



bx_masterdesk

Plug-in Manual



Developed by Brainworx and distributed by Universal Audio.





bx_masterdesk

Plug-in Manual



A word from Dirk Ulrich, the Designer of bx_masterdesk:

Dear all,

I have designed bx_masterdesk to be an analog-style solution for professional mastering in your computer. In more than 2 decades of audio production and mastering I have learned a lot of basic principles which can be applied to most music styles, and I have pre-tuned many processors for you behind the GUI of this new plug-in, so you can concentrate on your music.

With bx_masterdesk I wanted to give you a creative and FUN tool which will allow you to deliver professional sounding masters at competitive loudness, without the need for you to necessarily be an expert mastering engineer. I know from my own experience in the past that it can be quite frustrating to have created a decent sounding mix, and then struggling to get it over the finish line without ruining it in the last stage of the production process. Which is the mastering process...

So, what's FUN about bx_masterdesk then?

Well, it takes the „fighting“ out of the mastering process. No more trading volume vs. harshness and distortion, no more sacrificing smooth low end to get your mix as loud and proud as commercial productions by the big artists.

How did we do that?

I worked with our Brainworx team and external mastering experts to verify that the audio chain I had created originally will work on your mixes. Brainworx is among the leading companies when it comes to bringing amazing analog sounding gear into the computer. Especially the analog dynamic algorithms in bx_masterdesk are so good that you can actually just drive your signal into the chain by turning up the volume until your Dynamic Range VU meter hits the desired level for your CD or streaming. Your loudness will be in a professional range, and you can still EQ your master to make it sound as pleasant and wide as you would like it to be. And to achieve this, you do not need to worry about technical details at all. Everything is labeled in a way that should be self-explanatory for most musicians of any level of experience. Does this sound easy and fun enough?





bx_masterdesk

Plug-in Manual



Don't get me wrong, bx_masterdesk is a serious and professional solution. In the hands of a professional engineer it may be the only processing plug-in needed in the mastering chain, but at the same time it was designed and laid out simple enough for any ambitious musician to dial in some great sounding results. And having the faith that your results will be able to compete with professional productions in playlists is just the icing on the cake.

If you want to deliver professional masters for commercial use to CD pressing plants or streaming services we recommend a specialized metering and A/B listening tool to compare your masters to reference mixes etc. We tried to keep bx_masterdesk a simple to use tool to shape the sound of your recordings easily and achieve professional levels, but we didn't want to add a million features that a professional mastering studio may use in addition to the pure sound processors.

But, bx_masterdesk almost looks too simple?

I know that a lot of modern solutions in plug-in form or via online mastering services offer you a sheer insane amount of tools and tricks, virtual assistants to do the job for you and even artificial intelligence... BUT: in my mind many people are overthinking the mastering process, and maybe they are even

trying to make you believe you can't do the job on your own or without their tools and help...?

Mastering with bx_masterdesk is as easy as 1, 2, 3...:

1. Turn up the Volume knob
2. Set the Foundation for your master
3. Adjust the Tone Stack

Everything else is optional, and I am sure you'll have as much fun using bx_masterdesk and listening to your final results as we had creating this tool for you. Enjoy your new tool, and we'd be happy to hear some of your music. Tag us in your online releases! (#brainworx #masterdesk)

Happy mixing and mastering!

Dirk Ulrich

Owner Brainworx & Designer of bx_masterdesk





bx_masterdesk

Plug-in Manual



Quick Tutorial

- 1 Play back your music and turn Volume up, bringing the Dynamic Range VU Meter to somewhere between 8dB and 6dB, depending on your loudness needs. A Dynamic Range (DR) of 6dB is considered a really loud CD master, while a DR of 8dB will probably make for a better sounding master for streaming services like YouTube, Tidal, etc. Driving the mix into the circuit with the Volume knob automatically compresses it properly. Once the level is right at the DR VU meter the gain staging in the plug-in is optimized and automated, so you will get decent results.
- 2 You dial in the “Foundation” to your liking (which is the low end you build your master upon).
- 3 Now you adjust the “Tone Stack”, similar to a guitar amp (Bass, Mid, Treble, Presence)
- 4 You can opt to adjust THD, M/S Mono Maker and Stereo Enhance (but you don’t have to), and choose from 4 different compressor settings (labeled 1/2/3/4 in the GUI). 1 is the hottest compressor setting, 4 is the easiest. These settings also use different TMT channels (our patent pending Tolerance Modeling Technology), so it’s like switching through various analog channels and mastering desks.

