ALYSEUM - PLEXUS - User's Manual 1.4*

1. Introduction

When the EXTRACTOR module was released, I announced that 2 others experimental modules would follow. Finally, these two modules were simplified and merged into a single one named PLEXUS.

PLEXUS is the first logic and analog operator based on time! It offers 4 exclusive and innovative modes for controlling your modules in new and unexplored ways. It's up to you to discover time-based reactions and counter-reactions

❶ Frequency tracking

According on the period F1 set point and the CLK input, the CV+ output increases if the CLK signal is greater than F1 and vice versa following the RATE oscillator.

❷ Window Frequency Comparator

Using the F1 + F2 set points and the CLK input, the CV+ output increases if the CLK is greater than - OR - is frozen if equal to - OR - decreases if less than the comparator window following at the RATE oscillator.

❸ Pulse Counter Pendulum

With each PLS pulse, the CV+ output increases, reaches its maximum and decreases, and so on. A pulse multiplier by 2, 4, 16 and 64 and 2 Reset/Break sub-modes extend the possibilities.

❹ Pulse Counter Up-Down

At each pulse, the CV+ output increases when the U-D input is set to 1 or decreases if set to 0. A pulse multiplier by 2, 4, 16 and 64 extends the possibilities.

3 HI-MID-LO, Trigger or Gate outputs and two analog outputs are available to activate events, effects, chao, temporal randomness and much more to suit your imagination.

Numerous suggestions of practical or creative applications can be found on page 9 of this user manual!

Important - *Wichtig - Importanti - belangrijk - Ważne – Σημαντικό*

PLEXUS is a module for musicians/technicians who are looking for new ways to generate sound.

PLEXUS is mainly an experimental/utility module, and I've made an unique batch.

So, it is sale as is, without support, assistance and video.

PLEXUS does not have any memory.

2. Hardware

2.1. Package Content

- One PLEXUS module with Eurorack compliant front panel.
- One plastic bag containing two M3 screws + two nylon washers + one10/16 pins power ribbon cable.
- Warranty & user manual access card.

2.2. Specifications

- Front panel width of 30 mm (6HP) and a maximum depth of 26 mm.
- Power requirements (Full LED On): 12mA @ +12V / 1mA @ -12V.
- PLEXUS is protected against reversal of the flat power cable.

2.3. Installation

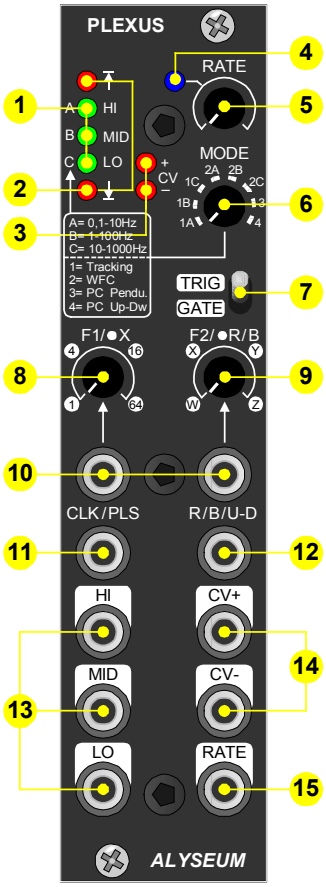
Carefully choose a stable location for your Eurorack, avoiding vibrations, dust, heat sources, humidity or rain.

PLEXUS can only be used in a Eurorack synthesizer with an A-100 power supply.

During the entire installation procedure, always switch off your Eurorack.

Make sure that the red band on the flat power supply cable is correctly positioned at -12 volts.

