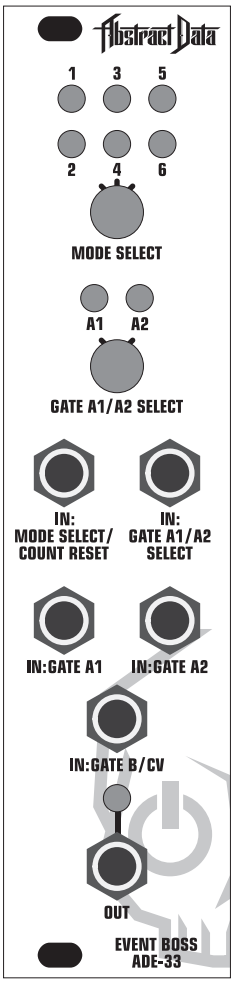
Abstract Data
INSTRUMENTS & EFFECTS
LONDON, ENGLAND

ADE-33 EVENT BOSS

Rhythm and pattern creation and manipulation.



USER GUIDE

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1) Module Overview

- The ADE-33 is a rhythm and pattern creation and manipulation module.

- Within the context of this module – an 'Event' is any clock, gate, trigger, square-wave or PWM (Pulse Width Modulation) LFO (Low Frequency Oscillator) input. The ADE-33 does not 'sync' to incoming signals – it just reads them as inputs.

- It can be used in two different ways – in its most basic form it can be used as a utility module to perform various clock division/multiplication, phase shifting and logic-related tasks. However, it is at its most creative when used as a real-time pattern generator for creating musically useful rhythms and patterns from simple clock, rhythm and CV (Control Voltage) inputs.

- It will take regular clocks as inputs and generate rhythmic patterns at the output, it will take rhythmic patterns and generate variations of those patterns and it will take irregular and random clocks and generate new, irregular and probability-based patterns. These patterns can be predictable, repeatable, evolving or entirely random – as the user chooses.

- The ADE-33 has 6 Global Modes and each Global Mode has 6 Local Modes – so 36 modes in total.

- The Global Modes are essentially 6 sets of algorithms – each with a different theme and the Local Modes are essentially 6 variations on each of these themes. In simple terms – given the same input signals and the same CV settings – each Local Mode will produce a different rhythm or pattern variation according to the way its algorithm interprets a given input signal and CV setting.

- The ADE-33 has the following Global Modes:

  1) Variables: Rhythmic patterns and circadian-style rhythms
  2) Multiples: Clock multiplication and division by factors from 1-12
  3) Probability: Pseudo-random, probability and chance-based variations
  4) Logic: Classic logic-based functionality
  5) Phase: Phase shifting, time-based delays and swing-style effects
  6) Gates: Trigger and Gate-based manipulation and generation

- You don't need to understand the maths theory behind logic or probability in order to use the ADE-33. While it can perform the specific functions associated with these algorithms, the ADE-33 is designed as a pattern generator – to be played and jammed along with.

- It's worth noting that there are slight differences in front panel configuration between different Global Modes. For example Global Mode 4, used as intended, requires logic, gate or clock signals at inputs IN: GATE A1 (and optionally at IN: GATE A2) and IN: GATE B/CV however Global Mode 1 requires some sort of CV signal at input IN: GATE B/CV.

- The ADE-33 has reverse-voltage protection built in – but please pay attention to the power supply and connection guidelines on Page 3 of this manual.

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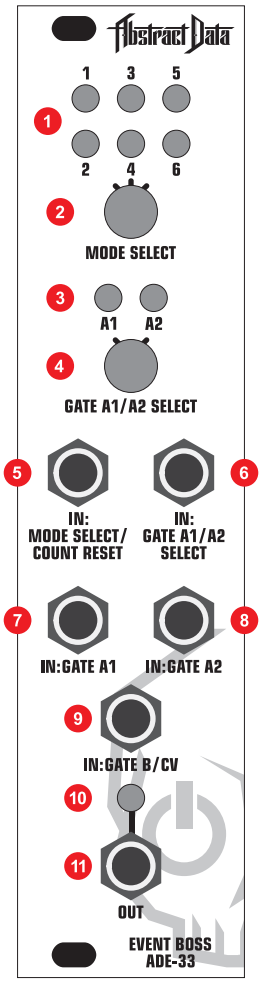
2) Front Panel



