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Ontario, CA 91761
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WIRING SCHEMATICS

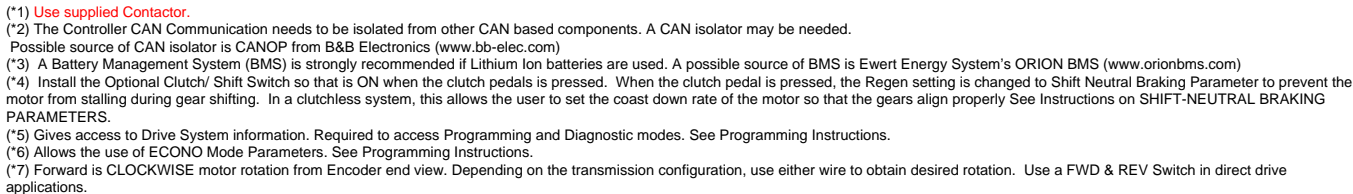
ON-ROAD VEHICLE CONVERSION SINGLE AND DUAL MOTOR APPLICATION

FOR SOFTWARE VERSIONS 5.00 TO 5.12

FOR CURTIS CONTROLLERS 1234/1236/1238

REVISION: A
Date: 12/01/2013

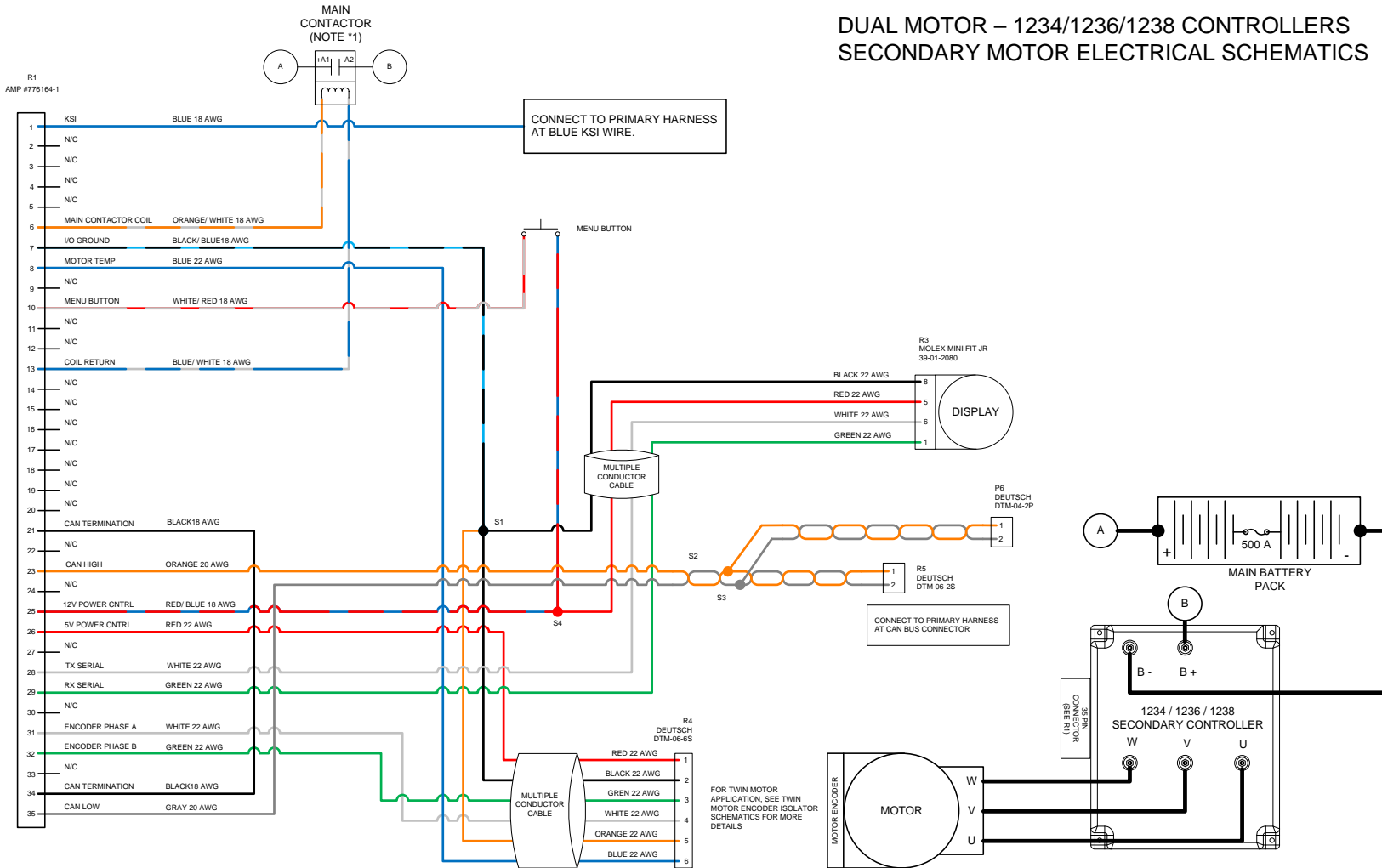
ELECTRICAL SCHEMATIC FOR SINGLE MOTOR OR PRIMARY MOTOR IN A DUAL MOTOR CONFIGURATION 1234/1236/1238 CONTROLLERS



