KENTON

PRO SOLO

Single channel MIDI-CV converter

THRU	IN	AUX	GATE	CV	DC IN
	MIDI		(S-TRIG)	(Hz/V)	9 – 15V

KENTON electronics
WWW.KENTON.CO.UK

PRO SOLO

HIGH SPECIFICATION
SINGLE CHANNEL
MIDI–CV CONVERTER

BACK   MINUS   GATE   OFF

MENU   VALUE   ON

SELECT   DEC   INC

SHORT HOLD
TO GO BACK

LONG HOLD
TO STORE

MENU OPTIONS

|				
0	MIDI RECEIVE CHANNEL	A	AUX MAXIMUM VALUE
1	PORTAMENTO TIME	b	AUX RESET VALUE
2	LFO SPEED	C	PITCHBEND RANGE
3	LFO WAVESHAPE	d	TRANSPOSE
4	LFO MIDI SYNC	E	FINE TUNE
5	LFO TO CV CONTROLLER #	F	SCALE
6	LFO TO AUX CONTROLLER #	9	MULTIPLE TRIGGER
7	PORTAMENTO CONTROLLER #	H	NOTE PRIORITY
8	AUX CONTROLLER #	.	CV/Hz SELECT
9	AUX MINIMUM VALUE	J	GATE TYPE SELECT

Operating manual

INTRODUCTION

Congratulations on your purchase. The *PRO SOLO* is much more than just a MIDI to CV converter, incorporating a built in LFO as well as portamento functions. Please take some time out to read through all the manual to avoid any operational difficulties.

CONNECTIONS
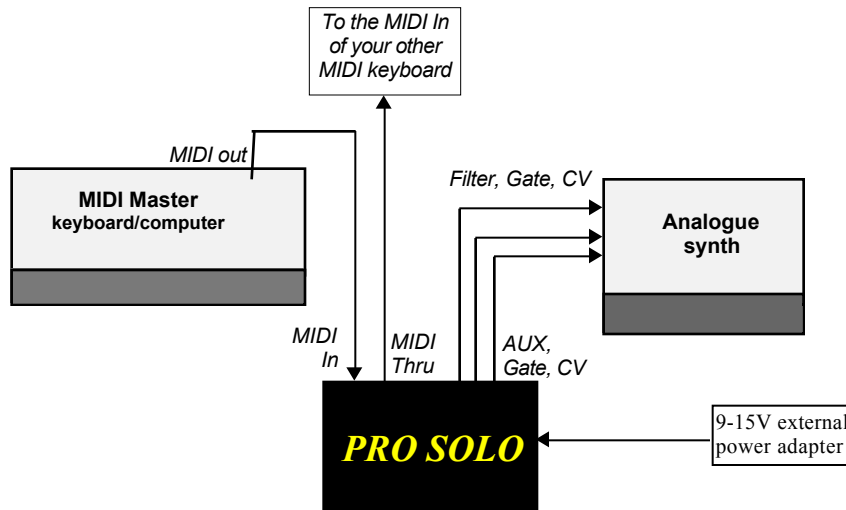
MIDI In
Plug your MIDI keyboard or sequencer`s MIDI Out into here.

MIDI Thru
Plug this into the MIDI In of another piece of your MIDI equipment should it be necessary.

CV
Plug this into your mono-synth`s input marked CV In, VCO In, KEY VOLT KYBD In, etc. This controls the pitch of your synth.

GATE
Plug this into your mono-synth`s input marked GATE, V-trig, Trig, S-Trig, etc. This turns the note on and off on your synth.

AUX
Plug this into your mono-synth`s input marked VCF, fcM, PWM, VCA, Filter, Volume, or any other external control voltage input. This enables you to control effects such as filter cut-off from MIDI controllers (Velocity, mod wheel, etc.).
Note; not all mono-synths have additional control inputs.

9-15V DC
Plug your power adapter into here. The converter will take an adapter with a range of 9-15V. The voltage supplied determines the maximum gate voltage that can be obtained. We recommend the Kenton power supply which is made especially for the PRO-SOLO but any plug-top supply can be used as long as the output is regulated and is in the range of 9-15 volts.