2.4. Front panel



1. Green LED - Show the logic states of the HI-MID-LO outputs and lights up the A-B-C frequency range for 2 second during modes ❶ & ❷ selection
2. Red LED - Show to ⤒ or to ⤓ and lights up the 2 LEDs for 2 seconds when a mode is selected.
3. Red LED - Displays voltage variation and polarity of CV+ output.
4. Blue LED - Flash at each RATE period.
5. Potentiometer - RATE oscillator, frequency between 1 and 100 Hz.
6. Potentiometer - Selection of 4 Modes and 3 frequency ranges.
7. Toggle switch - Select whether HI-MID-LO outputs are Trigger or Gate.
8. Potentiometers - ❶ ❷ Determines the F1 setpoint frequency. ❸ ❹ Determines the PLS signal multiplication factor.
9. Potentiometers - ❶ ❷ Determines the F2 setpoint frequency. ❸ Sets 2 types of RST and 2 types of Break..
10. Jack inputs - If jack is plugged, the CV inputs bypass the F1 and F2 potentiometers with a sensitivity of 0 to 5 Volts.
11. Jack input - Clock or Pulse input (CLK or PLS).
12. Jack input - Reset input for modes ❶ ❷ ❸ or Up/Down for mode ❹ (U/D or RST).
13. Jack outputs - HI-MID-LO can be Trigger or Gate.
14. Jack outputs - CV+ (variation between -5 and +5 Volts) and CV- which is the inverted output .
15. Jack output - RATE oscillator.

3. Use

3.1. Initialization Sequence

1. Turn the Eurorack case power ON.
2. Except for the CV+/- LEDs which are analogue, the other LEDs flash half a second sequentially.
3. The CV outputs are set to zero Volt.

PLEXUS module is ready!

3.2. Independent RATE oscillator

The independent RATE oscillator is adjustable from 1 to 100 Hz and determines the refresh rate of the CV output in modes ❶ ❷.

It has a Jack output that continuously generates 2 mS pulses in all modes.

Its blue LED flashes in sync with its frequency.

NB: The refresh rate of the CV output in modes ❸ ❹ depends exclusively on PLS.

3.3. Toggle switch TRIG/GATE

The single toggle switch is used to select a pulse (TRIG.) or a logic state (GATE) for the 3 HI-MID-LO outputs.

3.4. Mode selection

Operation of the MODE potentiometer:

- Activate mode selection - Turn the potentiometer and both red LEDs ⤒ et ⤓ turn on.
- Selecting a mode - choose according to the table below or the front panel screen printing from the 4 modes.
- Abort mode selection - Stop turning the potentiometer for more than 2 seconds and the both red LEDs ⤒ et ⤓ turn off.

LED	Mode ❶			Mode ❷			Mode ❸	Mode ❹
	A= 0,1-10Hz	B= 1-100Hz	C= 10-1KHz	A= 0,1-10Hz	B= 1-100Hz	C= 10-1KHz		
⤒	ON							
HI	ON			ON				ON
MID		ON			ON			
LO			ON			ON		
⤓	ON							

NB: In modes ❶ or ❷, if your CLK source is outside measurement range A, B or C, the red ⤒ or ⤓ flashing.