CAD TYPE VISO	APPLICABLE SOFTWARE	VERSION 5.00 to 5.12		
UNIT NONE	DRAWING	1010-AUTO-CONVERSION		
DRW SIZE A	TITLE ON-ROAD VEHICLE CONVERSION / PRIMARY DUAL MOTOR SCHEMATICS 1234/1236/1238 CONTROLLERS			
DATE 2/12/13				
SUPPLIER PART		HW-AUTOCONVERSION-HPG		
SCALE 1:1	SHEET 1 OF 1	REVISION C		HPEVS

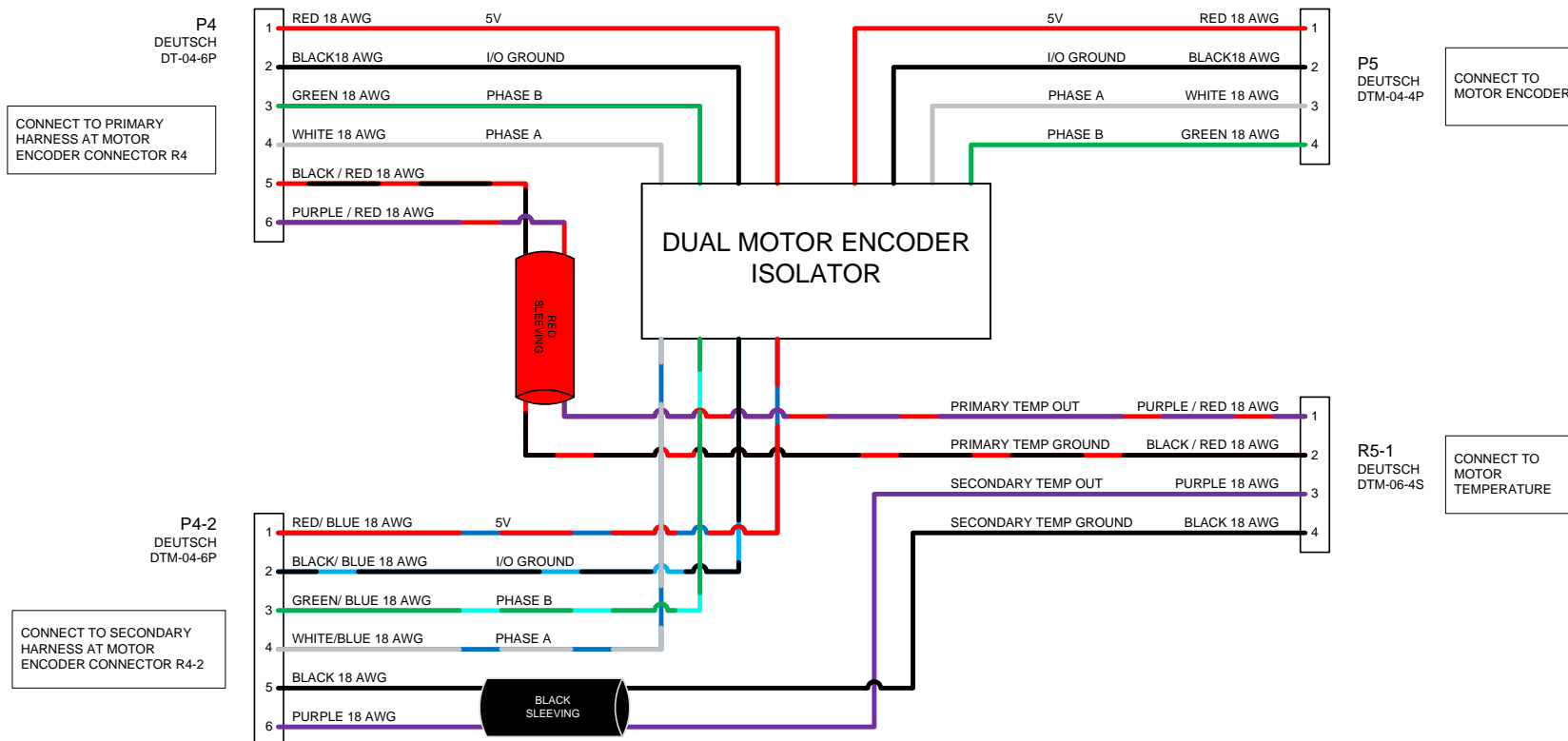
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DUAL MOTOR – 1234/1236/1238 CONTROLLERS SECONDARY MOTOR ELECTRICAL SCHEMATICS



CAD TYPE	APPLICABLE SOFTWARE	VERSION 5.00 TO 5.12
VISIO	DRAWING	1010-AUTO-CONVERSION-TWIN MOTOR
UNIT	NONE	
DRW SIZE	A	TITLE
DATE	4/2/13	ON-ROAD VEHICLE CONVERSION / SECONDARY DUAL MOTOR SCHEMATICS 1234/1236/1238 CONTROLLERS
SCALE	1:1	SHEET 1 OF 1
	REVISION	B
	HPEVS	