1	**MODE LEDs 1-6**	Local Modes: Global Mode: Button Edit Mode:	Shows selected Local Mode Shows selected Global Mode Shows MODE SELECT Button Edit Mode options	[1-6] [1-6] [1-3]
2	**MODE SELECT**	Local Modes: Global Mode: Button Edit Mode:	Selects Local Mode Selects Global Mode Selects MODE SELECT Button Edit Mode options	[1-6] [1-6] [1-3]
3	**A1/A2 SELECT LED 1-2**	Local Modes: Button Edit Mode:	Shows whether IN: GATE A1 or A2 is selected Shows A1/A2 SELECT Button Edit Mode options	 [1-2]
4	**A1/A2 SELECT**	Local Modes: Button Edit Mode:	Selects IN: GATE A1 or IN: GATE A2 as active Selects A1/A2 SELECT Button Edit Mode options	 [1-2]
5	**IN: MODE SELECT/RESET**	Local Modes:	Selects Local Mode via clock or CV Selects alternate CV option for each Local Mode	[1-2] [3]
6	**IN: GATE A1/A2 SELECT**	Local Modes:	Selects IN: GATE A1/A2 via clock or gate High/Low	
7	**IN: GATE A1**	Local Modes:	A1 Event input for all Local Modes	
8	**IN: GATE A2**	Local Modes:	A2 Event input for all Local Modes	
9	**IN: GATE B/CV**	Local Modes:	B Event Input or CV input for all Local Modes	
10	**OUTPUT LED**	Local Modes:	Shows output status where On = High and Off = Low	
11	**OUT**	Local Modes:	Output for all Local Modes	

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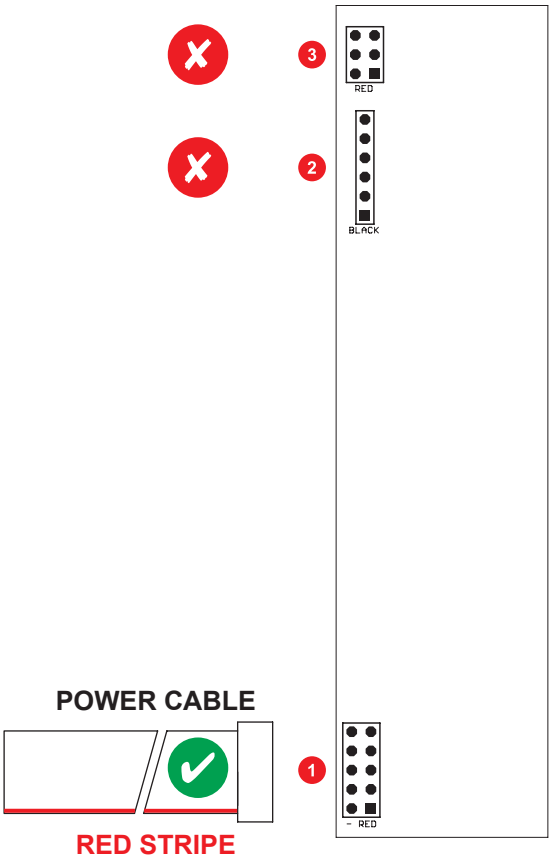
3) Rear Connections



1. **POWER CONNECTION:** 10-16 pin Eurorack power connection
2. **FTDI PORT:** Firmware upgrade port
3. **ICSP PORT:** Factory programming port

PRECAUTIONS: Only connect the power cable to the power connection as shown.

DO NOT CONNECT THE POWER CABLE TO ANY OTHER PORT!

The ADE-33 uses the Doepfer standard for power connection and cable orientation.

The RED stripe on the supplied power cable connects to the NEGATIVE (-12V) rail on the ADE-33 with the RED stripe facing DOWN. This is marked on the back of the ADE-33 PCB as “– RED”.

The ADE-33 has diode and polyfuse protection built in but an incorrectly connected cable may still cause permanent damage to the module or the power supply.

