
Classically . Defined . Sound

BRTC-M2 COMPRESSOR

CDSoundMaster BIG ROUND TUBE COMPRESSOR
BY MX2 – MICHAEL HEILER AND MICHAEL ANGEL

Manual Index

About the BRTC-M2

The BRTC-M2 is the third Plug-In designed by Michael Heiler and Michael Angel. The sound system, signal chain, and processing design is an original concept created by Michael Angel that began back in 2005 and took until 2009 to begin implementation. Michael Heiler provided the perfect coding and development partnership to bring this process to fruition in VST Plug-In form. This made for the development team "Mx2" under exclusive release by CDSoundMaster. The BRTC-M2 stands for "Big Round Tube Compressor" developed by "Mx2" or "Michael Times Two".

The original concept for the signal chain developed by Michael Angel of CDSoundMaster is called "Virtual Interactive Signal Chain Technology", and has been brilliantly executed in code by Michael Heiler.

This unique process provides the most advanced and complex system for recreating analog circuitry with the benefit of using a stream-lined and memory-efficient sound procedure. With very few steps, it is able to generate a more complex response than other algorithmic processes.

Every device that is created using the "Virtual Interactive Signal Chain Technology" is designed in comparison to real analog recording devices for the ultimate in realism and excellence in sound. The name "Big Round Tube Compressor" represents three incredibly complex characteristics, each containing extremely high expectations, with an emphasis on the "big round" sound of classic vacuum tubes.

It is designed as a perfect complement to the VTMC-M2. They share a familiar design layout, and the controls are provided to be familiar to anyone using either device, but these are two very different tube devices.

Where the VTMC-M2 is designed around the philosophy of placing all of the right limitations on a device for a specific task, so that it can be extremely flexible, while always maintaining its own unique sound. While it is designed to handle the complex task of high end mastering, it has a very distinctive sound all its own. Because much of mastering, or mixing on the master buss, can require the most subtle of processing or very strong personal touch, the VTMC-M2 covers a specific timing range, depth of ratio and threshold, and also the ability to mix the wet and dry signals.

There are times where the processing personality of the VTMC-M2 is perfect for track compression, just using the sound of the tubes, and many other options, but it will always find its home in mastering.

The BRTC-M2 is designed with a similar philosophy to the VTMC-M2, where it can be used with a great amount of coloration, but can also be mixed with the original signal to give an incredible range of control over the sound. You can compress extremely hard and only blend in a small amount, or you can even just run tracks through the tube signal chain and bypass the compressor completely.

The BRTC-M2 is designed to allow you to focus in on very specific timing elements from one instrument to the next, so that every unique track is easy to dial in a very specific personality. Make a snare "crack", a kick drum "thump", a bass guitar "pop" or sustain, or add a little buzz to the frets. The BRTC-M2 is equally at home as your "go-to" vocal compressor, and may well become your favorite guitar compressor, not to mention an added tube saturation stage in your combo set-up when recording!

The BRTC-M2 provides a VU-inspired metering, allowing you to watch the needle dance, showing the volume of the music, or showing you only the amount of gain reduction taking place. The BRTC-M2 also provides digital metering in case that is preferred.

The tube signal chain designed for the BRTC-M2 is very different from the one found in the VTMC-M2, but the use of the device is the same. Use light, regular, and heavy tube settings to their desired sonics from one track to the next.

Michael Angel, the designer of the sound engine for this technology, has many years of experience with tube devices, having not only worked with many devices for recording and mastering, but going so far as to create the hardware tube device for his mastering studio, Angel Lofte, which was used to design the highly favored "Vintage Tube Collection" and "Tube Booster" Plug-Ins, also available from CDS!

Tubes can have a fizzy, edgy sound, or they can be almost perfectly transparent. Different tube manufacturers were known for specializing in different tonal qualities, from expansive high Frequencies to rich, musical, forward-sounding mid-range, usually with a 3D quality that audiophiles love tubes for. The preamplification tube tends to have its own warmth and coloration compared to power tubes and rectifier-section designs. A full tube signal path can be designed to help direct the signal flow, change harmonic structure, increase volume, buffer the input or output signal, split the positive and negative polarity of the signal, and numerous tasks.
All of these characteristics are considered in the "Tube" design of the VTMC-M2 and the BRTC-M2. We give you a feel for the range of musical characteristics in many of the best tube devices ever made, allowing you to tune your VTMC-M2 and BRTC-M2 to your own personal style and work-flow, so you are not just working with a good mastering tool and mixing tool, but you have the paintbrush that sets the artist free. Also similar to the VTMC-M2, we hope that once you start using the BRTC-M2 for your individual tracks and buss groups, you will find it hard to imagine mixing without it!