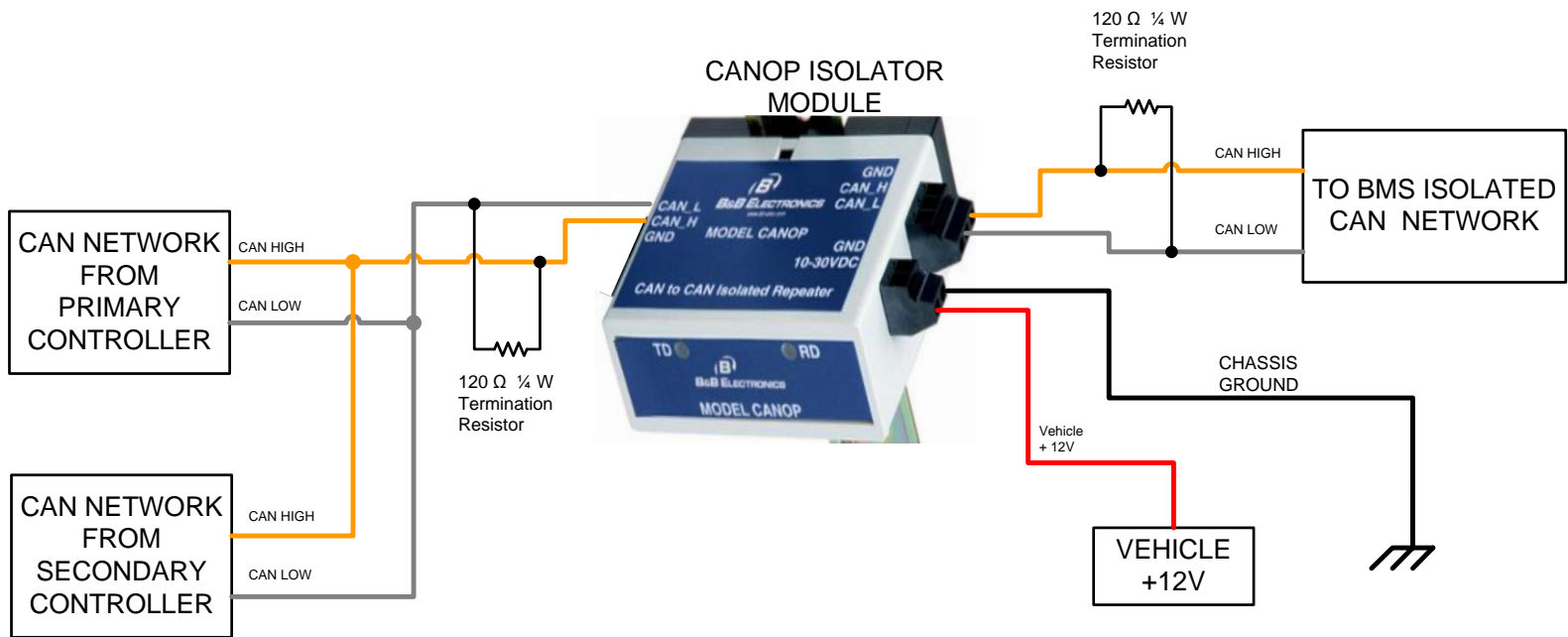
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CAD TYPE VISIO	CAD LOC.	APPLICABLE SOFTWARE	DRW SIZE B
OPER. NO.	UNIT	DRAWING 1010-TWIN-ENCODER-ISOLATOR	
DESIGN	DETAIL	TITLE DUAL MOTOR ENCODER ISOLATOR SCHEMATICS	
CHECKED	SAFETY		
SCALE NONE	DATE 4/2/2013	REVISION A SHEET 1 OF 1	HPEVS

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REVISIONS		
REV	DESCRIPTION	APPROVED
A	INITIAL RELEASE	3/11/2013
B	Revision for clarification	10/30/2013



CAD TYPE VISION	CAD LOC.	CAD FILE	DRW SIZE A
OPER. NO.	UNIT	DRAWING 1010-CAN-OP-ISOLATOR	
DESIGN	DETAIL	TITTLE	
CHECKED	SAFETY	CAN ISOLATOR DUAL 1238 CONTROLLER	
SCALE NONE	DATE 4/17/13	REVISION B SHEET 1 OF 1	HPEVS

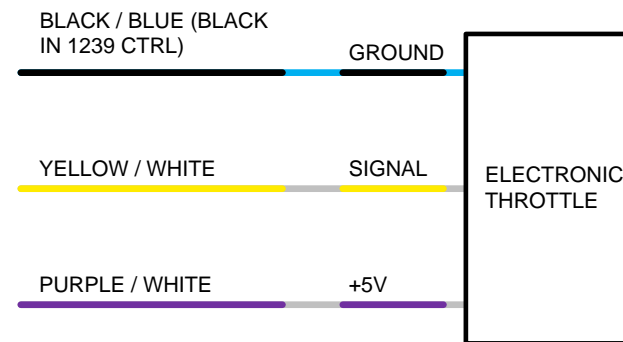
THROTTLE CONFIGURATION

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.

