

## Dynamic Master

Semi Modular All-Purpose Dynamic Designer



Developed by



## Operational Manual

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## Index

Features	<a href="#"><u>4</u></a>
Registration	<a href="#"><u>5</u></a>
Main Controls	<a href="#"><u>6</u></a>
Envelope Controls	<a href="#"><u>7</u></a>
Basic Compressor/Limiter Controls	<a href="#"><u>10</u></a>
Auto Behavior Editor	<a href="#"><u>13</u></a>
Parallel Compression	<a href="#"><u>16</u></a>
Side chain controls	<a href="#"><u>17</u></a>
Metering System	<a href="#"><u>18</u></a>
Steps to build a Dynamic Processor	<a href="#"><u>19</u></a>

Dynamic Master takes precision sound design in an entirely new direction by giving you the power to actually create your own hi-end compressor/limiter. No longer are you limited to the hardware or software that's "out there". For the first time, you can customize your sound by creating new virtual processing equipment, capable of delivering incredible sonic precision, all under your exacting control. And best of all - NO PROGRAMMING KNOWLEDGE IS REQUIRED! Other modular tools require you to wire, rewire and add different modules, but Dynamic Master's simple-to-use interface features knobs, switches and drop-down menus to make shaping your sound simple and straightforward.

Here are just some of Dynamic Master's Features:

- First and foremost, it's all about the sound! Dynamic Master gives you absolute control, from total transparency to garage band grunge, it's not just a Swiss Army Knife of Sound - it's a versatile, razor sharp tool delivering hi-end fidelity.
- Two Individual Dynamic Processors enable the user to shape complex dynamic curves. Do you want to compress it and then limit it? Expand it first? You decide!
- The Advanced Routing System gives users more choices for different kinds of dynamic processing, e.g., Compressor, Limiter, Expander, Series Compression, Parallel Compression and Side Chain Compression.
- Meticulous Envelope Controls enable users try out different Envelopes and even design new envelope types to achieve different sound styles.
- Two Auto Behavior Editors allow users to design their desired auto release/attack behavior for each dynamic processor. Different auto releases or attacks will lead to different overall sounds.
- Dynamic Master's easy to understand interface replaces the chore of adding/replacing modules or having to wire and rewire, making it extremely user-friendly.
- Dynamic Master supports third party add-ons that will continue to add value in the future.
- Third party developers can use Dynamic Master to design and publish new processors or emulate vintage compressor/limiter gear - and even sell it online! What's more, with the Developer Edition, developers can create and export commercial VSTs, creating entirely new processors for use in any digital audio workstation.

## Registration

The output from the Dynamic Master Demo Version will be silent for 2 seconds every minute. To remove this restriction, a License Key can be purchased from our web site: <http://www.soundemon.com/dm.htm>



To register Dynamic Master, pressing this button will bring up the Registration Dialog:

Product Registration

Dynamic Master

Enter registration information below:

User ID:

License Key:

Demo period:  Days left

Enter your User ID and License Key, and press the Enter Key button. If you've entered your ID and License Key properly, Dynamic Master will immediately become registered,

If you have any problems registering Dynamic Master, please contact Sound Magic customer service.

## Main Controls

### Input Type Select



Input Type has three modes:

- L/R - traditional stereo.
- M/S - Stereo in M/S
- Sidechain - Use side chain signal to control Dynamic Master

### Panel Select



There are approximately 60 controls in Dynamic Master contained within three separate panels.

### Main Panel

The Auto Behavior Editor and Parallel Compression controls are located in the main panel.

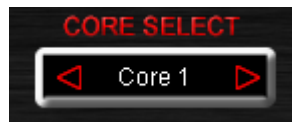
### Dynamic 1 Panel

The controls for Dynamic Processor #1 are located in Dynamic 1 panel.

### Dynamic 2 Panel

The controls for Dynamic Processor #2 are located in Dynamic 2 panel.

### Core Select



Select between the two Auto Behavior Editors. Core 1 shows the Auto Behavior Editor #1 controls on the main panel and hides the Auto Behavior Editor #2 controls. Core 2 shows the Auto Behavior Editor #2 controls on the main panel and hides the Auto Behavior Editor #1 controls.

### ON/OFF



Off means the Dynamic Processor#2 is bypassed

## Envelope Controls



The Envelope Follower is the key aspect that influences overall sounds, so tweaking the envelope controls will change the sound a lot.

