Introduction to the P4DMS Compressor

It was conceived to be a multi purpose compressor useful in a number of situations that include mixing, mastering and submix bus applications.

The audio path of the P4DMS was meticulously crafted using the finest available analog components, featuring Foote Control Systems custom transformer coupled inputs and outputs. It utilizes high quality laser trimmed VCAs. The output current of the VCAs are processed using discrete op amps, one per channel. The P4 DMS comes fitted with FCS Class A discrete op amps and FCS custom transformers, the 2781 nickel core input transformers and the 2768 Litz wire wound output transformers.
The 2768 Litz output transformers offer a solid and pure low frequency response and silky high frequencies.

The audio path of the P4DMS is very short.
Input transformer > VCA > discrete op amp > output transformer.
There are no monolithic components in the audio path of the P4DMS

Like any sophisticated piece of audio equipment, the P4DMS takes a little bit of time for users to familiarize themselves with its capabilities and myriad ways to treat audio signals.

A good place to start is what we call "Classic Mode", which is outlined below:

1- Put the unit in linked or stereo mode by enabling the switch on the far right of the front panel. Now the left channel of the P4DMS is in control of the compressor. All instructions in "Classic Mode" are referring to the left channel controls since the right channel controls are disabled in linked stereo operation.
2- Push the RMS pushbutton, being sure no other pushbuttons are pressed
  Note that the Attack and Release knobs are disabled in "Classic Mode"
3- Set the Threshold knob to around 12:00
4- Set the Ratio knob to around 10:00
5- Set the Gain knob to around 2:00

Connect the P4DMS to your audio source, a CD player or mixer output, and play some audio.
You should be seeing some amount of activity on the Gain Reduction meter.
Now rotate the Threshold knob until you see around 6dB of G/R, which is approximately 6 LEDs illuminated in the meter with the meter set to 10dB.
Now, you can adjust the "makeup gain" with the Gain knob, using the

bypass pushbutton (Bypass) to compare the compressed signal level with the raw signal level.

HP Mode notes
After you have become familiar with the general "feel" and sound of "Classic Mode" try pressing the "HPF" pushbutton while listening to the signal.

On full range material you will notice that the character of compression "relaxes" slightly, letting more detail through. This is because low frequency content is contributing less to the control signal that tells the VCA how much to compress the audio signal.

I have found the "HPF" function to be really helpful when processing electric bass, guitar and kick drum submix or room mic tracks, allowing more of the dynamic qualities of the player's style to come through while still compressing the overall sound.

NL Mode notes
Another, more bizarre use is over-compressing drum tracks using the "N/L" function. ("N/L" stands for the non-linear capacitor circuit, which provides the P4DMS with a very fast attack and release for short transient sounds, and a longer attack and release for slower waveforms) This function is similar to effects that can be had on the Valley 610 dynamics processor and also similar to the "Nuke" mode of the Distressor dynamics processor.
You will notice that this effect is rhythmically dependent and works on some material very well and not as effectively on other material. But when it comes together, you can almost erase the drum track leaving only ambient room sound at the output.

Over-compression notes
In extreme amounts of compression, you will notice that the Gain knob will not bring the output level back to unity if more than 20dB of G/R is in use. If you need more level during extreme compression, you can use an external preamp. Just be careful when doing this since depressing the "Bypass" pushbutton can result in huge volume jumps that can damage speakers and other equipment.

Compressor Controls

The P4DMS panel can be broken down into 5 major groups of objects:

1- Rotary controls

"Attack" control varies the attack time of the compressor when the AR pushbutton is pressed. (CCW for shorter attack, CW for longer attack)

"Release" control   varies the release time of the compressor when the AR pushbutton is pressed. (CCW for shorter release, CW for longer release)

"Threshold" Control varies the compression threshold between -30dB and +15dB @ 8:1

"Ratio" control varies the amount of compression between 1:1 to 8:1

"Gain" control ranges from 0dB at the CCW extreme to20dB at the CW extreme.

2- Meter Range pushbutton switch

When this pushbutton is out, the GR meter has a range of 0 – 10 dB in 0.5 dB steps.
When this pushbutton is in, the GR meter has a range of 0 – 5 dB in 0.25 dB steps.

3- Time constant pushbutton switches

The "A/R" pushbutton enables the "Attack" and "Release" controls when pressed.

The Attack control has a range of 1.5ms to 150ms at 10dB of compression
The Release control has a range of 15ms to 750ms at 10dB of compression
Note that the AR timing circuit operates in the peak domain

The "N/L" pushbutton enables the "non-linear capacitor" circuit when pressed for automatic adaptive compression.
Note that the NL timing circuit operates in the RMS domain

The "RMS" pushbutton enables the fixed RMS timing feature when pressed.

These functions are available at all times simultaneously and can be mixed for unique and unusual compression types.

4- Sidechain control pushbutton switches

The "F/B" pushbutton sets the topology of the compressor to feedback when pressed. When this switch is out, it is in feedforward mode. While in feedback mode you will notice that the Gain knob now has influence on the ratio of the compressor, as it is interactive with the Ratio knob.

The "HPF" pushbutton enables an 80 Hz high pass filter into the sidechain when pressed to prevent low frequency content from dominating the compression. An optional dual HPF frequency selector can be added to the P4DMS for complete control over detector behavior with respect to low frequency sensitivity over a wide range.

The "EXT" pushbutton activates the balanced stereo side chain XLR inputs.

5- Bypass

> "Bypass" pushbutton bypasses the compressor when in the in position, which also fires a red LED to let you easily see that the channel is bypassed.

P4DMS Stereo Compressor Features

> All analog audio path

> Fully balanced audio I/O on Neutrik XLR connectors

>Foote Control Systems custom 2781 input and 2768 Litz wire wound output transformers

>Foote Control Systems discrete, Class A op amps

> High quality potentiometers

> Gold plated switch contacts

> RMS Mode that uses the human ear's responses as a compression model

> A/R Mode that allows the user to custom tailor attack and release times

> N/L mode that automatically adjusts time constants using program material content

> A high pass filter at 74 Hz before the detector to limit how much low frequencies contribute to overall compression shape

> Threshold range from -30dB to +15dB

> Ratio continuously variable from 1:1 through 8:1

> Makeup gain range from 0dB to +20dB

> Fast LED metering to display the gain reduction of the compressor in 2 ranges, 10dB and 5dB

> Maximum output level of +25dBu

Specifications

> Power consumption: 25W max @120V - 240V AC

> Frequency response:
+0.5 dB @ 20Hz
-0.03 dB @ 20kHz

> Noise level
  -92dBA

> Dynamic range
  92dBA

> THD
   0.038%

> Stereo crosstalk
  -98 dB

Warranty

The P4DMS Stereo Compressor is warranted to be free of manufacturing defects for a period of 1 (one) year from the date of purchase to the original purchaser only.

This warranty covers all parts and labor but does not cover shipping.

Failures due to accidental damage, being exposed to the elements, natural disaster are NOT covered by this warranty.

If your unit needs service, please contact Foote Control Systems for more information.
You will be asked to provide a copy of the invoice when warranty work is requested.

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Any real or imagined damage due to the use of this product are the responsibility of the end user, not Foote Control Systems, FCS or Roger Foote

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