The rear panel of the ADE-33 has exposed parts and connections. Please ensure when handling the ADE-33 that the unit is held by the sides of the front panel or the sides of the PCB (Printed Circuit Board).

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4) Quick Start

1) SETTING GLOBAL & LOCAL MODE

Click-Hold both the MODE SELECT and the GATE A1/A2 SELECT buttons until one of the Mode LEDs 1-6 flashes slowly. The module is now in Global Edit Mode.

Click or Double-Click MODE SELECT to cycle through to LED 1. This selects Global Mode 1.

Click-Hold both the MODE SELECT and the GATE A1/A2 SELECT buttons until the LED stops flashing. This exits Global Edit Mode.

Click or Double-Click MODE SELECT to cycle through to LED 1. This selects Local Mode 1.

2) INPUTS & OUTPUTS

Insert any regular Event signal e.g. a clock, gate, trigger or square-wave/PWM LFO into IN: GATE A1.

Connect the OUT to any source that requires a gate or trigger signal e.g. an envelope generator set up as part of any basic synth patch.

With no CV inserted – this first algorithm (Global Mode 1/Local Mode 1) will send whatever signal is at the input, straight to the output with no change.

Click or Double-Click MODE SELECT to cycle through Local Modes 1-6.

Even with no CV inserted – the algorithm for each Local Mode will interpret the input signal differently and provide a different output pattern from a single input signal.

Click or Double-Click MODE SELECT to return to Local Mode 1.

3) LOCAL MODE CV CONTROL

Insert a non-square LFO into GATE B/CV. As the LFO travels between 0-5V the selected Local Mode algorithm will start to ‘chop’ into the input signal. The regular input signal is now being output as a pattern.

Changing the LFO wave type or replacing it with a 0-5V CV source at fixed voltage values will both potentially affect the pattern that is generated by each Local Mode for any given input signal.

3) LOCAL MODE SELECTION VIA CV

Click-Hold the MODE SELECT button until one of the Mode LEDs 1-3 flashes quickly. The module is now in Button Edit Mode for this button.

Click or Double-Click the MODE SELECT button to cycle through to LED 1. This selects the first CV option for IN: MODE SELECT. Click-Hold the MODE SELECT button to exit Button Edit Mode.

Select a second, Event signal and insert it into IN: MODE SELECT. This signal will now step through the Local Modes 1-6 for this Global Mode.

Remove the input at IN: MODE SELECT and repeat the process above for setting the CV options for IN: MODE SELECT – but this time select LED 2.

Select a non-Square LFO or CV source e.g. an envelope generator and insert it into IN: MODE SELECT.

This 2nd CV option for IN: MODE SELECT will move through the Local Modes according to CV value.

Remove the input at IN: MODE SELECT and click MODE SELECT to return to Local Mode 1.

4) GATE A1/A2 SELECTION VIA CV

Click the GATE A1/A2 SELECT button and it will alternate between IN: GATE A1 and IN: GATE A2. The algorithm for the selected Local Mode will receive its signal from whatever input is selected.

Click-Hold the GATE A1/A2 SELECT button until one of the A1/A2 LEDs flashes quickly, then click this button to alternate between the two CV options. Click-Hold GATE A1/A2 SELECT to exit the Button Edit Mode for this button.

Take the ‘Event’ signal you previously used at IN: MODE SELECT and insert it into IN: GATE A2. Gate A1/A2 selection can now be controlled via by either of the CV options available for this button.

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5) Inputs & Outputs

1) IN: MODE SELECT/COUNT RESET

Mode Select
- Use an Event signal e.g. a clock, gate, trigger, square-wave or PWM-type LFO to cycle through Local Modes or a variable 0-5V CV source to jump across Local Modes.

Count Reset
- Use Event signals to access specific options for each Local Mode.
- See Page 6 for more information on MODE SELECT Button Edit Mode for setting the CV options for this input.

2) IN: GATE A1/A2 SELECT

Use an Event signal to cycle or jump between IN: GATE A1 and IN: GATE A2.

See Page 6 for more information on GATE A1/A2 SELECT Button Edit Mode for setting the CV options for this input.

3) IN: GATE A1

Event signal input A1 for all Local Modes.

