COLOUR THEORY
spectrum sequencer

The Colour Theory. Each step in its sequence is a new pathway to adventure, each new colour is part of a palette of mystery. Every moment brings a new surprise, as the patterns entrance and interact.

The Colour Theory combines a versatile step sequencer with a powerful effects processor, creating rhythmic combinations seldom heard outside of a rack of synths. It's small but mighty, utilizing our Neo Series technology in a completely new way.

NEO SERIES

The sonic scientists at Alexander Pedals have been working overtime to cram the most pedal into the smallest box, and we now present the Neo Series! Each Neo Series pedal incorporates an advanced 32-bit microcontroller adding presets, expression, and MIDI capability.

GETTING TO KNOW YOUR NEO

USB Mini-B MIDI or firmware update	**DC 9V** 80mA, center negative

MultiJack Expression, Footswitch, or MIDI

Output Stereo output on ring

Select Button Hold to access ALT knobs

Input Instrument or line level

Tap Switch Tap to set tempo, hold to change subdivision

Bypass Switch Tap to bypass, hold for next preset

WHAT IS A STEP SEQUENCER?

Imagine a drum machine that plays different sounds on each beat - kick, snare, kick, snare. Now replace those drum sounds with pedal settings, and you're getting close.

The Colour Theory allows you to preset different values for its effects - each step of the sequence may be set to any values you like, so as the sequence plays the effect changes automatically. You can set the Colour Theory to play a series of tones in OSC mode, or to open and close a filter in FLT mode. The only limit is your own imagination.

PLAYING A SEQUENCE

This is pretty easy. Look at the Colour Theory - if the left LED is blinking, the sequence is running. If the large LED at the top of the pedal is off, then the pedal is bypassed. To play the sequence just tap the right footswitch, labeled BYPASS. The upper LED will light up and start changing colours to show which step is currently active.

EDITING / CHANGING A SEQUENCE

This is a little more complex but still not too bad. If the sequence is playing, hold the left footswitch down. It's labeled TAP / PARK. When you're in PARK mode, the sequencer stops running and just hangs out on the current step - that's your cue to tweak it up!

Turn the Value and Tweak knobs to change the parameters of the effect, spin the Amount knob to mix in the wet and dry signal, and use the Ext.Ctl. knob to vary the MIDI message the Colour Theory sends out to your other pedals. Each effect mode has different parameters to sequence, so read more about them below.

SEQUENCE ORDER

The Colour Theory can play back its sequences in three possible orders: Up, Up / Down, and Random.

In Up mode, the sequence always steps 1 -> 2 -> 3 -> 4 -> 5 -> 6 -> 7 -> 8 -> 1 -> 2...

In Up / Down, the sequence steps 1 -> 2 -> 3 -> 4 -> 5 -> 6 -> 7 -> 8 and then back down 7 -> 6 -> 5 -> 4 -> 3 -> 2 -> 1.

In Random mode, the sequence is random so there's no telling what will happen. The sequencer may repeat steps, it might skip steps, who knows? Totally random.

To change the sequence order, hold down the Select button and then hold the TAP / PARK footswitch. The Tap LED will blink once for Up, twice for Up / Down, and three times for Random.

Please note that if you use the Steps knob to make the sequence shorter, the Colour Theory will step to the highest available value before restarting. For example, if you set the Steps knob to 3, then the sequence will run 1 -> 2 -> 3 -> 1 -> 2 -> 3... or 1 -> 2 -> 3 -> 2 -> 1 -> 2....

SEQUENCE STEPS

1
2
3
4
5
6
7
8

CONTROLS

Adjusting the knobs of the pedal has a different effect when the sequencer is running or parked.

Sequencer Controls - the pedal knobs have the following functions while the sequencer is running, and may be controlled by the expression pedal.

Rate: Controls the speed of the sequencer. Rate may also be set by tapping the left footswitch.

Steps: Controls the number of steps in the sequence, from 2 to 8.

Mix: Controls the master mix between the effected sound and the direct signal. Please note that the Amount parameter also affects the mix between these two signals - the master Mix value will override the Amount parameter.

(Level): Hold the Select button down and turn the Mix knob to set the overall output level of the pedal from -20dB to +10dB.

Lag: Controls the "smoothness" or filtering of the step sequence counter. At low settings the sequenced effects will jump from one value to the next. At high settings, the sequenced effects will "slide" from one setting to another. Very high Lag and Rate settings will cause "smearing," with the effect being unable to fully reach its destination - perfect for making the OSC mode into a police siren!

Step Controls - the pedal knobs have the following functions when the sequencer is parked and are not controlled by the expression pedal:

Ext.Ctl: Adjusts the value sent by the Colour Theory to your other devices using MIDI. This parameter is sequenced.

Value: The main effect parameter of each mode. Pitch shift, delay time, filter frequency, tremolo rate, oscillator pitch, or PWM octave.

Amount: Sets the blend between the direct and effected signal for the current step. Please note that the master Mix control also changes this blend. If the Amount is set to 100% but the master mix is set to 50%, the overall blend will be 50%. If Amount is set to 50% and master mix is set to 50%, the overall blend will instead be 25%.

