

Manual Pulse Generator

Version 1.0

Installation and Operation

Configuration:

There is one configuration option, the maximum pulse rate. This is selectable by jumpering J16 (Rate) as follows:

<i>J16 (Rate) jumper settings</i>	
	Max pulse rate
No jumpers	15000 steps/second
Jumper A only	25000 steps/second
Jumper B only	35000 steps/second
Jumper A and B	45000 steps/second

Connections:

Each terminal strip has a pin header with the same signals present. The pin header can be used in place of the terminal strip for making connections, though the connection is likely less reliable.

Starting from the top left, going counterclockwise:

Rate adjustment knob: The encoder is to be connected to J3.

<i>J13 (Encoder) connections</i>		
J3 pin	Encoder pin	Function
1	1	Ground for encoder electronics
2	2	Ground for pushbutton (unused)
3	3	Pushbutton (unused)
4	4	Encoder phase B
5	5	Encoder phase A
6	6	Vcc (+5V power)

Stop switch:

A momentary contact, normally open switch should be connected to the Stop input, J13. Pin 1 is the input, and Pin 2 is ground.

Start Switch:

A momentary contact, normally open switch should be connected to the Start input, J15. Pin 1 is the input, and Pin 2 is ground.

Direction Switch:

A SPDT switch should be connected to the direction input, J6. The forward and reverse inputs require continuous contact.

<i>J6 (Direction) connections</i>	
Pin	Function
1	Reverse
2	Ground
3	Forward

Serial connection:

J2 will be the serial port. It is unpopulated on this version of the board, since the software for serial control hasn't been developed yet.

Step outputs:

The Geckodrive should be connected to J9. The top three pins will be unused in this configuration. (Note: pin 1 is at the bottom of the connector)

<i>J9 (Output) connections</i>		
J9 Pin	Geckodrive Pin	Function
1 (Vcc)	12	Common (+5V)
2 (A1 Step)	11	Step output
3 (A2 Dir)	10	Direction output
4,5,6	N/A	No Connection

Power Connector J5: (This is the black, larger gauge connector)

Connect a 12-36 V DC power supply to this connector. The overall current draw is roughly 80 mA at 12 V, less at higher voltages.

Operation:

The LEDs show the pulse rate, as a percentage of full speed. Full speed (100%) is shown by two small 'o' characters. The right hand decimal point will be illuminated when the unit is outputting pulses, and will be off when there are no pulses being output (either from a zero speed setting, or a stop input).

At startup, the maximum rate configuration is read from J16. Changes to J16 jumpers will have no effect until a restart.

The unit powers up in "Run" mode, at zero percent speed. No pulses will be output until the speed is set to a nonzero percentage. All step pulses are 4.16 microseconds in width. Direction changes are synchronized to the leading edge of a step pulse.

Speed control is in increments on one percent of full speed. The encoder knob provides 32 pulses per revolution, so approximately 3 full turns are required to go from zero to full speed. The speed can be adjusted while the pulse train is disabled. Turn clockwise to increase the rate, counterclockwise to decrease. The input is unaccelerated.

Direction inputs: When the reverse input is held contacted, the direction output will be held low. When the forward input is held contacted, the direction output will not be active, and will float to +5V. If neither input is active, or both inputs are active, the step pulse train will be stopped. So, either a make-before-break or a standard break-before-make switch will both cause there to be a short pause (a few milliseconds) between direction changes.

Stop input: A momentary contact on this input will halt the step pulse train. In stop mode, the rate setting can be adjusted. The right hand decimal point will be turned off to indicate that no steps are being output.

Start input: A momentary contact on this input will restart a previously stopped pulse train, at the rate shown on the LEDs. The right hand decimal point will be illuminated to show that steps are being output (unless the rate is set to zero).

Note: if the stop input is held contacted, then no pulses will be output, regardless of whether the start input is contacted.

Tech Support:

If you have any questions about installing or operating the unit, please contact:

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