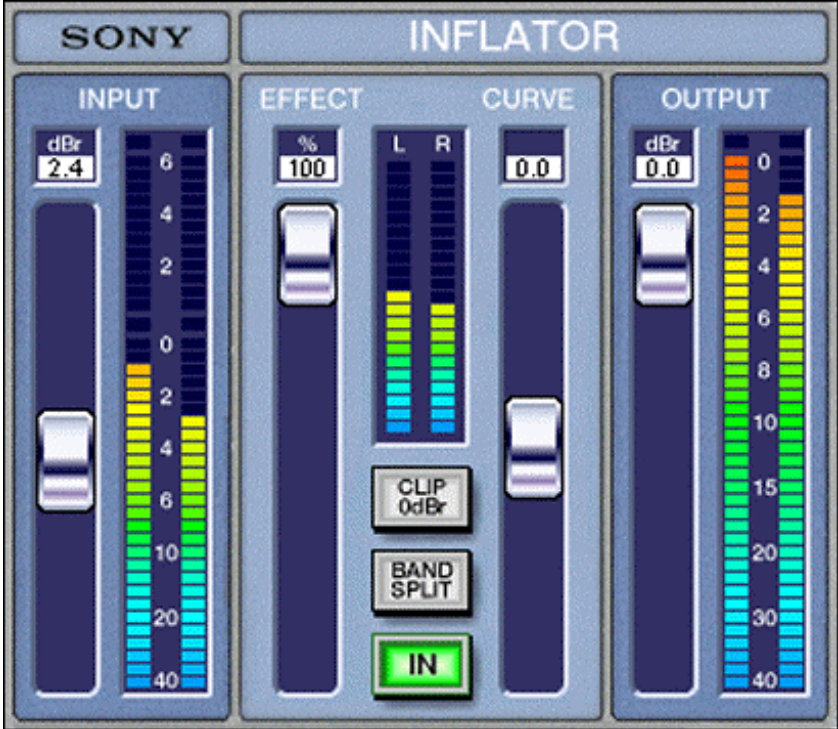# SONY

Inflator Plug-in Manual

Oxford Inflator Plug-in Operation Manual

1.   General description.

The Inflator plug-in is primarily designed to address the current preference to produce the maximum apparent loudness from popular music mixes. Many processes are already in use, which are variously reliant on compression and limiting to produce maximum modulation and engender an impression of excitement to the sound of the programme. The Inflator plug-in goes further than these methods and can increase the loudness of almost any programme material, regardless of the levels of prior compression or remaining dynamic range. It will even make full level white noise sound louder! The Inflator plug-in can also be used to create much of the warmth, character and dynamic excitement of analogue systems within the digital domain.

The Inflator process functions by changing the relative probability of the samples in the programme such that there is a greater predominance and likelihood of larger values than the original signal. Because the Inflator does not employ signal compression there is no 'pumping', dynamic level changes, loss of presence or flattening of percussive attacks. The full dynamic information of the music is largely preserved despite the increase in average modulation density.

In addition to loudness enhancement, the Inflator process can create a harmonic profile in the signal spectrum that not only increases the apparent dynamic impact of instruments and performances, but also provides 'warmth' to the programme, reminiscent of good tube systems. When used this way, the Inflator process even has the ability of good tube systems in producing great sounding programme when significantly overdriven and can therefore be used as an artistic enhancement tool on single performances within a mix.

2.   Included Applications.

Pro Tools

Mono and stereo AS/RTAS/TDM versions of the Inflator application are provided.

Additionally, there are two separate TDM versions – Direct only and Band Split. The latter provides both Direct and Band Split modes (see below). The Direct version is provided for your convenience, and utilises less DSP resources by only featuring direct processing (the band split mode button is greyed out when this plugin is in use).

PowerCore

There are two separate plugin types – Direct and Band Split. The latter provides both Direct and Band Split modes (see below). The Direct version is provided for your convenience, and utilises less DSP resources by only featuring direct processing (the band split mode button is greyed out when this plugin is in use). Mono and Stereo versions of each type are also provided, for a total of four plugins.

3.   System Requirements.

Pro Tools

- Approved Digidesign CPU and configuration

- Pro Tools HD or Mix system.

PowerCore

- Approved TC Works CPU and hardware configuration

- MacOS 9.0.4 or higher (Macintosh version)

- Windows 98SE / Me / 2000 / XP (Windows version)

- 800x600 minimum display

- A VST or MAS compliant host application (e.g. Cubase / Logic / Nuendo / Spark / Digital Performer)

- One or more TC Works Powercore cards with driver version 1.6 or higher.

