Softube

User Manual
Valley People Dyna-mite

User Manual for Version 1.3.16

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Softube User Manual

Softube products are protected by patents SE526523 and SE525332, and related patents/patent applications, including WO06054943, US11/667360, US20040258250, EP1492081, EP1815459, and JP2004183976.

Disclaimer

Every effort has been made to ensure that the information in this manual is accurate. However, there are a chance that we have made mistakes, and we hope that you understand that we are only humans. Please let us know about the mistake, and we'll fix it in the mix (or in the next version of this manual).

Support

On the Softube website (`www.softube.com`) you will find answers to common questions (FAQ) and other topics that might interest you.

Support questions can be posted at `http://www.softube.com`, where we will help you as fast as we can!

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Contents

1 User Interface

SOFTUBE PLUG-INS ARE "what you see is what you get" products. You should be able to intuitively learn the products within minutes, so that you can work fast and efficient with them. There are a couple of things that remain the same for all of our plug-ins, such as the menu row. These will be explained in this chapter. For detailed information of a particular plug-in, please see its chapter.

Menu Row

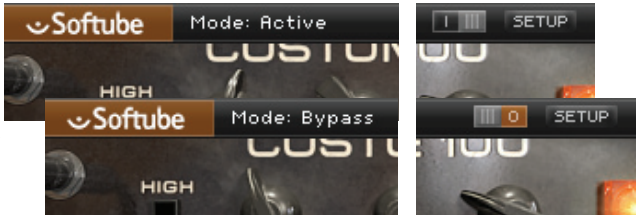
In the bottom of the plug-in interface, you will see a thin black row with some buttons. We'll use the Dyna-mite plug-in as example, but the same goes for all plug-ins.

About Box Opens the "About" Box with version info.

Value Display Displays the knob value when the mouse is hovering over a control.

Enable Enable/Activate the plug-in. Set to OFF for bypass.

Setup Changes global options for all instances of that plug-in.



Enable

When the **Enable** switch is set to ON (I), the plug-in is active and will process audio. When set to OFF (0), it will be bypassed and not process any audio. It will take considerably less CPU when it is bypassed.

Setup

In the Setup window you can change settings that will affect all instances of that particular plug-in. If you for example de-select the "Show Value Display" option in the Bass Amp Room plug-in the value display will be off for all Bass Amp Rooms on your system until you select that option again.

The different options vary between Windows and Mac, and also different formats and plug-ins. The most common options are:

SHOW VALUE DISPLAY: Enables the parameter and value display in the bottom row of the plug-in.

REVERSE MOUSE WHEEL DIRECTION: (Mac OS Only) Changes if the a knob is turned up or down when the mouse wheel is turned up or down. *(Mac OS Only)*

> You need to restart your host software (DAW) before the changes to fully take effect!

If you messed something up and manually need to set these options, you'll find them in text format in the following locations:

MAC OS: `~/Library/Application Support/Softube`

WINDOWS: `username\Application Data\`

Key Commands

All numbers and labels in the plug-in are clickable. This allows you to easy select a setting by clicking on the wanted value. Hovering above a label will turn the mouse pointer into a pointing hand.

Mouse

Up/Down or Mouse Wheel	Change a parameter, such as a knob or a switch.

Keyboard

Fine Adjust	⌘ (Mac) or CTRL (Win), while changing the parameter value.
Reset to Default	ALT, while clicking on the knob or fader.

Plug-In Specific Key Commands

In many plug-ins, you can SHIFT-click on a knob or a switch to get some extra functionality

Metal Amp Room

SHIFT-click and drag a mic will move both mics simultaneously.

All Amp Rooms

SHIFT-click in the cabinet background will change cabinet (or amp) without any animations

2 Valley People Dyna-mite

If you haven't used the Dyna-mite before, you will feel extremely confused.

DON'T PANIC!

As soon as you have acquainted yourself with the slightly weird layout and panel labels, you will learn how to master this powerful tool, and soon you will feel comfortable in knowing that you belong to the music industry's version of the "Trekkies", ie., the Valley People fanatics.

