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# Mastering

The in-depth guide for the creative musician



# MID/SIDE PROCESSING

With companies like Brainworx designing new M/S processors, there's never been a better time to dive into a subject that's seldom covered. Mo Volans leads the way.

Only a few years ago, M/S (mid/side) recording techniques were very much the domain of the experienced studio engineer. The technique would often be used to record drums or guitar and involved using two microphones in such a way that three channels could be derived from them. This is a reasonably complex process and requires the mid (or mono summed) signal to be fed to both left and right channels, while the side (or stereo difference) signals are sent to the left-side phase reversed and the right-side phase corrected. These three channels would then be bussed to a stereo channel.

Recording signals in this way can yield an extremely mono-compatible stereo signal, but some experience and the right kit is required (plus, of course, it can be pretty time-consuming). It's perhaps these obstacles that have made most people shy away from the technique and have prevented it from truly entering the collective consciousness – until now.

It's just possible that this is all about to change, with companies such as Brainworx introducing innovative new virtual processors that make the task of encoding and

**ALTHOUGH MANY PEOPLE STILL SEE M/S PROCESSING AS A RECORDING TECHNIQUE, IT CAN BE INDISPENSABLE IN MASTERING.**

decoding M/S signals completely painless: simply feed the appropriate Brainworx plug-in with the M and S microphone signals and it will do all the work for you.

Although many people still see M/S processing as a recording technique, it can be indispensable in mastering when used correctly. In a situation when going back to your mix is not possible, using an M/S-capable plug-in can really save the day. The stereo signal of the final mix can be split into its mid and side components, enabling the mastering engineer to treat the mono and stereo information in the audio completely independently.

Without M/S processing, achieving this kind of control over a two-track mix is impossible. But by utilising some of the plug-ins from Brainworx, it is not only possible to change the levels of mono and stereo elements of the mix, but also apply treatments such as EQ, enhancement, stereo width and even de-essing.

As Brainworx is currently the leader in this field, we'll look at its flagship plug-in, bx\_digital, as an example of what can be achieved using this form of processing. **1**

## Power Tip

Another up-and-coming plug-in that Brainworx has under development is an excellent simplified version of the bx\_dynEQ called bx\_boom. This unassuming-looking plug-in uses the same dynamic EQ and M/S technology that drives the larger dynEQ but sports a quirky interface and concentrates on enhancing your kick drum – a boon for electronic producers or anyone who wants that extra punch in their tracks. It can be used across your master output or on any track in a mix.



In essence, bx\_digital is an advanced EQ, and at first glance it appears to be much like any other mastering equalizer – until, that is, you realise that the left and right sides of the interface don't represent the left and right sides of the stereo field, but actually the mono and stereo components of your audio.

## Two in one

You should notice at this point that the plug-in is split into three main areas and is essentially two separate processors in one, with a graphical display for both of these situated towards the bottom of the window.

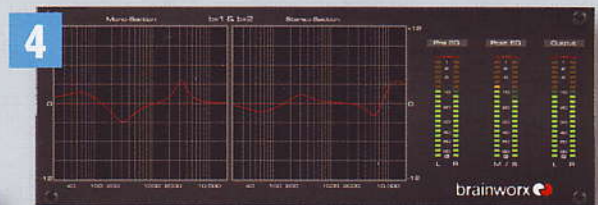
The first of the two main processing sections of the bx\_digital is the bx1 modus equalizer. This is obviously the main EQ section of the plug-in and contains all the controls you would expect, including mute controls for each band and multi-mode fully parametric filters. There are also Link and Solo controls for the mono and stereo signals, enabling the user to audition each part of the audio in isolation. **2**

The bx1 also offers left and right input trim and – more importantly – separate levels for both the stereo and mono sections of the unit. This may not seem hugely beneficial, but it ultimately means that you can increase or decrease the stereo width of your mix very accurately by balancing these two parameters.

The second section of bx\_digital is the bx2. This is a more specialised processor and contains features you would not normally expect to see on a standard

## Power Tip

The bx\_digital is presented primarily as a mastering processor, but it can also be used as an M/S matrix. There are multiple modes available for just this purpose; when switched on, M/S mics can be fed directly into it to create a two-channel output with full M/S control. The low end can then be made 100 per cent mono with the mono maker, and stereo information can be made wider and more present.



bx\_digital is a true powerhouse of a mastering processor, with a fully featured EQ, two independent de-essers and an enhancement feature. High-quality metering is also included along with a visual readout of the EQ section.

mastering EQ. The first thing you may notice are the two separate de-essers; this really is an unusual feature to have on a mastering processor, but, of course, is very welcome indeed. **3**

The bx2's de-esser circuits actually enable you to remove sibilance from vocals within your mix without colouring other elements in the signal. This is impressive enough in itself, but when you realise that you can use different amounts of processing on stereo backing vocals and mono lead vocals, you may wonder how you ever managed to live without this technology in your setup.

