
User's Manual

Sculptor

Discrete Pre-Amp with Eq and Peak Limiter



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We declare with sole responsibility that this product complies with the following norms and directives:

- 2006/95/EC LVD (Low Voltage Directive)
- 2004/108/EC EMC (Electromagnetic Compatibility)
- DIN EN 55103-1 EMC of audio equipment- Emission
- DIN EN 55103-2 EMC of audio equipment- Immunity

This declaration becomes invalid by any unapproved modification of the device.

Wroclaw, 17.06.2013 B. Radziszewski

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INTRODUCTION

First of all, we would like to thank You sincerely for choosing this GEM AUDIO LABS *Sculptor* which combines ease of operation with support for multiple usage environments. As a company and first of all, as fans of pro audio devices, we do our best in our daily work to satisfy your most sophisticated sound expectations. We put in your hands the highest quality product, precisely designed and hand manufactured by our qualified staff, without any compromise. To build our devices we use only the best, hand-selected electronic components, we take care about all parameters repeatability and high quality of all our products.

Please take a little time to read this manual thoroughly, as it will help You to entirely understand how the *Sculptor* works and what is important to use it safely.

Gem Audio Labs team.

FOR SAFE OPERATION

CAUTION
TO PREVENT ELECTRIC SHOCK,
DO NOT REMOVE TOP COVER, NO USER
SERVICABLE PARTS INSIDE. REFER
SERVICING TO QUALIFIED SERVICE
PERSONEL

 **CAUTION**
RISK OF ELECTRIC SHOCK
DO NOT OPEN

AVIS: RISQUE DE CHOC ELECTRIQUE !
NE PAS OUVRIR !

WARNING
TO REDUCE THE RISK OF FIRE OR
ELECTRIC SHOCK DO NOT EXPOSE
THIS EQUIPMENT TO RAIN OR
MOISTURE



= "DANGEROUS VOLTAGE"
"VOLTAJE PELIGROSO"
"DANGER HAUTE TENSION"



= "IT IS NECESSARY FOR THE USER TO REFER TO THE INSTRUCTION MANUAL"
"ES NECESARIO QUE EL USUARIO SE REFIERA AL MANUAL DE INSTRUCCIONES."
"REFERREZ-VOUS AU MANUAL D'UTILISATION"

INSTALLATION

- **Before You connect the power cord to the device please check fuses value and make sure that the voltage switch setting reflects the correct local power line voltage. For line voltages from 100V to 120V, set the switch to 115V and use 1,25A fuses (slo-blo; 5x20mm). The 230V position is good for all line voltages from 200-240Volts; fuses: 630mA (slo-blo; 5x20mm).**
- This unit is equipped with a three-pronged AC power cord. To reduce the risk of electrical shock never remove or otherwise attempt to defeat the ground pin of the power cord.
- Do not allow water to enter this unit or allow the unit to become wet. Fire or electrical shock may result.
- Do not place a container with liquid or small metal objects on top of this unit. Liquid or metal objects inside this unit are a fire and electrical shock hazard.
- Do not place heavy objects, including this unit, on top of the power cord. A damaged power cord is a fire and electrical shock hazard.

OPERATION

- Do not scratch, bend, twist, pull, or heat the power cord. A damaged power cord is a fire and electrical shock hazard.
- Do not remove the unit's cover. You could receive an electrical shock. If you think internal inspection, maintenance, or repair is necessary, contact your dealer or producer.
- Do not modify the unit. Doing so is a fire and electrical shock hazard.
- If lightning begins to occur, turn off the power switch of the unit as soon as possible, and unplug the power plug from the electrical outlet.
- If there is a possibility of lightning, do not touch the power plug if it is still connected. Doing so may be an electrical shock hazard.
- Use only the included AC power cord for this unit. Using other types may be a fire and electrical shock hazard.

IN CASE AN ABNORMALITY OCCURS DURING OPERATION

- If the power cord is damaged (i.e., cut or a bare wire is exposed), ask your dealer or producer for a replacement. Using the unit with a damaged power cord is a fire and electrical shock hazard.
- Should this unit and AC cord be dropped or the cabinet be damaged, turn the power switch off, remove the power plug from the AC outlet, and contact your dealer or producer. If you continue using the unit without heeding this instruction, fire or electrical shock may result.
- If you notice any abnormality, such as smoke, odor, or noise, or if a foreign object or liquid gets inside the unit, turn it off immediately.
- Remove the power plug from the AC outlet. Consult your dealer or producer for repair. Using the unit in this condition is a fire and electrical shock hazard.

