elysia

mpressor 500

VPR ALLIANCE

The compressor from the future

The mpressor 500 brings the heritage of our extremely powerful rack mount mpressor into the 500 series format. Like its bigger brother, the mpressor 500 combines serious punch with a full and detailed class-A sound. Its great tone and flexibility make it an excellent choice for recording and mixing, while its remarkable special features take it far beyond the borders of what normal compressors can do.

Extreme time constants, negative ratios, “antilog” release and elysia’s innovative gain reduction limiter provide a whole spectrum of unique dynamics shaping options. A new feature of the 500 series module is its switchable THD boost allowing on-the-fly signal coloration and saturation effects capable of delivering a grittier flavor.

The elysia team wishes you great delight and compression deluxe with your new mpressor 500.

Compatibility

The mpressor 500 is a module to be installed into an API 500 series compatible rack frame (not included). It needs the power supply and the audio connectors provided by this frame and does not function stand alone.

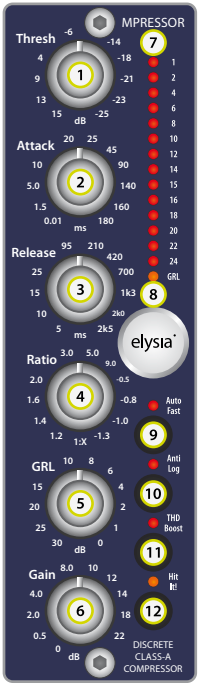
The current consumption is 75 milliamperes at +/- 16 volts DC. The mpressor 500 meets all mechanical and electronic specifications of the VPR Alliance, providing the highest level of compatibility with common 500 series rack frames.

Installation

Just follow these easy steps to install your mpressor 500:

1. Switch your API 500 series compatible rack off and disconnect the power cable from mains.
2. Insert the module into a free slot of your rack. Make sure the PCB connector matches with the rack connector.
3. Gently push the module in place - do not use any extensive force here!
4. Tighten the front panel with two screws provided by your rack manufacturer.
5. Connect your audio cables (see page 6 for more info) and apply power to your rack.

And this is already it. Have lots of fun with your mpressor 500!



Controls

(1) **Threshold (Thresh):** The operating point of the compressor. If the input level exceeds the value set with this controller, the compression process will start.

(2) **Attack:** The transient response of the compressor. It determines the time the mpressor 500 needs to reach 10 dB of gain reduction.

3 **Release:** The return phase of the compressor. It controls the period of time between the input signal falling below the threshold and the mpressor 500's return to unity gain.

4 **Ratio:** The relation between the input level and the output level. As a specialty of the mpressor 500, even negative ratios can be set here. (p. 10)

5 **Gain Reduction Limiter (GRL):** Restricts the control voltage. This innovative limiter is not placed in the audio path as usual, but in the control circuit of the compressor. (p. 11)

6 **Gain:** The make-up gain of the mpressor 500. This controller compensates for the loss in gain caused by the compression process.

7 **Gain Reduction Meter:** The display for the gain reduction process. Shows the amount of compression measured in dB as a visual support for the acoustic events.

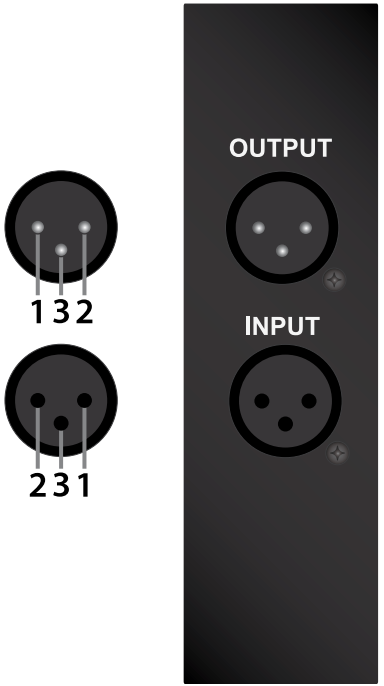
8 **GRL LED:** indicates Gain Reduction Limiter activity. If this LED is on, incoming signals will be held at the GR limit instead of being compressed any further. (p. 11)

9 **Auto Fast:** A semi-automation. This function shortens the attack time automatically on fast and loud signal impulses and then returns to the value set with the controller. (p. 7)

10 **Anti Log:** This alternative characteristic of the release curve follows an antilogarithmic course instead of the standard linear progress. (p. 8)

11 **THD Boost:** raises the level in front of the gain control element, which generates additional harmonics and saturation effects with a significant influence on the sonic structure. (p. 9)

12 **Hit It!** Activates the mpressor 500 (LED on) or deactivates it with a hardwire bypass (GR meter remains active).