4) IN: GATE A2

Event signal input A2 for all Local Modes.

5) IN: GATE B/CV

Input B for High (+5V) or Low (0V) signals or CV (0-5V) signals depending on Global Mode.

6) OUT

High (+5V) or Low (0V) output for all Local Modes.

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6) Buttons

1) MODE SELECT

Local Mode	• Click to cycle forward through Local Modes 1-6. • Double-Click to cycle backwards through Local Modes 1-6.
Global Mode	• Click to cycle forward through Global Modes 1-6. • Double-Click to cycle backwards through Global Modes 1-6.
Button Edit Mode	• Click-Hold until one of the Mode LEDs 1-6 flashes quickly to enter the Button Edit Mode for this button. • Click-Hold again until the Mode LED stops flashing to exit the Button Edit Mode for this button.

2) GATE A1/A2 SELECT

Local Mode	• Click to cycle forward between IN: GATE A1 and IN: GATE A2. • Double-Click to cycle backwards between IN: GATE A1 and IN: GATE A2.
Button Edit Mode	• Click-Hold until one of the Mode LEDs 1-6 flashes quickly to enter the Button Edit Mode for this button. • Click-Hold again until the Mode LED stops flashing to exit the Button Edit Mode for this button.

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7) Global Mode 1: Variables

MODE OVERVIEW

The Variables mode takes a CV value of 0-5V and converts it to a variable <n> between 1-8. Each new input Event increments an internal counter that loops upward from1-8. The counter and the <n> value interact to tell each Local Mode whether to allow particular input Events to 'pass' to the output or whether to 'block' them. By varying the CV value or the Local Mode or both – many different patterns can be created from simple input signals.

FIRST PATCH

- This mode is designed to work with most Event and CV types.
- Start with some sort of mid-tempo clock or square-wave LFO and a slow, evolving CV source.
- For each selected Local Mode – as the CV value changes – the Output pattern should also change.

INPUT TYPES

IN: GATE A1 & A2	• Any Event type e.g. clock, gate, trigger, square-wave or PWM-type LFO.
IN: GATE B/CV	• Any 0-5V CV type e.g. LFO, envelope generator or variable CV source.

CV OPTIONS

Local	• 0-5V CV at IN: GATE B/CV sets each mode's <n> variable value of 1-8.
Global	• Event at IN: MODE SELECT/RESET resets the mode's <n> count.

LOCAL MODE 1: <nth> Pass

CV	• 0-5V CV the variable <n> to a value of: 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8.
Operation	• Lets every <nth> of 8 input Events pass to the output.

LOCAL MODE 2: <nth Block>

CV	• 0-5V CV sets the variable <n> to a value of: 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8.
Operation	• Blocks every <nth> of 8 input Events.

LOCAL MODE 3: <n> Pass

CV	• 0-5V CV sets the variable <n> to a value of: 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8.
Operation	• Lets only <n> of 8 input Events pass to the output.

LOCAL MODE 4: <n> Block

CV	• 0-5V CV sets the variable <n> to a value of: 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8.
Operation	• Blocks all <n> of 8 input Events.

LOCAL MODE 5: <n> Pass || <nth> Block

CV	• 0-5V CV sets the variable <n> to a value of: 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8.
Operation	• Toggles between Local Mode 3 and Local Mode 2.

LOCAL MODE 6: <n> Block || <nth> Pass

CV	• 0-5V CV sets the variable <n> to a value of: 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8.
Operation	• Toggles between Local Mode 4 and Local Mode 1.

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8) Global Mode 2: Multiples

MODE OVERVIEW

The Multiples mode outputs a signal that's tempo is divided down (slower) or multiplied up (faster) than the tempo of the input signal. How slow or fast – or how far the tempo is divided down or multiplied up – is calculated by a combination of the tempo of the input Event, the CV value and the selected Local Mode.

FIRST PATCH

- This mode works best with regular Event inputs like clocks - but will also work with patterns and Event inputs with irregular timing.
- Start with some sort of mid-tempo clock or square-wave LFO and a manually adjustable CV source.
- For each selected Local Mode – as the CV value changes – the Output clock division/multiple should also change.

