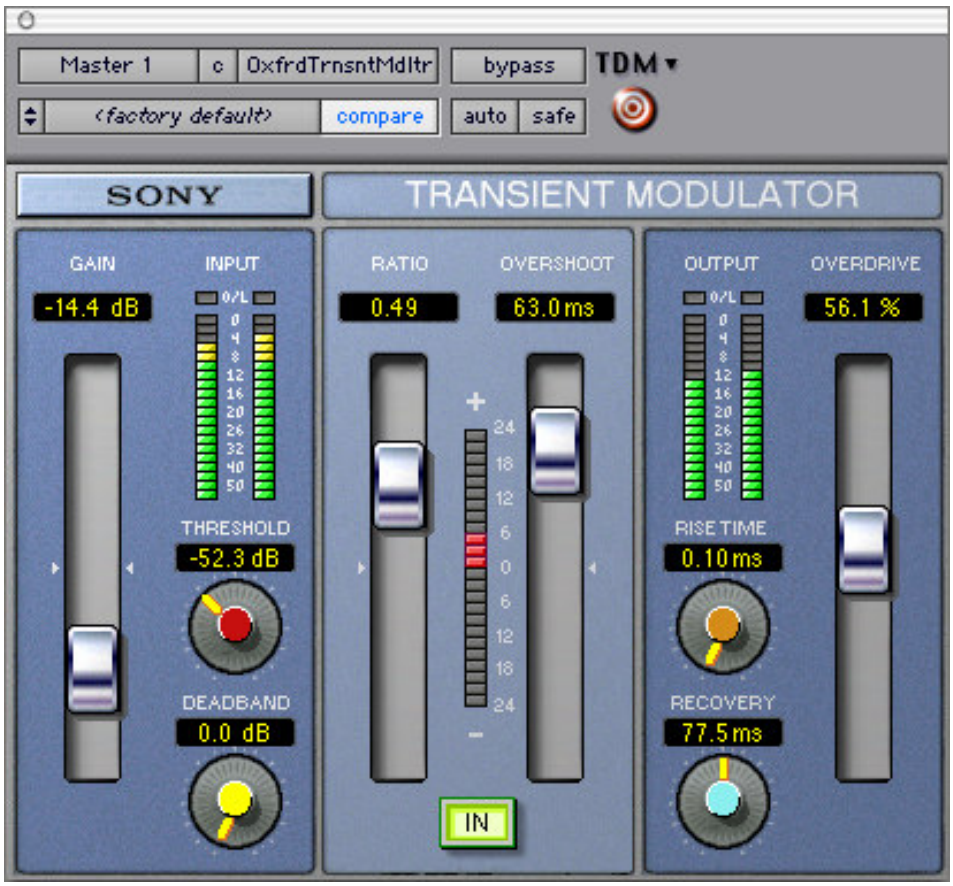
SONY

# Transient Modulator Plug-in Manual

# For Digidesign Pro Tools



# Sony Transient Modulator Plug-in Operation Manual

## 1 General description.

The Sony Transient Modulator is an application that allows dynamic level of signals to be modified by the transients in the programme material over time. The effect is to bring transient events in the programme forwards, or push them into to the background, such that the attacks of instruments can be accentuated or softened depending on settings.
The application was developed to address the common situation where there is a need to selectively tighten up percussive instruments or soften the unwanted percussive effects of acoustic musical instruments. Such effects are easily achieved with the Transient Modulator because its purpose designed adaptive processing acts on differential information in the programme so that the overall long-term programme level is minimally affected and sensitivity to control parameters is drastically reduced.

- Radically change the dynamics of instruments.
- Accentuate or flatten attacks and transients.
- Bring sounds forward or push them back.
- Increase or reduce the effects of ambience.
- Produce rounded and dynamic percussive effects.
- Harden up and give life to dull or flat-sounding recordings and mixes, without the unwanted changes in overall timbre associated with multi-band compression techniques.
- Increase overall modulation potential by the reduction of very short peaks.

## 2 System Requirements.

- Approved Digidesign CPU and configuration
- Pro Tools HD or Mix system (TDM version).
- Pro Tools LE system (LE version)
- iLok USB Key

## 3 Installation and Authorisation.

You will need to authorize your software by transferring the asset for your product to your iLok before use.

CD purchases: you can do this by following the instructions on the inlay card supplied with your CD.

Online purchases: you can do this by following the instructions sent in your order confirmation email after purchase.

## (Macintosh)

Double click the installer icon for your product to begin. Follow the onscreen prompts.