THROTTLE CONFIGURATION	TYPE
ELECTRONIC without SWITCH	TYPE 1
2 WIRE with SWITCH 0-5k Ω	TYPE 2
3 WIRE with SWITCH 0-5k Ω	TYPE 3
CURTIS PB8 THROTTLE ASSEMBLY	TYPE 3

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REVISIONS		
REV	DESCRIPTION	APPROVED
A	INITIAL RELEASE	1/22/2013



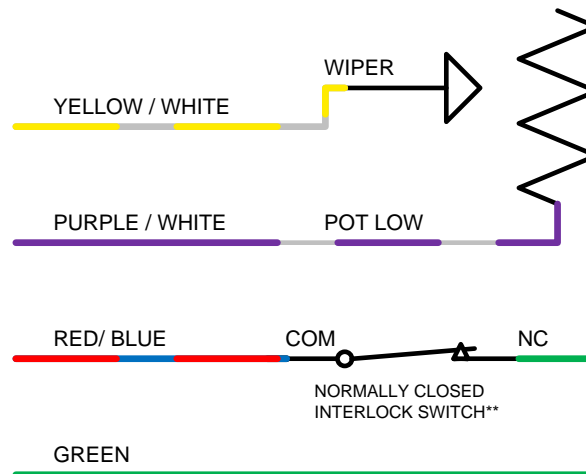
TYPE 1 ELECTRONIC THROTTLE**

** When an electronic pedal is used, the GREEN wire from pedal interlock does not need to be connected

CAD TYPE VISIO	APPLICABLE SOFTWARE		
UNIT NONE	DRAWING 1010-THROTTLE-001		
DRW SIZE A	TITLE ELECTRONIC THROTTLE		
DATE 1/22/13			
SUPPLIER PART			
SCALE NONE	SHEET 4 OF 4	REVISION B	HPEVS

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REV	DESCRIPTION	APPROVED
A	INITIAL RELEASE	1/22/2013



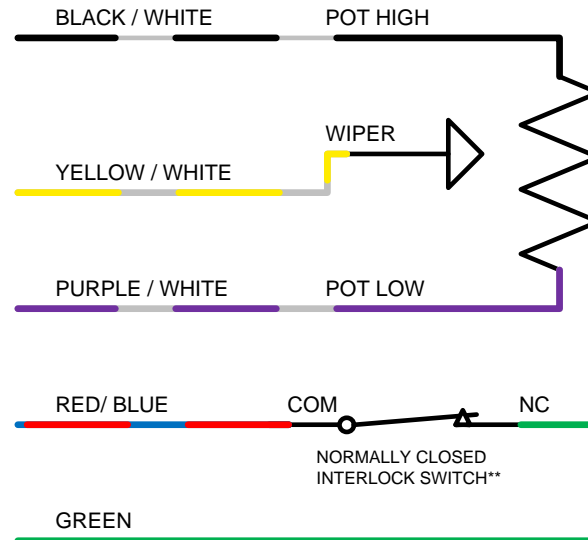
2 WIRE TYPE 2
THROTTLE

** 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.

CAD TYPE VISIO	CAD LOC.	CAD FILE	DRW SIZE A
OPER. NO.	UNIT	DRAWING 1010-THROTTLE-001	
DESIGN	DETAIL	TITLE	
CHECKED	SAFETY	2 WIRE TYPE 2 THROTTLE	
SCALE NONE	DATE 1/22/13	REVISION A SHEET 1 OF 3	HPEVS

