

Additional Internal Settings (continued)

The SW/COM jumper sets the function of the SW/COM contact input. With the jumper removed (factory default), the input acts as an output trigger. With the jumper installed, the input is a PWM hold disable. In this case, when in PWM hold the SW/COM input may be used to override the PWM hold function and force full-on at the output if needed for high load conditions.

The default PWM frequency is 1,000 Hz and is suitable for most applications. There are two PWM frequency range settings. The Hi/Lo frequency range jumper sets the PWM hold frequency range: not installed = low, installed = high. See the table below to adjust the PWM hold frequency dipswitch.

sw1	sw2	sw3	sw4	Low Range Setting (Hz)	High Range Setting (Hz)
off	off	off	off	500	1000
off	off	off	on	600	5000
off	off	on	off	700	10000
off	off	on	on	800	15000
off	on	off	off	900	20000
off	on	off	on	1000	25000
off	on	on	off	1100	10000
off	on	on	on	1200	10000
on	off	off	off	1300	10000
on	off	off	on	1400	10000
on	off	on	off	1500	10000
on	off	on	on	1000	10000
on	on	off	off	1000	10000
on	on	off	on	1000	10000
on	on	on	off	1000	10000
on	on	on	on	1000	10000

Support

Support for your application is available by contacting APM, Inc.

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NOTICE !

Read This Before Proceeding

INSTALLATION GUIDE

MODEL 500 PEAK AND HOLD PWM DRIVER

The purpose of this guide is to ensure proper usage and installation of the Model 500 (PWMC 500) for your application.

This guide will:

- describe what you need to control your device with the PWMC 500
- illustrate how to connect the PWMC 500

What you will need to set up your application with the PWMC 500:

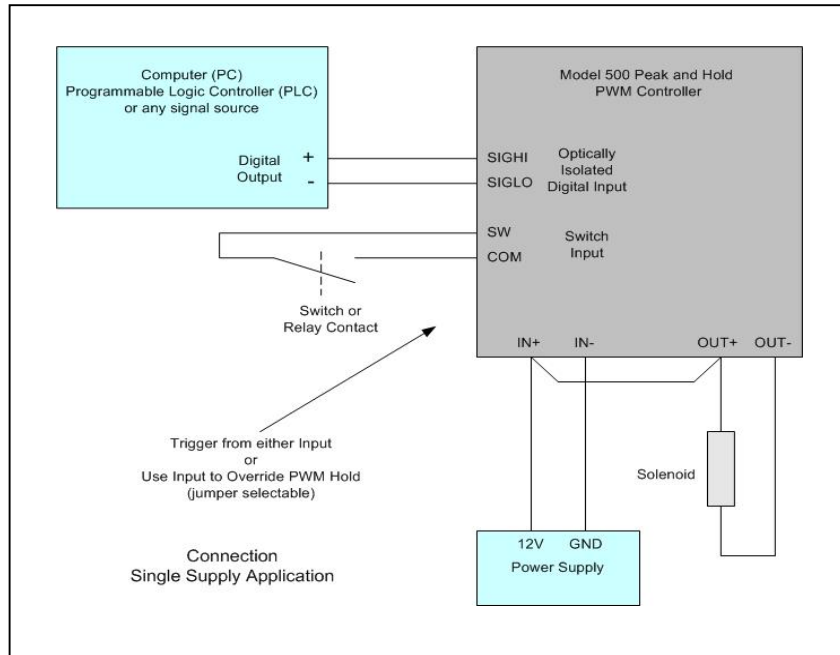
- your device that is to be driven by the PWMC 500
- a power supply capable of providing the voltage and current necessary to drive your device and power the PWMC 500 unit
- wire – 20 to 16 AWG preferred

General Description

The PWMC 500 Peak and Hold PWM Driver is designed to drive solenoid based devices with an initial full-on pull-in pulse, then provide a reduced power hold-in current by pulse width modulating the output. The Model 500 can reduce overall current in existing on/off solenoid drive applications, saving energy, reducing the operating solenoid coil heat, extending coil life, and protecting the coil from burn-out..

Connection

The typical installation using the PWMC 500 is shown below. Note that an external connection MUST be made from the positive terminal of the PWMC 500 output (OUT+) and the positive terminal of the input (PWR IN+). If the solenoid is to be operated outside of the rated input power voltage range of the controller (9V to 28V), then the dual supply connection can be used (refer to the PWMC 500 datasheet for a sample dual supply connection).



Operation

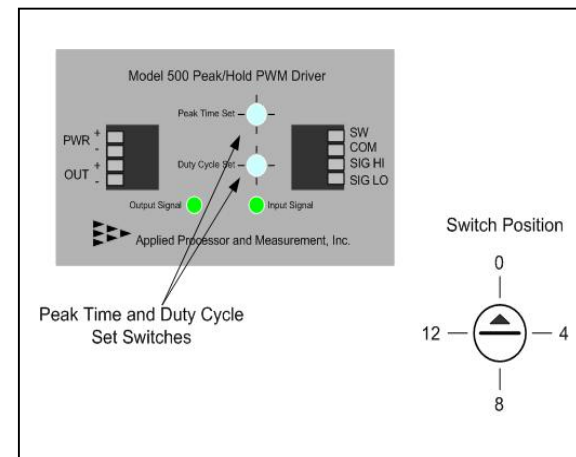
The Model 500 output is inactive until a trigger signal is received on the input SIGHI/SIGLO or the SW/COM input. Either input will trigger the output sequence. (Note that the SW/COM input can be configured to act as an override input, forcing full-on during the PWM hold time.) On an input trigger the output will go full-on for the set peak time and then will PWM the output at the set duty cycle until the trigger is removed. The input LED will light with the input trigger and the output LED will light with the output signal, dimming with the duty cycle setting during the hold portion of the sequence. The peak and hold sequence may also be triggered by simply applying power to the unit with the SW/COM input terminals shorted with a wire jumper.

Verifying Operation

A standard DMM may be used to verify that the PWMC 500 is connected properly and the output is working. An average voltage value will change as the duty cycle is varied. In a 12V application, if the peak time is long enough, the voltage across the load will read 12V for the peak time, then, switch to a lower voltage value during the hold time.

Settings

Use the rotary switches on the front of the Model 500 unit to set the peak time and the PWM hold duty cycle.



Peak Time and Hold PWM Duty Cycle Settings		
switch position	peak time (msec)	duty cycle (%)
0	5000	90
1	2500	85
2	1000	80
3	800	75
4	500	70
5	400	65
6	200	60
7	150	55
8	100	50
9	80	45
10	50	40
11	40	35
12	30	30
13	20	25
14	10	20
15	5	15

Additional Internal Settings

The Model 500 also has an output fuse, a back emf protection diode and a variable PWM hold frequency.

Referring to the illustration at right, remove the cover to expose the Model 500 circuit board. A replaceable cartridge type fuse (Littelfuse series R451) is used to protect the output MOSFET. For coils with built-in back emf diodes, the Model 500 output diode may be removed by removing the output diode jumper. The factory default setting has the jumper installed.

