<table>
<thead>
<tr>
<th>CONNECTION</th>
<th>SIGNAL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>J1 +</td>
<td>PWR</td>
<td>This pin should be connected to the positive output of the driver power source. The maximum applied voltage should not exceed +50 VDC.</td>
</tr>
<tr>
<td>J1 -</td>
<td>GND</td>
<td>This pin should be connected to the negative output of the driver power source.</td>
</tr>
<tr>
<td>J4 +</td>
<td>CMD1</td>
<td>The command for solenoid-1 should be connected to this pin. The voltage across the solenoid-1 is proportional to this voltage. The range of the input is zero to +5 VDC.</td>
</tr>
<tr>
<td>J4 -</td>
<td>GND</td>
<td>This pin may be used as the return for CMD1.</td>
</tr>
<tr>
<td>J6 +</td>
<td>CMD2</td>
<td>The command for solenoid-2 should be connected to this pin. The voltage across the solenoid-2 is proportional to this voltage. The range of the input is zero to +5 VDC.</td>
</tr>
<tr>
<td>J6 -</td>
<td>GND</td>
<td>This pin may be used as the return for CMD2.</td>
</tr>
<tr>
<td>J2 +</td>
<td>PWR</td>
<td>This pin should be connected to one terminal of solenoid-1.</td>
</tr>
<tr>
<td>J2 -</td>
<td>SOL1</td>
<td>This pin should be connected to the other terminal of solenoid-1.</td>
</tr>
<tr>
<td>J3 +</td>
<td>PWR</td>
<td>This pin should be connected to one terminal of solenoid-2.</td>
</tr>
<tr>
<td>J3 -</td>
<td>SOL2</td>
<td>This pin should be connected to the other terminal of solenoid-2.</td>
</tr>
<tr>
<td>J7 +</td>
<td>+5 VDC</td>
<td>+5 VDC Output. Maximum usable current should be limited to 250 mAmps.</td>
</tr>
<tr>
<td>J7 -</td>
<td>GND</td>
<td>Return for +5 VDC.</td>
</tr>
</tbody>
</table>

Pulse Width Modulator PWM-01 and PWM-02 Pin Assignment and Description
Warning:

Handling the PWM module shall be performed in a static safe environment while a ground strap is used. Damages arising due to not observing the static precautions shall void the limited ninety-day warranty.

PWM-02 Wiring Diagram

- DC Power Source: +50 VDC Max, +9 VDC Min
- Positive
- Negative
- User +5 VDC Output, Max. 250 mAmp
- Return
- Command-2
- Command-2 Return
- Command-1
- Command-1 Return
- Solenoid-1
- Solenoid-2

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Warning:

Handling the PWM module shall be performed in a static safe environment while a ground strap is used. Damages arising due to not observing the static precautions shall void the limited ninety-day warranty.

PWM-01 Wiring Diagram

- DC Power Source: +50 VDC Max, +9 VDC Min
- Positive
- Negative
- User +5 VDC Output, Max. 250 mAmp
- Return
- Command-1
- Command-1 Return
- Solenoid-1

Contact for help:

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Maximum Voltage Adjustments

R5 potentiometer adjusts the maximum voltage of solenoid-1. Turning R5 CCW increases the maximum duty voltage.

Using a voltmeter, measure the voltage of JP2-1 (closer to R5) respect to JP2-2 (middle pin), this is the output of R5 potentiometer. The scale is 20% device voltage per power source voltage. If it is set at 2.5 Volts, the maximum device voltage will be 50% of the power source voltage.

R6 potentiometer adjusts the maximum duty cycle of solenoid-2. Turning R6 CCW increases the maximum duty cycle.

Using a voltmeter, measure the voltage of JP2-3 (closer to R6) respect to JP2-2 (middle pin), this is the output of R5 potentiometer. The scale is 20% device voltage per power source voltage. If it is set at 2.5 Volts, the maximum device voltage will be 50% of the power source voltage.
Limitation of Liability

Optimal Engineering Systems, Inc. (OES) hardware and software are not intended for use in any manner where human life or safety is at risk. OES’ products are not intended for life support equipment.

In no event shall Optimal Engineering Systems, Inc. be liable to any customer for costs or damages, including lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use such products even if Optimal Engineering Systems, Inc. or an authorized Optimal Engineering Systems, Inc. representative has been advised of the possibility of such damages, or for any claim by any other party. In any event, Optimal Engineering Systems liability arising in any manner in connection with the products, whether based in contract, product liability or tort, shall not exceed the purchase price of the product.

Limited Ninety-Day Warranty

Optimal Engineering Systems, Inc. warrants to the original purchaser that this product to be free from defects in material or workmanship for a period of ninety days from date of purchase. Optimal Engineering Systems, Inc. agrees to repair any such defect or exchange the product with a new or equal replacement. Defective product must be returned to Optimal Engineering Systems, Inc. postpaid. This warranty is void for any product that has been modified by the customer in any way. If failure of the Product has resulted from accident, abuse, or miss-application, Optimal Engineering Systems, Inc. shall have no responsibility under this Ninety-day Warranty.