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REVISIONS		
REV	DESCRIPTION	APPROVED
A	INITIAL RELEASE	1/22/2013



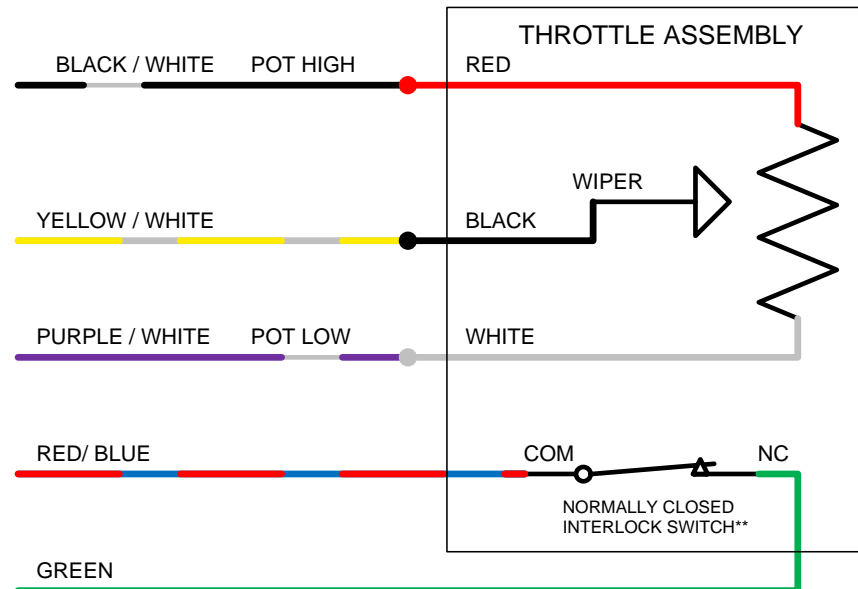
3 WIRE TYPE 3
THROTTLE

** 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.

CAD TYPE VISIO	CAD LOC.	CAD FILE	DRW SIZE A
OPER. NO.	UNIT	DRAWING 1010-THROTTLE-001	
DESIGN	DETAIL	TITLE	
CHECKED	SAFETY	3 WIRE TYPE 3 THROTTLE	