CAUTION

INSTALLATION

- Keep this unit away from the following locations:
 - Locations exposed to oil splashes or steam, such as near cooking stoves, humidifiers, etc.
 - Unstable surfaces, such as a wobbly table or slope.
 - Locations exposed to excessive heat, such as inside a car with all the windows closed, or places that receive direct sunlight.
 - Locations subject to excessive humidity or dust accumulation.
- Hold the power plug when disconnecting it from an AC outlet. Never pull the cord. A damaged power cord is a potential fire and electrical shock hazard.
- Do not touch the power plug with wet hands. Doing so is a potential electrical shock hazard.

-
- To relocate the unit, turn the power switch off, remove the power plug from the AC outlet, and remove all connecting cables. Damaged cables may cause fire or electrical shock.

OPERATION

- Do not cover this unit and use it only in a well-ventilated environment.
- If you know you will not use this unit for a long period of time, such as when going on vacation, remove the power plug from the AC outlet. Leaving it connected is a potential fire hazard.

FOR CORRECT OPERATION

CONNECTOR PIN ASSIGNMENTS

- XLR connectors (INPUT, OUTPUT) are wired according to the AES standard : Pin 1 = shield, Pin 2 = hot (+), Pin 3= cold (-).
- 1/4" TRS connectors (INSERT SEND, INSERT RETURN) are wired according to the AES standard: tip = hot (+), ring= cold (-), sleeve = shield
- 1/4" TS connectors (PEAK LIMIT MASTER, PEAK LIMIT SLAVE) are wired unbalanced: tip = hot (+), sleeve = ground

INFLUENCE ON CELL PHONE USAGE

Using a cell phone (mobile telephone) near this unit may induce noise. If noise occurs, use the telephone away from the unit.

REPLACING ABRASIVE PARTS AND CLEANING THE UNIT

The performance of components with moving contacts, such as toggle switches, rotary switches and connectors, deteriorates over time. The rate of deterioration depends on the operating environment and is unavoidable. Consult your dealer or producer about replacing defective components. Clean this unit only with lint-free damp cloth and do not use cleaning agents.

THE FRONT PANEL CONTROLS AND THEIR USE



A POWER

POWER on/off switch. The amber light will glow when the unit is powered on. Please turn down the volume of your studio monitors before turning on or turning off the *Sculptor*.

B INPUT

An input selector allowing to choose between four signal sources:

DI - For all low level and instrument level signals (1M Ω)

LINE - Line signals (10K Ω)

MIC - Dynamic microphones (600 Ω)

MIC 48V - Only for microphones which require phantom power (600 Ω)

WARNING! Please ensure to not switch the 'MIC 48V' position on when using ribbon microphones, passive equalizers or any other device which does not accept 48V phantom power on its output.

C GAIN

15-position audio taper switch:

Mic gain range : -5dB to +65dB in 5dB steps

Line gain range: -25 to +45dB in 5dB steps

D OUTPUT

21-position output fader. This control can be used as a 'fine' level adjustment or an output attenuator so that the unit can be run 'hot' in order to get some distortion without overloading the next piece of equipment in the chain.

E PHASE

This switch inverts the phase of the signal.

F DI

Direct HI-Z input for all low level and instrument level signals.

G LIMIT

The Peak Limit hard bypass switch.

H EQ

The Eq hard bypass switch.

I HI CUT

6-position active LPF (12dB/oct). EQ points are 4.7KHz, 7.5KHz, 9.1KHz, 12KHz, 16KHz, 20KHz.

J LO CUT

6-position active HPF (12dB/oct). EQ points are 20Hz, 40Hz, 60Hz, 90Hz, 150Hz, 300Hz.

K LO BOOST [Hz]

7-position inductor based low frequencies boost. Both peaking and shelving characters are available. EQ points are 30Hz, 50Hz, 70Hz, 100Hz, 200Hz (peak), 100Hz, 200Hz (shelf). The Q of the peak sharpens the more you boost.

L LO BOOST [dB]

11-position low frequencies gain switch. dB points are 0dB, +1dB, +2dB, +4dB, +6dB, +8dB, +10dB, +12dB, +14dB, +16dB, +18dB.

M MID CUT [Hz]

6-position active mid cut (bell-shaped) filter. EQ points are 200Hz, 250Hz, 350Hz, 500Hz, 600Hz, 850Hz.

N MID CUT [Q]

Mid cut sharp or wide Q characteristic switch.

O MID CUT [dB]

11-position mid cut gain switch. dB points are 0dB, -1dB, -2dB, -3dB, -4dB, -5dB, -6dB, -8dB, -10dB, -12dB, -15dB.

P MID PEAK [Hz]

6-position active mid peak (bell-shaped) filter. EQ points are 1.2KHz, 1.8KHz, 2.2KHz, 3.9KHz, 5.8KHz, 8.1KHz.

R MID PEAK [Q]

Mid peak sharp or wide Q characteristic switch.