Connectors

Audio outputs (+4 dBu)
Pin assignment balanced: **1** ground **2** hot (+) **3** ground
Pin assignment unbalanced: **1** ground **2** hot (+) **3** idle

Audio inputs (+4 dBu)
Pin assignment balanced: **1** ground **2** hot (+) **3** cold (-)
Pin assignment unbalanced: **1** ground **2** hot (+) **3** ground

Auto Fast

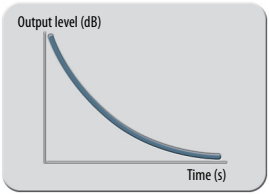
The attack parameter is a crucial factor for the operation of a compressor. Choosing the right time setting is very important, but depending on the dynamic progress of the source material this is a difficult task – no matter if single tracks or complete mixes are processed.

If a very short attack time is chosen, the compressor is able to catch the short peaks, but on the other hand the sustaining signal will also be processed, which might result in audible distortion. Longer settings reduce distortion significantly, but then the compressor is too slow for catching fast impulses.

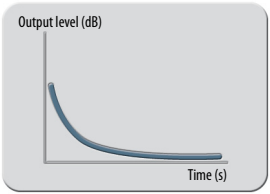
This is where the Auto Fast function comes into play. If you set a longer attack and engage the Auto Fast mode, the attack time will be shortened automatically on fast and loud signal impulses. The compressor reduces the signal quickly and prevents it from slipping through.

Then the attack time directly and automatically returns to its original setting. In Auto Fast mode the compressor can be very fast, but only when it is really needed.

Attack phase without Auto Fast



Attack phase with Auto Fast



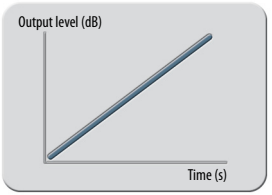
Anti Log

It is characteristic of a logarithmic release that the time constant shortens when the amount of gain reduction increases. The advantage of this behavior is that short and loud peaks (e.g. drums) have a fast release time, while the remaining material is processed with a slower release time.

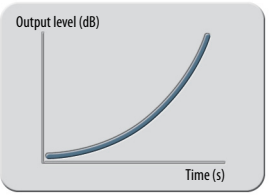
But if intentionally striking and creative compression is the goal, it makes sense to turn things upside down. In the Anti Log mode of the mpressor, the curve behaves just the other way round: If the threshold value is passed and compression starts, the release time will be longer at the beginning. If the input signal starts to decline, however, the release time will become faster as a result.

A special circuitry makes this behavior independent from the absolute amount of gain reduction. No matter if the compressor reduces 10, 15 or 20 dB, the curve will always stay the same at the beginning and it will only become faster at the end. With this feature you can create many exceptional compression effects just by the push of a button!

Release phase without Anti Log



Release phase with Anti Log



THD Boost

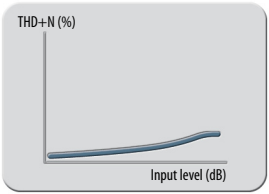
Activating the THD Boost function raises the level in front of the gain control element. This generates additional harmonics inside the input stage of this amplifier, which has a significant influence on the sonic structure of a signal.

The mpressor 500 is a pure feed forward compressor, and the gain potentiometer is placed before the control element. This means that the intensity of the saturation can be raised or lowered by different settings of the gain controller.

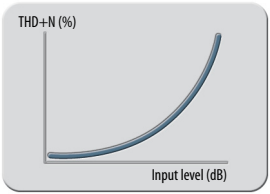
What's special: The detector in the sidechain of the compressor runs in parallel and is therefore not influenced by the THD Boost at all. The actual compression does not change, it is only the sound which is being influenced.

You generate a saturated signal which as a result is also reduced in dynamics, but the actual control of the compressor itself is always based on the original dynamics including all transients, impulses and so on.

THD Normal



THD Boost



Negative Ratios

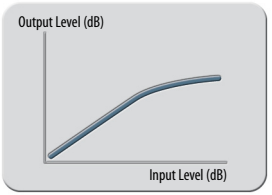
Negative ratios – what exactly does this mean? To get a better understanding of this function, it makes sense to realize what the ratio control of a 'normal' compressor does:

- **1:1** The signal remains linear, there is no compression process going on.
- **1:2** After crossing the threshold, an increase of 2 dB at the input will be compressed to an increase of 1 dB at the output.
- **1:∞** After crossing the threshold, the output signal is constantly held at the threshold level without reacting to further increases at the input (limiter).

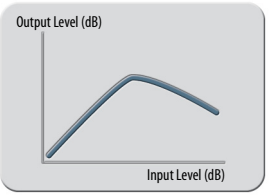
At a negative ratio, the characteristic curve bends and returns back down after crossing the threshold. The louder the input signal, the lower the output signal – perfect for groovy compression effects.

To get a grip on the extreme 'destruction' this can cause, engaging the Gain Reduction Limiter is just the right idea.