Take your time to look through this chapter (start with "About the Valley People Dyna-mite" and "User Interface Overview") to get acquainted with the normal modes of operation). During the learning period you will go through these steps:

1. Utter confusion. Desparation. Did I really pay for this?
   Solution: *Read "Basic Limiting", "Basic Expanding" and "User Interface". It's just three pages. Listen to the sound examples on the Softube web site.*
2. Pride. You have learned what the controls do. You think you master every aspect of it.
   Solution: *Read the entire manual, as well as the manual for the original hardware (it's available on www.softube.com).*
3. Awe. You realize all the potential that is in this little thing, and start to think about all the cool things you can do with it.
   Solution: *Do it!*

But don't despair. It doesn't take much time to learn how to use it, it's just that the first 15 minutes can be a bit confusing.

Final word from the developers: *Expanding is the new black!*

About the Valley People Dyna-mite

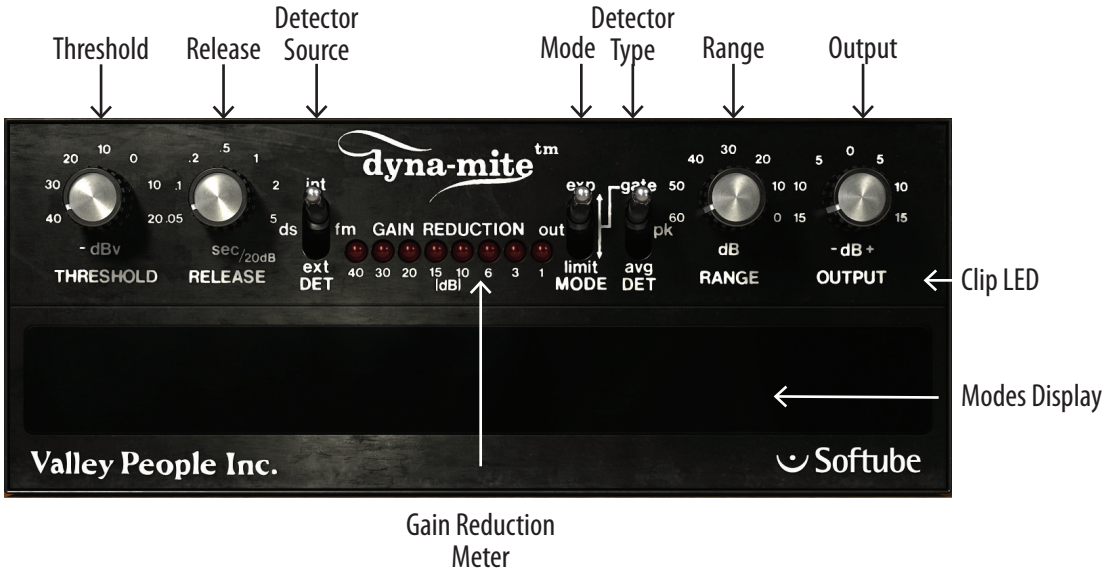
The Dyna-mite was designed for two main purposes: **limiting** and **expanding**. You choose limiting or expanding by setting the **Mode** switch in either the LIMIT or EXP mode.

Threshold, **Release** and **Output** works as in any limiter or expander. **Range** is a nice addition that enables you to limit the maximum amount of gain reduction.

You can set the type of detector with the **Detector Type** switch (the switch closest to the **Range** knob). AVG is smoother and slower than PEAK. GATE is a mode that works best in the EXP mode.

With the **Det Source** switch you select if you want to use the un-altered normal, internal, source (INT) or an pre-emphasized de-essing filter on the internal source (DS-FM). External side-chain (EXT) is not available.

You will always get a brief explanation about the current mode in the "Modes Display" beneath the unit.



User Interface Overview

Threshold Adjusts the level at which the Dyna-mite starts to expand or limit.

Release Adjusts the time it takes to restore the gain after expansion/limiting.

Detector Source Set it to INT (normal operating mode) as a start.

Mode Selects main mode. EXP=Expander/Gate, OUT=Bypass, LIMIT=Limiter.

Detector Type Three different ways to detect the signal. Play around and try them out.

Range Sets maximum amount of gain reduction. Advanced. Leave at 60 dB as a start.

