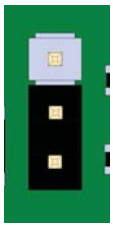
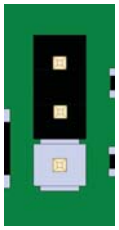
EVPD PROPORTIONAL VALVE DRIVER
Installation & Operations Manual

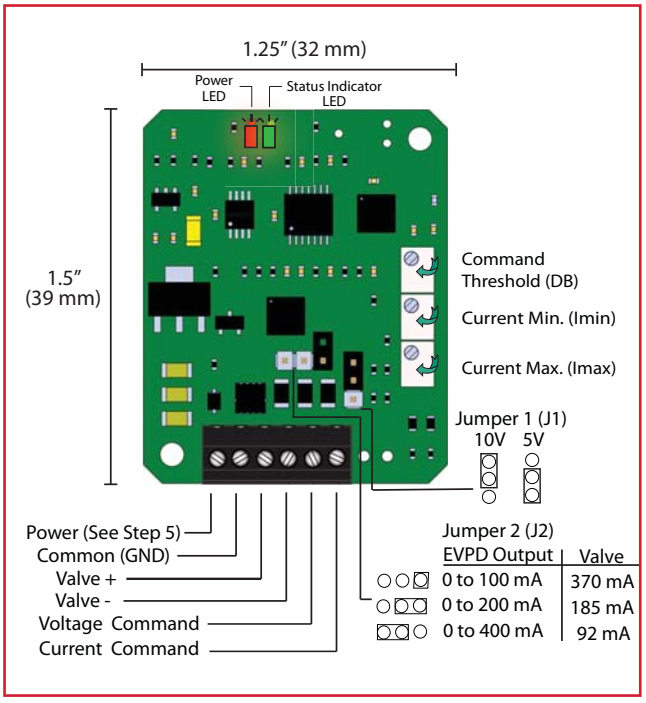
Section 1 Wiring

Step 1: Configure Jumper 1 Based on Command

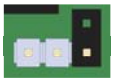
Command Type	0 to 5 VDC or 0 to 20 mA or 4 to 20 mA	0 to 10 VDC*
J1 Jumper Configuration		

* Factory Jumper setting. PWM voltage must correspond to Jumper selected voltage.

Δ Caution: Do not exceed Command Input Range by more than 25% or permanent damage may occur to the driver.

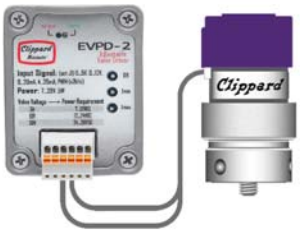


Step 2: Configure Jumper 2 Based on Valve

DVP/EVP Valve Type	J2 Jumper Configuration	Board Output	Valve Max. Current*
0 to 5 VDC		400 mA	370 mA
0 to 10 VDC		200 mA	185 mA
0 to 20 VDC**		100 mA**	92 mA

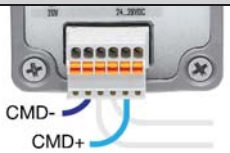
* As per DVP or EVP specifications ** Factory Jumper setting

Step 3: Connect Valve to Valve + and Valve - Terminals (Valve is not polarity sensitive.)



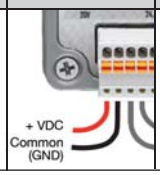
Clippard DVP or EVP Series Valve

Step 4: Connect Command Source

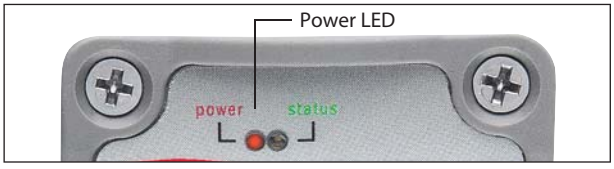
Wiring Configuration	
Current Command Type	Voltage Command Type
	

Unused command input should be grounded to ensure proper operation of the driver. For PWM command, use voltage command terminal.

Step 5: Connect Power to +VDC and GND Terminals. Power requirements are determined by valve voltage specification. The table below shows the recommended input voltage range for each valve type.

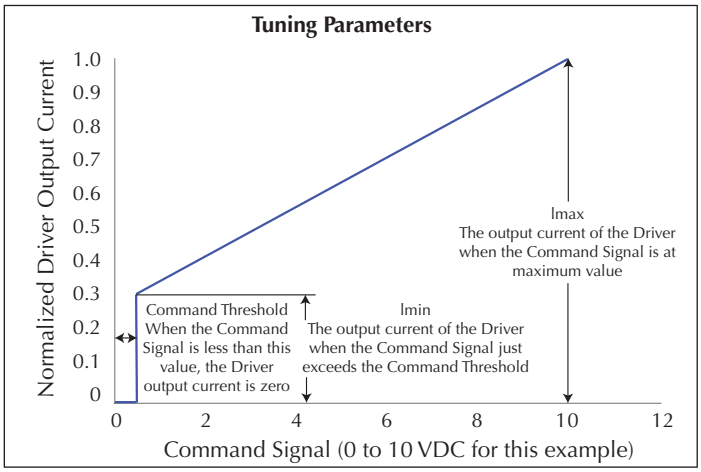
DVP/EVP Valve Type	Drive Supply Voltage Range		Ideal Supply Voltage
0 to 5 VDC	7 to 12 VDC		12 VDC
0 to 10 VDC	12 to 28 VDC		24 VDC
0 to 20 VDC	24 to 28 VDC		28 VDC

Upon successful powering of the board, the Power LED (red) will become lit.