WARNING - Do not use an adaptor with an output voltage higher than 15V, and the SOLO must not share an adaptor with any other device. Failure to observe this will invalidate your warranty, and will probably damage the other device, the PRO-SOLO and/or the power supply.

EDITING THE *PRO SOLO*

Switching On

When the *PRO SOLO* is switched on, the words **KENTON PRO SOLO** scroll across the display.

The Display

There are 3 digits on the 7-segment display. The 1st digit shows which parameter is ready for editing. The right-hand, 2nd & 3rd digits will then display what the value of the parameter is.

There are also 3 red dots which you may see appear. The 1st dot when lit indicates the **SELECT** button is in reverse operation (see below), the middle dot when lit indicates the current value displayed is a negative number, and the 3rd dot will light when ever the *PRO SOLO*`s gate is on (key pressed down);
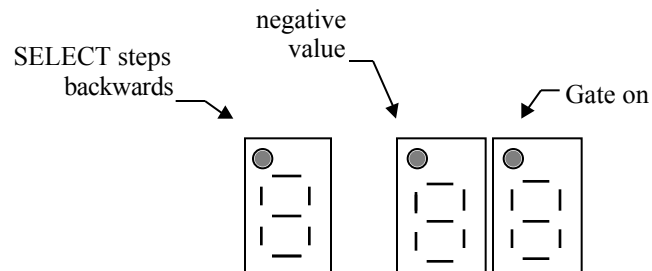
Stepping Through Parameters

Each parameter is accessed using the **SELECT** button. There are 20 parameters in the menu, listed in the next section `Parameters`.

Press the **SELECT** button to get to the parameter in question, then use the **INC**rement (+) and **DEC**rement (-) buttons to edit the value.

If you press and hold the **SELECT** button for more than 1 second, you can step through the parameters in the opposite direction. A red LED dot will light up to indicate this. If the **SELECT** button is pressed and held for 1 second again, the direction will return to normal and the red LED dot will disappear.

Displaying values above 99

When displaying values from 0 to 99, you will see the digits as you would expect.

When displaying values above 99, the following format is used :-
a dash " - " at the bottom of the left-hand display = 100+
a dash " - " in the middle of the left-hand display = 110+
a dash " - " at the top of the left-hand display = 120+
No values above 127 are used.

Speeding up editing

If you press and hold the **INC** key, then also hold the **DEC** key, the value will increase faster. If you press and hold the **DEC** key then also hold the **INC** key, the value will decrease faster.

Storing Set-ups

The set-ups can be stored in non-volatile memory. To do this, press & hold the **SELECT** button (for approx. 6 seconds) till the display reads `st` (store).

PARAMETERS

Below is a list of parameters available to edit. The letters in square brackets show (where applicable) what will be displayed in the parameter 7-segment LED.

Menu
number   Parameter (default)

0   MIDI receive channel (default :1)

Range   1 to 16
- Sets the MIDI receive channel.

### 1   Portamento time (default :98)

Range   0 to 127
- Sets the portamento (glide or slide) time. This can also be adjusted in real time over MIDI using controller #5 (portamento time). Please note that 0 does not mean portamento off - to turn portamento off (if it is on) set portamento controller (7) to off.

2   LFO speed (default :80)

Range   0 to 127
- Sets the speed of the LFO. This can also be adjusted in real time over MIDI using controller #18 (general purpose controller #3)

3   LFO waveshape (default :TR)

- Sets the LFO waveshape. All waveshapes modulate CV and/or Aux any value between 0 to a positive value, except triangle, which modulates positive and negative. The waveshapes can be changed in real time using controller #19 (general purpose controller #4) The following may be selected; (the downward arrow ( ) indicates the trigger point when in MIDI sync mode).

Triangle	[TR]	⟍⟋	Sawtooth up	[SU]	⟋⎪
Sawtooth down	[SD]	⎪⟍	PulseWidth 10%	[10]	⎪└
PulseWidth 20%	[20]	⎾└	PulseWidth 30%	[30]	⎾└
PulseWidth 40%	[40]	⎾└	Square	[50]	⎾└
Sample + Hold	[SH]	⊓⎍	(Pseudo random)		

(actually a new S/H level for each trigger)

4   LFO MIDI SYNC   (default: off)

Range, off [of], 1 to 96

- Allows the LFO waveform to be synchronised to MIDI clock, with a variable divide ratio. The LFO waveform will automatically adjust its length so that it will start at the beginning of a bar, and last for whatever musical time it is set for (see below for divide ratios).