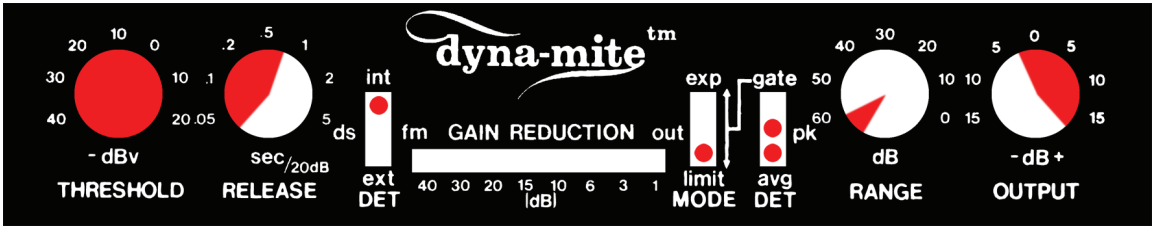
Output Sets output volume. Lower the volume if the output clips to much.

Modes Display Shows quick help and parameter values.

Gain Reduction Meter Displays the current amount of gain reduction.

Clip LED Lights up when the output signal is clipping.

For more detailed explanations of each knob, please see the following chapters.



Basic Limiting

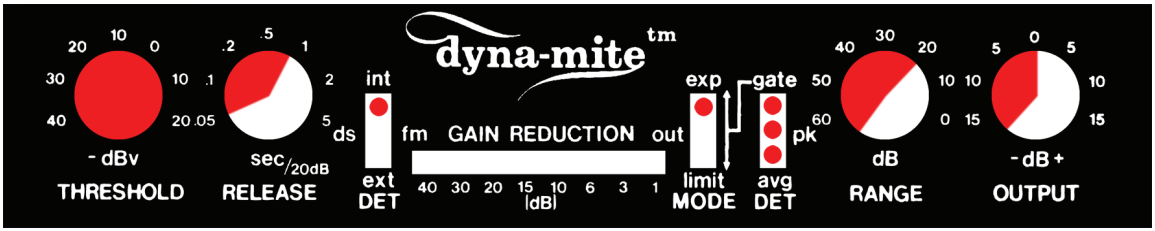
Limiting is a hard Inf:1 ratio compression that can be used to increase the apparent volume, or to even out dynamic differences in a track. It works by reducing the gain for passages that are louder than the selected threshold. The limiting mode on the Dyna-mite is often used to squash drum tracks.

Mode: LIMIT (limiting)
Detector Source: INT (internal source)
Detector Type: AVG (slow attack) or PEAK (fast attack)

Threshold: Adjust to set amount of limiting (as read from the GAIN REDUCTION meter).
Release: Adjust to set release time
Range: 60 dB
Output: 0—15 dB

Procedure

1. Set **Threshold** until you get the desired amount of limiting, as red on the LED array.
2. Set the **Output** volume until you get the desired output volume.
3. Set the **Release** control by ear. If you get too much pumping, increase the release time.
4. Toggle the **Detector Type** between AVG and PEAK to get different attack times.



Basic Expanding

Expanding is when you let the Dyna-mite reduce the gain for passages that are below the select threshold. You can use it as a soft noise gate, use it more aggressively as a hard guitar/drum gate, or you can use to expand the total dynamics of a track.

Mode: EXP (expanding)
Detector Source: INT (internal source)
Detector Type: AVG (slow attack), PEAK (fast attack), or gate (hard noise gate, fast attack)

Threshold: Adjust to set the threshold of expansion
Release: Adjust to set release time
Range: 60—20 dB
Output: –15—0 dB

Procedure

1. Set the **Release** and **Range** to their min positions (CCW).
2. Adjust the **Threshold** so that the desired signals don't light up any LEDs (no gain reduction), while the undesired signals (noise) cause gain reduction (LED array lights up).
3. Set the **Release** control by ear: too fast release time can cause unwanted, abrupt, effects when the signal goes down below the **Threshold**.
4. Set the **Range** to get the desired amount of maximum attenuation.
5. Toggle the **Detector Type** (AVG, PEAK, GATE) to get different kinds of gating effects.

Switches

All three switches work independently of each other, so don't be alarmed. Once you know what each switch does, the Dyna-mite will be easy to operate.

Detector Source (INT, DS-FM, EXT)

Determines the source of the detector.

INT **Internal source**, normal operating mode for **noise gating, expanding** or **limiting**. The gain reduction circuit acts upon the same signal that is fed to the detector.

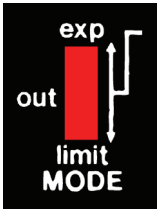
DS-FM **Internal source**, but with a detector filter that **boosts the high frequencies**, thus making it easier for high frequencies to trig the detector.