- 5 You can link or unlink the compressor and opt to use the “Turbo Mode” for the limiter (Buttons labeled L & T). We recommend you leave both OFF... (unlinked dynamics are the way to go here, but the Limiter Turbo may actually be useful for hot club mixes and Heavy Metal, or similar genres that embrace loud and highly compressed masters.)
- 6 You have 2 “Resonance Filters”, one for the bass and one for the highs, 2 selectable frequencies each. This feature cleans up and adds audible definition to the low end and tames wild synth and guitars easily.
- 7 You can adjust the compressor mix within a predefined range (85%-100%) for parallel compression, a technique often used in mastering to keep some of the original dynamics in your mixes.
- 8 There is a Mastering De-Esser (High Frequency Limiter) on board which will find S-problems and harsh cymbals even in complete mixes.
- 9 Once the mix is tonally balanced to your liking and the VU Meter shows around 8dB to 6dB your mix is as loud as a pro master, and it won’t pump or distort unpleasantly. The Tone Stack and Foundation settings are so wide and limited in range so much that it’s virtually impossible to screw up a mix!

“Now your drummer can master!” ;-)



bx_masterdesk

Plug-in Manual



1 Volume

Adjust how hard your music will hit the processing chain of bx_masterdesk with the Volume control. Watch the Dynamic Range VU meter while you adjust your loudness and target a Dynamic Range of between 8dB (rough target for music delivered to streaming services) and 6dB (really loud CD master).

Compare your master to a reference track and use a dedicated, professional metering and A/B listening tool if needed. Mastering TOO loud is not a great idea, as the fidelity of your music will suffer once you exceed a critical level of loudness (anything with less than 6dB (or maybe 5.5dB at max.) of Dynamic Range will sound rather terrible for most styles of music and mixes), and modern streaming services like YouTube and Tidal will just turn your music down if it's too loud for their standards!

Fun Fact: Metallica's Death Magnetic album was mixed and mastered so loud back then that iTunes with their latest loudness algorithms actually turns the music down by a whopping 12dB! There are online services that will tell you how much your music will be turned down based on the master you supply for a check (most of these services are even free!), so checking „Loudness Penalty“ or similar services is a good idea if you deliver your music to clients.

2 Foundation

With the Foundation control you adjust the overall tonality of your mix (Low End vs Treble), and set a nice bass foundation which you will build your master upon. Higher values give you a more bass heavy foundation which sounds pretty BIG for most genres.

3 Comp Mix

This knob adjusts the blend between your compressed signal and the uncompressed mix. A mix of 100% gives you only compressed signal, but for a vivid master that still breathes we recommend a setting around 93%. Turning the knob all the way to the left disengages the compressor (switches it OFF).

4 De-Esser

The Mastering De-Esser sits at the end of the processing chain and is a great tool to tame sibilance and harsh cymbals in your master. The more you turn up your master in volume, the more some artifacts will become audible that may have been buried in the mix before. You can dial in some beautiful Presence with bx_masterdesk, but it's a good idea to make sure that the master doesn't get too harsh, and the De-Esser is the tool to use for that application.





bx_masterdesk

Plug-in Manual



1 Compressor Link

A linked compressor will lower the level of the music whenever there is a peak exceeding the internal threshold on **either** the Left or Right channel of your mix. While in theory this makes for a more even stereo image, it can introduce hefty „pumping“ of your music. The reason for that is that every short peak in level on *either* of the L/R channels will reduce the overall gain for *both* channels, and that's easier audible than a short reduction on just one channel. Audible short-term drops in level on the master buss have an undesirable pumping effect to your music, so we try to avoid this in mastering applications.

In bx_masterdesk we use a rather fast compressor (release times of 10ms - 13ms, depending on the TMT Compressor Mode setting), and the best way to achieve loud and clear masters without artifacts (especially „pumping“, see above) is indeed to UNLINK the compressor. This is the default setting for bx_masterdesk, and we recommend you leave the link feature OFF.

In the Unlinked mode the compressor will detect peaks on Left and Right channels individually only, and only lower the volume on each respective channel when there are peaks present.

In some cases the unlinked compressor will react to L/R channels too quickly and may introduce an imbalance of the L/R channels. This mainly happens with music that does not contain a lot of real peaks, but a lot of mellow elements, for example a wide and low synth pad, a boomy piano sound, or boomy room sounds. An example of this may be the break-down part of an EDM track before the climax, where the song may have a lot of pads, reverb, etc. and no beats.