A divide ratio can be set, so the LFO only retriggers every so many MIDI clock messages; If set to 1, there will be 1 cycle of the LFO for every 1 MIDI clock. (i.e. 24 cycles per quarter note). If set to 24, there will be 1 cycle of the LFO for every 24 MIDI clocks. (i.e. 1 cycle of the LFO per quarter note).
Note; MIDI sends 24 clocks per quarter note.

Below is a table of values you can set the divide ratio to to obtain LFO cycles of various musical lengths:

Note type;	Divide ratio;
Semibreve	96
Minim	48
Crotchets	24
Crotchet triplets	16
Quavers	12
Quaver triplets	8
Semiquavers	6
Semiquaver triplets	4
Demisemiquavers	3
Demisemiquaver triplets	2

5   LFO to CV controller number (default: 1)

The following can be selected;

Off	[Of]
Pitch bend	[Pb]
Velocity	[VL]
Aftertouch	[Af]
MIDI controllers	0 to 120

6   LFO to AUX controller (default: 17)

- Sets which Controller will control the LFO depth applied to the auxiliary.

The following can be selected;

Off	[Of]
Pitch bend	[Pb]
Velocity	[VL]
Aftertouch	[Af]
MIDI controllers	0 to 120

7   *Portamento controller number (default: 65)*

- Sets which MIDI controller will turn on/off the portamento function.

The following can be selected;

On	[on]	always on
Off	[of]	always off
Program change	[PC]	program 1=on program 2=off
MIDI controllers	#0 to 120	values above midway=on, below midway=off

The standard MIDI controller for portamento on/off is 65 which is the default, but with this command , the *PRO SOLO* allows you to use another controller or a program change or direct control if you wish.

8   *AUX controller number (default: 16)*

- Sets which MIDI controller will control the auxiliary output.

The following can be selected;

Trig Pulse	[tr]
Off	[Of]
Pitch bend	[Pb]
Velocity	[VL]
Aftertouch	[Af]
MIDI controllers	0-120

If trig pulse is selected, the aux output will send a short trigger pulse whenever a valid new MIDI note is received – this can be used to drive the envelope generator on synths that require a separate trigger for this. (Only usually needed by the Arp 2600 and a few modulars)

9   *AUX minimum value (default: 0)*

Range -27 to +100
- Sets the level for the Auxiliary output when the MIDI controller source is at its minimum.

A   *AUX maximum value (default: 100)*

Range -27 to +100
- Sets the level for the Auxiliary output when the MIDI controller source is at its maximum.

b   *AUX reset value (default: 0)*

Range -27 to +100
- Sets the level the Auxiliary output will reset to when the *PRO SOLO* is powered on and when it receives a controller reset MIDI command.
Note that minimum can be set above maximum so that the controller works backwards.

C   *Pitchbend range (default: 2)*

Range   0 to 12 semitones.
- The pitch bend range can be changed in semitone steps.

d   *Transpose (default: 0)*

Range   -24 to +24
- Changing this will transpose the mono-synth in semi-tone steps. If your synth does not play C when you play a MIDI C (note#36) use this to make it as near as possible.

E   *Fine tune (default: 0)*

Range   -127 to +127
- Fine tunes the mono-synth.

F   *Scale (default: 0)*

Range   -127 to +127
- This is used to tune in the octave scaling of your analogue synth. Will only need adjusting if your synth sounds out of tune as you play further up the keyboard (see `Tuning in Your Analogue Synth`). - Check whether CV select has been set correctly (see `i` below).
nb: C (MIDI note#36) will not move (assuming transpose is not in operation) so get that in tune first then tune the octave above using this parameter.

g   *Multiple trigger (default: on)*

Range   on [on] / off [of]
- If set to on (multiple trigger mode), a new valid note will briefly turn off the gate to retrigger the envelope generators of the mono-synth. If turned off (normal trigger mode), the gate stays on when a new note is played.