This mode can be used for **de-essing**, or it can be used rather creatively when increased sensitivity to high frequencies is desirable.

EXT **External source**. This option is not available.

Mode (EXP, OUT, LIMIT)

Determines if the Dyna-mite should expand or limit the sound.



EXP **Expander mode**. Reduce gain for signals **below** Threshold.

OUT **Bypass**. Output volume knob and output stage clipping still active.

LIMIT **Limiting mode**. Reduce gain for signals increasing **above** Threshold.

Detector Type (GATE, PEAK, AVG)

This switch determines the ratio and attack times of the detector.

GATE **Fast and aggressive attack**. This is the most extreme mode. Fast attack time (about 50 µs). In LIMIT mode, the ratio is negative (1:–20), which means that for every dB above threshold, the output signal will be reduced by 20 dB! In EXP mode, you'll have a hard noise gate with a 1:20 ratio. So for every dB below the threshold, the signal will be reduced by another 19 dBs.

PEAK **Fast attack time** (about 50 µs), useful for hard limiting of transient material. Inf:1 ratio in LIMIT mode, and 1:2 ratio in EXP modes (for soft noise gating).

AVG **Slow attack.** A slower and more complex attack time (about 1–15 ms). Inf:1 ratio in LIMIT mode, and 1:2 ratio in EXP modes (for soft noise gating).

Detector Type=GATE can be confusing in the beginning, but you can see it this way: In EXP mode, the signal gets gated when the level drops below the threshold (that's normal). In LIMIT mode, the signal gets gated when the level goes above the threshold (that's weird).

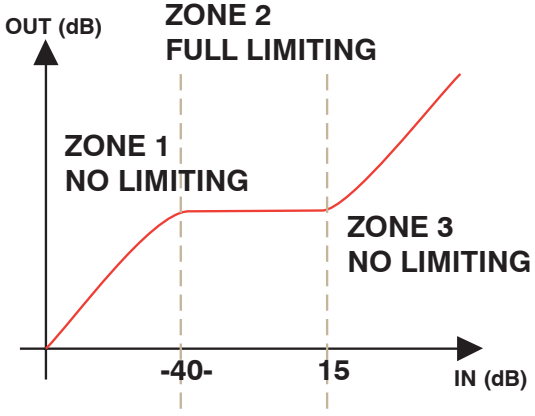
Knobs

Threshold

Classic threshold control. Determines the signal level above which Limiting, or below which Expanding action begins.

Variable from –40 dBv to +20 dBv, which in a plug-in translates to about –60 dBFS to 0 dBFS. A full scale (0 dBFS) sine wave, with **Threshold** set at max (+20 dBv), will cause the Dyna-mite to just start to limit or expand. The exact values depends on the mode selected.

VCA Gain Coupling (a.k.a. Auto Make-Up Gain)
In internal limit and DS-FM modes, the Dyna-mite engages the VCA Gain Coupling which acts like an automatic make-up gain.



Range

This innovative control limits the **maximum gain reduction**. It varies from 0 dB (no gain reduction) to 60 dB **possible** gain reduction.

This control is very useful when expanding or gating. If you for example use the Gate mode (INT, EXP, GATE) on toms, you can set the **Range** to 30 dB to prevent the gate from reducing the gain by more than 30 dB, and thus avoid the most audible artifacts from when the gate open and closes.

In the original hardware, the **Range** control was only available in the EXP mode and left out in the LIMIT mode. This was probably due to implementation difficulties, so we decided to introduce the **Range** knob to the other modes as well. (To get the plug-in to behave exactly like the hardware, just set the **Range** knob back to 60 dB in the limit modes.)

Advanced: Range Knob in Limiting Mode (Zones)

When limiting, the **Range** control gives you a very powerful tool to create a "zone" in which the limiting occurs. If you for example limit a drum track and the Gain Reduction meter reads 40 dB in the peaks, you can set the **Range** control to 25 dB and thus get three different zones:

1. No limiting when the drums are below –40 dB
2. Inf:1 limiting in the range –40 dB to –15 dB
3. No limiting for peaks exceeding –15 dB

Since the peaks in the third zone would cause a gain reduction above the limit of 25 dB, and the **Range** is set at 25 dB, no further gain reduction will occur. The effect is that you have a very effective limiting in zone 2, but with the transients of zone 3 being let through. It's different, but sounds somewhat similar to that of a parallel or "*New York style*" compression.

