bx_console SSL 4000 E

Plugin Manual

bx_console SSL 4000 E is part of the growing line of Brainworx TMT console emulation plugins. More details on our patent-pending TMT (Tolerance Modling Technology) inside this manual.

Developed by Brainworx in close partnership with Solid State Logic® and distributed by Plugin Alliance.

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Build Your Dream Console - In Your DAW

Turn your DAW into a classic, high-end mixing console! bx_console SSL 4000 E is a stunning 72-channel emulation (yes, that´s 72 different channels!) of the world-famous British SSL 4000 mixing console, introduced in 1979. Heard on countless hit records by marquee artists including Beyoncé, Linkin Park, Metallica, Sting and Genesis, the E Series is the preferred console of celebrated mix engineers Chris Lord Alge, Bob Clearmountain and innumerable others. Now, thanks to Brainworx's revolutionary Tolerance Modeling Technology, the E Series console's three-dimensional analog sound has been reproduced with startling realism in the digital realm.

But there's more. Brainworx's owner - accomplished producer / engineer Dirk Ulrich - and his award-winning development team turbocharged the classic hit-making console with a boatload of powerful mods and new features, including some from the later-released G Series British console. Rather than simply model an EQ and compressor, Dirk and our Brainworx team created the sound, feel and workflow of an ideal hybrid large-format console, incorporating all the missing features he's longed for when working on traditional British consoles.

You can now have that ideal multichannel console in your laptop.

TMT inside: Every Channel Sounds Different - Just Like with Analog

Typical channel strip plugins only model one channel and let you apply multiple instances of that exact same channel across your mix. bx_console SSL 4000 E is different. It uses Brainworx's proprietary, patent- pending Tolerance Modeling Technology (TMT) to accurately replicate individual component variations specified by the manufacturer and/or the original hardware designer. This creates, in separate instances of bx_console SSL 4000 E, the small channel-to-channel variances you would expect to hear in the original analog mixer. bx_console SSL 4000 E's intuitive interface allows you to recall up to 72 different-sounding channels that, when strapped across all your tracks, give you hyper-realistic "mixed on a big console" sound for the first time in the box.

Each channel includes a comprehensive Compressor/Limiter, full-featured Expander/Gate, powerful 4-band Parametric EQ, and wide-ranging High Pass and Low Pass filters - with incredibly flexible signal routing just like in the original analog console.

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But with TMT, each channel produces slightly different frequency and phase responses, as well as differing compression and gate characteristics (Attack & Release times, for example) - exactly like in a real analog console. These slight variations add the complexity, nuance, depth and width for which analog is so deeply treasured.

An extremely low CPU load lets you instantiate dozens of instances of the plugin across your DAW project - building your dream vintage mixer. You can select any channel number you wish to use on each track, or use bx_console SSL 4000 E's Randomize function to select the channel number by chance for One or All channels used in your project.

Quick tip:

Duplicate one instance of bx_console SSL 4000 E across all your tracks, then click the Randomize button to instantly create that big-console sound!

Select Digital Mode for any channel pair to bypass TMT and match the two channels' responses exactly - useful when, for example, gating both sides of a stereo track in perfect synchrony.

Build a Hybrid Mixer!

The analog E Series console had different EQ revisions over time, and some engineers prefer one or the other. In bx_console SSL 4000 E's super-fast GUI, a click of your mouse is all it takes to swap models of the "black" and "brown" EQ revisions - which sound dramatically different - on any channel. That alone gives you a selection of 144 different-sounding console channels to choose from!

And if you'd rather hear the later-released British G Series console's compressor on some tracks, that's also a snap. A simple mouse click toggles models of the VCAs for the colorful E Series and more pristine-sounding G Series compressors on any channel.

And just like in the analog E Series console, both the Compressor/Limiter and Expander/Gate can be triggered by another track routed to their external sidechain input: gate a bass guitar track so that it voices only when the kick drum hits, creating super-tight rhythm tracks!

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Plugin- only features not found in the hardware

bx_console SSL 4000 E adds many features that greatly expand the power and flexibility of the plugin far beyond that of the original console. The handy Mix (Dry / Wet) control creates super-size parallel compression sounds effortless, adding density to vocals, drums and electric guitar tracks alike while fully preserving detail. Use the optional secondary release-time control to prevent the compressor from pumping on delicate acoustic tracks.