H   *Note priority (default: new)*

The following can be selected;
Low note priority   [lo]
High note priority   [hi]
New note priority   [nn]

- Sets the note priority for the converter.
If set to "lo" then the lowest valid note played takes precedence.
If set to "hi" then the highest valid note played takes precedence.
If set to "nn" then the newest valid note played takes precedence.
The PRO-SOLO has a note buffer memory so that trill effects can be achieved.

i   CV / Hz/V select (default: CV)

- Generally speaking, this must be set to V/oct [CV] if you are connecting Roland, SCI, Octave, Oberheim or Moog synthesizers. Set it to Hz/V [Hz] if you are using either Yamaha or Korg mono-synths (except the MONOPOLY which is volt per octave).

j   Gate type select (default: G-)

- you can select the following types for the GATE output;

       Gate V-Trig low (+5v)   [g, middle LED bar]
       Gate V-Trig high   [g, upper LED bar]

         Gate is the most common signal used for telling a synth when to play its note. The high level Gate is suitable for most synths, such as Roland, SCI, ARP, Oberheim. The low level gate may be needed for synths that require a lower gate voltage.

       S-trig no pull-up   [S, lower LED bar]

         This would be used for most Moogs & Korgs, and some Yamaha synths instead of the Gate output.

       S-trig low pull-up   [S, middle LED bar]
       S-trig high pull-up   [S, upper LED bar]

These would be used on some of the Yamaha CS range of synths instead of the Gate output.
Note that the high gate or s-trig pullup voltage depends on the mains adaptor being used and is approximately half a volt less than the adaptor output - ie when using a 12 volt adaptor, the gate or s-trig voltage would be around 11.5 volts. You can use an adaptor with an output of up to +15 volts - which will give you a maximum gate voltage of +14.5 volts.

USING SUSTAIN PEDAL WITH THE PRO-SOLO

The *PRO SOLO* will always respond to controller 64 (sustain pedal) with no adjustment necessary.

RESETTING THE *PRO SOLO* TO FACTORY DEFAULTS

If you wish to reset your *PRO-SOLO* you can do so by turning the unit on whilst holding down all three push buttons. This will return the SOLO`s settings to default values. `Fd` (factory defaults) will momentarily be displayed when this has been done.

TUNING IN THE PRO SOLO & ANALOGUE SYNTH

It may be that your synth is slightly out of tune, so it will be necessary to tune the *PRO SOLO* to your synth.

1, Firstly, ensure that your analogue synth is in tune when playing from its own keyboard. Do this by adjusting the tuning or pitch knob on your analogue synth whilst playing middle C on both this and your master keyboard (or whatever you use for tuning reference). To do this, you may need to disconnect the analogue synth from the *PRO SOLO*.

2, Connect the converter to your analogue synth and MIDI system. Check the *PRO SOLO* is switched to the correct scaling system, Hz/V for Korg and Yamaha, or V/oct for anything else (see Editing Parameters section). Set transpose to zero. Now press bottom C (MIDI note #36) on your digital synth. Both synths should sound, don't worry at this stage if they are not in tune.

3, Using bottom C (MIDI note #36) as a reference (you must use this note for maximum accuracy) tune in the *PRO SOLO* with your analogue synth by adjusting the parameter **FINE TUNE** and **TRANSPOSE** if necessary (see Editing Parameters section) until it is exactly in tune.

4, When your digital & analogue synths are in tune at the bottom , play middle C, two octaves up on your digital synth. (MIDI note #60). Now adjust the **SCALE** parameter (see Editing Parameters section) until both synths are in tune. The analogue synth should now play correctly across it's complete range from your master keyboard, if this is still not the case go back to step 3 and repeat the process for final tweaking.