Release

Classic release time control. Determines the rate at which a gain is restored after Limiting or Ducking, as well as the rate at which gain is reduced after Gating, Keying or Expansion attacks.

Variable from 50 ms to 5 sec/20dB.

Anticipatory Release Computation. With fast release time settings and certain material, the gain reduction will follow the signal envelope too tightly, and "pumping" will occur. To escape these effects, yet still allow the user to select rapid release times, Valley International developed a proprietary circuit scheme known as Anticipatory Release Computation (ARC). It analyzes the program input and anticipate conditions which would cause either waveform gain modulation or excessively rapid pumping, and computes a different release envelope in order to prevent, or greatly diminish, these effects. Technical explanations apart, the ARC circuit is definitely a big part of the famous Dyna-mite sound.

Output

Output volume control. Ranges from –15 dBv to +15 dBv. In limiting modes (LIMIT and DS-FM), the output volume will be automatically corrected to fit with the chosen **Threshold** level. In all other modes, the **Output** volume will act as a simple gain control. You will soon find that this auto make-up feature is very handy, since it is extremely easy to make changes to the amount of limiting (with the **Threshold** control) without disturbing the balance of the mix.

Clip Indicator

The plug-in features an accurate model of the output stage in the hardware. So whenever the hardware would clip, the plug-in will as well. This is indicated by a clip LED, and just as with the hardware, it is possible for the clip LED to flash, even with very heavy limiting, because the transients will in some cases slip through (for example in the AVG mode).

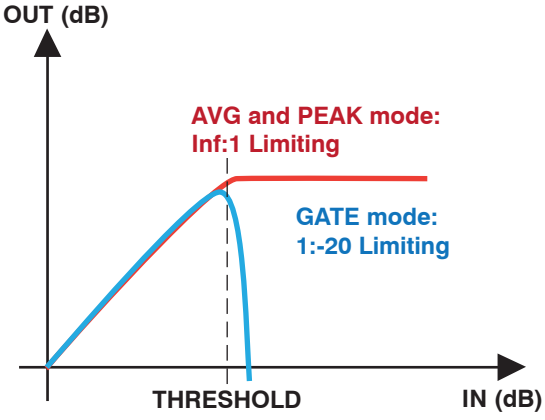
The original manual states: "*The clipping signal is [often] of exceedingly short duration, and is, in all probability, fully inaudible. Any decision to lower the output level because of sporadic flashing of the clip LED should be based upon what you hear. If the signal sounds "clean", you are probably better off to leave the output level alone.*"

Times change, and today we often strive for a "dirtier" sound with distortion and clipping, so feel free to crank up the **Output** volume and experience the brutal distortion of the original Dyna-mite hardware...

Limiting Modes

There are two basic limiting modes: the AVG and PEAK detection. On top of this, you can use the built-in pre-emphasis high frequency filter (**Detector Source** = DS-FM) together with the internal signal. Finally, you can set the **Detector Type** to GATE, which will give you **negative limiting**.

In theory, the difference between AVG and PEAK lies basically in the way the detector calculates the envelope of the signal. AVG uses *Linear Integration*

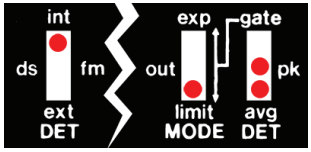


Detection, a proprietary method that Valley International developed, while PEAK uses a more traditional "log-of-the-absolute-value" method.

In practice, the differences lies in the timing. AVG is a bit slower, has a more natural sound, but can be tricky to work with. PEAK is faster and behaves more like a traditional limiter.

You can always toggle between the PEAK and AVG modes and listen to the difference.

Classic Limiting



Mode: LIMIT
Detector Type: AVG/PEAK
Detector Source: INT

Threshold: Adjust to material
Release: Usually short, 0.05-0.5 sec
Range: Typically 60 dB (see section about "Zones" for usage)
Output: Adjust to material, typically above 0 dB.

These are the classic limiting modes. If the detector is in PEAK mode, you will be able to raise the total volume more than in AVG mode, but the waveforms will be more distorted than in AVG mode. In AVG mode it is easier to get a more transparent limiting, but it is also easier to get lots of punch in a drum track since the slower attack time will let the transients through. The original manual recommends the AVG position except when you have very transient sounds.