In these cases we propose you use the compressor in linked mode. Since for most other applications you get better results in unlinked mode, it may be a good idea to automate the linked / unlinked modes for certain parts of your mix if needed. With Brainworx tools you can automate every single parameter of the plug-in, and also store different variations with our A/B/C/D settings feature.





bx_masterdesk

Plug-in Manual



2 Limiter Turbo

At the very end of the processing chain your signal will run through a professional limiter, which is internally set to a default boost of 1dB. Using the Turbo mode you increase the Boost to 2dB, resulting in a louder yet more squashed sounding master. This may be desired for certain types of music, like EDM or Heavy Metal, but may especially not be needed for music being delivered to online streaming services, which will turn your music down anyway if it's too loud...

Engaging the Turbo mode reduces the Output level to -0.2dB automatically, which you can override by turning the Output knob back to 0dB, but we recommend leaving it at -0.2dB in Turbo mode. Doing so is a common practice under many mastering engineers btw.

3 TMT Compressor

bx_masterdesk offers 4 different compressor and TMT settings. TMT is our patent-pending Tolerance Modeling Technology, originally found in the bx_console line of plug-ins. It takes the real world tolerances of audio components found in audio circuits into account and offers various channels of analog audio which have realistic variances in frequency response, time constants in dynamic sections, etc. The result is digital audio that sounds as analog as possible! For more information please check the info about our bx_console plug-ins at www.brainworx.audio.

In bx_masterdesk switching between the 4 modes (1 - 2 - 3 - 4) gives you 4 different sets of stereo channels of analog modeled audio processing, like switching between different instances of the same audio hardware. At the same time, these channels offer different compression characteristics. 1 is the heaviest compression, 4 is the lightest. Please listen to them whilst your music is playing and use the one you like best.

All four modes allow for parallel compression using the Compressor Mix knob, and we recommend starting with the default Mix setting of 93%.





bx_masterdesk

Plug-in Manual



1 THD

THD (Total Harmonic Distortion) is a kind of distortion that is present in all analog audio equipment (in varying degrees), and that can actually sound pleasant to the human ear while glueing your music together in a really desirable way.

Using THD can tame transients in your music in a natural way, reducing the amount of work your compressor has to do. Higher THD values give you a more „in-your-face“ sound which can also sound slightly brighter. We have limited the THD available in bx_masterdesk to an amount that is still healthy for your master, as we don't want you to use it as a replacement for a guitar amp.

The default setting is -60dB, but you can easily go higher if needed. For modern pop and rock / metal music a setting of around -45dB tightens the low end, glues the mix together in a pleasant way and offers a bit more loudness for your master without the need to drive the signal harder into the compressor and limiter. What's not to like?

2 Output Trim

This control is the last stage in the audio chain and can be used to export masters that hit slightly lower than 0dB at max. It's a common practice to deliver masters at -0.2dB for safety reasons (no clipping etc.).

3 De-Esser Solo

Engaging the De-Esser Solo will enable you to listen to only the part of the signal that bx_masterdesk gets rid of in the De-Esser.

4 Metering Type

Here you can switch between Input and Output metering. Notice how the DR (Dynamic Range) varies between the uncompressed input signal and the processed output signal.





bx_masterdesk

Plug-in Manual



1 Bass

You may use the tone stack to adjust the overall sound of your recording to your liking, and you should try to make it sound similar to reference mixes of music that is similar to what you are mastering. If you master a rock tune it is a good idea to check back with a professional CD mix of (for example) a Foo Fighters song. If you mix a pop song you may want to compare to a Rihanna CD, etc.

With the Bass control you can make the low end of your music softer or tighter, by boosting or cutting certain frequencies in the bass spectrum.

The values -30 to +30 represent a dB range of -3dB to +3dB, so even at maximum settings you are not using a crazy amount of EQ.

2 Mid

With the Mids control you can determine if your music is supposed to sound more in-your-face (boosting the Mids) or more mellow (by cutting) in the vocal and instrument range.

The values -30 to +30 represent a dB range of -3dB to +3dB, so even at maximum settings you are not using a crazy amount of EQ.

3 Treble

Adding Treble is a nice way of achieving more perceived volume for your music, without actually turning it up. You should not make it sound too aggressive, but a little edgy touch can really make your music jump out of the speakers.

The values -30 to +30 represent a dB range of -3dB to +3dB, so even at maximum settings you are not using a crazy amount of EQ.