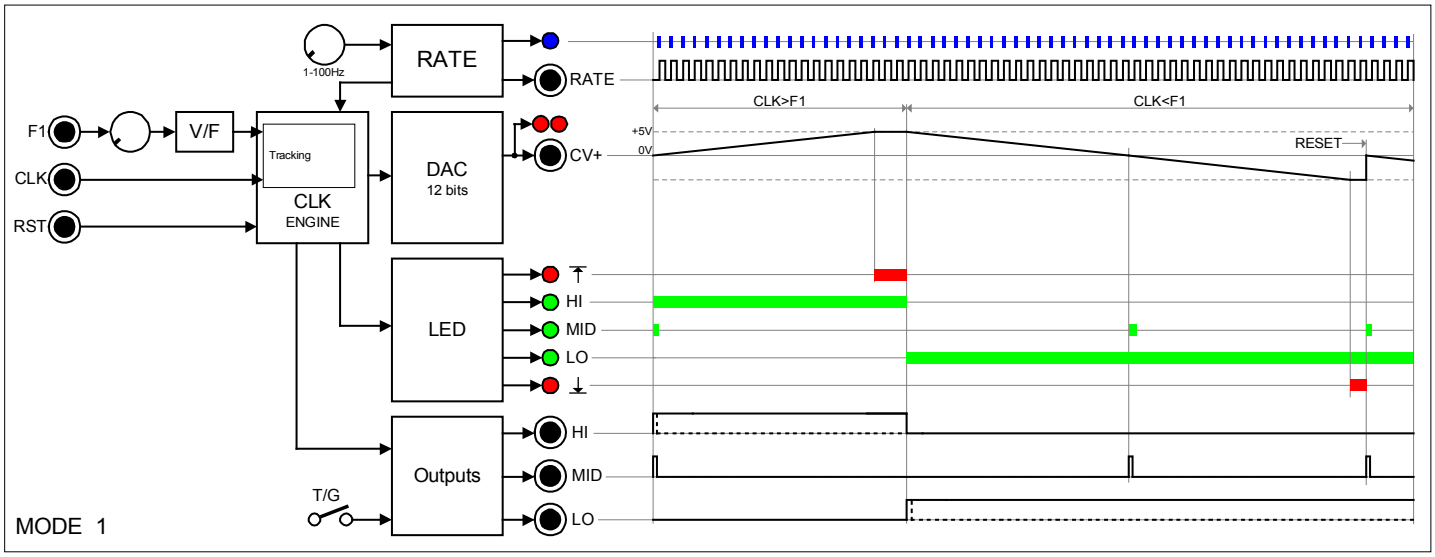
3.5. Mode ❶ - Frequency tracking

According on the F1 set point and the CLK frequency input, the CV output increases or decreases according to the frequency of the RATE oscillator.

The HI-MID-LO outputs (Gate or Trigger) represent the logic states of the tracker.

Front panel	Label	Description
Potentiometer or Jack inputs	F1 / X	F1, determines the reference frequency
	F2 / R / B	
Jack inputs	CLK / PLS	CLK, external frequency to be measured
	R / B / U-D	Resets the CV output to zero Volt at each RST pulse
Jack outputs	CV+	↑ if CLK > F1 and ↓ if vice versa. If CLK is TO HI or TO LO, remain frozen.
	HI	Enabled if CV+ output is greater than 0V
	MID	Enabled if the CV+ output is close to 0V
	LO	Enabled if CV+ output is below 0V
LED	⤒	ON when +5V is passed or flash if CLK is greater than the measurement range
	HI	ON if CLK > F1
	MID	ON if CLK = F1
	LO	ON if CLK < F1
	⤓	ON when -5V is passed or flash if CLK is below than the measurement range

Tip: Use the flashing red LED A or B to quickly adapt the most appropriate range to your signal.