S MID PEAK [dB]

11-position mid peak gain switch. dB points are 0dB, +1dB, +2dB, +3dB, +4dB, +5dB, +6dB, +8dB, +10dB, +12dB, +15dB.

T HI SHELF [Hz]

6-position capacitor based high boost (shelving characteristic). EQ points are 6.8KHz, 8.1KHz, 12KHz, 16KHz, 20KHz, 27KHz.

U HI SHELF [dB]

11-position hi shelf gain switch. dB points are 0dB, +1dB, +2dB, +3dB, +4dB, +6dB, +8dB, +10dB, +12dB, +14dB, +16dB.

W PEAK LIMIT HARD/SOFT

The Peak Limit mode switch allows to choose between two unique limit modes : Hard (OA202 Vintage Silicon diodes) and Soft (EAA91/6AL5 Vacuum Tube double diode). The limiter is very specific. It is unique analog brickwall solution based on metal-oxide semiconductor field effect transistors (MOSFET).

Y PEAK REDUCTION METER

10-led meter which is a practical peak reduction indication. dB steps are 0.5 , 1 , 1.5 , 2 , 2.5 , 3 , 4 , 5 , 6 , >7 dB.

Z PEAK LIMIT THRESHOLD

Variable peak limiter threshold working in a range between +10 and +20dBu. Two (or more units) can be linked via the Master/Slave jacks on the rear panel.

THE REAR PANEL



a VOLTAGE SWITCH

Make sure that the voltage switch setting reflects the correct local power line voltage. For line voltages from 100V to 120V, set the switch to 115V. The 230V position is good for all line voltages from 200-240Volts.

b MAINS INPUT / AC FUSES HOLDER

The mains AC connector is a standard IEC-type 3 pin connector with a AC fuses (2 pieces) holder. The ground of this AC connector is permanently internally connected to the chassis of the *Sculptor* for safety. It is important to change the fuse before changing the supply voltage:

- 630mA (slo-blo; 5x20mm) for 230V~50 Hz
- 1,25A (slo-blo; 5x20mm) for 115V~60 Hz

c INPUT

Balanced input XLR wired according to the AES standard : Pin 1 = shield, Pin 2 = hot (+), Pin 3= cold (-). In order to avoid hum, it is recommended to use the device only in balanced connections.

d OUTPUT

Balanced output XLR wired according to the AES standard : Pin 1 = shield, Pin 2 = hot (+), Pin 3= cold (-). In order to avoid hum, it is recommended to use the device only in balanced connections.

e INSERT SEND

Balanced insert TRS ¼" send wired according to the AES standard : Slave = shield, Tip = hot (+), Ring = cold (-). In order to avoid hum, it is recommended to use the device only in balanced connections.

f INSERT RETURN

Balanced insert TRS ¼” return wired according to the AES standard : Slave = shield, Tip = hot (+), Ring = cold (-). In order to avoid hum, it is recommended to use the device only in balanced connections.

g PEAK LIMIT LINK

Use this jacks to connect two Sculptors working as a stereo couple. Use unbalanced jack cable (Slave = shield, Tip = hot (+))and connect it from one “master” unit MASTER OUT to second “slave” unit SLAVE IN. Then the “master” unit controls thresholds in the both units.

h ADC

An extension for optional Analog to Digital Converter Card. Sold separately.