WINDOWS INSTALLATION

Close all programs.
Log on to your computer as administrator.
Use right click 'run as administrator' to install and also when opening your DAW.

When you click on the installer you will see the image shown in figure 1 below.

Figure 1

Choose next to continue.

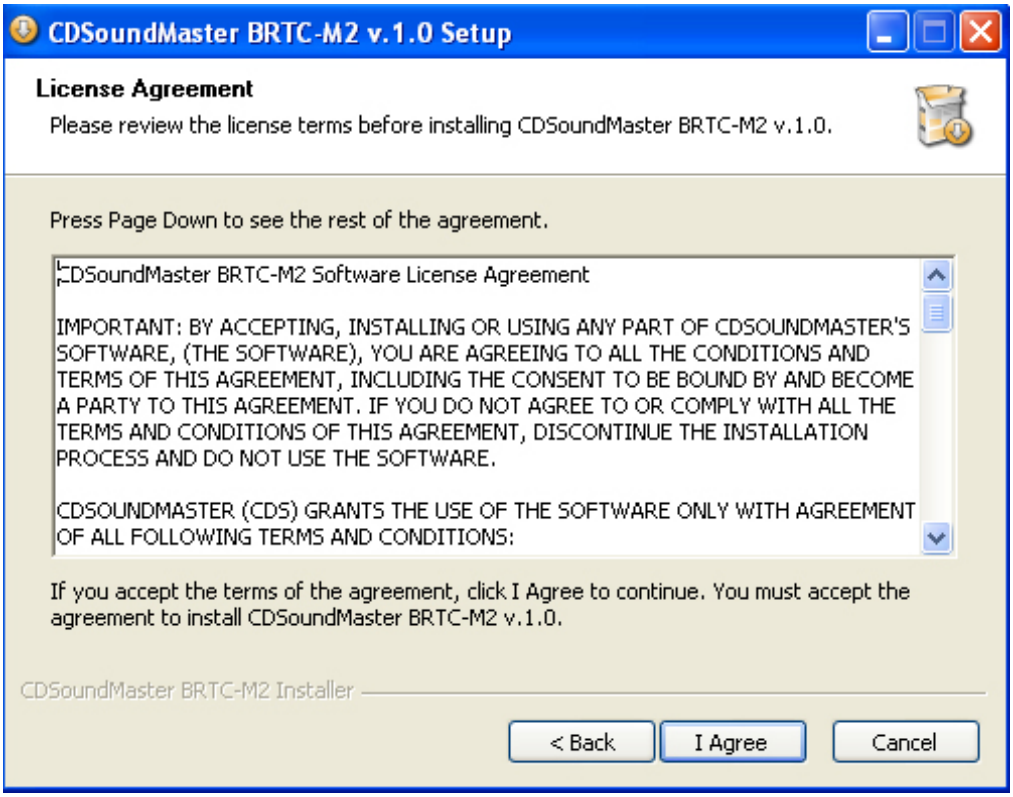


Figure 2

Please read the License Agreement when you first download and demo the BRTC-M2. If you agree to all terms, press "I Agree" to continue with the installation.

