



# DATA SHEET

## PROPORTIONAL VALVE DRIVERS



### PVD4R01

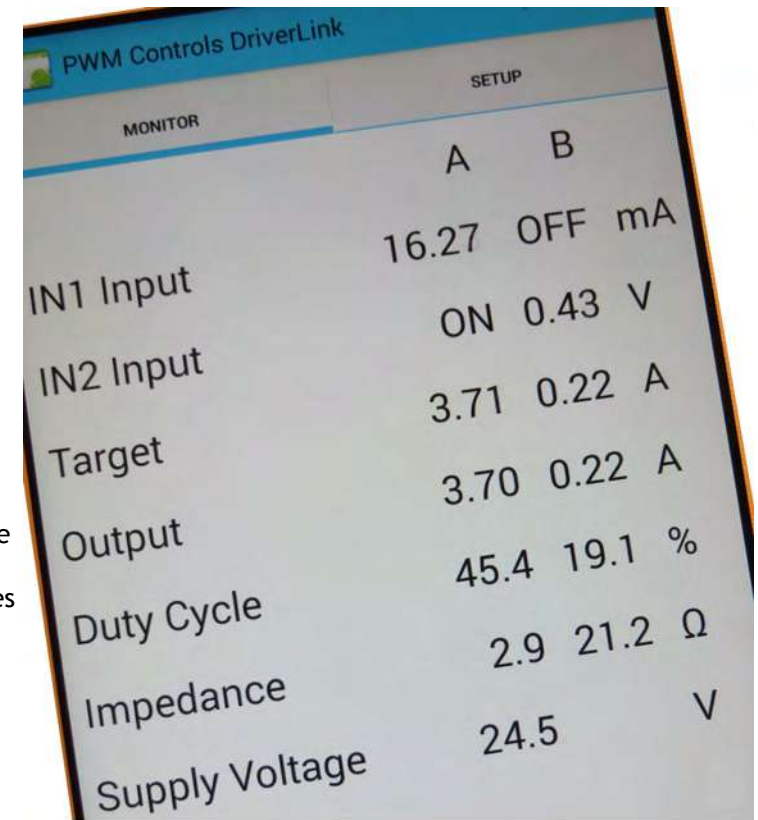
Proportional Valve Driver, two PWM solenoid outputs, DIN rail mount

#### BENEFITS AND FEATURES:

- Versatile digital design
- Bluetooth user interface for complete control and status information
- Wide range of supply voltage
- Electronic limiting circuit / short circuit proof
- Load can be connected & disconnected live
- Protected against wrong connection
- Energy-efficient PWM circuit, no heat sink is required
- Current sensing maintains output regardless of changes in supply voltage and coil resistance
- Simple control with analog input, 5V/200mA supplied for joystick or other accessories
- Can be used either for one dual solenoid valve or for two independent single solenoid valves

#### SPECIFICATIONS:

- Operating voltage: 9 - 36VDC
- Maximum output current: 4A
- Ramp time: 0.0 to 1000.0s
- Linearity: 0.5%
- PWM / Dither frequency: 33-1000Hz
- Operating temperature: -40° to +80° Celsius
- Input signals: up to (+/-)10V and/or 20mA
- Size: 3.5”H x 1.4”W x 1.3”D



## CONFIGURATION:

1. one solenoid valve with input from one analogue signal
  2. two independent solenoid valves with input from two analogue signals
  3. one dual solenoid valve with input from one analogue signal
- or
4. one dual solenoid valve with input calculated from two analogue signals

## INPUT:

1. milliamp signal applied to IN1(A or B) while IN2(A or B) accepts ON/OFF signal
  - or
  2. voltage signal applied to (IN2 - IN3)(A or B) while IN1(A or B) accepts ON/OFF signal
- milliamp signal range is 0 to 21.99mA or any subrange thereof  
voltage signal range is 0 to 10.99V or any subrange thereof  
ON/OFF signal functions: Alternate Output Range, Enable Output or Disable Ramps  
See wiring diagrams to the right

## OUTPUT:

- two PWM outputs with frequency adjustable from 33 to 1000Hz
- current or duty cycle proportional to the analogue input
- the return is connected to ground for most versatility

The output is disabled when the signal applied to the input is outside set range. If output needs to remain enabled, the input range must be set within the expected signals applied.

## RAMPS:

Rate of rise or fall of output can be independently adjusted.  
The setting is the amount of time it takes for output to ramp through the full range.

## USER INTERFACE:

DriverLink app available on Android Play Store allows the user to monitor the status and change the settings of the driver via Bluetooth connection.