INPUT TYPES

IN: GATE A1 & A2	• Any Event type e.g. clock, gate, trigger, square-wave or PWM-type LFO.
IN: GATE B/CV	• Any 0-5V CV type e.g. LFO, envelope generator or variable CV source.

CV OPTIONS

Local	• 0-5V CV at IN: GATE B/CV sets each mode's <n> divisor or multiplier value.
Global	• Event at IN: MODE SELECT/RESET sets each mode's phase/cycle length
	• Mark/Time calculations are still taken from IN: GATE A1 & A2.

LOCAL MODE 1: Divide /1

CV	• 0-5V CV sets the divider <n> to a value of: 1 || 2 || 3 || 4 || 5.
Operation	• The output frequency is the input frequency divided by <n>.

LOCAL MODE 2: Multiply /1

CV	• 0-5V CV sets the multiplier <n> to a value of: 1 || 2 || 3 || 4 || 5.
Operation	• The output frequency is the input frequency multiplied by <n>.

LOCAL MODE 3: Divide /2

CV	• 0-5V CV sets the divider <n> to a value of: 1 || 2 || 4 || 6 || 8.
Operation	• The output frequency is the input frequency divided by <n>.

LOCAL MODE 4: Multiply /2

CV	• 0-5V CV sets the multiplier <n> to a value of: 1 || 2 || 4 || 6 || 8.
Operation	• The output frequency is the input frequency multiplied by <n>.

LOCAL MODE 5: Divide /3

CV	• 0-5V CV sets the divider <n> to a value of: 1 || 3 || 6 || 9 || 12.
Operation	• The output frequency is the input frequency divided by <n>.

LOCAL MODE 6: Multiply /3

CV	• 0-5V CV sets the multiplier <n> to a value of: 1 || 3 || 6 || 9 || 12.
Operation	• The output frequency is the input frequency multiplied by <n>.

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9) Global Mode 3: Probability

MODE OVERVIEW

The Probability mode is a set of pseudo-random and percentage chance-based algorithms. Whether or not an input Event appears at the Output – or in what form it appears – is decided on by 'chance'. For this mode – 'chance' is a percentage betwen 0% (definitely will not happen) and 100% (definitely will happen) that is set by a CV value of between 0-5V.

FIRST PATCH

- This mode is designed to work with most Event and CV types.
- Start with some sort of mid-tempo clock or square-wave LFO and a slow, evolving CV source.
- For each selected Local Mode – as the CV value changes – the Output pattern should also change.

INPUT TYPES

IN: GATE A1 & A2	• Any Event type e.g. clock, gate, trigger, square-wave or PWM-type LFO.
IN: GATE B/CV	• Any 0-5V CV type e.g. LFO, envelope generator or variable CV source.

CV OPTIONS

Local	• 0-5V CV at IN: GATE B/CV sets each mode's probability or percentage chance.
Global	• High Event at IN: MODE SELECT/RESET holds the last recorded CV value • Any new CV values at IN: GATE B/CV are ignored.

LOCAL MODE 1: Percentage Pass

CV	• 0-5V CV sets the probability percentage from 0-100%.
Operation	• The percentage chance that an input Event passes to the output.

LOCAL MODE 2: Percentage Block

CV	• 0-5V CV sets the probability percentage from 0-100%.
Operation	• The percentage chance that an input Event is blocked.

LOCAL MODE 3: Gate Tie

CV	• 0-5V CV sets the probability percentage from 0-100%.
Operation	• The percentage chance that an input Event will be tied to the next input Event.

LOCAL MODE 4: Gate Tie/Pass

CV	• 0-5V CV sets the probability percentage from 0-100%.
Operation	• The percentage chance that an input Event will be tied to the next input Event. • Only Events that have been 'tied' to other Events are passed to the output.

LOCAL MODE 5: Flip-Flop (Coin Toss)

CV	• 0-5V CV sets the probability percentage from 0-100%.
Operation	• Each input Event is read as a 'coin toss'. • Whether the Event is 'tossed' or not is set by the CV probability percentage. • An Event that is 'tossed' has a 50/50 chance it will 'land' High or Low.