### Envelope Types



Choose FIX or DIY Envelopes by pressing this button. The FIX type envelope uses a traditional envelope follower which only features attack and release time. Under FIX mode, you can only tweak curve type, attack and release time to change the sound. The DIY type envelope gives users the flexibility to tweak the envelope. You can tweak attack, release, hold, decay, transform, mix mode and curve shapes... 7 controls in all!

### Curve Type



Curve type for FIX Envelope (three modes)

### Attack/Release Time

Compressors often provide a degree of control over how quickly they act. The 'attack phase' is the period when the compressor is decreasing gain to reach the level that is determined by the ratio. The 'release phase' is the period when the compressor is increasing gain to the level determined by the ratio, or, to zero dB, once the level has fallen below the threshold. The length of each period is determined by the rate of change and the required change in gain. For more intuitive operation, a compressor's attack and release controls are labeled as a unit of time (often milliseconds). This is the amount of time it will take for the gain to change a set amount of dB, decided by the manufacturer, very often 10 dB. For example, if the compressor's time constants are referenced to 10 dB, and the attack time is set to 1 ms, it will take 1 ms for the gain to decrease by 10 dB, and 2 ms to decrease by 20 dB. Dynamic Master uses milliseconds to present attack time while using seconds to present release time.

### Hold Time

Hold Time is the time that the envelope holds the peak, measured in milliseconds. Longer Hold Times will emphasize the compressor effect. Also, a suitable Hold Time will let the envelop come closer to actual peak levels. In Dynamic Master, adjusting the Hold Time will make the sound more colorful and even add special flavors to the sound.

### Decay Time

Decay Time is the time that the signal falls to the actual level after holding the peak, measured in milliseconds. This control may influence the release time (for it behaves more like a release) but is actually not the release time.

### Curve Shape

Curve Shape refers to the curve shapes of the Envelop Follower (eight modes). Each mode has different shapes which affect the sound differently.

### Transform



Mode E, F, G, H are four modes which mixes two envelopes together. Transform controls the mix depth between the two envelopes.

### MIX Mode

There are five modes to select.

### RMS Length

RMS Length is the length of the RMS windows, measured in milliseconds. It is the key aspect that influences an RMS compressor's sound.

### Basic/ADV



This button decides which controls show on the GUI. In ADV mode, Transform shows instead of Decay Time.

## Basic Compressor/Limiter Controls

### Threshold



Threshold is the level above which the signal is reduced. It is commonly set in dB, where a lower threshold (e.g. -40 dB) means a larger portion of the signal will be treated (compared to a higher threshold of -5 dB). Dynamic Master has a range from -40dB to 0dB.

### Gain



Because the compressor is reducing the gain (or level) of the signal, the ability to add a fixed amount of make-up gain at the output is provided so that an optimum level can be used. Dynamic Master has a gain ranging from 0 dB to 20dB

### Ratio



The ratio determines the input/output ratio for signals above the threshold. For example, a 4:1 ratio means that a signal overshooting the threshold by 4 dB

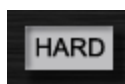
will leave the compressor 1 dB above the threshold. The highest ratio of  $\infty$ :1 is commonly achieved using a ratio of 60:1, and effectively denotes that any signal above the threshold will be brought down to the threshold level (except briefly after a sudden increase in input loudness, known as an "attack"). Dynamic Master has a ratio from 0:1 to 20:1. The compressor will behave more like a limiter when the ratio is higher than 10:1. A ratio smaller than 1:1 will result in Dynamic processor behaving like an expander.

### Dynamic Types



Choose Compressor or Limiter by pressing this button

### Knee Type



Choose hard or soft knees by pressing this button

### Soft and hard knees

Another control of Dynamic Master offers is the hard/soft knee. This controls whether the bend in the response curve is a sharp angle or has a rounded edge. A soft knee slowly increases the compression ratio as the level increases and eventually reaches the compression ratio set by the user. A soft knee reduces the audible change from uncompressed to compressed, especially for higher ratios where the changeover is more noticeable.

### Level Detection



### Route

Choose Left (L) or Right(R) as level reference for stereo by pressing this button.

### Peak, RMS and Aver. RMS

A peak sensing compressor responds to the instantaneous level of the input signal. While providing tighter peak control, peak sensing might yield very quick changes in gain reduction, more evident compression or sometimes even distortion. Dynamic Master also applies an averaging function (commonly RMS) on the input signal before its level is compared to the threshold. This allows a more relaxed compression that also more closely relates to our perception of loudness. Average RMS is a special function in Dynamic Master.

Average RMS has a smoother curve than RMS so it is useful when you want to increase the density of the sound.