## INDICATOR LIGHTS:

Bluetooth: flashing - ready to connect / solid - connected

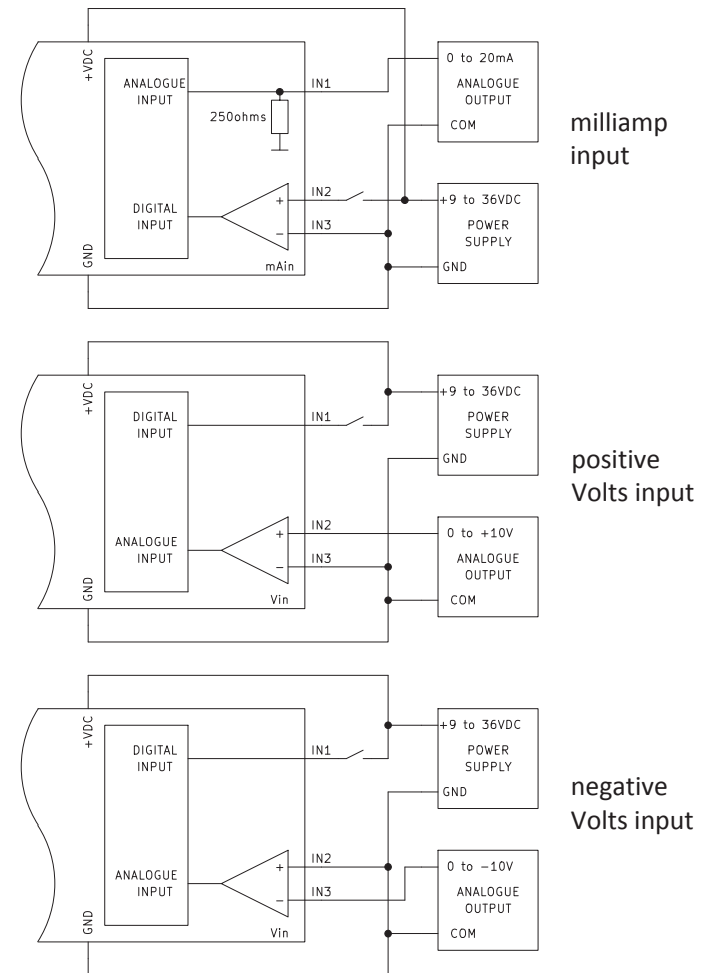
Status: green - normal operation / red - fault condition

## FAULTS:

- load less than  $0.1\Omega$  (short) or more than  $199\Omega$  (open)
- output exceeded 4A
- milliamp input exceeded 22mA

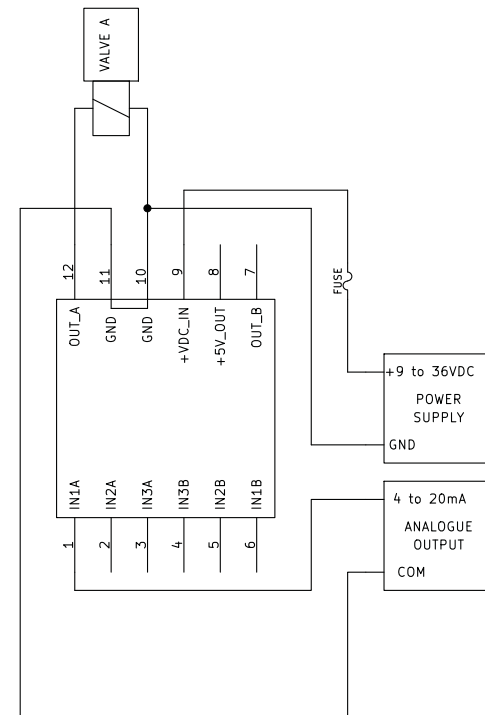
Fault status is reset as soon as fault condition is removed.

## input configurations:



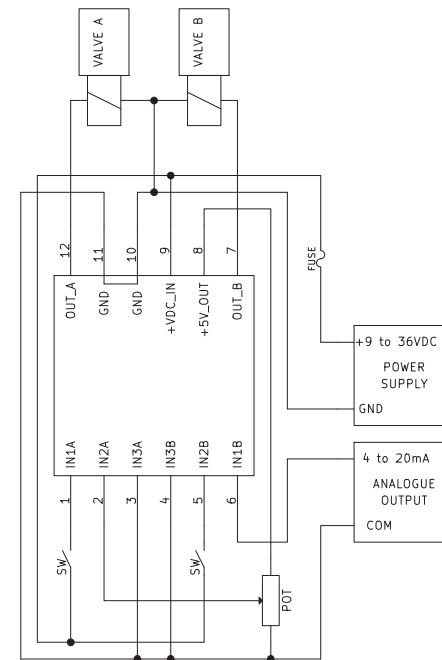
configuration and wiring diagram example 1.3 for  
 one independent single solenoid valve:  
 4-20mA signal