Standard compression ratio



Negative compression ratio



Gain Reduction Limiter

A specialty of the mpressor 500 is the Gain Reduction Limiter. This limiter is not placed in the audio path where you might expect it, but in the control path of the compressor instead.

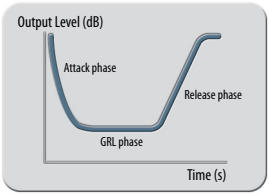
When activated, it limits the control voltage according to the setting of the GRL controller. This means: No matter how high the input level might become – the total amount of gain reduction will never exceed the value you have set.

Just think about the GRL as a second threshold controller: While the 'regular' threshold controller tells the compressor when to start working, the GRL controller tells it when to compress no further.

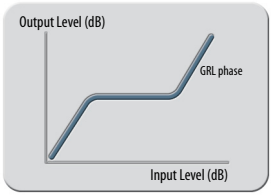
Loud parts in an arrangement can keep their dynamics, as they will not be compressed beyond the limit of the Gain Reduction Limiter.

Note: In order to avoid GRL activity, just turn its controller fully counter-clockwise.

GRL compression progress



GRL input to output ratio



Technical Details

Frequency response:	<10 Hz - 390 kHz (-3 dB)
THD+N @ 0 dBu, 20 Hz - 22 kHz:	0.04 %
THD+N @ 10 dBu, 20 Hz - 22 kHz:	0.19 %
THD+N @ 0 dBu, 20 Hz - 22 kHz, THD Boost:	0.24 %
THD+N @ 10 dBu, 20 Hz - 22 kHz, THD Boost:	2.20 %
Noise floor, 20 Hz - 20 kHz (A-weighted):	-79 dBu
Noise floor, 20 Hz - 20 kHz (A-weighted), THD Boost:	-87 dBu
Dynamic range, 20 Hz - 22 kHz:	99 dB
Maximum input level:	21 dBu
Maximum output level:	22 dBu
Input/output impedance:	10 kOhm/68 Ohm

CE Conformity

CE elysia GmbH, Am Panneschopp 18, 41334 Nettetal, Germany, declares with sole responsibility that this product complies with the following norms and directives:

- 2006/95/EG Low Voltage Directive (formerly 73/23/EWG or 93/68/EWG)
- 89/336/EWG EMC (Electromagnetic Compatibility) Directive
- 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.

Nettetal, 01.10.2016 - Ruben Tilgner & Dominik Klaßen

Precautions

CAUTION: Electricity

- Make sure to operate your API 500 series compatible rack at the specific mains voltage of your country.
- Replace rack frame fuse with the same type and value only.
- Your rack frame must be connected to ground.
- Do not use a damaged power cord.
- Never place containers with liquid on the rack.
- Do not expose this device to rain or moisture.
- Do not use this device near water.
- Refer service to qualified service staff only.

CAUTION: Temperature

- Surfaces of the device may become hot during operation.
- Do not install this device near any heat source such as radiators, stoves or other heat sources.

CAUTION: Connecting & Mounting

- Never connect to the output of a power amplifier.
- Do not apply extensive force when installing this device.
- Use the device according to this manual only.

CAUTION: Humidity

- If this device is moved from a cold place to a warm room, condensation can occur inside the device. To avoid damaging the unit please allow it to reach room temperature before switching it on.

Warranty Info

The mpressor 500 is covered by a limited warranty for a period of 2 years against defects in parts and labor from the date of purchase. Natural wear is not covered by this warranty. Repairs or replacements will not extend the warranty period.

The warranty is given to the original purchaser only and is not transferable. elysia will only give warranty on products purchased through authorized elysia dealers. The warranty will only be valid in the country of the original purchase unless otherwise pre-authorized by elysia.

All warranties become void when the product has been damaged by misuse, accident, neglect, modification, tampering or unauthorized alteration by anyone other than elysia authorized service personnel.

The warrantor assumes no liability for property damage or any other incidental or consequential damage whatsoever which may result from failure of this product. Any and all warrantees of merchantability and fitness implied by law are limited to the duration of the expressed warranty.

elysia will not pay for express or overnight freight service or pay for shipments to locations outside Germany. All damages caused by transport are not covered by this warranty.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. Some of the above limitations may not apply to you.

Legal Info

The information in this document is subject to change without further notice and shall not be deemed as an obligation or warranty of any kind by the manufacturer. No warranties, express or implied, are made with regard to the quality, suitability or accuracy of this document.

The manufacturer reserves the right to change the contents of this document and/or the associated products at any time without the provision of prior notice. The manufacturer shall not be held liable for damages of any kind arising from the use, or the inability to use this product or its documentation.

RoHS compliant 2002/95/EC

This product is manufactured according to the 2002/95/EC directive. The purpose of this directive of the European Union is the Restriction of Hazardous Substances (RoHS) in electronic equipment in order to protect health and nature. Dispose separately!

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