The THD control adds colorful saturation and density (on a per-channel basis!) to more than just vocals, bass and electric guitar tracks: crank it up when compressing room mics for rock drums, for a more aggressive sound. Raise the Compressor's dedicated HPF control on room mics to let the kick drum breathe more for a beefier sound, while still squashing the bejesus out of the snare drum and cymbals and jacking up the room's ambience. Quickly hunt down undesirable distortion and phase problems on stereo tracks and auxes by alternately monitoring the mid and side channels, using simple mouse clicks in the plugin toolbar.

Two alternate threshold ranges for the Expander and Gate cover a whopping 70dB range, even letting you process whisper-quiet tracks barely exceeding -60 dBFS. And say goodbye to chattering gates: use the Hysteresis control to set a dedicated close threshold up to 25 dB lower than the open threshold, preventing sustained guitar notes and ringing cymbals from making the gate stutter. Activating the Expander Invert button lets you hear only the portion of the signal that will be expanded or gated, aiding your setting the threshold.

Shift the High Pass and Low Pass filters' original frequency ranges by a factor of three to create a midrange bandpass filter, then crank the Virtual Gain and THD knobs to add noise and distortion to create the classic "old telephone speaker" effect on lead vocals. bx_console SSL 4000 E's powerful extra features create an E Series console on steroids!
No, it's not just a channel strip model. bx_console SSL 4000 E is hyper-realistic analog large-format-console sound for your DAW.

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Filters

1 **High-Pass Filter On**

Switch the High-Pass Filter On or Off (via LED or Double-Click on knob).

2 **High-Pass Frequency**

Controls the High-Pass Cut-Off Frequency.

Filter can be switched On and Off via Double-Click or LED. **Pulled** = On, **Pushed** = Off

3 **High-Pass Filter x3**

Changes the High-Pass Frequency range to 48 Hz - 1.05 kHz if engaged.

4 **Low-Pass Filter On**

Switches the Low-Pass filter On or Off.

5 **Low-Pass Frequency**

Controls the Low-Pass Cut-Off Frequency.

Filter can be switched On and Off via Double-Click or LED. **Pulled** = On, **Pushed** = Off

6 **Low-Pass Filter /3**

Changes the Low-Pass Frequency range to 7.3 kHz - 1 kHz if engaged.

7 **DYN SC - Filters to Sidechain**

If engaged, the HPF and LPF are taken out of the audio path and being moved to the input of the Dynamics sidechain.

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1 Ratio

Sets the Ratio at which the signal above a given Threshold is compressed. Turning this fully clockwise switches to limiter mode.

2 Threshold

Sets the Threshold level at which the compressor begins to attenuate the signal, per the ratio setting.

3 Release

Controls the time the signal needs to recover from Compression when the level falls below the Threshold.

4 F - Fast Attack

Switches between auto and fast attack. Using the Fast Attack with less Gain Reduction can give you an interesting alternative sound, which will be punchier and more aggressive. Great on lead vocals and percussive instruments.

5 Mix

Controls the amount of unprocessed signal being blended with the processed (compressed) signal, effectively providing the option of parallel compression.

100% = you'll only hear compressed signal.

0% = you'll only hear un-compressed signal

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❶ LINK - Stereo Link

Links the Compressor sections of all channels within one instance of the plugin (multi-channel operation).

❷ Sidechain: HPF - High-Pass Frequency

Input High-Pass for the Compressor Sidechain. Deactivated when set to minimum value.

❸ REL2 - Second Release

Use the optional Secondary Release-Time control to prevent the compressor from pumping on delicate acoustic tracks.

Expander / Gate Section

❹ EXP / GATE - Expander Mode

Switches between Expander and Gate mode.

❺ NORM / INV Gate Mode

Switches between Normal Gate mode (NORM) and Inverse mode (INV). When activating the Inverse mode, you hear the parts of the signal that will be attenuated by the gate, which can be used for ducking effects (check some of our presets).

❻ Range

Controls the maximum Gain Reduction in the Expander section.

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1 Threshold

Threshold defines the input level at which expansion starts. Any signals below this level are processed. Signals above the threshold are unaffected.

2 -30 - Threshold Range

Changes the Expander Threshold range from (-30 to +10 dB) to (-60 to -20 dB) when engaged.