4.   Installation.

All versions of the plug-in can be obtained by purchase from www.sonyplugins.co.uk or www.sonyplugins.com websites. When purchasing from the website, after entering your details and credit card number, a temporary pass number will be issued immediately that allows 30 days use. The software is then node locked to the target system. After the payment is cleared, another permanent pass number will be issued.

The installer is in .bin format (Macintosh), which can be extracted using (for example) Stuffit Expander, and self-extracting executable (.exe) form for PC versions.

4.1.   ProTools

Double click the 'Inflator (PowerCore)' icon to begin. Follow the onscreen prompts.

The installer will search for the 'DAE:Plugins' folder. If found, the plugin will be installed to this location; otherwise, an error will be reported.

You will need to register your plugins with Sony prior to use. Once you have done this, you will receive both a key file and an authorisation code. You should place the key file into the Preferences subfolder of your main System Folder, and enter the code when first running the Oxford plugins in ProTools. Your plugins will then be authorised.

4.2.   PowerCore (Macintosh)

Double click the 'Inflator (PowerCore)' icon to begin. Follow the onscreen prompts.

The installer will firstly search for the presence of Digital Performer. If this is installed on your system, the plugins will be installed for use with the TC Works MAS shell.

The installer will then search your system for folders named 'VSTPlugins'. If only one of these is found, the plugins will be installed automatically to the subfolder 'PowerCore:Sony'. Alternatively, if more than one such folder exists, you will be prompted to choose the application you wish to use the plugins with; they will then be installed in the 'VSTPlugins: PowerCore:Sony' subfolder of this application. Once installation is complete, you are of course free to copy these plugins elsewhere for use with other applications.

You will need to register your plugins with Sony prior to use. Once you have done this, you will receive both a key file and an authorisation code. You should place the key file into the Preferences subfolder of your main System Folder, and enter the code when first running the plugins in your VST host of choice. Your plugins will then be authorised.

Please note that we do not recommend authorising your plugins with Nuendo, as you may find that you are unable to select the registration screen. You can instead use the copy of Spark LE included on your PowerCore CD.

4.3.   PowerCore (Windows)

Double click the 'Inflator (PowerCore) Setup' icon to begin. Follow the onscreen prompts.

The installer will attempt to detect your shared 'VSTPlugins' directory, but you may also select another location if desired. You will have to restart once installation is complete.

You will need to register your plugins with Sony prior to use. Once you have done this, you will receive both a key file and an authorisation code. You should place the key file into your 'Windows' (Windows 98SE/Me) or 'WINNT' (Windows 2000/XP) directory, and enter the code when first running the plugins. Your plugins will then be authorised.

5.   Revision History

- 31st October 2002 – first release for ProTools.