CHECK LIST FOR SETTING UP THE *PRO SOLO*

1-   Make sure all cable connections have been made.   √

2-   Set MIDI receive channel you wish to use.   √

3-   Make sure you have set the GATE output correctly to either `Gate`
         or `S-Trig` type triggers.   √

4-   Make sure you have set the CV output correctly to either `V/oct`
         or `Hz/V.`   √

5 -   You may wish to adjust the AUX, or any other settings to those that
         work best for your set-up.   √

DISPLAYING THE SOFTWARE VERSION

Power on the PRO SOLO whilst holding the INC and DEC buttons pressed and the software revision [43xx] and build number [0xxx] will be displayed. Releasing the buttons will revert to the normal operational mode.

MIDI ANALYSER MODE

The *PRO SOLO* also has a MIDI analyser function. This feature allows you to see what types of MIDI messages are being transmitted by your master keyboard/sequencer making the *PRO SOLO* a useful diagnostic tool.

To enter analyser mode, you must power on the *PRO SOLO* whilst holding the **SELECT** button. The display will then show `nt`. `nt` means the display will show the MIDI note number of any notes it receives.
Using the **INC**, **DEC**, and **SELECT** buttons, different types of MIDI messages received may be displayed;

|		
SELECT	Short press	[rC] Receive channel
	Long press	[PC] Program change
DEC	Short press	[nt] Note number
	Long press	[nv] Velocity
INC	Short press	[Cn] Controller number
	Long press	[Cv] Controller value

For whichever of the above selected, the *PRO SOLO* will display the value it receives for the message selected.
Although pitchbend and after-touch are not controllers, when Controller number is selected, `pb` will be displayed if pitchbend is received, & `af` will be displayed if after-touch is received.
If Controller values is selected, and pitchbend or after-touch are received, their values will be displayed.
For values over 99 the usual method is employed for displaying large numbers.
The MENU 7-segment LED in this mode operates as a received MIDI message indicator.
LED's will flash when then following types of messages are received; Note on, Note off, Sysex, Timing clock (MIDI clock), Start, Stop, Continue.
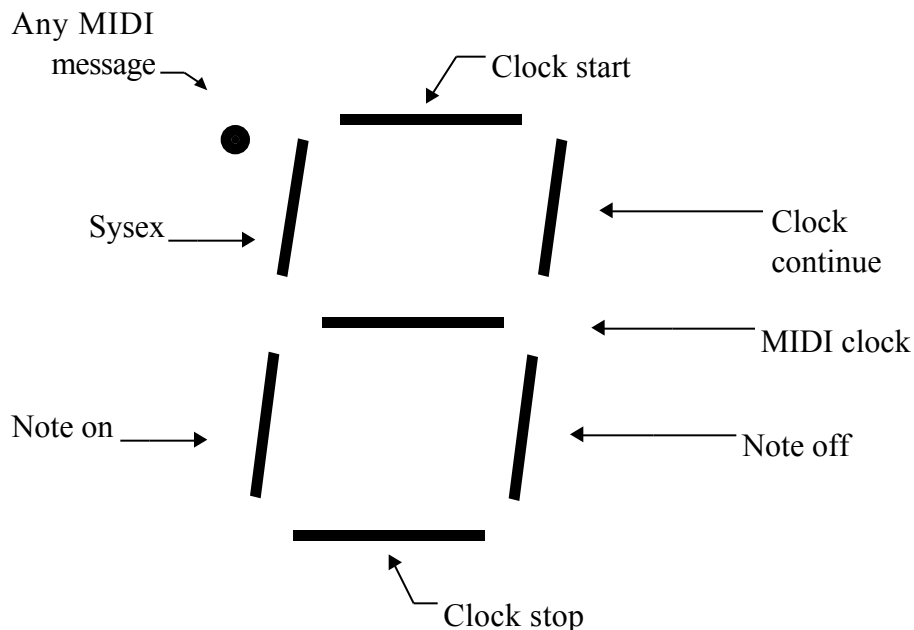
To exit MIDI monitor mode, the *PRO SOLO* must be powered off then on again.

SYNC 24 & CLOCK MODE

The *PRO SOLO* has a sync 24 & clock pulse mode. This feature allows you to sync a drum machine or synthesiser arpeggiator to MIDI clock.

To enter sync mode, you must power on the *PRO SOLO* whilst holding the **INC** button, the display will read SYC until you release the button and will then say
⊢ (which means K) .