The installer will search for the 'DAE:Plugins' folder (OS9), or '/Library/Application Support/Digidesign/Plug-Ins' folder (OSX). If found, the plugin will be installed to this location; otherwise, an error will be reported.

You will need your authorised iLok plugged into a free USB port on your machine at all times when using the plug-in.

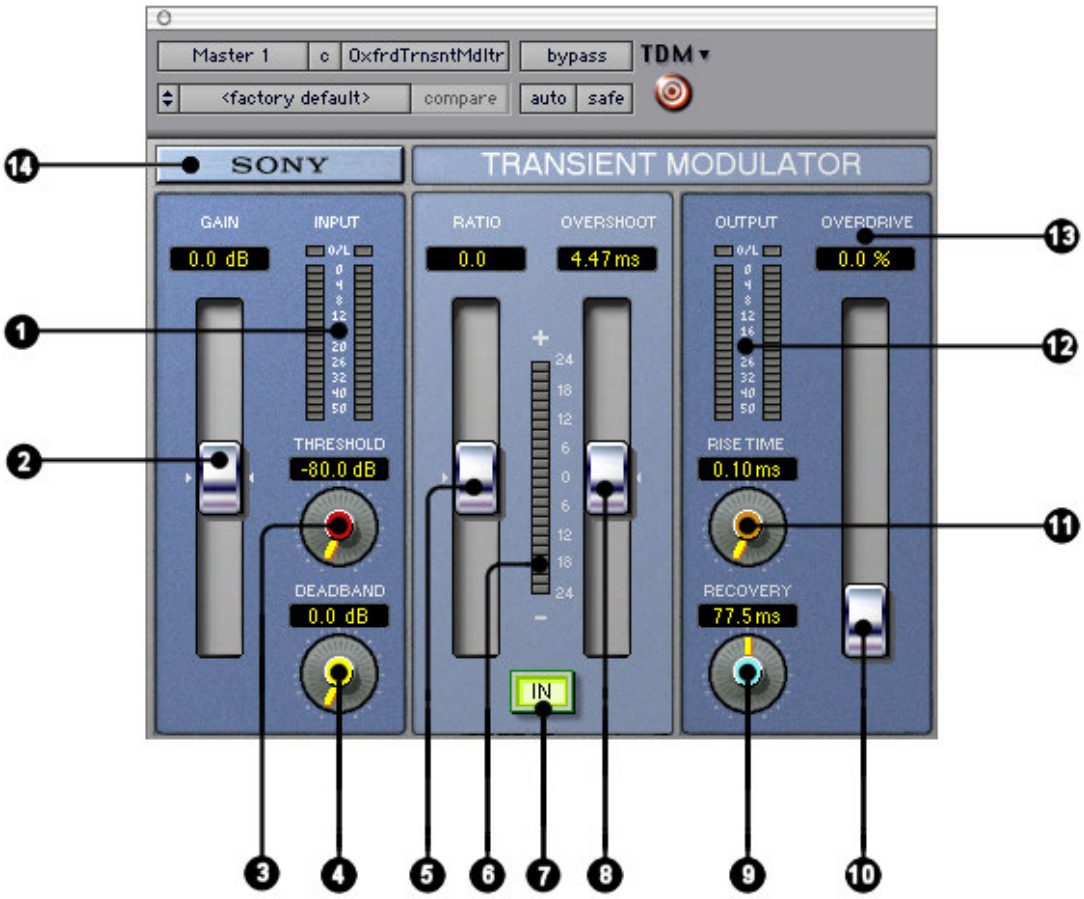
## (Windows XP)

Begin installation using the setup menu (CD purchases), or double click the installer icon for your product. Follow the onscreen prompts.

The installer will place your plugins into '<X>:\Program Files\Common Files\Digidesign\DAE\Plug-Ins\', where <X> is the drive containing your Windows directory.

You will need your authorised iLok plugged into a free USB port on your machine at all times when using the plug-in.

# 4 Description of controls.




### 1. Input meter.

Displays Input drive levels.

### 2. Gain control.

Provides adjustment of gain from –24 to +24dB.

### 3. Threshold Control.

Adjusts the level threshold for the onset of processing.

### 4. Deadband control.

Controls the range of transient programme change that is ignored by the TransMod process, from 0dB to 6dB.

### 5. Ratio control.

Controls the overall effect of the TransMod process. Positive settings produce transient enhancement and negative settings cause reduction.