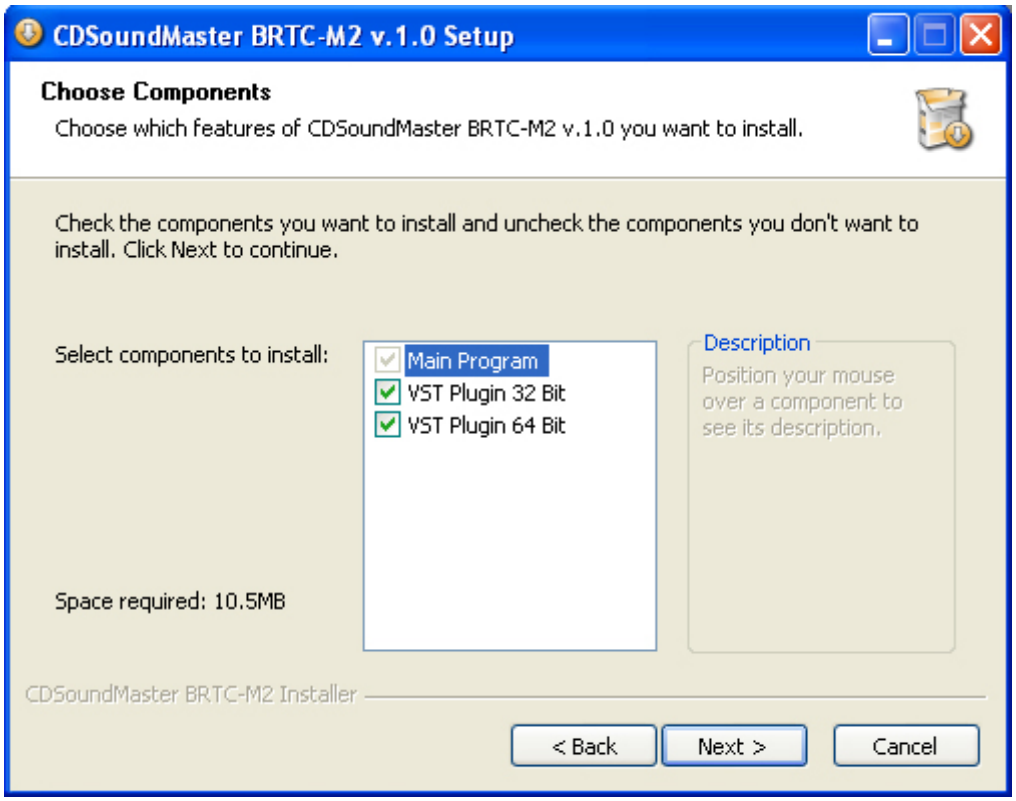


Figure 3

Please choose the version of BRTC-M2 that is correct for your system. If you are running Windows 32 Bit, check only the 32 Bit version. If you are running Windows 64 Bit, but you are using a 32 Bit DAW, check only the 32 Bit version. If you are running 64 Bit for your OS and for your DAW, check 64 Bit.

On a 64 Bit system, we recommend only installing 64 Bit, at least on your first installation since some systems and DAW's are more susceptible to misreading 32 Bit and 64 Bit simultaneously. If you are comfortable with the location of your programs and are confident that your DAW can read both versions on a 64 Bit system, then you can leave both versions checked and install 32 Bit and 64 Bit at the same time.

Choose the location to install the BRTC-M2 Licenser program. This is typically installed to
C:\Program Files\CDSoundMaster\ BRTC-M2 folder.
Choose a different location if you would like.
The plug-in will be installed in your vstplugins folder, but this step is for the licenser.