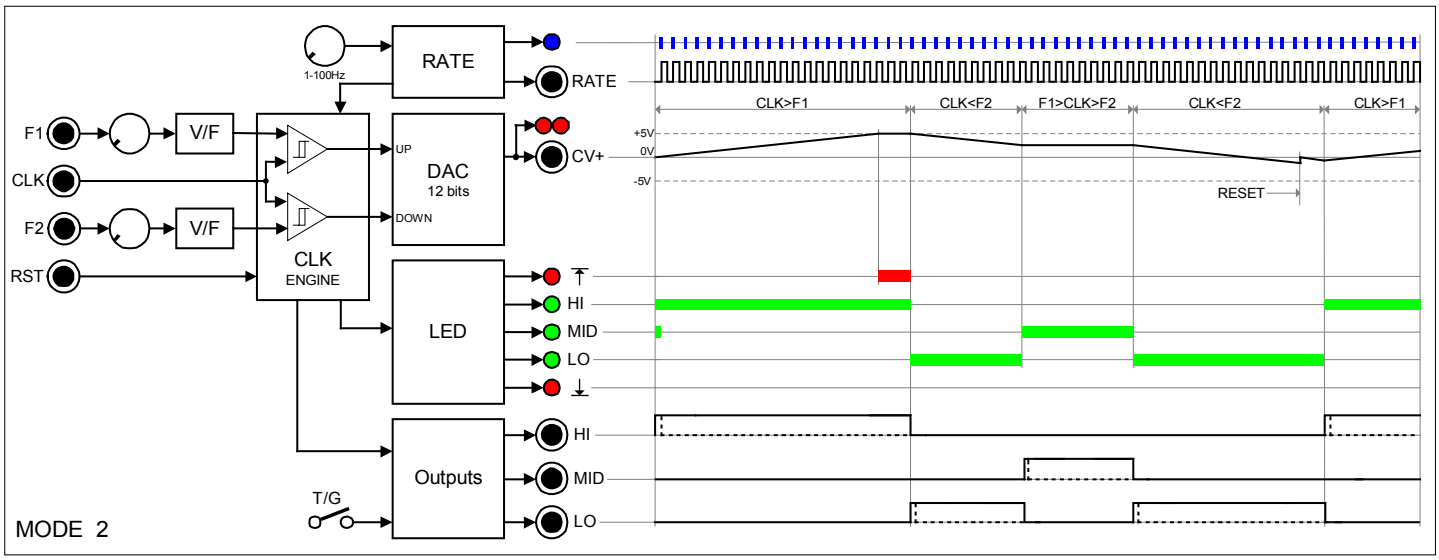
3.6. ode ❷ - Frequency window comparator (WFC)

Following the two set points F1 & F2 and the RATE oscillator, the CV output increases if the CLK frequency input is greater than the window or decreases if it is less.

The HI-MID-LO outputs (Gate or Trigger) represent the logic states of the window comparator.

Front panel	Label	Description
Potentiometer or Jack inputs	F1 / X	F1 determines the upper threshold frequency of the window comparator
	F2 / R / B	F1 determines the lower threshold frequency of the window comparator If F1 & F2 cross, upper threshold priority
Jack inputs	CLK / PLS	CLK, external frequency to be measured
	R / B / U-D	Reset the CV output to zero Volt at each RST pulse
Jack outputs	CV+	↑ if CLK > F2 | freeze if CLK is between F1 and F2 | ↓ if CLK < F1. If CLK is TO HI or TO LO, the CV output remains frozen.
	HI	Enabled if CLK > F2
	MID	Enabled if CLK is between F1 & F2
	LO	Enabled if CLK < F1
LED	TO HI	ON when +5V is passed or flash if CLK is greater the measurement range
	HI	ON if CLK > F1
	MID	ON if CLK is between F1 & F2
	LO	ON if CLK < F2
	TO LO	ON when -5V is passed or flash if CLK is below the measurement range

Tip: Use the flashing red LED A or B to quickly adapt the most appropriate range to your signal.

