WIRING SCHEMATICS

ON-ROAD VEHICLE CONVERSION
SINGLE AND DUAL MOTOR APPLICATION

FOR SOFTWARE VERSIONS 5.13 AND HIGHER

FOR CURTIS CONTROLLERS 1234/1236/1238

REVISION: E
Date: 10/27/15
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**ELECTRICAL SCHEMATICS FOR SINGLE MOTOR OR PRIMARY MOTOR IN DUAL MOTOR CONFIGURATION**

1234/1236/1238 CONTROLLERS

**NOTES:**

1. Use supplied Contactor (GIGAVAC Part # GV200QA-1).
2. Use only a Contactor WITHOUT P10M and CAN suppression. Failure to do so can cause controller failure and will void warranty.

A Battery Management System (BMS) is strongly recommended if lithium-ion batteries are used. Possible source of BMS is Ewert Energy Systems' ORION BMS (www.orionbms.com).

4. Install the Clutch/Shift Switch so that is OFF when the clutch pedal is pressed. When clutch pedal is pressed the Regen setting is changed to Shift Neutral Braking Parameter to prevent the motor from stalling during gear shifting. In a clutchless system, this allows you to set the coast down rate of the motor so that the gears align properly. See Instructions on SHIFT NEUTRAL BRAKING PARAMETERS.

5. The Controller CAN Communication needs to be isolated from other CAN based components. A CAN isolator may be needed.

6. Forward is CLOKWISE motor rotation from Encoder end view. Depending on Transmission configuration, use either wire to obtain desired rotation. Use FWD & REV Switch in direct drive applications.

7. Use Pack Fuse rated at 50A for Single controller applications. For Dual controller use 800A Pack Fuse.

8. Only for Dual motor application. Use Controller Fuse rated at 50A for each controller.
NOTES:

(*) Use supplied Contactor (GIGAVAC Part #GV200QA-1). Use only a Contactor WITHOUT PWM AND COIL SUPPRESSION. FAILURE TO DO SO CAN CAUSE CONTROLLER FAILURE AND WILL VOID WARRANTY.

(2) Use Pack Fuse rated at 500A for Single controller applications. For Dual controller use 800A Pack fuse.

(3) Only for Dual motor application. Use Controller Fuse rated at 500A for each controller.

This drawing is the property of Hi Performance Electric Vehicle Systems Inc., and contains highly proprietary, confidential and trade secret information of HPEVS. Use only a Contactor WITHOUT PWM AND COIL SUPPRESSION. USE SUPPLIED GIGAVAC CONTACTOR (NOTE*1)
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CAN ISOLATOR DUAL 1238 CONTROLLER
CAN BE FOUND AT B&B ELECTRONICS
www.bb-elec.com
THROTTLE CONFIGURATION

Depending on the type of throttle used for the application, the different types of throttle configurations are listed within the table below. Electrical schematics are also included within the following pages.

<table>
<thead>
<tr>
<th>THROTTLE CONFIGURATION</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECTRONIC without SWITCH</td>
<td>TYPE 1</td>
</tr>
<tr>
<td>2 WIRE with SWITCH 0-5k Ω</td>
<td>TYPE 2</td>
</tr>
<tr>
<td>3 WIRE with SWITCH 0-5k Ω</td>
<td>TYPE 3</td>
</tr>
<tr>
<td>CURTIS PB8 THROTTLE ASSEMBLY</td>
<td>TYPE 3</td>
</tr>
</tbody>
</table>
**When an electronic pedal is used, the GREEN wire from pedal interlock does not need to be connected**

* Typical connection, verify correct voltage and connection in throttle documents or instructions.  
  Not all Electronic Throttles supported
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**YELLOW / WHITE**
Pin #16

**PURPLE / WHITE**
Pin #18

**RED / BLUE**
Pin #25

**GREEN**
Pin #9

The diagram shows a THROTTLE POT LOW WIPER pin configuration with:
- Pin #16: Yellow/White
- Pin #18: Purple/White
- Pin #25: Red/Blue
- Pin #9: Green

**WIPER**

When the accelerator pedal **IS PRESSED** the interlock switch is released to its **NORMAL** position (switch not activated) thus completing the circuit since its green wire is connected to the normally closed (NC) connection.

**NORMALLY CLOSED INTERLOCK SWITCH**

**TYPE 2 2 WIRE THROTTLE**
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****When the accelerator pedal is pressed** the interlock switch is released to its *normal* position (switch not activated) thus completing the circuit since its green wire is connected to the normally closed (NC) connection.
** When the accelerator pedal IS PRESSED the interlock switch is released to its NORMAL position (switch not activated) thus completing the circuit since its green wire is connected to the normally closed (NC) connection.
PEDAL INTERLOCK CONNECTION

The pedal interlock connection is required for both 2 and 3 wire throttle pot assemblies. The Green wire is connected to the Normally Closed tab. The red/blue wire is connected to the common tab. See picture below.

NOTE: when the accelerator pedal IS PRESSED the interlock switch is released to its NORMAL position (switch not activated) thus completing the circuit since its green wire is connected to the normally closed (NC) connection.
BRAKE INPUT CONFIGURATION

Depending on the type of brake input used for the application, the different types of brake input configurations are listed within the table below. Electrical schematics are also included in the following pages.

<table>
<thead>
<tr>
<th>BRAKE INPUT CONFIGURATION</th>
<th>TYPE</th>
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<tbody>
<tr>
<td>NO BRAKE POT INSTALLED</td>
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<tr>
<td>PRESSURE TRANSDUCER/ELECTRONIC 0-5V INPUT</td>
<td>TYPE 1</td>
</tr>
<tr>
<td>2 WIRE 0-5k Ω POT</td>
<td>TYPE 2</td>
</tr>
<tr>
<td>SWITCH</td>
<td>TYPE 3</td>
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</table>
** Typical Pressure Transducer Ratings  
- 8-30 Volt Input  
- 1-5 Volt Output  
- 2500 PSI

Website Link:  www.digikey.com
Part Number: M3041-000005-2K5PG-ND  
Manufacturer Part #: M3041-000005-2K5PG
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<td>1</td>
<td>2</td>
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</tbody>
</table>

**Diagram:**

- **Type:** 2 Wire Brake Pot
- **Pins:**
  - Pin #17: Yelllow / Red
  - Pin #18: Purple / White
- **Wiper:**

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- Yellow / Red
- Purple / White

**Legend:**

- TYPE 2
- 2 WIRE
- BRAKE POT
** This option turns the brake lights ON during REGEN. Brake TYPE 0 does not allow for BOOSTED BRAKE while pressing the brake pedal. Brake TYPE 1 & 2 uses a variable input for BOOSTED REGEN.
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**NOTE:** Other electrical connections and system components are not displayed on this page.

**I/O ISOLATOR PIN FUNCTION**

1. CHANNEL 1 CONTROLLER 12V
2. CHANNEL 1 TACHOMETER SIGNAL
3. CHANNEL 1 GROUND
4. CHANNEL 1 VEHICLE 12V
5. CHANNEL 1 OUTPUT TO TACHOMETER
6. CHANNEL 2 IGNITION KEY INPUT
7. CHANNEL 2 GROUND
8. CHANNEL 2 CONTROLLER I/O GROUND
9. CHANNEL 2 CONTROLLER 12V
10. CHANNEL 2 CONTROLLER START INPUT