WIRING SCHEMATICS

ON-ROAD VEHICLE CONVERSION
SINGLE AND DUAL MOTOR
APPLICATION

FOR SOFTWARE VERSIONS 5.00 TO 5.12

FOR CURTIS CONTROLLERS 1234/1236/1238

REVISION: C
Date: 5/28/14
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**NOTES:**

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

Possible source of CAN isolator is CANOP from B&B Electronics (www.bb-elec.com)

(3) A Battery Management System (BMS) is strongly recommended if Lithium Ion batteries are used. Possible source of BMS is Ewert Energy System's ORION BMS (www.orionbms.com)

(4) Install the Clutch/Shift Switch so that on when the clutch pedals 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) Gives access to Drive system information. Required to access Programming and Diagnostic modes. See Programming Instructions.

(6) Allows the use of ECONOM Mode Parameters. See Programming Instructions.

(7) Forward is CLOCKWISE 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.

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

(9) Only for Dual motor application. Use Controller Fuse rated at 500A for each controller.
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**Diagram Description:**
- CANOP ISOLATOR MODULE
- CAN HIGH
- CAN LOW
- 120 Ω ⅛ W Termination Resistor
- CAN NETWORK FROM PRIMARY CONTROLLER
- CAN NETWORK FROM SECONDARY CONTROLLER
- TO BMS ISOLATED CAN NETWORK
- CHASSIS GROUND
- VEHICLE +12V
- 120 Ω ¼ W Termination Resistor
- CAN HIGH
- CAN LOW
- CAD TYPE: VISIO
- CAD LOC: 4/17/13
- CAD FILE: 1010-CAN-OP-ISOLATOR
- OPER. NO.: A
- DESIGN: B Revision for clarification 10/30/2013
- CHECKED: SAFETY
- TITLE: CAN ISOLATOR DUAL 1238 CONTROLLER
- SCALE: NONE
- DATE: 4/17/13
- SHEET: 1 OF 1
- DRW SIZE A: HPEVS
THROTTLE CONFIGURATION

Depending on the type of throttle used for the application, the different types of throttle configurations are listed in the table below. Electrical schematics are also included in 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 throttle is used, the GREEN wire from the 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
** 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.
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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 in the table below. Electrical schematics are also included in the following pages.

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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</td>
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** Typical Pressure Transducer Ratings  
8-30 Volt Input  
1-5 Volt Output  
2500 PSI

Website Link: [www.digikey.com](http://www.digikey.com)  
Part Number: M3041-000005-2K5PG-ND  
Manufacturer Part #: M3041-000005-2K5PG

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**TYPE 2**

**2 WIRE BRAKE POT**

- Pin #17: YELLOW / RED
- Pin #18: PURPLE / WHITE
- WIPER

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**REV** | **DESCRIPTION** | **APPROVED**
---|---|---
A | INITIAL RELEASE | 2/19/13
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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

NOTE: (*1) OTHER ELECTRICAL CONNECTIONS AND SYSTEM COMPONENTS ARE NOT DISPLAYED IN THIS PAGE.

Double Channel I/O Isolator