6.   Description of controls.
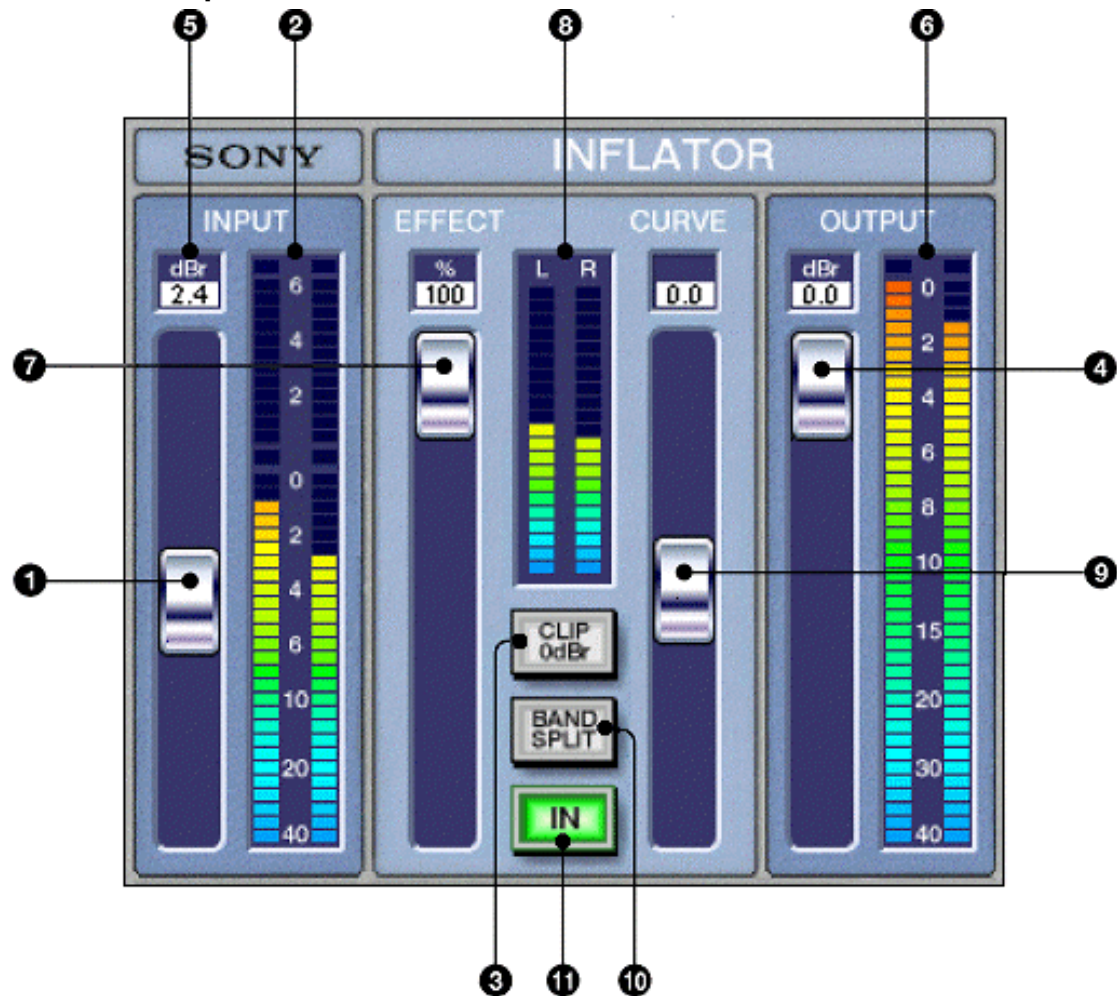
1.   Input Level Control.

Sets the input level to the Inflator process. For full level input signals, maximum peak input is obtained with the slider set to 0dB. Further gain beyond is provided to allow lower level programme to be boosted to full modulation and allows the Inflator to be deliberately overdriven to produce distortion effects.

2.   Input Drive meters.

Display the peak input drive levels. With the **Clip 0dBr** de-selected the meters show the level of overdrive applied to the Inflator process.

3.   Clip 0dBr button.

When selected, internal processing levels are restricted to the equivalent of normal digital maximum. When de-selected internal processing may develop and process signals beyond the equivalent of digital maximum.

4.   Output Control.

Sets the output level to allow adjustment of the signal level after processing.

5.   Parameter Value displays.

Display the setting values at all time. Values can be entered directly by selecting the required display.

6.   Output level meters.

Display the output peak modulation levels.

7.   Effect Control.

Sets the amount of the overall Inflator effect that is applied to the programme from 0% to 100%.

8.   Effect meters.

Indicate the degree of average signal modification in real time, depending on programme type and Inflator settings.

9.   Curve Control.

Modifies the processing characteristics and sonic effect of the Inflator application.

10.   Band split selector.

Selects processing on the direct full band signal or invokes a band splitting function that processes the signal separately in LF, MF and HF spectral regions. This button is only active on the RTAS and Band Split TDM plugins.

11.   In selector.

Switches the Inflator process in and out for comparison purposes.

7.   Operation and modes.

7.1.   Input Clipping.

The Inflator process develops internally (and can process) signal levels that are notionally greater than digital maximum. For instance, with the **Effect level** at maximum and the **Clip 0dBr** off, signal peaks above notional digital maximum can be accommodated and much of their harmonic information can be included into the output signal, even though the peak output level will not rise above digital maximum. The presence of this extra signal range is displayed on the upper sections of the input level meter and represents a range of up to +6dBr of useable overdrive before hard clipping occurs. The **Clip 0dBr** function suppresses this extra range and restricts the Inflator process to the normal digital maximum range. Therefore it will be noted that with the Clip 0dBr selected, the input level meter will not rise above the 0dB level however much input gain is used. Because the potential applications of the process are so varied, the user is encouraged to experiment with the Clip 0dBr on and off to obtain the best results depending on intention. The following are some general guidelines:

Generally it is better to start by selecting **Clip 0dBr on** (default**)** for most loudness enhancement purposes including direct mode (non-band split) since the control of peak levels, settings and sound character is more readily achieved when a maximum reference level is imposed on signals before the Inflator process.