SCALE NONE	DATE 1/22/13	REVISION A SHEET 2 OF 3	HPEVS

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A	INITIAL RELEASE	11/27/2013



CURTIS PB8 THROTTLE ASSEMBLY

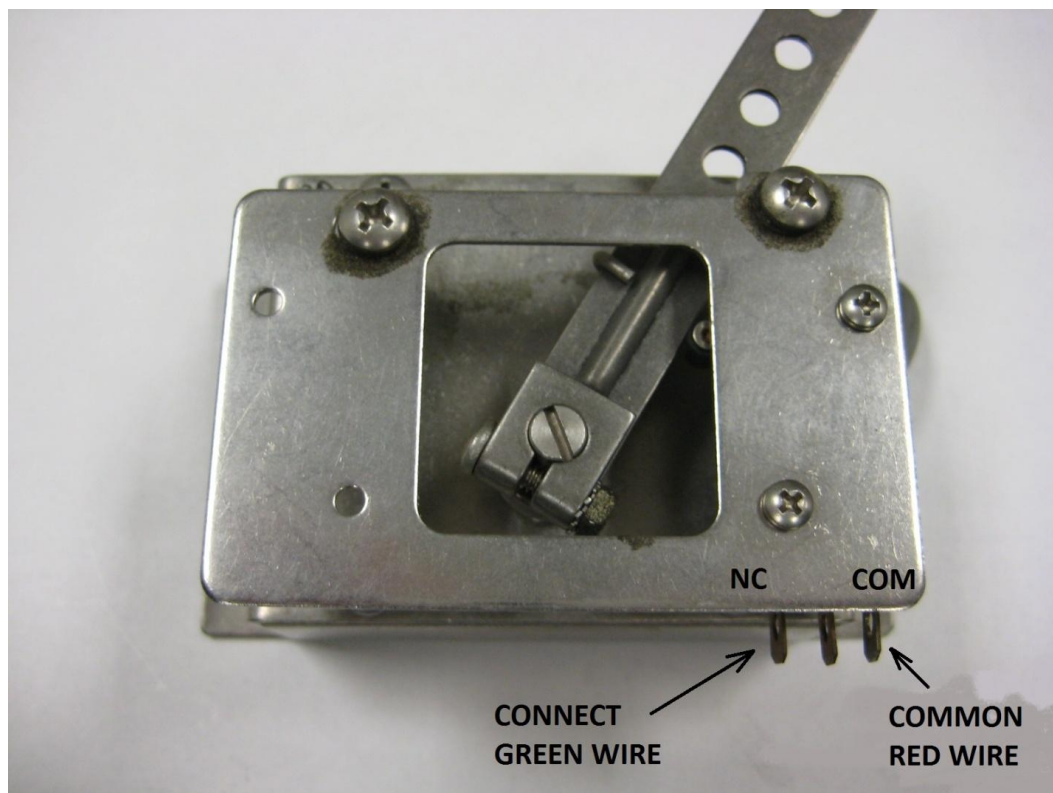
** When the accelerator pedal IS PRESSED the interlock switch is released to its NORMAL position (switch not activated) thus completing the circuit since its green wire is connected to the normally closed (NC) connection.