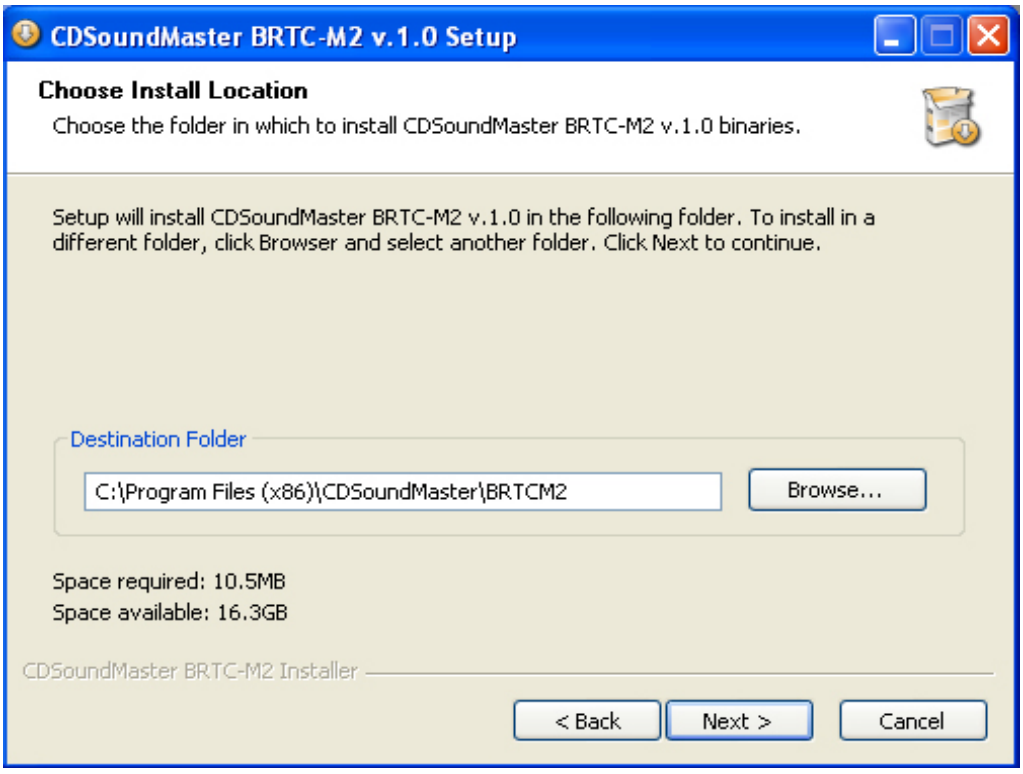


Figure 4

Choose the location to install the Plug-In.
For your 32 Bit version on a purely 32 Bit OS, this is typically C:\Program Files\Steinberg\vstplugins.
On a 64 Bit OS, the 32 Bit folder it typically called C:\Program Files (x86)\Steinberg\vstplugins.
For the 64 Bit version on a purely 64 Bit OS, the 64 Bit vstplugin folder is typically located at C:\Program Files\Steinberg\vstplugins.
Individual DAW programs often have their own vstplugin directory, so if you have trouble locating your new installation after opening your DAW, make sure to check the DAW's preferences and either move the BRTC-M2 to the proper location, or add your installation directory in the places that your DAW scans.

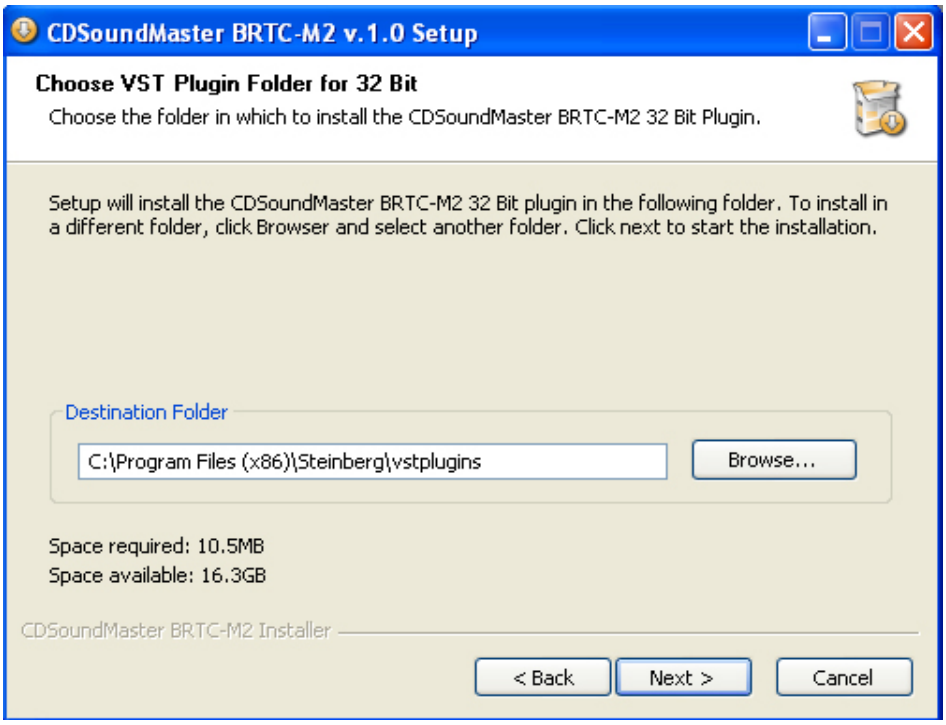


Figure 5

Figure 6

Now that you have installed the Plug-In, you are given the option to open the licenser. You will want to do so in order to Start the BRTC-M2 Demo.