In certain cases better results may be obtained by **de-selecting input limiting**. In particular the extra useable range can then be used to accommodate short term overshoot sounds produced by compression functions, where they are generated to enhance attack and presence. Since these peaks are mostly short

duration, they can often be accommodated effectively in the overdrive ranges without excessive reduction of sound quality or loss of average modulation. Please note that in this case it is important to ensure that the peaks from prior compression are not clipped between plug-ins, by making sure that the output signal from the compressor does not quite hit peak levels **before** applying it to the Inflator plug-in.

When using Band split modes for loudness enhancement, using the Inflator with **Clip 0dBr off** may produce a reduction in unwanted intermodulation side effects when pushing for absolute maximum loudness regardless of possible output clipping etc.

When using direct mode (without band splitting) for distortion generation the results will be quite different with or without input clipping and may produce useful artistic effects in either circumstance. The Inflator is able to soften clips that occur, either because of the Clip 0dBr setting, or even those that happen before its own processing in prior plug-ins. Therefore overdriving the Inflator with the Clip 0dBr function both on and off, or even applying the Inflator to the output of other plug-ins driven into overdrive can produce a vast range of artistic effects. To explore the full range of possibilities, the importance of experimentation cannot be over stressed.

7.2.   Direct and Band splitting modes.

The Inflator application can run in either direct or band splitting modes.

In normal operation the whole frequency range of the programme is processed simultaneously. This is usually the best position to run the process under most conditions. One significant advantage of using this mode is that the output relative peak level will not get larger than peak level, however much Effect is applied. Therefore more overall enhancement is possible before clipping the output and louder more powerful results are possible. Also when used for distortion generation the relative phase of the distortion harmonics are better preserved when band splitting is not used, so accurate clip rounding is possible producing a much more pleasing effect.

The **band splitting** function is offered as an additional mode that may be useful under some specific conditions. When band splitting is selected the processing is split into three frequency bands to avoid intermodulation distortion between parts of the programme signal spectrum. This mode is occasionally advantageous when going for maximum loudness enhancement where there is a significant predominance of specific frequency ranges in the programme content. However it should be noted that, depending on programme and settings, operation in this mode produces output levels that are beyond the relative input peak level. This means that the signal is more likely to clip at the output, which may produce an increased harshness to the sound. If this becomes obtrusive, reducing the input or output levels to avoid clipping will obviously somewhat negate the purpose of the exercise.

7.3.   Basic loudness enhancement procedure.

For basic loudness enhancement the procedure is to get the programme up to maximum normalised level at the input (0dBr) in order to fully benefit from the Inflator process, apply the Inflator processing to get the desired effect and adjust the output level to maintain desired maximum modulation.

Start with the **Clip 0dBr** function selected to limit the range of the Inflator to normal digital maximum.

Using the **input level control** and input meter, set the level such that the red **0db over indicator** flashes occasionally to indicate the presence of max peak sample values.

Set the **output level control** to maximum initially so that the input and output meters read similarly when the music is played.

Set the **curve control** initially to mid position (default) and set the **band split selector** to off.

Start with the **Effect level control** at 100% to obtain maximum increase in perceived volume without extra peak output level.

The object of the exercise is to get the input level as high as possible without excessive distortion or deterioration in the sound. The type of programme material and taste will determine the extent of the enhancement that can be achieved. If it is found that the programme material is not significantly degraded at normal peak input levels, further gain in loudness may be achieved by de-selecting **Clip 0dBr** and pushing the input level into the Inflator overload region,

It is important to note that output overloads are entirely avoided only when the Effect level control is set to maximum position (100%). In general the best results are most likely to be obtained by operating the Inflator effect level at maximum and adjusting the input level and curve controls to produce the best sonic compromise.

Further user modifications to the Inflator process can be invoked to either gain greater loudness or different characteristics in sonic detail, as described below.

7.4. Curve modification.

The curve modification control subtly affects the characteristic of the Inflator process to affect both the perceived loudness and tonal character of the signal.