When in this mode, the signal levels are all either 0 or 5 volts and the outputs will come from the following jacks:-

              SYNC 24 clock pulses = CV jack
              STOP/START control   = GATE jack
              CLOCK PULSE   = AUX jack

Sync 24 control is usually via a 5 pin DIN connector - Kenton can supply an adaptor lead to convert the jack outputs to a DIN connector. Connect this lead so that the white lead goes to the gate socket and the red lead goes to the CV socket.

For those of you who want to make your own lead, the tip of the CV jack should connect to pin 3 of the DIN plug, the tip of the GATE jack should connect to pin 1 of the DIN plug and the bodies of both jacks should connect to pin 2 of the DIN plug. Pins 4 & 5 of the DIN plug should remain unconnected.

There are three menu options from which you can choose in Sync mode. These are selected in the usual manner by using the SELECT button to move through menu items, and then by using INC & DEC to edit them. Store also functions in the usual manner.

K -   *Clock pulse divide ratio - (values d2, d4 & 2 to 24, default: 2)*

- sets the ratio of MIDI clocks to output pulses from the clock pulse output.

d2 – special drum machine mode – outputs 24 cpqn – used for many drum machines
d4 – special drum machine mode – outputs 48 cpqn – for Linn & Oberheim drum machines
N.B. Some drum machines use other values e.g. the Roland CR78 uses 12 cpqn (div ratio 2)

If set to 2, there will 12 pulses from the clock pulse output for every 24 MIDI clocks = 12 cpqn
If set to 24, there will be 1 pulse from the clock pulse output for every 24 MIDI clocks = 1 cpqn
(Note there are 24 MIDI clocks per quarter note)

Below is a table of values you can set the divide ratio to in order to obtain a clock pulse at various musical time intervals:-

Note type		Divide ratio	CPQN (clocks per quarter note)
Crotchets	(quarter notes)	24	1
Crotchet triplets		16	
Quavers	(eighth notes)	12	2
Quaver triplets		8	
Semiquavers	(sixteenths)	6	4
Semiquaver triplets		4	6

L - Positive / Negative edge clock pulse (values Pv, Nv, default: Positive)

- sets whether the clock pulse train starts with a positive going edge or a negative going edge. Most synths / sequencers & drum machines will want the Positive edge pulse, but a few require the Negative edge instead. (e.g. Korg Monopoly)

N - Continue = start - (values on, off, default = off)

- when set to off, MIDI continue messages are ignored. If set to on, then continue messages are treated as if they were MIDI start messages.

To exit Sync Mode, the *PRO SOLO* must be powered off then on again.

PROBLEMS YOU MAY ENCOUNTER WHEN USING MIDI CLOCK

When using MIDI clock in conjunction with the *PRO-SOLO*, please note the following.

First, ensure that the *PRO-SOLO* is actually receiving MIDI clock. This is not as silly as it sounds - there are a number of reasons why it may not be receiving MIDI clock messages in the first place. If you are having problems, go into the MIDI analyser mode described on page 13 and see if the *PRO-SOLO* is actually receiving the MIDI clock messages. If the *PRO-SOLO* is not receiving clock messages, here are a few points to watch for:-

Some MIDI mergers & patch bays actually remove MIDI clock information from the data stream, or you may have to enable it for the port you are using.

Users of CUBASE note that the default for MIDI clock is for it NOT to be sent, you will have to go into the MIDI synchronisation page and select MIDI clock to transmit.

Users of UNITOR/EXPORT on an Atari note that the MIDI clock will only come out of port A, (that is the Atari's own MIDI port), unless you can re-assign it.