CAD TYPE VISIO	APPLICABLE SOFTWARE		
UNIT NONE	DRAWING 1010-THROTTLE-001		
DRW SIZE A	TITLE CURTIS PB8 THROTTLE ASSEMBLY		
DATE 1/22/13			
SUPPLIER PART			
SCALE NONE	SHEET 3 OF 4	REVISION A	HPEVS

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.



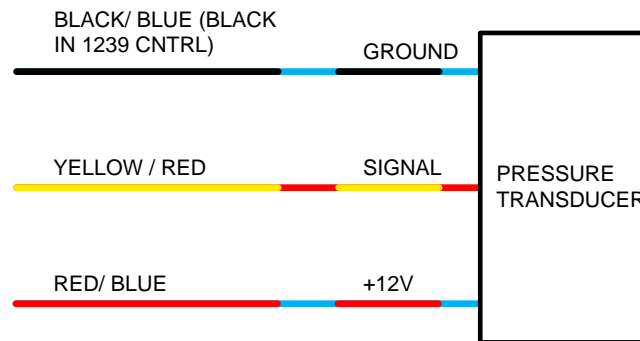
BRAKE INPUT CONFIGURATION

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.

BRAKE INPUT CONFIGURATION	TYPE
PRESSURE TRANSDUCER/ ELECTRONIC 0-5V INPUT	TYPE 1
2 WIRE 0-5k Ω	TYPE 2

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REV	DESCRIPTION	APPROVED
A	INITIAL RELEASE	2/19/2013



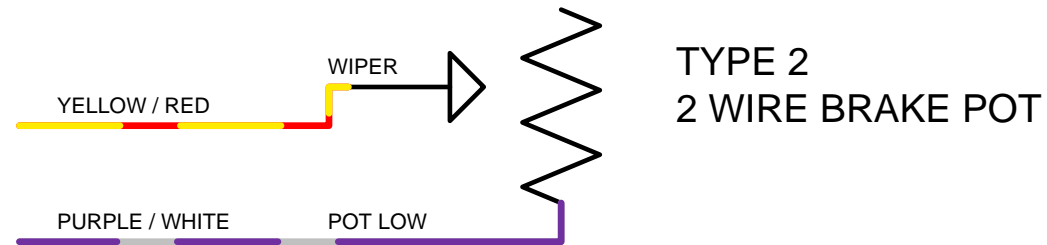
TYPE 1 PRESSURE TRANSDUCER

**** Typical Pressure Transducer Ratings**
8-30 Volt Input
1-5 Volt Output
2500 PSI

CAD TYPE VISIO	CAD LOC.	CAD FILE	DRW SIZE A
OPER. NO.	UNIT	DRAWING 1010-BRAKE	
DESIGN	DETAIL	TITLE PRESSURE TRANSDUCER	
CHECKED	SAFETY		
SCALE NONE	DATE 2/19/13	REVISION A SHEET 2 OF 2	HPEVS