Tweak: The secondary parameter of each effect mode. Tone, delay feedback, filter resonance, tremolo wave, oscillator wave, or PWM modulation.

EFFECTS MODES

Tap the Select button to choose a new effects mode

PIT - Sequenced pitch shifter. This effect can create harmonies or pitch shifts, with any interval from 1 octave down to 1 octave up. The pitch and tone of the effect signal may both be sequenced.

MOD - Sequenced digital time modulation. The delay time ranges from 0 milliseconds to 300 milliseconds, and both the delay time and feedback may be sequenced. Try the delay effect with two steps and a high lag to create a very lush chorus or vibrato.

FLT - Sequenced resonant filter. This is a low-pass filter that can have high levels of resonance, to the point of oscillation. Be careful, this thing can get wild at extreme settings. Filter frequency and resonance may both be sequenced.
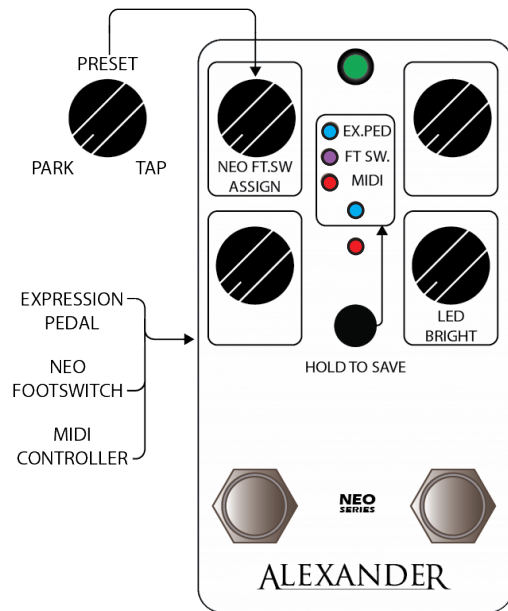
TRM - Sequenced tremolo. Create rhythmic patterns or insane stutter modulation with this one. The tremolo rate and waveshape may both be sequenced.

OSC - Sequenced synth oscillator. This is useful for making melodies or whacked-out siren sounds. The pitch range is a couple of octaves, and even "in-between" notes outside the normal tempered scale are available. Value controls the pitch and Tweak blends between sine and square wave shapes. We promise your neighbors will hate this mode.

PWM - Synthesized octave effect. Don't know why we thought this would be cool, but here you go. This mode turns your guitar signal into a monophonic digital square wave, with the divider rate set by Value. This will get DOWN, to subharmonic levels. It's kind of nuts. The Tweak knob controls a modulation effect on the synth wave. Try this for making your neighbors hate you even more than OSC mode.

CONFIGURING YOUR NEO PEDAL

Power on the pedal while holding the Select button to enter configuration mode. Release the button when the main LED turns violet.

PRESET

PARK   TAP

NEO FT.SW. ASSIGN

EX.PED
FT SW.
MIDI

LED BRIGHT

EXPRESSION PEDAL

NEO FOOTSWITCH

MIDI CONTROLLER

HOLD TO SAVE

NEO SERIES

ALEXANDER

Tap the Select button to choose the MultiJack function. The upper program LED will change colors to indicate the function. Blue = Expression Pedal, Violet = Foot Switch, Red = MIDI

Connect a MIDI controller to the EXP port and send a program change to set the Neo Pedal's MIDI channel.

Turn the upper left knob to select the Neo Footswitch configuration. Counter-clockwise = Park / Start sequence, Mid = Preset Advance, Clockwise = Tap Tempo.

Turn the lower right knob to set the main LED brightness.

Hold the Select button to save the configuration and exit.

BYPASS AND PRESETS

Tap the foot switch to toggle the pedal between bypass and active. The bypass signal is buffered and 100% analog.

Hold the bypass footswitch to move to the next preset. The Neo Series pedals have 16 presets, four of which are accessible on the pedal itself. The main LED will blink one, two, three, or four times to indicate the current preset.

Hold the select button down, then hold the footswitch down to save. The pedal will save the current settings to the active preset. The main LED will blink to indicate the preset has been saved.

TAP TEMPO AND SEQUENCE PARK

Tap the left footswitch a few times and the pedal will set its tempo to match your tapped rhythm. You'll see the upper LED change to indicate the current step,and the lower left LED will keep blinking to indicate the tempo. You can also set the sequence rate using the Rate knob while the sequence is running. The sequence tempo will be stored in the preset you are using if you choose to save.

If you choose to connect a Neo Footswitch or a standard footswitch to the MultiJack, you can configure it to send tap tempo to the pedal. Tapping the footswitch will set the tempo, holding it will change the subdivision. If you connect a Neo Footswitch, its LED will blink to show the tempo.

You can also use MIDI to control the tempo of the pedal. Send a MIDI CC93 with any value to tap the tempo for the pedal. You'll need to send at least two MIDI taps to set the tempo. You can also use MIDI Clock (sometimes called MIDI Beat Clock) to set the delay time and tempo.