LOCAL MODE 6: Flip-Flop (Inversion)

CV	• 0-5V CV sets the probability percentage from 0-100%.
Operation	• The percentage chance that an input Event will be inverted at the output.

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10) Global Mode 4: Logic

MODE OVERVIEW

The Logic mode is based on the three archetypal logic types and their inverted pairs. Logic functions are one of the earliest and best examples of using 'maths' to make rhythms in electronic music. Please note – you don't need to understand the maths or the origins of the logic types in order to use them – they are great to experiment with.

FIRST PATCH

- This mode is designed to work with most Event and CV types.
- Start with any two mid-tempo clocks or square-wave LFOs.
- For each selected Local Mode – as either of the input signals change – the Output pattern should also change.

INPUT TYPES

IN: GATE A1 & A2	• Any Event type e.g. clock, gate, trigger, square-wave or PWM-type LFO.
IN: GATE B/CV	• Any Event type e.g. clock, gate, trigger, square-wave or PWM-type LFO.

CV OPTIONS

Local	• IN: GATE B/CV is the second Logic input as per standard 2x input Logic.
Global	• High Event at IN: MODE SELECT/RESET 'mutes' the output.
	• Any new Events at IN: GATE A1 & A2 or IN: GATE B/CV are ignored.

LOCAL MODE 1: AND

CV	• Standard 2x input Boolean Logic.
Operation	• Input 'A' can be switched between A1 and A2 - manually or via CV.

LOCAL MODE 2: NAND

CV	• Standard 2x input Boolean Logic.
Operation	• Input 'A' can be switched between A1 and A2 - manually or via CV.

LOCAL MODE 3: OR

CV	• Standard 2x input Boolean Logic.
Operation	• Input 'A' can be switched between A1 and A2 - manually or via CV.

LOCAL MODE 4: NOR

CV	• Standard 2x input Boolean Logic.
Operation	• Input 'A' can be switched between A1 and A2 - manually or via CV.

LOCAL MODE 5: XOR

CV	• Standard 2x input Boolean Logic.
Operation	• Input 'A' can be switched between A1 and A2 - manually or via CV.

LOCAL MODE 6: XNOR

CV	• Standard 2x input Boolean Logic.
Operation	• Input 'A' can be switched between A1 and A2 - manually or via CV.

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11) Global Mode 5: Phase

MODE OVERVIEW

The Phase mode allows a user to shift the starting point or adjust the 'mark/space' ratio of an input Event to a later starting point or to a different ratio. This is all done via CV and depending on the selected Local Mode - the starting point shift or the mark/space ratio change can be based on a 'musical' sub division, a percentage shift or a time-based delay in mS.

FIRST PATCH

- This mode works best with regular Event inputs like clocks - but will also work with patterns and Event inputs with irregular timing.
- Start with some sort of mid-tempo clock or square-wave LFO and a manually adjustable CV source.
- For each selected Local Mode – as the CV value changes – the Output phase should also change.

INPUT TYPES

IN: GATE A1 & A2	• Any Event type e.g. clock, gate, trigger, square-wave or PWM-type LFO.
IN: GATE B/CV	• Any 0-5V CV type e.g. LFO, envelope generator or variable CV source.

CV OPTIONS

Local	• 0-5V CV at IN: GATE B/CV sets each mode's phase-offset or delay.
Global	• Event at IN: MODE SELECT/RESET sets each mode's phase/cycle length. • Mark/Time calculations are still taken from IN: GATE A1 & A2.

LOCAL MODE 1: Quantised Shift

CV	• 0-5V CV sets the phase shift <n> to a value of: 0 || 1/16 || 1/8 || 1/4 || 1/3 || 1/2 || 3/4 || 1.
Operation	• Phase-shifts an input Event by a sub-division of it's own tempo.

LOCAL MODE 2: Percentage Shift

CV	• 0-5V CV sets the phase shift value from 0-100%.
Operation	• Phase-shifts an input Event by a percentage of it's own tempo.

LOCAL MODE 3: Short Shift

CV	• 0-5V CV sets the phase shift value from 0-1600mS.
Operation	• Phase-shifts an input Event by a time in mS.