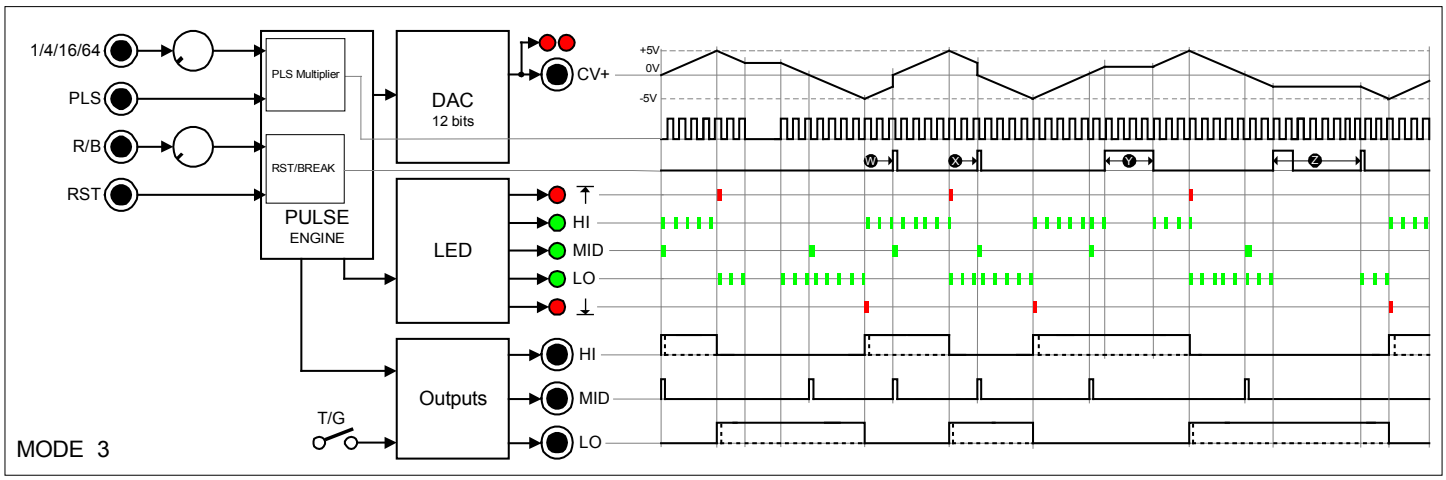


3.7. Mode ❸ - Pendulum pulse counter

At each PLS pulse, the CV output increases, at its maximum it decreases and so on.

The HI-LO outputs (Gate or Trigger) represent the logic states of the CV output in relation to zero Volt.

Front panel	Label	Description
Potentiometer or Jack inputs	F1 / X	Multiplier by 1, 4, 16 and 64 of each pulse
	F2 / R / B	Reset types (R): W= RST with upward restart X= RST with restart in last direction Break types (B): Y= Pause as long as RST is held Z= 2 pulses pause (on-off)
Jack inputs	CLK / PLS	PLS counter input
	R / B / U-D	Resets the CV output to zero Volt at each RST pulse
Jack outputs	CV+	↑ at each PLS, up to + 5 Volt, then ↓ up to - 5 Volts and so on.
	HI	Enabled if in phase ↑
	LO	Enabled if in phase ↓
LED	TO HI	ON when +5V is passed
	HI	Flash 10 mS at each PLS ↑
	MID	ON if CV is within +/- 0.05 Volt
	LO	Flash 10 mS at each PLS ↓
	TO LO	ON when -5V is passed