EXPRESSION CONTROL

The Neo Series feature a comprehensive expression control setup. Connect an expression pedal to the Neo pedal MultiJack (red) and sweep its treadle until the heel is down. Turn the knobs to your desired setting. Now sweep the expression pedal until its toe is down, and turn the Neo pedal's knobs to a new setting. You should now be able to sweep the expression pedal and hear the change in the Neo pedal! Please note that the Neo pedal's physical knobs won't move when you sweep the expression pedal but the pedal settings will change internally. The main LED will fade in and out to indicate the expression pedal position.

If you prefer to use MIDI commands to control your pedal, the Expression setting is accessible using MIDI continuous controller (CC) messages. Please consult the MIDI Control section for more details.

Please note that the four main sequence controls are affected by the expression setting: Rate, Steps, Mix, Lag. The sequenced values Value, Tweak, Amount, Ext. Control are only controlled by the sequencer and are not affected by the expression control.

NEO FOOTSWITCH

Connect the Neo Footswitch to your Colour Theory for additional control, without the need for a MIDI controller. The Neo Footswitch may be configured in one of three ways:

Sequence Park: Tap the footswitch to re-start the sequence from Step 1 (RED.) Hold the footswitch to park the sequence. Tap the footswitch while parked to re-start from the current step.

Preset Advance: Tap the footswitch to advance one preset, holding will move back one preset. If you connect a Neo Footswitch, its LED will show the current preset: Red = 1, Green = 2, Blue = 3, Violet = 4.

Tap Tempo: Tap the footswitch two or more times to set the sequence tempo. Hold the footswitch to park or resume the sequence. Tap the footswitch while parked to advance the sequence by one step.

MIDI CONTROL

Connect a compatible MIDI controller to the Neo pedal to access its full feature set!

The Neo pedal can accept MIDI over USB from a computer or mobile device, or from a MIDI controller using a 1/4" cable. The Neo pedals are compatible with interface converters made by Disaster Area Designs and Empress.

The following commands are accepted by the Neo pedal:

MIDI Program Change: Load Presets 0-15
>0-3 are the four Red presets on the pedal itself.
>4-7 are the Green bank
>8-11 are the Blue bank
>12-15 are the White bank

MIDI Continuous Controller 93: Tap Tempo
>Send any value to tap tempo if sequence is running
>Advance to next step if sequence is parked

MIDI Continuous Controller 100: Expression Pedal
>Value 0 = Heel down, Value 127 = toe down

MIDI Continuous Controller 102: Bypass
>Value 0-63 = Bypass, Value 64-127 = Engage

MIDI Continuous Controller 50-57: Pedal Knobs
>Value 0 = CCW, Value 127 = CW

>CC 50 = Step Lag   CC 54 = Lower right alt
>CC 51 = Sequence Rate   CC 55 = Upper left alt
>CC 53 = Mix   CC 57 = Lower left alt

MIDI Continuous Controller 59: Mode Select
>Accepts values 0-7 to select modes 1-8.
>(Not all Neo pedals support the full 8 modes.)

MIDI Channel Assignment:

Set the Neo pedal to Config mode by holding Select at boot, then send a MIDI program change on your desired MIDI channel to set the Neo pedal's MIDI channel. Hold the Select button to save the MIDI channel assignment.

MIDI CONTROL (SEQUENCE VALUES)

Each step in the current sequence may be edited using MIDI CC values.

Value Parameter

MIDI CC 18: Step 1	MIDI CC 22: Step 5
MIDI CC 19: Step 2	MIDI CC 23: Step 6
MIDI CC 20: Step 3	MIDI CC 24: Step 7
MIDI CC 21: Step 4	MIDI CC 25: Step 8

Tweak Parameter

MIDI CC 26: Step 1	MIDI CC 30: Step 5
MIDI CC 27: Step 2	MIDI CC 31: Step 6
MIDI CC 28: Step 3	MIDI CC 32: Step 7
MIDI CC 29: Step 4	MIDI CC 33: Step 8

Amount Parameter

MIDI CC 34: Step 1	MIDI CC 38: Step 5
MIDI CC 35: Step 2	MIDI CC 39: Step 6
MIDI CC 36: Step 3	MIDI CC 40: Step 7
MIDI CC 37: Step 4	MIDI CC 41: Step 8

External Control Parameter

MIDI CC 42: Step 1	MIDI CC 46: Step 5
MIDI CC 43: Step 2	MIDI CC 47: Step 6
MIDI CC 44: Step 3	MIDI CC 48: Step 7
MIDI CC 45: Step 4	MIDI CC 49: Step 8

MIDI Continuous Controller 56:
>Set number of steps - accepts values 2-8 for 2-8 steps

MIDI Continuous Controller 60:
>Set current step (value 1-8)

MIDI Continuous Controller 61:
>Start Sequence (value 0-63)
>Park Sequence (value 64-127)

MIDI Continuous Controller 62:
>Set sequence order:
>>value 0 = step up
>>value 1 = step up and down
>>value 2 = random