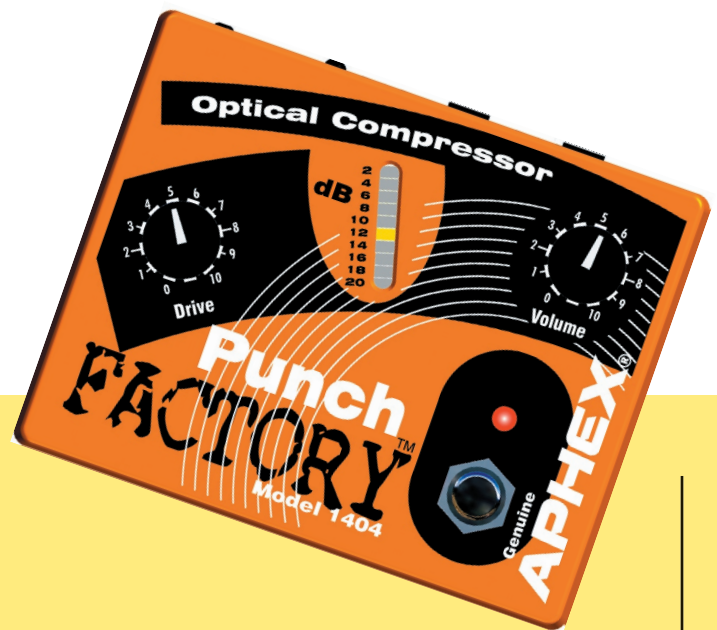


# Advanced Optical Compressor Model 1404 Foot Pedal

## THE **Punch Factory**<sup>TM</sup>



### Compression Especially For Musicians

#### Optical Compression - What Is It?

There are many ways to build a compressor. Various devices can be used to create the core circuit that controls the gain of the compressor in response to a control signal. Each type of device has its own advantages and disadvantages. Every available technology has produced popular compressors over the years. However, one of the most beloved types of compressors is the "optical compressor".

An optical compressor is created from the combination of a light sensitive resistor called a photocell, and a controllable light source such as a small light bulb or LED. Devices called optocouplers combine a photocell and light source inside a light-proof package. The photocell changes its resistivity depending upon the intensity of the light.

#### Attack, Release & Memory

Compressors are said to be "attacking" when they are in the act of reducing the gain and "releasing" when the gain is recovering, or rising back up after an attack. Photocells exhibit a function called "memory". When just a few brief attacks have been experienced, the photocell recovers quite fast, bringing back the level more quickly. However, after repeated and constant attacking, the photocell builds up a memory of the light pulses and recovers more gradually. This helps to smooth out the compression and preserve the quality of the sound.

The optocoupler used in the Punch Factory is made especially for Aphex. It has unique characteristics that are unusually good for music instrument compression. That means no other compressor sounds like this one.

#### Compressors - What They Do

The basic idea is that a wide range of input levels is automatically "compressed" into a lower range of output levels. After compression, sounds that were low in volume are higher in volume. One could also argue that loud sounds are made lower in volume.

#### What Do I Need a Compressor?

When used well, a proper compressor will extend the sensitivity of an instrument, bringing up the tonal nuances that contain the sensuality of your music. That goes just as well for basses as guitars. Your music will be more consistent, filling the volume envelope more fatty, making the track stand out better in a mix. Similarly, in live music, you will fill better and your playing will be more apparent among the band.

#### Sustain

Typically, compression gathers more sustain. When you play, you hear the notes last longer because the compressor keeps raising the level automatically until it runs out of gain. Every time you hit a chord or note, the compressor "attacks" on the sound envelope and reduces its volume, then the volume "releases" back up as the sound dies out.

#### Punch

When the compressor attacks on the sound, it does so in a particular way that is different with different compressors. Too fast an attack will suck the life out of your music while too slow loses effectiveness. One of the good things about the Punch Factory is that it has a complex attack characteristic that adapts to the sound, letting it emerge enhanced, or subtly exaggerated. This creates "Punch", aiding the articulation of the sound and creating a lush and full sound.

#### Expression

You will discover more great sounds on your instrument, and certain musical genres will become more playable. An example is blues. The Punch Factory will blend the notes musically, making every note audible without sucking out any of the feeling. Rich sustains will not fade into oblivion.

### Features

- **Active/Passive Input Select**  
Allows for hot active pickups
- **10 Megohms Input Z**  
Brings out the maximum tone in all types of pickups.
- **Low Z Instrument Output**  
Drives long cords effortlessly
- **Balanced Pro D.I. Output**  
Effect or non-effect select  
Ground lift  
Studio Quality
- **Simultaneous Outputs**  
Both work at the same time
- **True Bypass**  
No electronics in bypass
- **Simplified Operation**  
Only two knobs
- **LED Bar Graph Display**  
Gain reduction in decibels
- **Long Battery Life**  
Estimated 100 to 150 hours from a fresh 9V battery
- **Flexible External Power**  
7 to 36VDC any polarity  
5 to 24VAC  
If the plug fits, it works!

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**APHEX**  
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