WARNING: Installation and operation of electronic and high pressure systems (fluids and compressed gas) involves risk including property damage and personal injury or death. Users should be properly trained or certified and take safety precautions.

Section 2 Tuning



Step 1: Adjusting Command Threshold

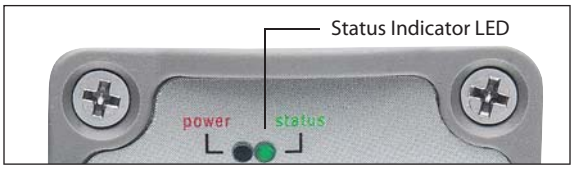
This will assure the valve remains closed until the Command Signal is greater than the Command Threshold

Step 1a: Apply a Command Signal according to the table below to the driver

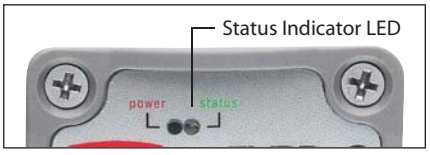
Command Range	0 to 5 VDC	0 to 10 VDC	4 to 20 mA	0 to 20 mA
Min. Command Signal*	0.1 VDC	0.1 VDC	4.2 mA	0.2 mA

Step 1b: Turn DB clockwise until Status Indicator LED (**green**) turns Off. Then turn counter-clockwise just enough to turn the LED On

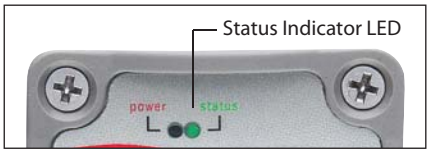
Status Indicator LED (green) will be On at first



Turn DB (RP1) clockwise until Status LED is Off



Turn DB counter-clockwise just enough to turn the Status Indicator LED (green) On



Step 2: Adjusting Opening Current

This will assure the valve opens at just above the minimum Command Signal.

Step 2a: Connect supply air to the valve

Step 2b: Apply a Command Signal according to the table below to the drive (same as **Step 1**)

Command Range	0 to 5 VDC	0 to 10 VDC	4 to 20 mA	0 to 20 mA
Min. Command Signal*	0.1 VDC	0.1 VDC	4.2 mA	0.2 mA

Step 2c: Turn Imin clockwise until valve opens

Step 2d: Turn Imin slightly counter-clockwise until valve barely closes

Current Min.

Current Min.

Step 3: Adjusting Max Current

This will assure that the maximum Command corresponds to maximum desired flow

Step 3a: Apply maximum Command Signal according to the table below to the driver

Command Range	0 to 5 VDC	0 to 10 VDC	4 to 20 mA	0 to 20 mA
Signal to Apply	5 VDC	10 VDC	20 mA	20 mA

Step 3b: Turn Imax clockwise to increase flow to desired maximum. To reduce maximum flow, turn Imax counter-clockwise to below the target flow, then clockwise to the desired maximum.

Current Max.

⚠ Caution: Do not exceed the maximum current of the DVP/EVP valve or permanent damage may occur to the valve.

* The 0.1 VDC value for the Command Threshold is a minimum value that may be increased according to the needs of the application, therefore the Command Signal values given in steps 1 and 2 are given as minimum values, not as the only possible values.

Fault Codes

Indicators

The EVPD has two LEDs. A **red** LED indicates that a power signal of sufficient voltage is properly connected to the board. The **green** LED is for status and faults. Its functionality is described below:

Normal Conditions

Under normal conditions (no faults) the **green** LED is on when the command is larger than the command dead band (command value at which the driver starts supplying current).

3 Blinks

If the voltage command is more than 29.2 volts, the driver will be operating in the fault mode. The PWM output is forced to zero and disable. While in high voltage fault, the **green** LED will blink 3 times, pause for 1.5 seconds, and then start blinking again. If the Voltage command drops under 29.2 volts, the driver will return to working normally.

4 Blinks

If the power supply voltage is less than 6.5 volts, the driver will also be in the fault mode, the LED will blink 4 times, pause for 1.5 seconds and then begin blinking again. The same will occur if the outputs (M+ and M-) are shorted, or if the driver is overheating. These 3 faults have the same visualization process (4 blinks).

Once in fault mode, the driver will remain in fault mode until the condition causing the fault is corrected. The driver tests for the fault every 5 blinking cycles assuming the driver has been set-up properly (correct power supply, wiring and command signal). The only possible "unknown fault" may be a noise command signal with amplitude in the range of the Command Dead Band (CDB) setting. Since, when in normal operation the status LED is programmed to be ON when the command is bigger than the CDB, and OFF otherwise, a noisy signal around the CDB may cause the LED to blink randomly.

A quick way to determine whether the driver is actually visualizing a fault condition, is to measure the voltage across the valve (V+ and V-) and change the command to a value larger than the CDB . If the output voltage remains zero regardless of the command input, it is a fault, and should blink 3 or 4 times. If the voltage changes with the command, the driver is not detecting any fault as described herein.