### 6. Effect meter.

Displays the peak overall gain and loss of transients in the programme material resulting from the TransMod process over a + & -24dB range.

### 7. In button.
Switches effect in and out, maintaining constant delay and gain for comparison purposes.

### 8. Overshoot control.
Controls the timing profile of the transient modification

### 9. Recovery control
Controls the response of the TransMod process to long-term programme level changes, from 3 to 200mS.

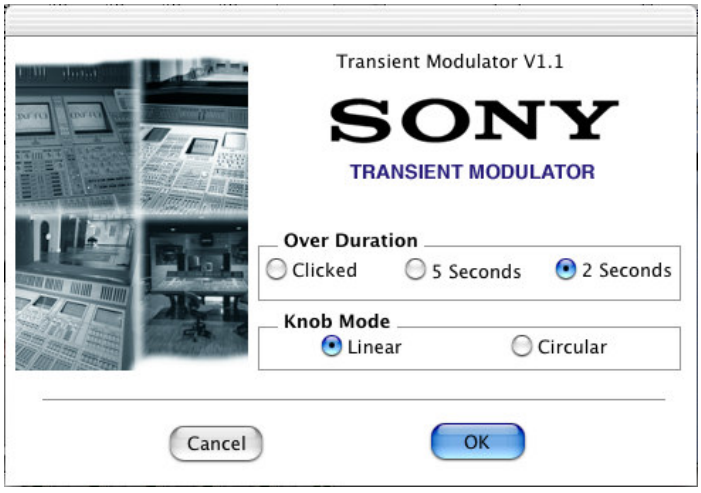
### 10. Overdrive control.
Provides additional harmonic and overload enhancement effects to the TransMod output signal, from 0% to 100%.

### 11. Rise time control.
Controls the response speed of the TransMod process to short duration envelope transients, from 100uS to 30mS.

### 12. Output meter.
Displays output drive levels.

### 13. Parameter displays.
Display setting values at all times and provide type-in fields to change values directly via keyboard entry.

### 14. Options menu button.
Clicking the 'Sony' button produces the options menu below.




The menu allows the selection of overload indication duration between 'permanent until reset', 5 seconds or 2 second auto-reset modes. The GUI knob mode can also be selected for control operation in linear or circular modes.

# 5 Operation and modes.

The Sony Transient Modulator functions by producing a continuous value that is proportional to the dynamic level encountered at its input (i.e. the programme level envelope). This value is then subjected to processing that extracts the rate of change of the programme level envelope, which is used to modify the forward gain of the output signal during the periods of dynamic activity in the programme. In this way the resulting level envelope at the output of the TransMod can be modified dramatically to accentuate or attenuate aspects of the dynamic profile of the sound, whilst drawing from the natural characteristics of the original programme signal.

## 5.1 Ratio Value.

The ratio value represents the linear dB ratio by which the output gain will be modified by instantaneous changes in the input level. Positive values will increase the gain of the signal during transients. So for instance when the ratio control is set at +1, a drum attack that has a peak of 10dB above the average level will produce a level increase of twice that (20dB) at the output, because the gain during the transient will be increased by the same amount as its level difference.
For negative ratios the reverse is true and for a negative ratio of -1 the drum attack transient would be reduced to the corresponding average level of the signal and therefore will be removed. In the central position (0) the TransMod process does not affect the signal at all.

## 5.2 Overshoot Value.

The overshoot time sets the period over which the dynamic changes occur depending on the input programme dynamics. A short overshoot period will enhance (or reduce) transients for a very short time and cause only the leading edges of the transients to be modified. For instance a small overshoot time can accentuate short-term events in the programme such as small percussion – bells and the like whilst largely ignoring large and softer transients due to instruments such a drums etc.
Increasing the overshoot period allows transient enhancement to occur over longer periods, therefore providing a method to tune the action to suit the programme material and produce the required effect.

The adaptive nature of the processing, over both level and time, allows optimal settings of the timing value can be achieved for complete tracks and even complex final mixes. Because the TransMod process is so rapid, low settings may not be heard because the duration of the transients being affected are too short. Generally the most audible effects occur from mid position upwards.

## 5.3 Recovery Value.

The recovery value modifies the long-term timing of the envelope processing. Small recovery values will allow action to almost each and every transient, even if they repeated very rapidly in the programme material. Longer recovery values will gently and progressively reduce the action depending on the rate at which transients occur in the programme. So for instance, setting a long recovery value can prevent excessive action on small rapid transients in the signal (i.e. Hi-hat spill), which directly follow large transients (i.e. a Bass or Snare hit). The recovery time is adaptive such that after a period of absence for large transients, small transients in quieter sections of the programme will be progressively included once more into the process in the normal way. The effects of changing the recovery are usually quite subtle and for the most part small to midrange settings will work best for most popular material.