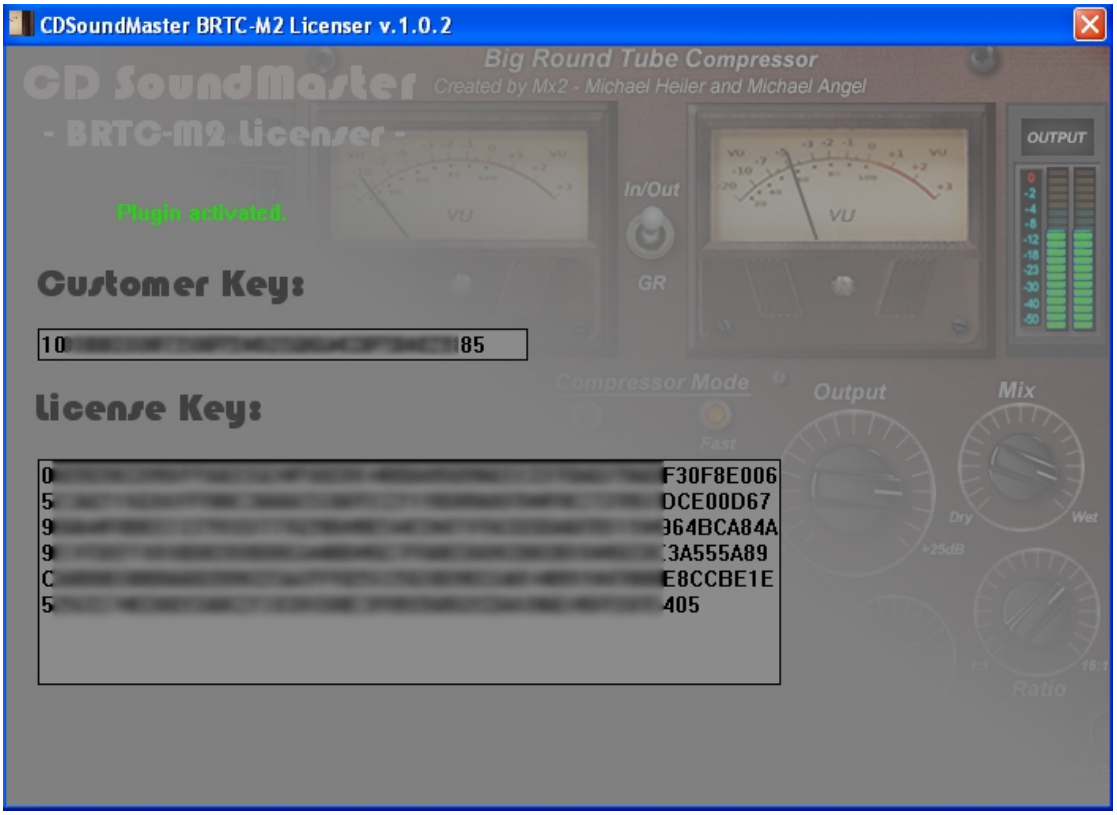


Figure 7

The first time that you run the licenser, you will choose to Start The Demo. Even if you have already purchased the BRTC-M2, you will need to begin by starting the Demo.

This will generate your individual Customer Key.
To register your purchased license of the BRTC-M2, email this Customer Key to us, and we will send your individual License Key.
To copy the Customer Key, "right click" your mouse inside the Customer Key window and choose "select all" and copy. Paste this number into your email.

When you receive your License Key from us, paste it into the License Key folder.

Your BRTC-M2 Commercial License will now be activated.
Open an instance in your DAW program and enjoy!

User Controls

The "Attack"control provides a range of attack speeds ranging from the fastest response all the way counter-clockwise to the slowest response fully clockwise. "Attack" identifies how fast the BRTC-M2 responds to the first input signal. This can also be described as how fast the compressor can respond to the earliest peak. The BRTC-M2 has two compression modes; "Slow" and "Fast".
These two modes adjust the range of the "Attack" control automatically, changing the range of how slow and fast it can respond. This changes the character of the possible range of "Attack" and "Release" to suit the program material.