Configuration	1. IN A for Sol A, Sol B Off			
Solenoid A:				
IN1A Input Range	3.80	to	20.20	mA
Output Range	0.40	to	1.80	A
Alternate Output Range	0.01	to	0.10	A
Ramp Up				1.0 s
Ramp Down				1.0 s
PWM Frequency				200 Hz
IN2A Function	Unused			



configuration and wiring diagram example 1.4 for  
 two independent single solenoid valves:  
 potentiometer and output enable switch for valve A  
 4-20mA signal and ramp disable switch for valve B

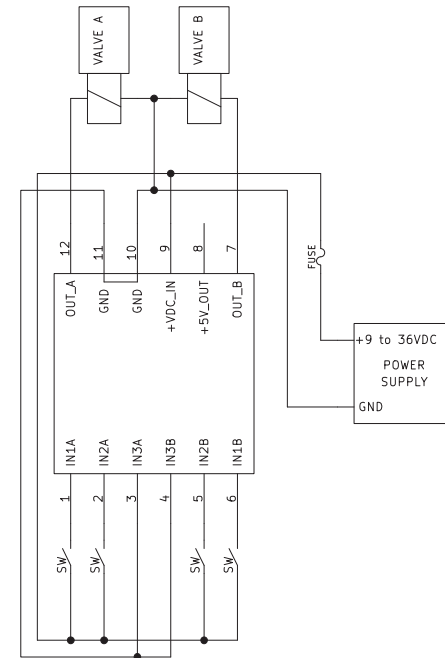
Configuration	IN A for Sol A, IN B for Sol B		
Solenoid A:			
IN2 Input	0.10	to	5.10 V
Output	0.20	to	0.80 A
Alternate Output	0.40	to	1.60 A
Ramp Up			4.0 s
Ramp Down			2.0 s
PWM Frequency			180 Hz
IN1 Function	Enable Output		
Solenoid B:			
IN1 Input	3.90	to	20.10 mA
Output	0.50	to	3.50 A
Alternate Output	0.40	to	1.60 A
Ramp Up			20.0 s
Ramp Down			10.0 s
PWM Frequency			140 Hz
IN2 Function	Disable Ramps		



configuration and wiring diagram example 1.5 for  
 two independent single solenoid valves:  
 two switches to select one of four presets for each valve

Configuration	IN A for Sol A, IN B for Sol B		
<b>Solenoid A:</b>			
IN2 Input	0.00	to	10.99 V
Output	0.20	to	0.40 A
Alternate Output	0.60	to	0.80 A
Ramp Up			0.1 s
Ramp Down			0.1 s
PWM Frequency			180 Hz
IN1 Function	Alternate Output		
<b>Solenoid B:</b>			
IN2 Input	0.00	to	10.99 V
Output	0.50	to	1.50 A
Alternate Output	2.50	to	3.50 A
Ramp Up			30.0 s
Ramp Down			15.0 s
PWM Frequency			140 Hz
IN1 Function	Alternate Output		

IN1A	IN2A	OUT_A	IN1B	IN2B	OUT_B
OFF	OFF	0.20	OFF	OFF	0.50
OFF	ON	0.40	OFF	ON	1.50
ON	OFF	0.60	ON	OFF	2.50
ON	ON	0.80	ON	ON	3.50

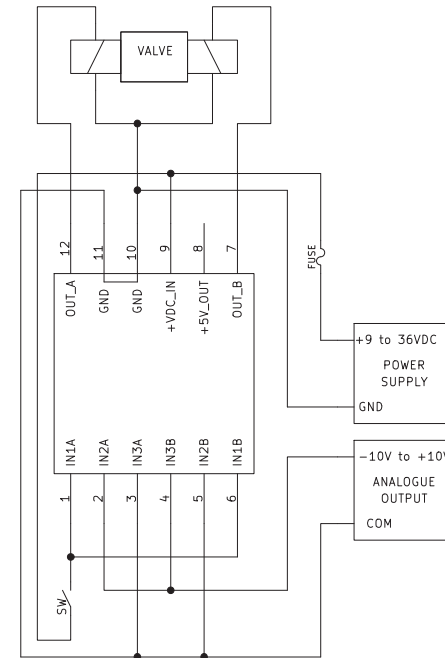


configuration and wiring diagram example 2.4 for

dual solenoid valve:

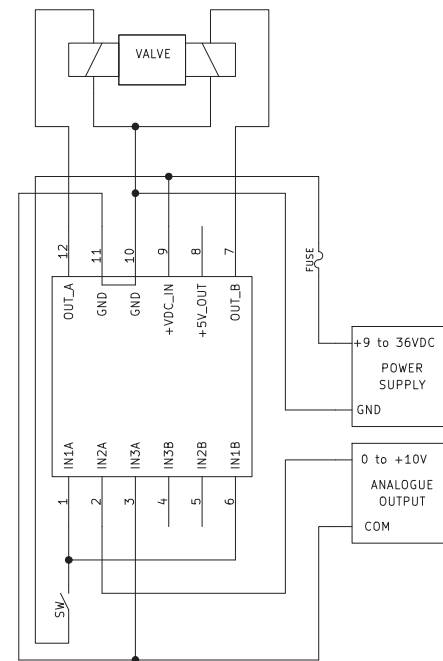
-10V to +10V signal and low/high range switch

Configuration	IN A – IN B for Sol A and Sol B		
Solenoid A:			
IN2 Input	0.10	to	10.00 V
Output	0.20	to	0.80 A
Alternate Output	0.40	to	1.60 A
Ramp Up			1.0 s
Ramp Down			1.0 s
PWM Frequency			150 Hz
IN1 Function	Alternate Output		
Solenoid B:			
IN2 Input	0.10	to	10.00 V
Output	0.20	to	0.80 A
Alternate Output	0.40	to	1.60 A
Ramp Up			1.0 s
Ramp Down			1.0 s
PWM Frequency			150 Hz
IN1 Function	Alternate Output		



configuration and wiring diagram example 3.4 for  
 dual solenoid valve:  
 0-10V signal and enable switch

Configuration	IN A for Sol A and Sol B		
Solenoid A:			
IN2 Input	5.10	to	10.10 V
Output	15.0	to	75.0 %
Alternate Output	5.0	to	95.0 %
Ramp Up			1.0 s
Ramp Down			1.0 s
PWM Frequency			33 Hz
IN1 Function	Enable Output		
Solenoid B:			
IN2 Input	0.10	to	4.90 V
Output	75.0	to	15.0 %
Alternate Output	95.0	to	5.0 %
Ramp Up			1.0 s
Ramp Down			1.0 s
PWM Frequency			33 Hz
IN1 Function	Enable Output		

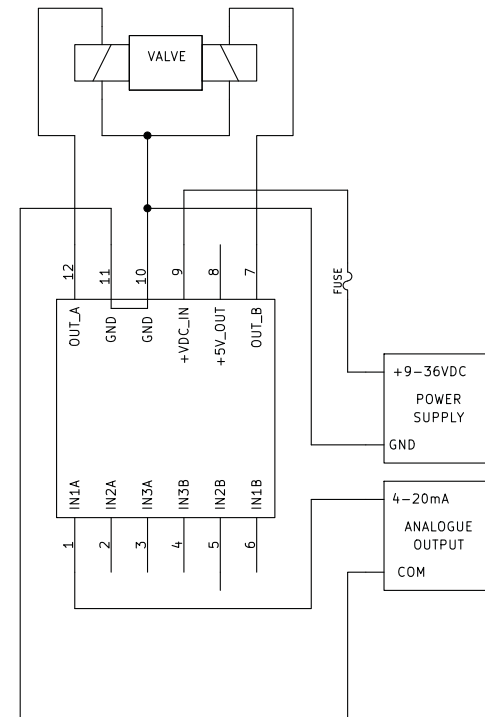


configuration and wiring diagram example 3.5 for

dual solenoid valve:

4-20mA signal

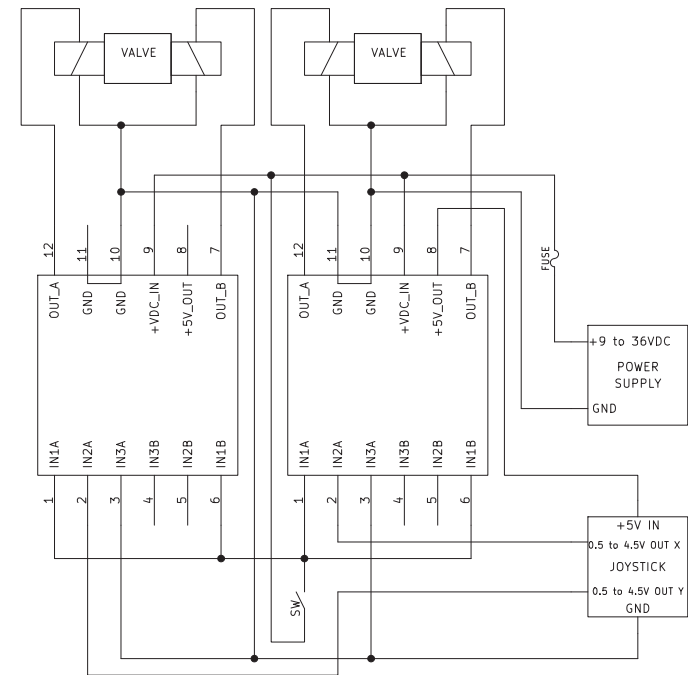
Configuration	IN A for Sol A and Sol B		
<b>Solenoid A:</b>			
IN1 Input	12.2	to	20.2 mA
Output	0.03	to	0.30 A
Alternate Output	0.01	to	0.10 A
Ramp Up			1.0 s
Ramp Down			1.0 s
PWM Frequency			200 Hz
IN2 Function	Unused		
<b>Solenoid B:</b>			
IN1 Input	3.8	to	11.8 mA
Output	0.30	to	0.03 A
Alternate Output	0.10	to	0.01 A
Ramp Up			1.0 s
Ramp Down			1.0 s
PWM Frequency			200 Hz
IN2 Function	Unused		





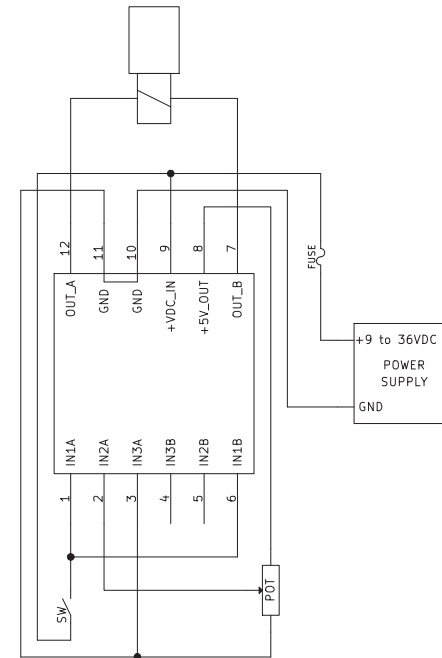
configuration and wiring diagram example 4.4 for  
 two dual solenoid valves:  
 two-axis hall effect joystick and low/high range switch

Configuration	IN A for Sol A and Sol B		
Solenoid A:			
IN2 Input	2.60	to	4.60 V
Output	0.20	to	0.80 A
Alternate Output	0.40	to	1.60 A
Ramp Up			0.5 s
Ramp Down			0.5 s
PWM Frequency			200 Hz
IN1 Function	Alternate Output		
Solenoid B:			
IN2 Input	0.40	to	2.40 V
Output	0.80	to	0.20 A
Alternate Output	1.60	to	0.40 A
Ramp Up			0.5 s
Ramp Down			0.5 s
PWM Frequency			200 Hz
IN1 Function	Alternate Output		



configuration and wiring diagram example 5.4 for  
 bipolar voice coil / servovalve:  
 potentiometer and ramp disable switch

Configuration	IN A for Sol A and Sol B		
Solenoid A:			
IN2 Input	2.50	to	5.00 V
Output	0.00	to	3.00 A
Alternate Output	0.60	to	0.80 A
Ramp Up			0.0 s
Ramp Down			0.0 s
PWM Frequency			1000 Hz
IN1 Function	Disable Ramps		
Solenoid B:			
IN2 Input	0.00	to	2.50 V
Output	3.00	to	0.00 A
Alternate Output	2.50	to	3.50 A
Ramp Up			0.0 s
Ramp Down			0.0 s
PWM Frequency			1000 Hz
IN1 Function	Disable Ramps		



configuration and wiring diagram example 6.5 for  
 basic closed loop with single solenoid valve  
 potentiometer signal and 2-wire transmitter feedback  
 one enable switch

Configuration	IN A - IN B for Sol A and Sol B		
<b>Solenoid A:</b>			
IN2 Input	0.01	to	4.99 V
Output	0.00	to	3.00 A
Alternate Output	0.60	to	0.80 A
Ramp Up			10.0 s
Ramp Down			10.0 s
PWM Frequency			220 Hz
IN1 Function	Enable Output		
<b>Solenoid B:</b>			
IN1 Input	4.00	to	20.00 mA
Output	0.00	to	3.00 A
Alternate Output	2.50	to	3.50 A
Ramp Up			10.0 s
Ramp Down			10.0 s
PWM Frequency			220 Hz
IN2 Function	Not Used		