3 Release

Sets the Release time. This is the time the signal needs to recover from Gate processing when the level exceeds the Threshold.

4 F - Fast Attack

Switches between auto and fast attack.

5 HYST - Hysteresis (in Gate Mode only)

Controls the Hysteresis - a dedicated gate-close Threshold which is at the set amount below the gate open threshold (Expander Threshold). At 0 dB, close and open threshold have the same value, so hysteresis is deactivated. Range = up to 25dB.

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1 DYN to Section

These three buttons determine the modes of the Dynamic module.

2 DYN

Switches the Dynamics section On or Off.

3 E / G - VCA Series

Switches between the E Series and G Series Dynamics, which have slightly different character. You choose.

4 KEY - External Sidechain

You can route an External Sidechain signal to the plugin Dynamics if your DAW supports this. When engaged, the Compressor will react to the External Signal instead of the input signal of the plugin.

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High Frequency (HF) Band

1 High Gain

Controls the Shelving / Peaking Gain of the HF Band.

2 High Frequency

Controls the Shelving or Center Frequency of the HF Band, depending on the mode.

3 High Band (Bell / Shelving)

Toggles the HF Band between a Shelving and a Peaking Filter. Unlike the Mid Bands the High and Low Bands can operate in two modes.

High-Mid Frequency (HMF) Band

4 High Mid Gain

Controls the Peaking Gain of the HMF Band.

5 High Mid Frequency

Controls the Center Frequency of the HMF Band.

6 High Mid Q

Controls the Quality Factor of the HMF Band.
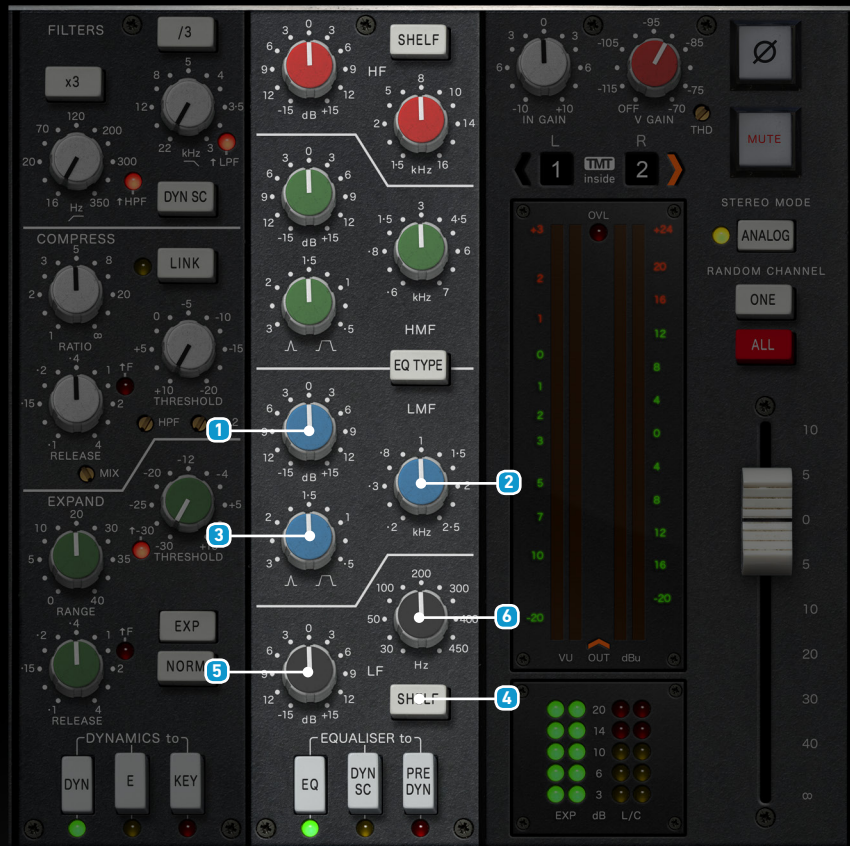
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Low-Mid Frequency (LMF) Band

1 Low Mid Gain

Controls the Peaking gain of the LMF Band.

2 Low Mid Frequency

Controls the Center Frequency of the LMF Band.

3 Low Mid Q

Controls the Quality Factor of the LMF Band.