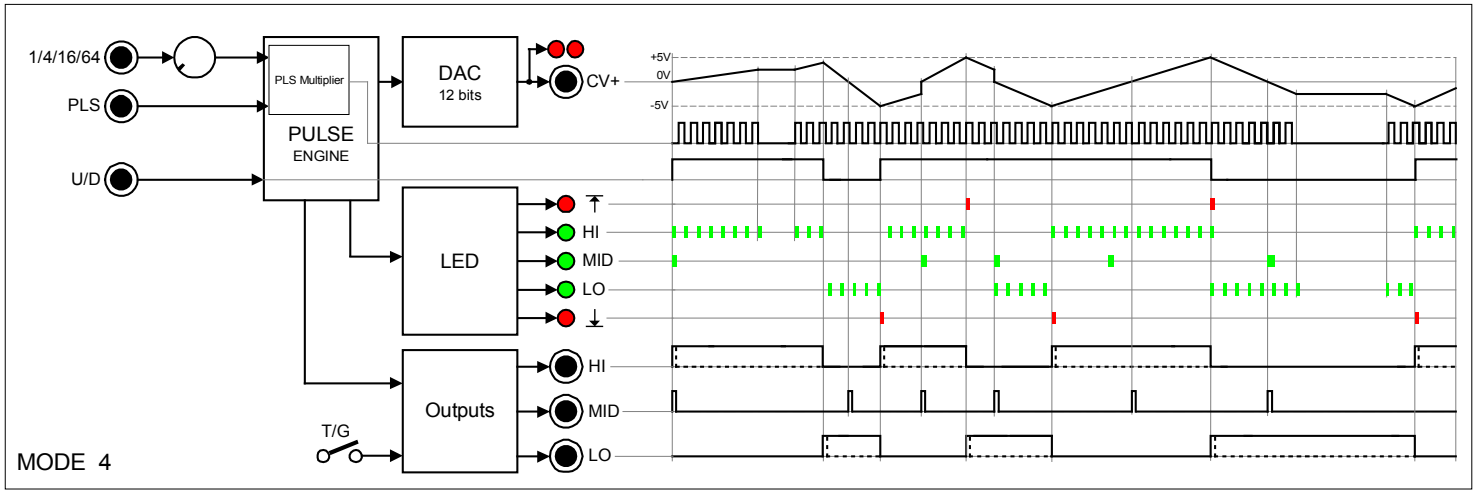


3.8. Mode ❹ - Up/Down pulse counter

At each PLS pulse, the CV output increases if the U-D input is at 1 and decreases if at 0.

The HI-LO outputs (Gate or Trigger) represent the logic states of the CV output relative to zero volts.

Front panel	Label	Description
Potentiometer or Jack inputs	F1 / X	Multiplier by 1, 4, 16 and 64 of each pulse
	F2 / R / B	
Jack inputs	CLK / PLS	PLS counter input
	RST / U-D	U/D, determines whether CV ↑ or ↓
Jack outputs	CV+	At each PLS pulse, ↑ if the U/D input is 1 and ↓ if U/D is 0.
	HI	Enabled if in phase ↑
	LO	Enabled if in phase ↓
LED	TO HI	ON when +5V is passed
	HI	Flash 10 mS at each PLS ↑
	MID	ON if CV is within +/- 0.05 Volt
	LO	Flash 10 mS at each PLS ↓
	TO LO	ON when -5V is passed



3.9. Suggestions of practical or creative application

A few examples of applications among many others ☺

❶ Frequency tracking

Module synchronization: Control an analog oscillator (VCO) so that it precisely tracks an external frequency (for example, a sequencer or another VCO).

Creating dynamic feedback: Generating voltage changes based on the difference between two signals, useful for modulation or frequency "chasing" effects.

Sound experiments: Exploring chaotic behavior or gradual transitions between two frequency states.

❷ Window Frequency Comparator (WFC)

Frequency stabilization: Keep an oscillator within a defined range (e.g., avoid deviations that are too high or too low).

Creating dead zones: Generate frequency ranges where no change is applied, useful for "locking" or quantization effects.

Conditional modulations: Drive a filter or effect only when the frequency falls outside a desired range.

Sound experiments: Create dynamic behavior, such as "bouncing" between two thresholds, or gradual changes depending on the position of CLK.

❸ Pendulum pulse counter (PC Pendulum)

Cyclic LFO: Generate periodic modulations, synchronized to a tempo or external sequencer.

Voltage sequences: Create gradual changes for melodies, filters, or effects, with adjustable resolution (x4, x16, x64).

Breath or crescendo effects: Dynamically control the amplitude or frequency of a sound, with pause and reset options for expressive variations.

Complex synchronization: Combine with other modules for polyrhythmic rhythms or modulations.

❹ Up-Down Pulse Counter (PC Up-Down)

Voltage sequencer: Create ascending/descending patterns to modulate a VCO, filter, or effect, synchronized to an external tempo.

Dynamic control: Control parameters in real time (e.g., volume, pan, feedback) with adjustable resolution.

Glissando effects: Generate gradual transitions between two sound states.

4. Miscellaneous

4.1. Disclaimer

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ALYSEUM assumes no responsibility for such occurrences under the terms of this warranty.

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