CONTROLLER NUMBERS

Controller Number   **Control Function**

Decimal	**Hex**	
0	00H	Bank select MSB
1	01H	Modulation wheel/lever
2	02H	Breath controller
3	03H	Undefined
4	04H	Foot controller
5	05H	Portamento time
6	06H	Data entry MSB
7	07H	Main volume
8	08H	Balance
9	09H	Undefined
10	0AH	Pan
11	0BH	Expression controller
12-15	0C-0FH	Undefined
16-19	10-13H	General purpose controllers (1-4)
20-31	14-1FH	Undefined
32-63	20-3FH	LSB for controllers 0-31
64	40H	Damper pedal (sustain) (Hold 1)
65	41H	Portamento
66	42H	Sostenuto
67	43H	Soft pedal
68	44H	Undefined
69	45H	Hold 2
70-79	46-4FH	Undefined
80-83	50-53H	General purpose controllers (5-8)
84-90	54-5AH	Undefined
91	5BH	External effects depth
92	5CH	Tremolo depth
93	5DH	Chorus depth
94	5EH	Celeste (detune) depth
95	5FH	Phaser depth
96	60H	Data increment
97	61H	Data decrement
98	62H	Non-registered parameter number LSB
99	63H	Non-registered parameter number MSB
100	64H	Registered parameter number LSB
101	65H	Registered parameter number MSB
102-120	66-78H	Undefined
121-127	79-7FH	Reserved for channel mode messages

A BRIEF GUIDE TO MIDI TO CV CONVERSION FOR THE BEGINNER

MIDI-CV converters can have up to four different types of outputs used to control analogue synths, usually labelled CV, GATE, S-TRIG and AUX.

Below is a description of what they do;

Pitch - CV outputs (V/oct, Hz/V)
The CV (control voltage) is a voltage that tells the synth what note to play. Most synths use the 1 Volt per Octave (V/oct) pitch scaling system to control the pitch. This means, that each octave is 1V (V=volts) apart (or 0.0833V per semitone).
For example, bottom C (MIDI note #36) corresponds to 0 Volts. The next C will be 1V, 2V, 3V etc.. Synths using this system include Roland SH101, Sequential Circuits Pro 1, ARP Odyssey, Oberheim OB 1.
Some other synths, most notably Korg and Yamaha, use a different pitch scaling system. This is an exponential method called Hertz per volt (Hz/V). This means that for the next octave up, the voltage is doubled. So bottom C (note#36) will be 0.25V, the next C will be 0.5V, 1V,2V, 4V etc.
If you are not sure which C is MIDI note #36, use MIDI analyser mode to check.
If you use a Hz/V synth with a V/oct pitch output (or vice-versa), the synth will play out of tune but will not cause any damage to the synth.

Note - The Korg Monopoly is an exception. Although other Korg synths use Hz/V scaling, this synth actually uses V/oct scaling.

Gate - (Or S-TRIG)
The GATE (sometimes called V-trig [voltage trigger]) signal is a voltage that tells the synth when to play the note. The GATE voltage will usually be a positive voltage when the note is on, and 0V when off.
Some other synths, like Moog, Korg, and Yamaha, use S-TRIG (Short Trigger) instead of GATE. This signal still tells the note when to play, but it is a different type of signal (electrically). To tell the note to play, the converter will provide a short circuit at it's S-TRIG output (0V), and to turn off the note the output will be open circuit (literally like opening and closing a switch).

A point to watch for; unless you know the synth, it will not always be clear what type of CV and GATE signals are required to play the synth.
For instance, the Korg MS20 requires an S-TRIG signal, but the input is labelled TRIG. Another example is the Yamaha CS5. The pitch input is marked CV, but requires a Hz/V signal. The best way to check is either ask someone who knows, or just try all types of output till the synth works correctly. If you do plug your synth to the wrong outputs, it shouldn't do any harm, although always start out with minimum voltages.

Here's a general guide to the most common synths and how to hook them up to your converter