Terms like "Slow" and "Fast", "Minimum" and "Maximum" will guide your decisions when using the BRTC-M2. The timing elements are more complex than your typical linear compressor. In "slow" response mode, the range from fastest to slowest attack and release are centered around a unique range of timing elements, but these are not a single linear process, but rather multiple processes interacting with the music attack and release and also with the tube saturation stages. Therefore, use your ears to tune the timing to the track you are working with.

The “Release” control provides a wide range of timing response from minimum counter-clockwise, to longer lengths clockwise.
The range of control is adjusted by the “Slow” and “Fast” compressor modes.

“Release” determines how long the compressor waits until letting go of the signal once the “Attack” is initiated. Another way to describe this function is the duration that the compressor will wait until it allows the next peak to be compressed by the “Attack” function. An extremely short “Release” time can make for more obvious compression, because it is more commonly letting go of the altered signal to allow the “Attack” to respond more often. Longer “Release” times act as more of an averaging compression, leaving the program material in the same state of reduction as was initiated by the “Attack”. The longer that it is left, the longer the material will be adjusted.

The "Threshold" control defines the volume that is used to initiate the compressor response. The "Threshold" ranges from no response counter-clockwise, to a full -30dB fully clockwise.

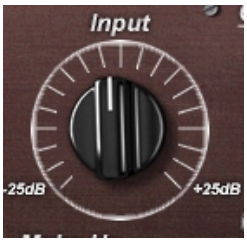
This control is used to define when the compressor will respond. When the "Threshold" is at 0dB, it does not matter what the "Attack", "Release", or "Ratio" are set to; they will not begin to operate on the signal until the "Threshold" is below 0dB.

"Threshold" interacts with the volume of the audio signal, so it will not begin to compress until the "Threshold" reaches the loudest signal that is present, or the peak signal. For instance, if your audio ranges from -40dB to -6dB, the compressor will not affect the "Attack", "Release", or "Ratio" until the "Threshold" is at least -6dB. If it is only set to -6dB or -7dB in this example, it will only compress on these loudest peaks in the signal and will not change anything below that volume, but the "Attack" and "Release will change the timing response of anything that reaches that volume.

Deeper "Threshold" levels are used to compress more of the audio information than shallow levels, but the interaction with the "Ratio" determines a great deal of the resulting character. With a high "Ratio", the amount of compression, or gain reduction, will be greater at that same dynamic range, where a very small "Ratio" can be very subtle or even impossible to hear.

The "Ratio" control determines how much of the "Attack" and "Release" functions are applied to the signal. At a 1:1 ratio, there is no effect, regardless of the depth of the "Threshold". The more that the "Ratio" knob is turned towards the clockwise position, the greater the amount of processed signal over the unprocessed signal will occur. At a 2:1 ratio, compression will be audible but may not have as many dB of volume change as a 6:1 compression ratio at the same "Threshold".

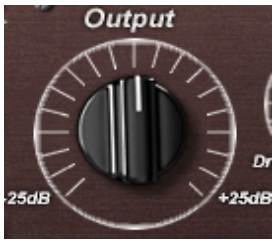
The interaction between "Threshold" and "Ratio" is just as crucial as the relatio between "Attack" and "Release". A shallow "Threshold" and a deep "Ratio" can control an extreme amount of peak and leave the majority of the dynamic recording alone, where a deep "Threshold" and a very small "Ratio" can compress the entire signal but only by a very small amount.



The "Input" control allows you to balance the input signal to the BRTC-M2. Even though this is a very straightforward control, there are a couple of things to know about its special usefulness. The "Input" reacts as a true analog circuit, where the "Output" acts as a final digital volume control. You can balance whatever level is coming into the BRTC-M2 with the "Output" or the "Make-Up" controls. The "Input carries with it the amount of analog processing that is emulated inside the circtuitry design.

Increasing the "Input" also increases how hard you are hitting the analog tube gain stage, and thus you can increase the amount of harmonic distortion and other pleasing sonic coloration by turning the "Input" up higher. You can reduce the "Output" by the same amount for processing the sound just for the sound of the tube amplification and buffering stages.