### Lookahead



The lookahead function is designed to overcome the problem of being forced to compromise between slow attack rates that produce smooth-sounding gain changes, and fast attack rates capable of catching transients. Look-ahead is a misnomer in that the future is not actually observed. Instead, the input signal is split, and one side is delayed. The non-delayed signal is used to drive the compression of the delayed signal, which then appears at the output. This way a smooth-sounding slower attack rate can be used to catch transients. The cost of this solution is that the signal is delayed. Dynamic Master has a lookahead delay ranging from 0 to 10 samples.

## Auto Behavior Editor



This editor is used to program auto release/attack behavior. There are 4 steps to program it

1. Floor and ceiling control the range of the signal. Floor is the lowest value of the signal. Ceiling is the highest value of the signal.
2. Multiply the signal. Multiplier controls signal amount.
3. Change curve controls the overall changing curve of the signal. There are 10 types of signals
4. Assign the final value by selecting Auto Mode.

### Floor

The low boundary of the range, ranging from 0 to 10

### Ceiling

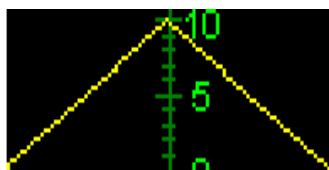
The High boundary of the range, ranging from 0 to 10

### Multiplier

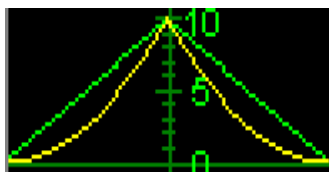
The value that multiplies with the signal. Ranging from -100 to 100

### Change Curve

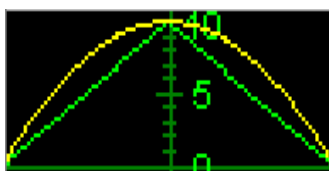
There are 10 types



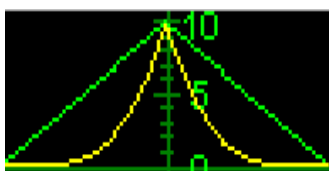
Linear: This type of response means the signal changes with constant rate.



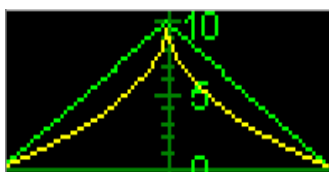
Exp: this type of response means signal changes slowly at first and then gets faster as the signal value increases.



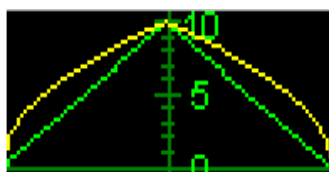
Inv. Exp: This type of response means signal changes fast at first and then gets slower as the signal value increases.



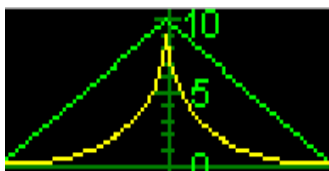
Exp2: This type of response means signal changes more slowly at first and gets faster as the signal value increases.



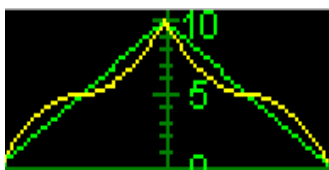
Root: very close to Exp type, but with a smoother changing curve



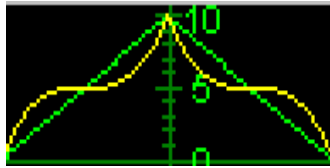
Inv. Root: very close to Inv. Exp type, but with a smoother changing curve



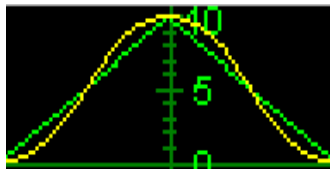
Exp+Root: very close to Exp2 type, but with a flatter changing curve



**S\_Crv:** This type of response means signal changes as an “S” shape as signal value changes. It changes more slowly in both ends and gets faster while in the middle range.



**S\_Crv2:** This type of response means signal changes as an “S” shape as signal value changes. Changes are slowest in both ends and fastest while in the middle range.



**Inv.S\_Crv:** This type of response means signal changes as an inverted “S” shape as signal value changes. It changes fast in both ends and gets slow while in the middle range.

#### Auto Mode 1

Route the signal to Dynamic Processor #1 (three modes). Off means no auto attack or release. Attack 1 means Auto Attack, Release 1 means Auto Release.