SYNTH MODEL	CV OR HZ/V?	S-TRIG OR GATE	AUXILIARY CONNECTIONS	NOTES
MINIMOOG	CV	S-TRIG (5V)	FILTER OR LOUDNESS	CINCH-JONES CONNECTOR NEEDED
MOOG PRODIGY	CV	S-TRIG (5V)	FILTER	KIT AVAILABLE FOR FILTER IF NOT FITTED
MOOG ROGUE	CV	GATE (5V)		KIT AVAILABLE FOR FILTER
MOOG SOURCE	CV	S-TRIG (5V)		KIT AVAILABLE FOR FITLER
ROLAND SH-101	CV	GATE (5V)	CLOCK IN (SYNC)	KIT AVAILABLE FOR FILTER/MODULATION
ROLAND MC-202	CV	GATE (5V)		KIT AVAILABLE FOR CV/GATE/FILTER/SLIDE
ROLAND TB-303	CV	GATE (5V)	FILTER (SEE RIGHT)	KIT AVAILABLE FOR CV/GATE/FILTER/SLIDE/ACCENT
SEQUENTIAL PRO-1	CV	GATE (15V)	FILTER	
KORG MS-10/20	HZ/V	S-TRIG (5V)	ANY OTHER	THERE ARE MANY EXTRA INPUTS ON THE MS10/20
KORG 700S/770	HZ/V	S-TRIG (5V)	FILTER	KIT AVAILABLE FOR CV/GATE AND FILTER
KORG MONOPOLY	CV	GATE (15V)	VCF/PORTAMENTO	ARPEGGIO CAN ALSO BE CONTROLLED
YAMAHA CS-10/20/30	HZ/V	S-TRIG (5V)		FILTER AVAILABLE FOR CS-5
ARP ODYSSEY (&AXXE)	CV	GATE (15V)		KIT AVAILABLE FOR FILTER
ARP 2600	CV	GATE (15V)	FILTER	
OCTAVE CAT/KITTEN	CV	GATE (15V)	FILTER	

This is a general guide, further socket kits are available, and many other synths can be controlled. There simply is not the space to detail all connections to all synths. However if you call us we will be happy to help you out.

A further point to watch for. Some synths use stereo jacks for the CV and GATE connections. Moog, for instance, use a stereo jack for CV In/Out, and a stereo jack for S-TRIG In/Out. Whether the tip or the ring is in or out is hard to say as Moogs are very non-standard. It varies from synth to synth!

Octave who made the Cat and Kitten synths use stereo jacks. CV and GATE outputs are on one stereo jack, and the inputs are on another stereo jack.

Auxiliary output - More control

The AUX output can be used to control functions such as filter cut-off or volume control. This depends on what control inputs your synth has. Most mono-synths have at least a Filter input, e.g. the Pro 1. Some synths, such as the Minimoog, also have VCA inputs (volume). Synths such as the Korg MS20 and ARP 2600 have even more inputs to control effects such as Pulse Width. The PRO SOLO has an output called AUX. By plugging the AUX output into the external control input of the synth, e.g. Filter input, the cut-off frequency can be controlled over MIDI.

The AUX output is not controlled by MIDI note numbers. The converter allows you to set which MIDI controller, e.g. Modulation Wheel, (or even velocity, after-touch, or pitch bend), will control the level of the AUX voltage to control the synth`s extra input.

Only synths that have the appropriate inputs can be controlled from a MIDI-CV converter.

The synth needs some sort of CV and GATE inputs.

CV`s may be labelled CV In, OSC In, Keyboard In, VCO In, Key Volt, etc.

GATEs (and S-TRIG) may be labelled GATE In, S-TRIG, V-TRIG (voltage trigger, same as gate), Trig In, etc.
Any additional inputs may be utilised, like Filter, VCF fcM, VCF, PORTA (portamento), Loudness, VCO, PWM, etc. by using the converter's AUX output.

Some synths that cannot be connected to a MIDI-CV converter via CV, GATE, AUX Outputs (as they do not have them);

OSCAR	Kenton can do an internal MIDI retrofit
EDP WASP	Possible with a PRO 2000 (with WASP port)/ PRO-4/PRO-KADI
100P	Applies to most other preset synths/mono. string machines

SPECIFICATIONS

Power Input	9-15V DC (regulated supply recommended)
Power	100mA, 2.1mm plug (centre negative)
MIDI	In, Thru
Analogue outputs	CV (V/oct or Hz/V) Gate (Gate or S-trig) Aux
Weight	450g
Dimensions	130 x 97 x 40 mm
D to A conversion	2 x 16 bit

Non-volatile memoryEEPROM (no back-up battery required)

WARRANTY
The *PRO SOLO* comes with a 12 month (from purchase date) back to base warranty, (i.e. customer must arrange and pay for carriage to and from Kenton Electronics).

KENTON

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