4 Presence

Presence controls the highest frequency spectrum. You can boost pleasant high frequencies and reduce the more nasty sounding tone range at the same time with this control. Listen to your cymbals and hi-hats when you adjust Presence and notice how smooth they start to sound.

The values -30 to +30 represent a dB range of -6dB to +6dB, so even at maximum settings you are not using a crazy amount of EQ.





bx_masterdesk

Plug-in Manual



1 Mono Maker

A staple in the Brainworx line of processors, the Mono Maker will make your stereo recording Mono all the way from 20Hz up to the selected cut-off frequency. Which can be a great enhancement for your sound if played back in clubs or via big subwoofer systems (cars, home theaters, etc.).

Using the Mono Maker at too high frequencies can result in less stereo width for low guitars and synths, but a setting of around 100Hz will certainly not harm your music and is recommended. Mono Maker is a clever algorithm which will actually compensate for what it is cutting away in the stereo information, so you are not losing anything using Mono Maker.

In fact, your music will sound tighter and punchier in the low end once you have engaged Mono Maker. Your bass drum and bass will thank you.

2 Stereo Enhance

Unlike in many Brainworx plug-ins, this is NOT a simple M/S width control.

Instead it will aim specifically at music instruments in your stereo field and enhance them with a cleverly automated EQ system. Using the Stereo Enhancer it's possible to get that extra boost and width for your synths or guitars without boosting unwanted boomy room sounds of your drums or raise the muddy parts of your reverb tails too much.

Stereo Enhance is a new Brainworx design and the most musical way to increase width and depth we know of.



bx_masterdesk

Plug-in Manual



1 Low Resonance Filter

With our Resonance Filters you can tame certain problematic frequency ranges that are too present in many mixes even by professional mix engineers.

Use the Low filter to clean up the bottom of your mix and to more or less „separate“ the bass drum from the softer low end sounds. Doing this will get you clearer accents in your low end and result in a more defined kick drum even in heavily compressed masters. Choose between the two settings purely based on what sounds better in your mix.

2 Auto Solo

Engaging AutoSolo by switching on the LED and clicking / holding the frequency knobs to the Left or Right position will let you only hear the elements of your master that are potentially over-emphasized and could need removal.

If soloing these frequency ranges sound pretty nasty, you should probably engage the Resonance Filters. Make sure to listen without Solo as well to verify the filters improve your master.

3 High Resonance Filter

The High Resonance Filter will help you get rid of overly pronounced and potentially harsh frequencies in your instruments by nudging out unpleasant elements of your master.

Many rock mixes feature too much of the 3kHz range and tend to get even more aggressive once your master is being turned up in volume. The same goes for the 6kHz range when there are many bright synth sounds or vocals present.

There are no fixed rules, just check the two frequencies and see if one of them improves the sound of your recording.

While almost every master sounds better using one of the Low Resonance filters (160Hz or 315Hz, see above) we recommend checking precisely if the High Resonance Filter will really make your master sound better. It is sometimes better to leave it OFF and adjust the Mid and Presence settings of the Tone Stack instead.



bx_masterdesk

Plug-in Manual



1 Dynamic Range

Dynamic Range is - in plain words - the difference between the peaks and the body of your music. The higher peaks your mix and master has, the more dynamic range it will show, and the less „loud“ it is. Many people believe that having more Dynamic Range in your master (aka less density and loudness) is a desirable thing.

While certain genres of music demand „loud & proud“ masters, especially for CD release, nobody wants to listen to heavily distorted masters.

To get your masters loud enough for a CD release (if desired) you need to squash them quite a bit using the onboard compressor and limiter, which will ultimately result in peaks getting shaved off your mix. The visual result is a sausage-like looking WAV file once you have bounced your master to hard disk.

There are certainly no rules when it comes to how you like your mixes and masters, but if mastered tooooooo loud your music will not sound pleasant to listeners anymore and make their ears tire faster.

Pro Tip:

We recommend aiming at a Dynamic Range of somewhere around 8dB (for streaming) to 6dB (for loud CD releases). Please don't take this as given numbers, since every mix will sound different. But these numbers can serve as a rule of thumb, and it would certainly be overkill to master a song for iTunes at -4dB DR, since this song would get turned down by iTunes by almost 12(!)db.

A lot of radio stations and streaming services do measure the loudness of your masters „over time“, which means that your master has to meet certain criteria to not be turned down in volume.

If you are delivering music for professional CD pressing, broadcasting or streaming, please use a dedicated metering and A/B listening tool, inserted after bx_masterdesk. You may even consider adding an additional Intersample Peak Limiter and Dithering plug-in as the last stages of your mastering chain in these cases.