With the **curve control** set at minimum position (-50) the Inflator produces the most subtle changes to the sound. Overall loudness enhancement is minimal but significant harmonic content is added to produce a richer overall sonic character. When applied to composite mixes, the predominantly loud parts of the mix will apparently be accentuated over the background and reverberant parts of the programme, producing the effect of dynamic expansion (without a time constant). This setting is particularly useful when treating drums and percussion instruments, when the impression of dynamic presence needs to be enhanced, or the contribution to the mix needs to be 'tightened up' somewhat. This kind of setting is also useful when used on single instruments (such as acoustic guitars) where a softening of percussive aspects or 'highs' of the sound is needed without loss of apparent dynamic range.
Settings of the curve control between -50 and around zero have varying degrees of this behaviour and style of overall impression, but with increasing 'fatness' and volume as the curve control is advanced.

The **curve control** at mid position (default zero) produces a special behaviour, which in many respects may give the best results in most situations. The overall loudness of the signal is considerably enhanced whilst retaining good dynamic balance between loud and soft portions of the programme, with a minimum of intermodulation effect. The sonic character has a much enhanced warmth and harmonic detail, adding presence and texture to instruments, especially in the low frequency register. The highs and peaks in the programme are softened in character without loss of apparent presence, attack or 'bite'. Occasional peak programme overloads are softened and become less intrusive and can therefore be tolerated more readily. With the curve control in this position the Inflator process produces a gentle and forgiving behaviour, which has many aspects in common with the character of good tube amplification systems, including a natural tolerance to overload conditions. For instance, when used in direct mode (band splitting de-selected) with Clip 0dBr selected and Effect level set to 100%, even clipped programme signals can be rendered musical in nature. This can be used to produce artistic distortion effects on single instruments within a mix or produce dynamic 'breaking up' effects, much like that possible with tube amplifiers. Or it may be used just to obtain an overall tube-like character and warmth to the sound.

At positions between 0 and +50 the **curve control** provides increasing 'fatness' and volume enhancement at the partial expense of dynamic precision, producing the loudest and most exciting effects at +50. In this position the sound becomes most powerful with a harmonic profile reminiscent of systems under great stress and running to their very limits. The music will take on 'in your face' quality creating the maximum excitement, yet fine detail and subtleties within the mix will be retained. Despite rendering the signal significantly louder, the impression of considerable dynamic range is retained even though the output peak level range is largely unchanged. The low level and background parts of the mix will become enhanced and more audible and extreme LF contributions from instruments such as Bass parts will stand out more readily on smaller reproduction systems. Programme treated with this process will produce louder sounds on all reproduction equipment and in particular it will produce unsuspected volume and power from small domestic and portable systems.

7.5.   Mixing with the Inflator.

The inflator process can bring added benefit to the mixing process if the Inflator is active on the main output buss throughout the mixing session. In this case it is possible to use the valve-like harmonic characteristics and the extra overload area to greater advantage because these form part of the sound of the mix as it is built up. In some respects this process is reminiscent of analogue mixing where line-up operating levels may be breached by transients without actual signal clipping and the sonic character of the signal chain is to some degree dependent on balance and instrument contribution levels.

It is suggested that in this case the best initial settings are with the Inflator set to direct mode (i.e. not band split) with the curve set to the neutral mid position (0) with Clip de-selected. The input gain should be set somewhat above unity (+6dB) to allow the mixer to operate without clipping overshoots prior to the Inflator and the output should be set to max (0db) to provide full output modulation. These settings will establish a virtual operating level at –6dBr within the mixing environment with a possible overload area provided by the Inflator process for short-term level peaks to be accommodated without clipping. The Inflator input and output meters can then be used as main output buss level reference monitors during the mix session.

7.6.   Distortion generation.

For distortion generation it is best to proceed initially with the Effect level set to maximum so that the nature of any distortion can be assessed. The idea is to increase the input level with the Inflator fully operational and the output control reduced somewhat to avoid output clipping, whilst listening to the results with various degrees of deliberate and significant signal overdrive. The Curve control and Clip 0dBr selector will both affect the sound of the results depending on programme type being processed. However, the best results are most likely to be obtained with the curve control set to mid (0) position as this produces the least higher order harmonic levels and most resembles the dynamics behaviour of tube systems. In general it is best to avoid band-splitting mode if aiming for natural warmth and tube overdrive sounds. Input clipping will dramatically change the nature of the distortion in overdrive situations and the user is encouraged to experiment with the Clip 0dBr selector both on and off and changing the order of plug-ins in the signal path.

8.   Copyright and acknowledgements