording situation and a Talkback Controller. The Omnique offers enhanced live recording convenience to your valued clients.

Features:

- 4 stereo balanced I/O channels with level control + individual or omni T.B feature.
- External T.B switch + "T.B command" output for synchronizing with other units.
- On board Phones monitoring selector for each of the four headphone power amp outputs (requires a return feed from power amp out to the unit's "Phones Signal Input").

The Workshop

Signal Audio Workshop manufactures hi-end equipment for the pro audio industry. Our profound understanding of the industry needs, combined with vast knowledge and years of experience states us at the top of the technological frontier. We work with the best manufacturing machines / raw materials and invest time, money and great efforts in research and development in order to achieve our gear's excellent Sonic performance.

Signal Audio Workshop was established at 1999 and started its way by supporting and servicing the commercial music studios of the time. In addition we started manufacturing our first models of analog audio equipment. Our products stands align with other well known hi-end gear manufactures and present excellent Sonic performance when ever compared.

As project studios started to take over the music industry, we came up with a special product line tailored specifically to match small non console DAW environment. Our products offer unique and useful solutions (such as the CH2-M), that fit perfectly to the special needs of working in a compact recording studio.

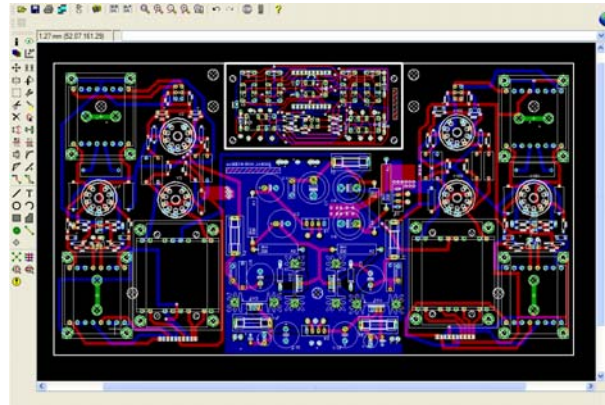
Our state of the art lab comprises all manufacturing stages including computerized design work stations, manufacturing of casing, printed circuits fabrication and the final assembling of the unit.

Each and every new product Signal AWS manufactures is meticulously hand crafted in our workshop and tested in our lab with Fine digital audio test equipment to ensure quality of every component. All of our products are Beta tested in control studios by sound engineers, in order to provide excellent sonic performance.

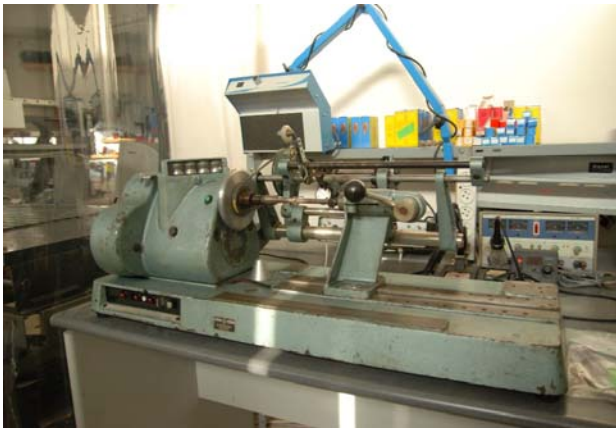
Electronic fabrication:



Aerial view of our electronic fabrication/assembly compound.



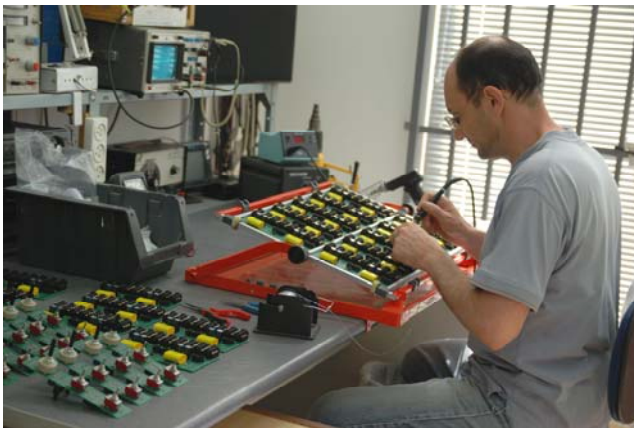
We use our own state of the art PCB drawing and track auto routing design station.



This is our vintage AUMANN manual transformer winding machine in which we hand wind each and every audio transformer demanded upon design.



Each and every vacuum tube we use goes through a series of tests which partly performed on our vintage HICKOK MODEL 539C MUTUAL CONDUCTANCE TUBE TESTER which allows us to match between vacuum tubes and spec performance.



PCB assembling is done meticulously by hand in our electronic fabrication area.

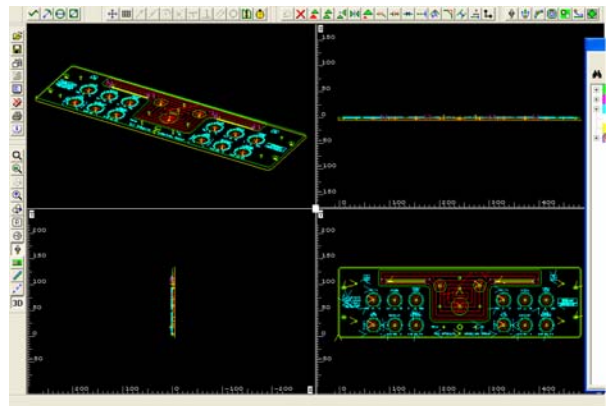


This is our final assembling stage in which we test each and every instrument we manufacture for spec performance and perform a "burn in" test for tube instruments.

Metal shop:



This is our metal shop, located in our laboratory's compound. On the left you can see our costume CNC engraving machine along with all tools needed for metal fabrication.



We use state of the art CAD-CAM processing station which enables us to design the exterior body of our models before they go into fabrication.



This is a combined metal 3-IN-1/760mm SHEAR PRESS BRAKE & SLIP ROLL machine which we use on fabricating small metal parts.



This is our 60 yrs` old DECKEL FINEMECHNIK leap cutter grinding machine which we use for our grinding CNC cutters.

key people behind Signal AWS:



Oded Levi – Manager & the living spirit behind Signal AWS.
Among other activities in charge of all product designs and topologies involved.



Nir Benjamini – Marketing & technical Manager USA.
Signal AWS`s site management and in charge of P.R. worldwide.



Eddi Girshin – Product assembling and testing of Signal AWS products.
Also manufactures his own tube hi-fi amplifiers in our workshop under the name of J-soundlab.



Rona Geffen –Technical literature & publishing of user`s manuals, internet site material etc` .

The background is a dark space filled with numerous white stars of varying sizes. In the upper left, a bright crescent moon is visible. To its right, a smaller, more detailed moon is shown. In the lower right, a large, reddish-brown planet (Mars) is depicted. A satellite with solar panels and a central body is shown in the lower right, with a bright orange and yellow flame trail behind it, suggesting it is in motion or has just launched. The website address is written in large, bold, yellow letters across the middle of the image, with a perspective effect that makes it look like it's floating in space.

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