#### Auto Mode 2

Route the signal to Dynamic Processor #2 (three modes). Off means no auto attack or release. Attack 2 means Auto Attack, Release 2 means Auto Release.

## Parallel Compression



Parallel Compression is a method featuring a more natural sound. Parallel Compression is done by mixing the compression signal and the delayed original signal together. To avoid phase cancellation, the original signal needs to be delayed to compensate for the delay caused by the compressor.

It has three controls, Delay Time, Wet/Dry and Mix Mode.

### Delay Time

Delay Time refers to the time of the delay of the original signal, measured in samples. Under 44.1 KHz resolution, 44 samples is nearly 1 millisecond.

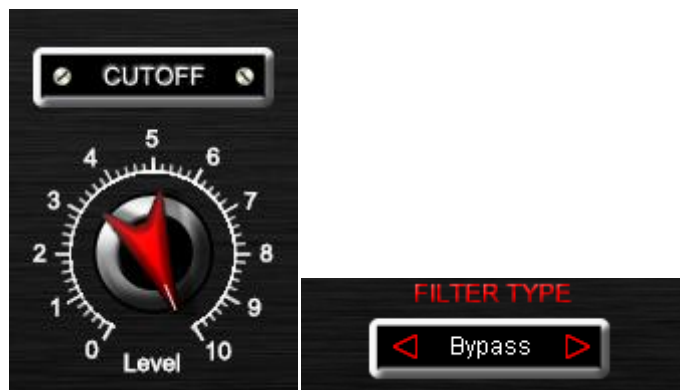
### Wet/Dry

Wet/Dry refers to the mix of the two signals, measured as a percentage. 100% Wet and 0% Dry means only the compressed signal is outputted. 0% Wet means only the delayed signal is outputted, so it is 100% dry.

### MIX Mode

In mix mode, there are five selections.

## Side chain controls



### Filter Type

The filter applies to the side chain signal. It includes LPF (Low Pass Filter), HPF (High Pass Filter), BPF (Band Pass Filter), Notch, Allpass and Parametric. There are 16 Filter Types in all. There are also Bypass and OFF (No Signal) options.

### Cutoff

The cutoff frequency of the filter

## Metering System



### Input/Output

This selects either the monitor input signal or the output signal. It is only effective for monitoring the peak of the signal.

### Peak/GR

This selects between monitoring the Peak of the signal or the Total Gain Reduction amount of the Dynamic Processors.

### VU Meter



This meter shows signal as volts

### Peak Meter



This meter shows signal as green, yellow and red LEDs. Left meter shows signal in left channel. Signal above -3dB will light the red LED. Signal between -9 and -3dB will light yellow LED while signal below -9dB will be green.

### **Steps to design a Compressor**

1. Select level detection type (for example, Peak or RMS). and then select L/R
2. Select Dynamic Type as Comp
3. Select Envelop Follower Type, FIX or DIY type
4. For DIY type,
  - a. Choose a Curve Shape from 8 modes
  - b. Adjust hold and decay times
  - c. Adjust Transform if choose mode E,F,G,H
  - d. Select Mix Modes
  - e. Adjust RMS length if you choose RMS and average RMS
5. If you choose FIX type, select one Curve Type
6. Choose Knee Types, hard or soft?
7. Adjust the basic setting such as threshold, gain, ratio, attack and release time
8. If you want to add additional features to the Compressor
  - a. Use the Auto Behavior Editor if you want to apply auto release/attack
  - b. Apply Parallel Compression if desired
  - c. Adjust side chain controls if desired
  - d. If you need a more complex dynamic curve, open Dynamic Processor #2.

### **Steps to design a Limiter**

1. Select level detection type (for example, Peak or RMS). And then select L/R
2. Select Dynamic Type as Limit
3. Select Envelop Follower Type, FIX or DIY type
4. For DIY type,
  - a. Choose a Curve Shape from 8 modes
  - b. Adjust hold and decay times
  - c. Adjust Transform if choose mode E,F,G,H
  - d. Select Mix Modes
  - e. Adjust RMS length if you choose RMS and average RMS
5. If you choose FIX type, select one Curve Type
6. Choose Knee Types, hard or soft?
7. Adjust the basic setting such as threshold, gain, attack and release time. Limiter often needs nearly 0 attack times.
8. If you want to add additional features to the Limiter
  - a. Use the Auto Behavior Editor if you want to apply auto release/attack
  - b. Adjust side chain controls if desired
  - c. If you need a more complex dynamic curve, open Dynamic Processor #2.