If all this sounds way too technical for you and you're only producing music for fun (which is the BEST reason to produce music in our minds!) you can ignore all of this and instead just enjoy bx_masterdesk as your sole source of mastering technology.





bx_masterdesk

Plug-in Manual



1 Level Meter / DR VU Meter

The VU meter in the center of the screen is a Brainworx original, and shows you a slow moving needle which will indicate how „loud“ your master is using the settings you dialed in with bx_masterdesk. To do so it measures the difference between the peaks in your music and the dense body of your sounds.

As a mastering engineer you have to not only keep the EQ-ing of your recording in mind, but also make sure your recording fits in with other professional recordings in terms of loudness / volume which listeners may have in their playlists together with your music. Unfortunately there is no easy way of measuring this and different standards are a reality today.

Monitoring the DR VU meter and adjusting your Volume and Tone settings accordingly can help you greatly though and is one of the most important things for you to do while mastering.

Aim at the Green zone and your music will be within the „loudness norms“.

Most streaming services expect higher DR values and will turn down your music if it's too loud, so for these streaming services you may aim at a master that shows a DR of 8dB to 7dB in our meter.

For loud & proud CD masters you may turn up the volume a bit more and aim at a DR of 6dB.

While it's possible with bx_masterdesk to get masters even louder than that, we don't really recommend this. But if your clients demand it you can do it.

Professional mastering engineers will deliver several different mastered versions of the same track to labels, to be used for CD release, radio and streaming, or video usage. It's easy with bx_masterdesk to produce louder and more dynamic versions of your master, and a good idea is to copy your settings to the internal A/B/C/D banks at different DR values.

This way you can save presets for your songs that will recall the various loudness versions at a click of a button.





bx_masterdesk

Plug-in Manual



1 Gain Reduction

The Gain Reduction meter shows the amount of compression taking place on the Left and Right channels of your master. Although located around the Compressor Mix knob, the compression amount will be dialed in using the Volume knob, not the Mix control!

2 De-Esser Gain Reduction

The De-Esser meter shows you how much processing is going on in the De-Esser section.

Using the Solo LED you can listen to what you are taking out exactly and adjust the De-Esser gain accordingly.

Presets

No two mixes sound the same, so it's hard to make presets for mastering plug-ins without hearing your music. But we have made some for you as a suggestion or a starting point, and to show you how flexible you can sculpt your mixes with bx_masterdesk.

Based on the level of your mix you may have to adjust at least the VOLUME knob with some of our presets, to adapt them to your mix. The best way to do that is to check the Dynamic Range VU Meter and make sure you turn the Volume control up or down until you hit a healthy DR value (aim at the green range as a starting point). Please check the rest of this manual for more info about the DR values and loudness targets, for example the manual text about (1. VOLUME).





bx_masterdesk

Plug-in Manual



Top Toolbar

1 Undo / Redo

You can undo and redo changes you made to the controls of the Plug-in at any time. The UNDO / REDO will work for as many as 32 steps. This makes experimenting and tweaking knobs easy. If you don't like what you did... just undo it.

2 Settings (A/B/C/D)

The Plug-in offers four internal settings (A/B/C/D) which will be stored with every preset. So, one preset can contain up to four settings.

You may use similar settings with more or less compression or EQ boost in one setup / preset.

Now, the SETTINGS can be automated in your DAW! This way it's possible to use different sounds for your lead vocals or drums in various sections of the song. Automate the A/B/C/D settings, and you can still tweak knobs of the individual settings without overriding multiple parameters in your DAW, which would be time-consuming.

3 Copy / Paste

To set up variations of similar sounds you don't have to dial in the settings several times. Let's say you like your setting A and want to use the same sound, just with less compression, as setting B.

- Simply press COPY while you are in setting A.
- Switch to setting B by pressing 'B' in the settings section.
- Press PASTE, now setting B is identical to setting A.
- Reduce the compression on the B setting.

Now you can switch between A & B and decide which one sounds best or automate different settings for various sections of your session.

4 M/S Monitoring (for Stereo Channels only)

- **Solo M:** Solos the Mid (Sum) signal being processed by the plug-in.
- **Solo S:** Solos the Side (Difference) signal processed by the plug-in.
- **Both disengaged:** Standard stereo (L/R) processing output.

Dirk's Tip:

For more information and videos on M/S Technology for Recording, Mixing and Mastering please visit our web site!





BRAINWORX

Plug in, Rock out! - www.brainworx.audio