## 5.4 Rise time Value.

The rise time value modifies the response of the envelope detector to fast transients and provides a method to decrease the sensitivity of the process to short term events in the programme. With the control set at minimum all transients, however short, will be processed. Increasing the rise time control reduces the overall speed of the envelope detector, such that short-term transients will be progressively ignored as they fall beneath the value of the rise time setting.

The control can be used to prevent unwanted action from fast, largely inaudible transients, or it can be used as a sound effect. For instance, a rise time value can be arranged such that the initial attack of an instrument is excluded during an overall transient reduction or increase. This allows you to 'model' the sound of the overshoot to soften or harden the effect.

## 5.5 Deadband Value.

The dead band value provides a method to exclude less significant transient modifications from the final processing output. For instance, if a dead band of 3dBs is set, changes resulting from the TransMod processing below a total differential gain change of 3dBs are excluded from the process and the signal is unaffected during these conditions.
The dead band control can be used to prevent action from small level changes or insignificant transients, which may otherwise adversely affect the programme. In this case it is best to start with the dead band set to zero and increase it only if unwanted action becomes evident, particularly during quiet sustained passages.
The dead band control may also be used to produce dramatic effects by focussing the TransMod action on to only the loudest transients in the programme. In this case it's best to set low thresholds and high ratios to get the maximum action, before progressively increasing the dead band to exclude smaller events from the effect.

## 5.6 Threshold Value.

The threshold control causes the process to operate only on programme above the set level, ignoring all signals below that value. Unlike all the other processing in the plug-in, the threshold is related to absolute input levels and therefore care must be taken to set a low enough threshold value to allow action on the required range of programme.
Careful threshold setting may be used to focus only on the louder events in the programme. This may be particularly useful when aiming for compression sounds with negative ratio settings. For generating increased attack with positive ratios, the TransMod process works most effectively when operating on the majority of the programme range, i.e. the lower the threshold the greater the possible effect may be.

***Note: Care must be taken with very low threshold settings since programme starting from silence may be subjected to a large initial overshoot.***

## 5.7 Level Control and Overdrive settings.

Although the TransMod process works to maintain constant average signal levels in the programme, the process can produce significantly larger peak levels if positive ratio values are used. In highly percussive sounds and long overshoot settings, the peak levels can potentially increase up to +24dB greater than in the original programme. This effect will be seen on the peak meters provided in the plug-in.
Since most workstation applications provide no headroom above the peak level operating target that most users aim for, the extra transient information provided by the TransMod is highly susceptible to clipping in the application environment. If this occurs the transients are lost forever and cannot be recovered in the mix by level control further down line (i.e. faders etc). Therefore care must be taken to set appropriate gain settings to avoid clipping.

### 5.7.1 Overdrive processing.

The Overdrive process is included to allow a degree of relief from premature clipping if high modulation levels are required, by providing a method for the harmonic content of peak information above digital max to be included in the final output of the TransMod process.
When set to maximum (100%) the overdrive process will allow peak information up to 6dB greater than max to be included without the sound of hard clipping, whilst avoiding digital overloads entirely. Overdrive processing will also change the harmonic content of the programme to provide warmth and richness to many programme types.

### 5.7.2 Loudness enhancement.

The TransMod when used with negative ratios can provide an efficient method to increase the loudness of programme by reducing very short transients that may otherwise cause overloads. In many cases very short transients may not be a prominent part of the programme sound and can be reduced without damaging the sonic character of the results. If very short-term peaks are reduced, more modulation gain can be achieved without overloads. Since look-ahead process timing can act on the signal before it appears at the output of the plug-in, short-term peaks can be effectively reduced without apparent loss of overall sonic character.

To achieve this effectively, very small Overshoot and Recovery values should be used with a minimum Rise time setting, in order to catch the fastest transients only. A negative ratio coupled with a suitable dead band setting can be obtained that reduces transients by the required amount, allowing the overall level of the programme to be increased before limiting occurs.

***Note: Since the TransMod is an adaptive process that constantly changes with programme content, the peak limiting function will not be as predictable and accurate as that provided by a programme limiter.***

# 6 Copyright and acknowledgements



With special thanks to Jamie Rosenberg of Great Divide Studios in Aspen, Colorado.