LOCAL MODE 4: Long Shift

CV	• 0-5V CV sets the phase shift value from 0-4800mS.
Operation	• Phase-shifts an input Event by a time in mS.

LOCAL MODE 5: Quantised Mark/Space

CV	• 0-5V CV sets the phase shift <n> to a value of: Pulse || 12.5/87.5 || 25/75 || 37.5/62.5 || 50/50 || 62.5/37.5 || 75/25 || 87.5/12.5.
Operation	• Adjusts the Mark/Space ratio of an input Event to become a sub-division ratio of it's own tempo.

LOCAL MODE 6: Percentage Mark/Space

CV	• 0-5V CV sets the Mark segment of the Mark/Space ratio from 0-100%.
Operation	• Adjusts the Mark/Space ratio of an input Event to become a percentage ratio of it's own tempo.

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12) Global Mode 6: Gates

MODE OVERVIEW

The Gates mode allows a user to take Event signals like gates and triggers and extend their length or join multiple Events together to form different length gate Events from

FIRST PATCH

- This mode is designed to work with most Event and CV types.
- Start with some sort of mid-tempo clock or square-wave LFO and a slow, evolving CV source.
- For each selected Local Mode – as the CV value changes – the Output pattern should also change.

INPUT TYPES

IN: GATE A1 & A2	• Any Event type e.g. clock, gate, trigger, square-wave or PWM-type LFO.
IN: GATE B/CV	• Any 0-5V CV type e.g. LFO, envelope generator or variable CV source.

CV OPTIONS

Local	• 0-5V CV at IN: GATE B/CV sets each mode's <n> value or Logic threshold.
Global	• Event at IN: MODE SELECT/RESET resets the mode's <n> count.

LOCAL MODE 1: <n> High

CV	• 0-5V CV sets a variable value of <n> to 1/2/3/4/5/6/7/8.
Operation	• Output stays High for <n> of 8 Events.

LOCAL MODE 2: <n> High/Low

CV	• 0-5V CV sets a variable value of <n> to 1/2/3/4/5/6/7/8.
Operation	• Output stays High for <n> of 8 Events then Low for <n> of 8 Events.

LOCAL MODE 3: Logic Pass

CV	• 0-5V CV sets the Logic threshold above or below +2.5V.
Operation	• Reads CV at each new input Event. • Output goes High if input is High AND CV >2.5V. • Output goes Low if input is Low AND/OR CV <2.5V.

LOCAL MODE 4: Logic Hold

CV	• 0-5V CV sets the Logic threshold above or below +2.5V.
Operation	• Reads CV at each new input Event. • Output goes High if CV >2.5V. • Output goes Low if CV >2.5V.

LOCAL MODE 5: <n> High/High/Low

CV	• 0-5V CV sets a variable value of <n> to 1/2/3/4/5/6/7/8.
Operation	• Toggles between Local Mode 1 and Local Mode 2.

LOCAL MODE 6: Logic Pass/Hold

CV	• 0-5V CV sets a variable value of <n> to 1/2/3/4/5/6/7/8.
Operation	• Toggles between Local Mode 3 and Local Mode 4.

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13) Specs

HARDWARE:	**Controls (Buttons):**	Mode Select:	Global Mode Local Mode Button Edit Mode
		Gate A1/A2 Select:	Gate A1/A2 Button Edit Mode
	Inputs (Event):	A1:	0 to +5V Event
		A2:	0 to +5V Event
	Inputs (Event/CV):	B (Event):	0 to +5V CV
		B (CV):	0 to +5V CV
	Outputs (Signal):	Out:	0 to +5V Event
	Power Requirements:	+/-12V:	10-16-pin IDC connector
	Current Draw:	+12V:	Approx. 53mA average
		-12V:	Approx. 35mA average
		+5V:	NA
	Dimensions:	Width:	6HP
		Depth:	28mm [Panel to IDC connector]
	Supplied Accessories:	Cable:	1x 10-16-pin, IDC
		Screws:	2x M3
CREDITS:	**Firmware Development:**	Paul Soulsby	
	Beta Testing:	Radek Rudnicki	
	Thanks:	Nigel Christopher Richard Devine Chris Meyer Alex Theakston Ben Wilson	

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