TECHNICAL DATA

- **MIC/LINE Input:** Transformer balanced XLR (Carnhill UK)
- **DIRECT Input:** Un-balanced TS ¼"
- **Output:** Transformer balanced XLR (Carnhill UK)
- **Input impedance:** Mic 600 Ω , Line 10KΩ, Direct 1MΩ
- **Output impedance:** 600Ω
- **Insert:** Balanced TRS ¼" (separated SEND and RETURN)
- **Mic gain (stepped) :** -5 to +65dB
- **Line gain (stepped):** -25 to +45dB
- **Output gain (stepped):** Acting as a console fader trimming input signals
- **Phase switch**
- **Phantom power**
- **HPF (stepped):** 20Hz, 40Hz, 60Hz, 90Hz, 150Hz, 300Hz (12dB/oct) – Active filters
- **LPF (stepped):** 4.7KHz, 7.5KHz, 9.1KHz, 12KHz, 16KHz, 20KHz (12dB/oct)- Active filters
- **Lo boost freq (stepped):** 30Hz, 50Hz, 70Hz, 100Hz, 200Hz, 100Hz (shelf), 200Hz (shelf)- Carnhill Inductor-based stepped passive filters
- **Lo boost gain (stepped):** 0dB ,+1dB, +2dB, +4dB, +6dB, +8dB, +10dB, +12dB, +14dB, +16dB, +18dB
- **Mid cut freq (stepped):** 200Hz, 250Hz, 350Hz, 500Hz, 600Hz, 850Hz - Active filters
- **Mid cut gain (stepped):** 0dB, -1dB, -2dB, -3dB, -4dB, -5dB, -6dB, -8dB, -10dB, -12dB, -15dB
- **Mid cut Q switch:** sharp, wide
- **Mid peak freq (stepped):** 1.2KHz, 1.8KHz, 2.2KHz, 3.9KHz, 5.8KHz, 8.1KHz – Active filters
- **Mid peak gain (stepped):** 0dB, +1dB, +2dB, +3dB, +4dB, +5dB, +6dB, +8dB, +10dB, +12dB, +15dB
- **Mid peak Q switch:** sharp, wide
- **High shelf freq (stepped):** 6.8KHz, 8.1KHz, 12KHz, 16KHz, 20KHz, 27KHz - Capacitors- based passive filters
- **High shelf gain (stepped):** 0dB ,+1dB, +2dB, +3dB, +4dB, +6dB, +8dB, +10dB, +12dB, +14dB, +16dB
- **Peak Limiter:** Analog brick wall limiter working in a range between +10 and +20dBu. Two unique limit modes : Hard (Silicon) and Soft (Vacuum tube). Limit threshold is variable (Two units can be linked on the rear panel for stereo operation)
- **Peak Reduction Meter :** 0.5 , 1 , 1.5 , 2 , 2.5 , 3 , 4 , 5 , 6 , >7 dB
- **PSU:** internal
- **Fuses type:** 230V : 630mA (slo-blo; 5x20mm) /115V : 1,25A (slo-blo; 5x20mm)
- **Power consumption:** 85W
- **Dimensions (WxHxD) :** 483x88mm (2U) x 245mm
- **Weight:** 5,8 kg

ENVIRONMENTAL PROTECTION

At the end of its operating life, this product must not be disposed of with regular household waste but must be returned to a collection point for the recycling of electrical and electronic equipment. The wheelie bin symbol on the product and user's manual indicates that. The materials can be re-used in accordance with their markings. Through re-use, recycling of raw materials, or other forms of recycling of old products, you are making an important contribution to the protection of our environment. Your local administrative office can advise you of the responsible waste disposal point.



Our devices are packaged in environmentally friendly packaging that can be reprocessed. Remember about waste segregation.



LIMITED WARRANTY

Should you need to use our warranty service on this product, we refer you to the terms and conditions stipulated below.

- This warranty is valid for one year from the date of purchase by the consumer and is not transferable.
- SPLASH BARTOSZ RADZISZEWSKI, Wietrzna 36/1, 53-024 Wrocław, POLAND (called the PRODUCER hereafter) selling products under Gem Audio Labs trade mark will only give warranty on products purchased through authorized dealers or directly from the producer.
- PLEASE RETAIN YOUR SALES RECEIPT. IT IS YOUR PROOF OF PURCHASE COVERING YOUR LIMITED WARRANTY. THIS LIMITED WARRANTY IS VOID WITHOUT SUCH PROOF OF PURCHASE.
- This limited warranty does not cover the product if it has been electronically or mechanically modified in any way.
- This limited warranty is invalid if the factory-applied serial number has been altered or removed from the product.
- Natural wear is not covered by this warranty.
- Damage/defects caused by the following conditions are not covered by this limited warranty: improper handling, neglect or failure to operate the unit in compliance with the instructions given by the PRODUCER's user manual; 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; damage/defects caused by acts of God/Nature (accident, fire, flood, etc.) or any other condition that is beyond the control of the PRODUCER.
- Warranty will not apply because of incorrect storage, dropping, excessive shocks, corrosions, dirt, water or sand damages.
- To confirm your warranty please register your Gem Audio Labs product shortly after purchase. Please fill out your user registration card (included in the original packaging) and send it via e-mail to office@gemaudiolabs.com or via mail to: SPLASH BARTOSZ RADZISZEWSKI, Wietrzna 36/1, 53-024 Poland.
- All returns must be in the original packaging, accompanied by the return authorization. Please fill out your return authorization form (included in the original packaging) and send it to your local distributor from whom You purchased the unit. If the unit has been purchased directly from producer, please send the return authorization form via e-mail to office@gemaudiolabs.com or via mail to: SPLASH BARTOSZ RADZISZEWSKI, Wietrzna 36/1, 53-024 Poland.
- All returns must be shipped via insured freight at the customer's own expense.
- In case when a product must be returned to the factory from a country outside Poland, the customer shall adhere to specific shipping, customs, and commercial invoicing Instructions given with the return authorization as the PRODUCER will not be responsible for transportation costs or customs fees related to any importation or re-exportation charges whatsoever.
- After repair, a product will be returned to the customer via prepaid, insured freight, method and carrier to be determined by the PRODUCER
- All damages caused by transport are not covered by this warranty.

Contact data

For the warranty confirmation, technical support and return authorizations, please contact:

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