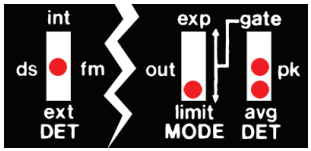
> The limiter will let the fastest transients slip through, especially in AVG mode. These transients will be caught by the output clipping, and if they are very short in duration, the effect of the clipping will be inaudible.

Level Limiting (INT, LIMIT, AVG)
Peak Limiting (INT, LIMIT, PEAK)

Ratio = Inf:1, Automatic make-up gain during limiting. **Range** control forced to 60 dB on hardware unit, but active in the plug-in.

> AVG **mode is good for transparent limiting**, or added punch to a bass line or drum track.

> PEAK **mode is good for hard limiting**, for example adding length to a snare drum sound or to limit fast transients.



De-Essing and Classic Limiting With Pre-Emphasis Filtering

Mode: LIMIT
Detector Type: AVG/PEAK
Detector Source: DS-FM

Threshold: Adjust to material, normally about 6—10 dB of gain reduction.
Release: Usually short, 0.05-0.5 sec
Range: Usually 60 dB
Output: Adjust to material

This is a setting that's very useful for vocal de-essing, but also whenever you need to limit high frequency sounds (such as controlling cymbal levels).

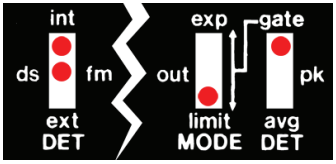
The DS-FM filter only boosts the high frequencies on the signal that enters the detector. The main signal (the one you can listen to) is not affected by this filter.

De-essing (DS-FM, LIMIT, AVG)
Limiting High Frequency Sounds (DS-FM, LIMIT, PEAK)

Ratio = Inf:1. Automatic make-up gain during limiting. High frequency EQ inserted in detector path. **Range** control forced to 60 dB on hardware unit.

AVG **mode: Good for vocal de-essing**. The original manual says: *"It is important to note that the use of Linear Integration Detection [ie. the AVG mode] provides a much more effective mechanism for de-essing than does the conventionally used peak detection."* The reason for this is that the AVG mode's slower response time won't limit transient high frequency sounds (like a 't'), but will limit longer high frequency sounds (like in 'sss').

PEAK **mode: Good for drum track limiting**, if you want to limit the cymbal sibliants. Setup a good limiting without using the DS-FM mode, and then toggle between INT and DS-FM to hear which one you like the best.



Weird Limiting

Mode: LIMIT
Detector Type: GATE
Detector Source: DS-FM or INT

In the category "Weird Limiting" we can find the negative ratio stuff. The negative limiting mode is a very special case, and is normally used together with longer release times and the **Range** control. In some settings, specifically with long release times and a **Range** at about 10–15 dB, you can get a very crackling sound. Increase the **Range** or the **Release** time to avoid this.

Negative Limiting for "Organ Effects" (INT, LIMIT, GATE)
Modified Negative Limiting (DS-FM, LIMIT, GATE)

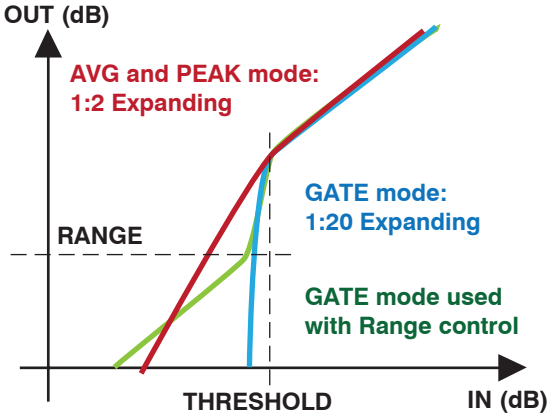
Ratio = 1:-20. As input signal exceeds **Threshold**, a 1 dB increase causes a 20 dB decrease in output level.

> This is the mode that is the hardest to find some use for. It crackles and pops a lot, and one might suspect when reading the original manual that this is a mode that wasn't planned when designing the gear. More like "Wait, what happens if you use the gate together with the limiting mode? Ahh..."

Expanding Modes

The expansion modes is operated in a very similar way to the limiting modes, with the big exception that it is, well, expanding rather than limiting.