The "Input" similarly controls the input signal's relationship to the incoming signal volume and also the circuitry detection emulated inside the Plug-In. This means that turning up the "Input" not only increases the harmonic content emulated, but it brings the volume of the audio track higher in the compressor detection. This means that if you have a track that is a maximum peak of -6dB and you have a "Threshold" of -7dB, it can compress a dB of material overall, but if you increase the input by 5dB, you are increasing how deep the "Threshold" detects the signal. This is the true analog reaction to circuitry, and this natural interaction makes it easy to get the exact sensitivity desired in the signal. To get a very small amount of tube coloration, reduce the "Input" control using the "Light" tube setting. To drive the device extremely hard, crank up the "Input" and set the tubes to "Heavy".



The "Output" control provides an accurate digital output signal. It carries the signal chain in its entirety to the output signal without further changes. Use the "Output" control to finely tune the level desired leaqving the BRTC-M2.

The digital "Input" and "Output" meters allow you to see responsive real-time volume levels coming into the BRTC-M2 and leaving the output level. View the difference in your "Input" and "Output" settings here. The "Output" meter will show you any affects that compression has on the resulting levels and reduction, factoring in "Wet/Dry" and "Make-Up Gain".

The analog-style "VU Meters" allow you to switch between two different visualization modes. The first mode allows you to view the input levels on the left meter and the output levels on the right meter. This is particularly helpful to view the needle response in comparison to the digital response, both as they enter and leave the unit. The second mode allows you to view the Gain Reduction, meaning that the sensitivity of the needles are only displaying the difference in the original signal and the amount of compression that results. If there is no compression, the needles will not move. If the program material is compressed from any combination of "Threshold", "Ratio", and "Input" level, the "GR" meter will show the amount as it constantly fluctuates, and you will be able to simultaneously continue to monitor the In/Out digital meters as well.

Use this control to switch the VU Meters between In/Out and Gain Reduction modes. In the up position, the left VU Meter shows you the incoming signal while the right VU Meter displays the outgoing signal. When switched down, both VU Meters display the amount of compression, or Gain Reduction, that is taking place.

The "Compression" control allows you to turn on and off the compression signal path in the BRTC-M2. This may sound like a standard bypass control, but it serves a more flexible and valuable purpose. This control allows you to continue running the analog signal path of the BRTC-M2 while turning off only the compression. This serves several purposes. For monitoring, you can listen to just the effect that the valves have on the signal while A/B'ing the effect the compression has on the signal. This can be used for processing by using the "Input", "Tube Modes", and even the "Wet/Dry" controls to shape the natural valve character to the exact amount that is right for your mix. By providing you with the separate on/off control for the entire chain and just for the compression, you have the ultimate control over the signal for any mastering need.

The "On/Off" control turns the entire signal path on and off, allowing you to compare the processed signal to the unprocessed signal.

The "Compressor Mode" offers you two buttons to choose from "Slow" and "Fast" compression response.

This has an affect on the "Attack" and "Release" ranges of timing characteristics, but also affects how the entire circuitry design reacts to program material. The complexity of the design is largely what makes the BRTC-M2 so ideal for a wide range of mastering tasks, because it is designed to treat your audio with more than just one range of timing elements. Our ears respond to the timing elements of music with great sensitivity and awareness, and certain "Attack" and "Release" settings that we become accustomed to, like the "wack!" of a drum head or the "hummmmm" of a sustained guitar or bass, may initially intrigue us, but as time goes on we become tired of the redundant behavior. On the flip-side, if there is more than one element to the reaction of timing elements, with more control over more aspects of the signal, we find ourselves repeatedly pleased with the amount of control and personality that a final mix can have.

Both "Slow" and "Fast" modes have a wide range of timing elements to choose from, but because there is a complex process taking place, they are controlled by a range from minimum to maximum instead of specific timing. The more familiar you become with the BRTC-M2's character, the more instinctive it will become to know exactly where to set your timing elements.