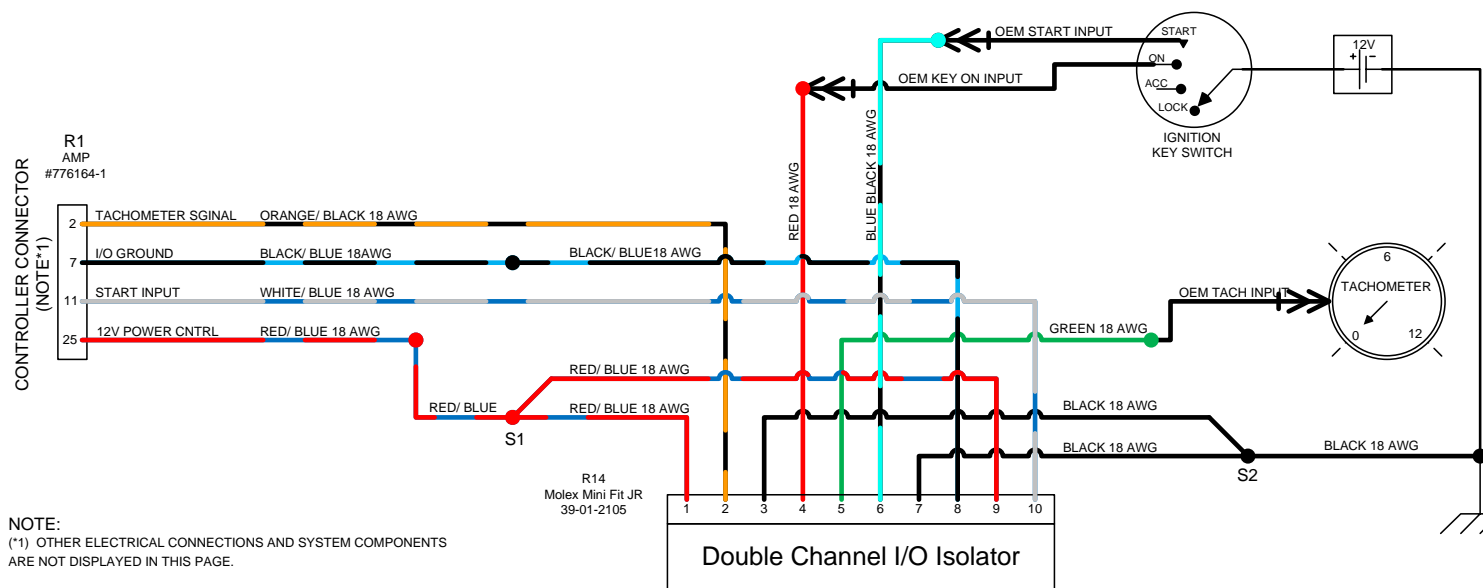
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REV	DESCRIPTION	APPROVED
A	INITIAL RELEASE	2/19/2013



CAD TYPE VISO	CAD LOC.	CAD FILE	DRW SIZE A
OPER. NO.	UNIT	DRAWING 1010-BRAKE	
DESIGN	DETAIL	TITLE 2 WIRE BRAKE POT	
CHECKED	SAFETY		
SCALE NONE	DATE 2/19/13	REVISION A SHEET 1 OF 2	HPEVS

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

CAD TYPE VISIO	CAD LOC.	CAD FILE	DRW SIZE B
OPER. NO.	UNIT	DRAWING 1010-2CH-ISOLATOR-001	
DESIGN	DETAIL	TITLE DUAL CHANNEL OPTO-ISOLATOR SYSTEM SCHEMATICS	
CHECKED	SAFETY		
SCALE NONE	DATE 4/19/12	REVISION B SHEET 1 OF 1	HPEVS