Low Frequency (LF) Band

4 Low Band Bell / Shelf

Toggles the LF Band between a Shelving and a Peaking Filter. Unlike the Mid Bands the High and Low Bands can operate in two modes.

5 Low Gain

Controls the shelving / peaking gain of the LF band.

6 Low Frequency

Controls the shelving / center frequency of the LF band.

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1 EQ Type (Black / Brown)

Toggles between the emulation of the Black and Brown EQ. They have very different tonalities, so make sure to try both of the Filters on various signals. Many people consider the Black EQ the #1 Rock'n'Roll Filter, whereas the Brown EQ is said to be sounding smoother. Whatever that means. ;-) It is very important that this changes the complete EQUALISER and FILTERS sections even though only some of the UI elements change.

2 EQ to Section

These three buttons determine the modes of the EQ module.

3 EQ

Switches the EQ section On or Off.

4 SC & PRE

- **PRE engaged:** Places the EQ module before the dynamics section, rather than the default post-dynamics configuration. This way the Compressor reacts to the filtered signal, which makes a big difference in sound. This will deactivate the SC button.

- **SC engaged:** Places the EQ module within the dynamics side chain. This will deactivate the PRE button.

- **Both disengaged:** Places the EQ module after the dynamics, which is the default configuration.

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Master Section

1 Input Gain

Adjusts the Input Level of the plugin. Altering the Input Level affects the Dynamic section, so you may have to readjust your Compressor or Gate / Expander Threshold settings if you change this parameter.

2 V-Gain

The V-Gain simulates the noise typically present in analog circuits, whether it´s from a Microphone Preamp in higher Gain settings, or an EQ / Dynamics circuit. To get the most realistic analog sound with bx_console plugins, we recommend you use some noise on all your channels, then use the Expander / Gate to keep the console clean when signals are not present on channels. It makes a difference!

3 THD

Adds colorful Saturation and Density (on a per channel basis). The default setting is -60dB. Use higher settings (up to -30 dB) for almost screaming distortion, or dial down the Saturation to -120 dB for ultra-clean channels.

Dirk´s Tip:

Some heavier THD settings can make drums, guitars and vocals sound much rougher, which can add a certain vibe that is desirable for many styles of music. I loooove screaming consoles...

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1 Console Channel Numbers L&R (TMT Section)

Switches between 72 different Console Channels. In a Stereo instance, two adjacent Channel numbers will be displayed. Each channel has its own, different character! This is achieved by including about 150 resistor and capacitor tolerances in the modeling which correspond to the real-world component tolerance ranges, as specified by the component manufacturers and / or the hardware designers. TMT is Patent-Pending, a true Brainworx invention.

2 Phase Reverse

Inverts the Polarity of the signal.

3 Mute

Mutes the signal output.

4 Stereo Mode

- **Analog:** 2 different TMT channels.
- **Digital:** the same TMT channel used for both channels (L&R).

This button is only available on Stereo instances, and is the heart of Brainworx´s patent-pending Tolerance Modelling Technology (TMT). When ANALOG is activated, small inherent differences between the modeled componentry in each left and right channel will produce a pleasing, analog sound, as though one were working between two adjacent channels on an actual console. With the button switched to DIGITAL, the two Stereo channels will be identical in circuitry, providing a theoretically perfect, digital Stereo sound.

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1 Random Channel (ONE / ALL)

Whenever you instantiate a bx_console plugin on a channel, it will start with the Default setup, which is Channel 1 in a flat setting. You can now randomize a channel by clicking the RANDOM options in the plugin (ONE or ALL).

2 Random One

Only the plugin instance you click on will switch to any unused channel number in that session randomly.

3 Random All

If you have many channels of bx_console SSL 4000 E running in your mix session, you can make sure to be using different channel numbers for every single instance with a single mouse click now! In most hosts you can add a copy of the same plugin to every channel with a keyboard shortcut (for example click ALT on a Mac to put a bx_console plugin on every channel of your Pro Tools session automatically). Imagine opening 48 channels with one click and then randomizing all the channel numbers with a second mouse click. Done.