Another exception is that the GATE mode actually gates the signal in the EXP mode, while it in the LIMIT mode acts like a negative ratio limiter.



Classic Expansion/Noise Gating

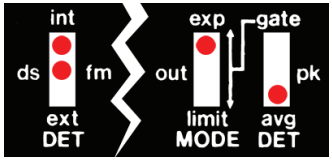
Mode: EXP
Detector Type: AVG/PEAK/GATE
Detector Source: INT/DS-FM

Threshold: Adjust so that the desired sound levels extinguish all lights on the Gain Reduction LED array.
Release: Start with minimum setting, and then adjust "by ear".
Range: Start with 60 dB, adjust to decrease the effect caused by the gating.
Output: Usually below 0 dB

In the classic noise gating mode you have three different settings of the **Detector Type**: AVG, PEAK and GATE. The GATE mode is the most brutal mode,

and is pretty efficient to use on drums or heavy metal guitar if you want a more aggressive sound, but it should be regarded more as a creative tool rather than a problem solver.

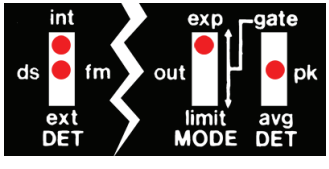
In all of these modes you can toggle between INT and DS-FM to get different weighting of the frequencies. Setting the **Detector Source** in DS-FM mode will make the expander trig more easily on high frequencies, which can be a good thing if you for example are gating a drum beat and want to avoid gating the high frequency cymbals. Since noise often have a lots of high frequency content, you should set it to int if you want to do actual noise gating. But you probably want to use it more creatively anyway...



AVG MODE: Soft Noise Gating (INT/DS-FM, EXP, AVG)

Ratio = 1:2. A signal *x* dB below **Threshold**, will be attenuated another *x* dBs.

> The least obtrusive noise gate. Good for classic noise gating with sources that doesn't have strong transients (such as voice and strings). Use on slow to medium attack sounds.

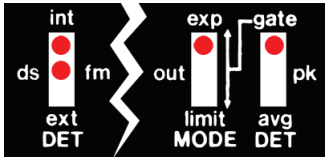


PEAK MODE: Soft Noise Gating with Faster Attack Time (INT/DS-FM, EXP, PEAK)

Ratio = 1:2. A signal *x* dB below **Threshold**, will be attenuated another *x* dBs.

If the attack of the instrument is moderate to fast, such as with drums or certain types of guitar, it is better to use this PEAK mode. The faster attack time in PEAK mode assures that the gain is fully restored when the transient strikes.

> This mode can be pretty nice to use if you want to shorten the decay of a sound, such as a bass line or steel stringed acoustic guitar. With this mode you can get a standard Jazz Bass to sound like a damped Hofner string bass, or a steel stringed $3000 Martin to sound like a $30 banjo... Just set the **Release** time so that you get the right amount of decay.



GATE MODE: Hard Noise Gating (INT/DS-FM, EXP, GATE)

Ratio = 1:20, PEAK detection of input signal. A signal *x* dB below **Threshold**, will be attenuated another *x* dBs.

> Use this setting as a traditional, boring hard noise gate, or... use it to create hard hitting beats from almost any drum track! Set a short release time and aggressive gating, and set the **Output** volume high to get some distortion. Stack up many Dyna-mites with different amounts of distortion and release times to get fat snare and bass drum sounds... Toggle the DS-FM switch to include/exclude cymbals.

Mono and Stereo Operation

Inserting the Dyna-mite in STEREO mode makes it behave just as the real unit in "STEREO COUPLE" mode.

Buying Recommendations

The Valley People Dyna-mite is a very cool and affordable hardware limiter/expander. Many people don't know how to use it and say they don't like it just because they cannot operate it. Once you've learned the plug-in you will have no problem at all to operate the real hardware, so if you find a unit—make sure you pick it up!

(The thing on top of the unit is a description of all the different modes, the same texts that are displayed in our nifty little display.)

Credits

Oscar Öberg – modeling, **Niklas Odelholm** – graphics programming. **Torsten Gatu** – framework programming. **Arvid Rosén** – modeling and framework programming. **Ulf Ekelöf** – 3D rendering. Original hardware was designed by Valley People Incorporated.

Softube

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