The "Tube Mode" allows you to choose between three tube tuning modes. Although there is a single cohesive overall character that the BRTC-M2 contains, you have a great amount of control over how the tubes react in the signal chain. In "Light" mode, we have the high voltage clarity and preamp buffering modes that work together to power the compression process throughout the chain, subtly reacting with harmonic distortion. You are able to control the amount of each setting with the reduction or increase of the "Input" signal. You have a great ease of use in adding digital volume back to the signal if you choose to reduce the input by a large amount, including the "Output" signal and also the "Make-Up Gain". The lower the "Input" setting, the less tube character is introduced, not only at the start of the signal chain with the preamp buffering, but throughout the entire chain including push-pull amplification and portions of the process that are designed specifically based on our extensive knowledge of the sonic character of our favorite tube devices.

The "Light" setting is logically designed to give a cleaner signal path, where the "Regular" setting is useful for the typical mixing/mastering session. The increase in the perceived size of the signal is more evident in "Regular" mode and remains clean enough to use regularly. The tubes have a unique response. Like Tape, they saturate the signal in a controllable manner, but unique to tubes that are studied in a real world comparison, go from very smooth and specific even/odd harmonic structures, to fizzy and aggressive character in "Heavy" mode if pushed hard.

This range of character can provide you an incredible range of control in shaping your audio signal, and you can find a balance between growing the signal with some saturation and low-to-moderate compression. For mixing, individual instruments, and even parellel processing, extreme tube and compression settings can give instruments or busses an incredible edge that is unique to the BRTC-M2. You will find that the range of coloration available from the VTMC-M2 and BRTC-M2 are very realistic, but also very unique between the two devices.

The "Make-Up" control allows you to increase up to 15dB of extra volume. This is useful to "make-up" the overall volume that reduces when you increase compression. The compression that takes place is also known as gain reduction, and so as you control the dynamics of a mix, it reduces peaks and lowers the volume. The "Make-Up" gain can allow you to bring this level back up before making any adjustments to the "Output" signal.

"Make-Up" gain may sem redundant, since it is a digital output control similar to the "Output" signal, but it provides added flexibility specific to the amount of gain reduction that occurs.

Let us say that you have your input set for a good "Threshold" setting and also for the amount of tube coloration that you wish to hear. You set your "Ratio" to get the right amount of compression, but you do not want to change your "Output" level while making A/B comparisons to the compressed and uncompressed signal, and also comparing the compressed signal to the tube-only signal. You can set the "Make-Up" gain to adjust the compressed signal and compare levels without changing your "Output" level to compensate, making it easier to find the perfect balance of control.

The "Mix" control allows you an incredible amount of flexibility in your mastering decisions. The "Mix" covers the expanse of how the audio is processed, from a fully "Dry" signal counter-clockwise to a fully "Wet" signal fully clockwise. You can set up any processing from the tubes and compression elements, slow or fast, light, medium, or heavy, and blend them with any percentage of the original clean, unprocessed signal. This can be used for parallel, or "New York Style" compression, where there is an even blend of wet and dry signals, or you can just barely include the tube and compression signal. You can make extreme settings to tubes or compression and barely include them in the signal, or you can make extremely small amounts of processing and make the signal fully wet. The choices are up to you!

Recommended Settings

For cleaner settings, use the “Light” tube mode with the “Input” level turned down by a few dB and the “Wet/Dry” signal turned to its halfway point. For typical mixing and mastering use, use the "Regular" setting with typical compression amounts. Use the “Heavy” tube mode for fine tuning more aggressive tones. The tube settings are very program-dependent, meaning that they will adapt to the signal and give a very natural response. You can add harmonic tonality to your tracks and even add edge and grit when desired.

I recommend switching back and forth to “In/Out” and “GR” settings to get familiar with how much compression sounds good to your ears. I find that it is helpful to intentionally overshoot the “Threshold” and “Ratio” when targeting the best “Attack” and “Release” settings. By pushing the settings harder than needed, it is easy to hear the affect of the timing decisions first. Then, gently roll back the “Threshold” and/or “Ratio” levels until it is subtle enough to master the song while enjoying the coloration and change in timing.

Use the Presets to become familiar with the BRTC-M2. You will find that very small changes to timing and threshold and ratio make a profound difference in the personality you can dial in. Experiment and listen for the affect of compression on timing, reverb, attack, and sustain.

I sincerely hope that you love working with the BRTC-M2 and find it serves as a classic in your mixing and mastering processes.

Thanks and God Bless You.
Sincerely,
Michael Angel
CDSoundMaster.com