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Dirk´s Tip:

One very cool way of using the RANDOM ALL feature is to finalize a mix and bounce it, then save the whole mix session. Now you can play back the song and click RANDOM ALL a few times on any instance of bx_console, and you will notice that the "timbre" or tone of your mix will change ever so slightly, depending on the use or abuse of the individual EQs and Dynamics, of course. The more processing you apply, the more obvious the differences become.

Now by clicking through different randomized channel combinations you may actually find one that sounds a bit darker or brighter, a bit punchier or smoother than your original mix. Why not save 1 or 2 alternative mix sessions and bounce them, so your client can choose between 2 or 3 different "flavors" of the otherwise identical mix?

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1 Big Fader / Output Gain

Adjusts the Output Level of the plugin. You can drive the channel down a few dB here to compensate for heavy processing (EQ & Dynamics).

2 Metering

Switches between Input and Output Signal Metering.

3 Compression Meter (Gain Reduction)

In Stereo channel configurations there are 2 dedicated meters per channel. If Stereo link is engaged, the compression is applied evenly on both channels and displayed in one mutual meter.

4 Expansion Meter

In Stereo channel configurations there are 2 dedicated meters per channel. If Stereo link is engaged, the compression is applied evenly on both channels and displayed in one mutual meter.

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Top Toolbar

1 Undo / Redo

You can undo and redo changes you made to the controls of the bx_console SSL 4000 E plugin 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 bx_console SSL 4000 E plugin 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 plugin.
- **Solo S:** Solos the Side (Difference) signal processed by the plugin.
- **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!

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1 **V Gain ALL (-30 dB to +20 dB)**

This parameter lets a user add an additional offset to the V Gain parameter of all the same console instances in his current session. Even with the offset, the original range of the V Gain parameter is never exceeded. If V Gain is explicitly set to "Off" (fully counter-clockwise), it will stay Off, even when V Gain ALL adds an offset.

Example 1: The V Gain is set to -95 dB and V Gain ALL is set to +20 dB. The effective V Gain will be -75 dB.

Example 2: The V Gain is set to -75 dB and V Gain ALL is set to +20 dB. The effective V Gain will be -70 dB. It is limited at the upper range.

Example 3: The V Gain is set to "Off" and V Gain ALL is set to +20 dB. The effective V Gain will still be Off.

The parameter only influences consoles of the same type, e.g. if set on bx_console SSL 4000 E, It will not influence bx_console SSL 4000 G and other console plugins.

2 **THD ALL (-60 dB to + 30 dB)**

This parameter lets a user add an additional offset to the THD parameter of all the same console instances in his current session. Even with the offset, the original range of the THD parameter is never exceeded. If THD is explicitly set to "Off" (fully counter-clockwise), it will stay Off, even when THD ALL adds an offset.

Example 1: The THD is set to -60 dB and THD ALL is set to +20 dB. The effective THD will be -40 dB.

Example 2: The THD is set to -35 dB and THD ALL is set to +20 dB. The effective THD will be -30 dB. It is limited at the upper range.

Example 3: THD is set to "Off" and THD ALL is set to +20 dB. The effective THD will still be Off.

The parameter only influences consoles of the same type, e.g. if set on bx_console SSL 4000 G, It will not influence bx_console SSL 4000 E and other console plugins.

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Bottom Toolbar

1 PA Logo

Clicking the Plugin Alliance logo takes you to the Plugin Alliance website via your web browser, that´s if your computer is online.

2 License Type

The toolbar displays information about the type of license you're running: Trial licenses will be displayed along with the number of days until expiration; there is no note for full licenses as these are unlimited.

3 $ (Icon)

If you are using a demo / trial version of our products, you can always click this icon to open a browser that redirects you to the respective product page in the Plugin Alliance store. This is where you can easily purchase a product without having to look it up on our website.

4 Key (Icon)

Clicking on the key icon brings up the activation dialog, allowing you to manually reauthorize a device in the event of a license upgrade or addition. You can also use this feature to activate additional computers or USB flash drives.

5 ? (Icon)

Clicking the ? icon opens up a context menu that links to the product manual PDF, as well as other helpful links, e.g. to check for product updates online. You must have a PDF reader installed on your computer to be able to read the manual.

System Requirements & FAQ (Links)

For latest System Requirements & Supported Platforms
https://www.plugin-alliance.com/en/systemrequirements.html
Particular details for your product
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Installation, Activation, Authorisation and FAQ´s
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