

## Solenoid Driver with Configurable Delay and PWM Frequency VC-301

The VC-301 Solenoid Driver allows you to control a solenoid using a 5V on/off logic signal. This driver activates the solenoid with the full supply voltage, and after a configurable delay, reduces the output voltage to a configurable level to save power, reduce coil heating, and prolong coil life while keeping the solenoid activated.

### Absolute Maximum Ratings:

Parameter	Max	Units
Output Current	2	A
Continuous Input Voltage	35	V

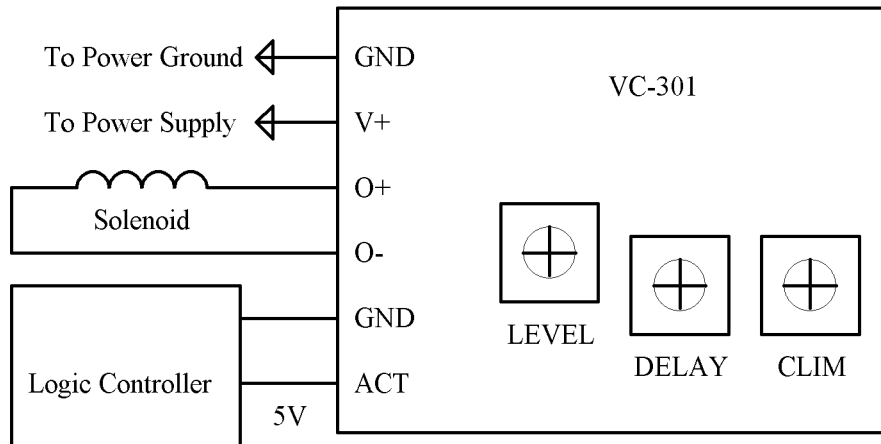
**Warning – operating at or above the absolute maximum ratings may damage your controller or your equipment under control.**

### Operating Parameters:

Parameter	Min	Typical	Max	Units
Input Voltage	8	12	30	V
Continuous Output Current	--	--	2	A
Digital Logic Input Low Level	0	--	1.5	V
Digital Logic Input High Level	3.5	--	5	V
PWM Frequency	0.2	--	30	kHz
PWM Output Level	0	--	100	%
Delay Time, Range	0	0.5	1	S
Quiescent Current Drain	10	15	20	mA
Temperature	-30	25	+55	°C

### Pin-out:

Pin Label	Function	Active H/L
<b>GND</b>	Negative input from power supply	--
<b>V+</b>	Positive input from power supply	--
<b>O1+</b>	Positive output to solenoid	--
<b>O1-</b>	Negative output to solenoid	--
<b>GND</b>	Signal Ground	--
<b>ACT</b>	Activation Signal, 5V	5V = Activate Solenoid



**Operation:**

The on-board LED will flash slowly during normal operation. The LED will flash quickly during over-current limiting mode.

**Frequency Selection:**

The PWM frequency can be switched to better match your solenoid valve's characteristics. The DIP switch settings are as follows:

Frequency	Switch 1	Switch 2	Switch 3
215 Hz	OFF	OFF	OFF
430 Hz	OFF	OFF	ON
860 Hz	OFF	ON	OFF
1.9 kHz	OFF	ON	ON
3.8 kHz	ON	OFF	OFF
7.6 kHz	ON	OFF	ON
15 kHz	ON	ON	OFF
30 kHz	ON	ON	ON

\* These settings take effect at power-up.

**Pull-In / Hold Delay Configuration:**

The delay between full power pull-in mode and reduced power hold-mode can be varied using the on-board potentiometer labeled "DELAY". The maximum delay is about 1 second at full clockwise rotation, and the minimum delay is no delay at all.

**Reduced Power Level Configuration**

The power level during solenoid hold can be changed using the "LEVEL" on-board potentiometer. The output voltage can be varied between no output and 100% output voltage at the full clockwise rotation. Choose the level that balances acceptable holding force and lowered power consumption.

**Current Limiting:**

The solenoid driver can limit current caused by solenoid faults. Adjust the potentiometer labeled "CLIM" for the maximum current the solenoid will take. At full clockwise rotation, the current selected is 2 amps.

**Application Notes:**

This controller is not reverse-polarity protected. Ensure that it is wired correctly before applying power. Always turn off the power supply before making any changes to the wiring.

PWM controllers switch currents at high frequencies to vary the average power to the load. This switching can cause undesirable RF interference. To minimize such interference, it is recommended to twist the input V+ and Ground wire pair as well as the Out+ and Out- wire pair.

Use the shortest possible wiring between the load and controller, and between the controller and the power source.

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## **90-Day Limited Warranty:**

Subject to the provisions described below, CRITICAL VELOCITY ENTERPRISES, LLC ("Critical Velocity") warrants this product to be free from defects in material and workmanship for ninety (90) days from the date of purchase by the original consumer. If any part is found to be defective during the warranted period, it will be repaired or replaced with the same or functionally equivalent product by Critical Velocity, at its discretion, free of charge provided you: (1) return the failed product to Critical Velocity with shipping prepaid, and (2) provide Critical Velocity with proof of the original date of purchase. Repaired or replacement products will be returned to you with shipping charges prepaid.

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