There are also enhancers for both presence and sub-bass available for both mono and stereo material in this section. They produce extremely pleasing results rather than the overly hyped fizzy effects that some of us may have experienced with other virtual devices. Another nice touch is the 'mono maker'; this does exactly what you would expect from its name, converting any signal in your mix below a certain frequency into absolute mono. This is useful for creating a defined low end and ensures better translation to systems with smaller speakers.

The final section of bx\_digital, at the bottom of its interface, is simply a display area that provides helpful visual feedback for the EQ and enhancement curves applied by the bx1 and bx2.

There is also accurate metering of pre- and post-EQ levels as well as the master output level. **4**

It's all very well having this massive amount of processing power in one plug-in, but how useful is it in real-world mastering? Well, in all honesty, this is possibly the most useful mastering processor available on the market today, and it really should be in your rack if you

## THE BX2'S DE-ESSER ENABLES YOU TO REMOVE SIBILANCE FROM VOCALS WITHOUT COLOURING OTHER ELEMENTS.

are serious about mastering your own material. Even in mastering situations where you are able to go back to the mix, it can still bring an edge to your final production.

Picture a mix that contains a mono lead vocal, mono bass and kick drums, stereo overheads, percussion, guitars and synths. Using M/S processing and the Brainworx bx\_digital, you are able to not only EQ the



### Power Tip

If you're looking for a taste of what M/S processing can do for you before you part with any cash, you might want to take a look at the bx\_solo plug-in. Although it obviously doesn't contain the same extensive features as its commercial counterparts, it does enable users to solo stereo and mono information and has a stereo width control. This plug-in (along with 14-day demos of all of Brainworx plug-ins) can be downloaded here: [www.brainworx-music.de/index.php?nav=13&um=0&lang=en%20](http://www.brainworx-music.de/index.php?nav=13&um=0&lang=en%20)

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Other M/S processors from the Brainworx camp include the excellent *bx\_hybrid* EQs, the easy-to-use *bx\_control* and the up-and-coming *bx\_dynEQ*. This features an innovative dynamic EQ algorithm capable of enhancing the dynamics of mono or stereo elements in a mix.

## AS WELL AS MAKING MASTERING PLUG-INS, BRAINWORX ALSO OFFERS PROCESSORS MORE SUITED TO TRACKING AND TREATING.

► mono elements and narrow their stereo width, but the lead vocal can even be de-essed. In the meantime, elements that appear in stereo can be turned up and down in volume and EQ'ed separately. Finally, we have true control of our mix at the mastering stage.

### Brain hybrids

Brainworx not only produces mastering plug-ins such as the *bx\_digital*, but also makes other processors that are more suited to tracking and treating instrument busses. For instance, the *bx\_hybrid* is an equalizer that is more than suitable for use in a mixdown containing pretty much any instrumentation. **5**

Although its controls are fairly similar to those found in a traditional equalizing device, it also includes very useful M/S processing features. You will encounter several features that appear in the *bx\_digital* present here, such as the Brainworx-designed 'mono maker' and an extremely usable stereo width control. For processing mono sources, this plug-in also comes in a dedicated mono version. **6**

Of course, if you feel that your audio projects aren't in need of anything requiring the kind of complexity that the *bx\_digital* plug-in offers, the *bx\_hybrid* can be used to treat your master, and its double-precision processing will ensure that you still get a clean signal.

Another useful plug-in is the *bx\_control*: a control listening tool and M/S matrix. This clever little processor features the mono maker and stereo width controls present on the other plug-ins we have looked at and also enables you to solo both mono and stereo elements of material fed through it. **7**

The *bx\_control* can also be used as a fully featured, latency-free M/S matrix; this means that you can feed it with M/S mic signals and they will be transformed into L/R stereo format in real time. This can, of course, save a huge amount of time and avoid overly complex routing.

### On the horizon

Exciting things are taking place right now at Brainworx headquarters, and *MTF* has been lucky enough to sample some of the products it has in the pipeline. The most exciting is a plug-in called '*bx\_dynEQ*'. **8**

This is what Brainworx calls a 'dynamic equalizer' and is something of a blend between a compressor and an EQ. The key to it is that it is capable of processing the mono and stereo information in a signal independently. This means that you can compress a kick drum without affecting the stereo instruments. The *dynEQ* also includes independent filters and an output limiter so that distortion and clipping can be avoided when processing is applied. The levels of different elements can also be determined using the maximum output gain control.

Although *bx\_dynEQ* is still in beta, we strongly recommend that you check it out when it becomes available, as the results are nothing short of jaw-dropping and is another great example of how M/S processing can be used creatively. We will be expecting it to score highly in a forthcoming review in *MTM*. **MTF**

### Power Tip

Another free plug-in that is well worth trying out is the Voxengo MSED. Voxengo is known for producing high-quality plug-ins and this one is no exception. The MSED is basically an M/S encoder/decoder that works in a similar way to the Brainworx plug-ins and helps you to easily set up an M/S microphone recording system. The plug-in also has an inline mode that enables you to adjust mid and side gain without using multiple instances of MSED.