

MCS-5E INSTALLATION GUIDE



e11037553

CONTENTS

1)	Specification	3
1.1)	Absolute Maximum Ratings	3
1.2)	Power	3
1.3)	Digital Inputs	3
1.4)	Analog Monitoring	3
1.5)	Outputs.....	3
1.6)	Communication.....	3
2)	Installation Requirements	3
3)	System Description	4
3.1)	Device Configuration.....	4
3.2)	Expansion Module System	4
3.3)	High Current Outputs.....	4
3.4)	CAN Bus Serial Interface.	4
4)	Wiring and Connections	5
4.1)	Output Connector.....	5
4.2)	Output Connector.....	5
4.3)	System Comms Connector In and Out (x2).....	5
4.4)	Power Connector.....	6
5)	DIP Switch settings.....	6
6)	Wiring and Connections	7
7)	Document Revision History.....	11

1) Specification

1.1) **Absolute Maximum Ratings**

- Supply Voltage: 18 Volts DC.
- Supply Current: 40Amps
- Standby Current: Standby Switch activated
 - Typical: 22 milliamps. (@13.8VDC, no peripherals attached)
 - Max: 30 milliamps. (@13.8VDC, no peripherals attached)
- Standby Temperature: -20 Deg C – 70 Dec C
- Operating Temperature: -20 Deg C – 65 Deg C

1.2) **Power**

- 1 x 40Amp DC pins on pluggable connector.
 - This **MUST** be fused with a 40 Amp fuse.
- 1 x Ground / chassis connections.

1.3) **Digital Inputs**

- 5 x Positive Switched
- 2 x Negative Switched

1.4) **Analog Monitoring**

- Supply Voltage Monitoring.
- Output Current Monitoring.
- Over Temperature Monitoring.

1.5) **Outputs**

- 5 x Positive Switching 20 Amp outputs with current and voltage protected outputs.
- High current outputs should be arranged on alternately to help spread heat evenly through the heat sink.

1.6) **Communication**

- 1 x CAN Bus 2.0

2) Installation Requirements

- 2.1) The supply **MUST** be protected with an appropriate fuse (40 Amp Max.), preferably at (or near to) the battery terminal.
- 2.2) **DO NOT** obstruct air flow across the vents along the top, side surfaces of the MCS-5E. Do not install any equipment on top or underneath the MCS-5E.

The above installation requirement must be followed for safe operating and extended product lifetime

3) **System Description**

3.1) ***Device Configuration***

The MCS-5E can be configured for either 1 of 4 manual modes, or as a 'slave' CAN device. The active configuration is selected by setting the appropriate dip switches on the front side of the device. See section 5 for the settings.

3.2) ***High Current Outputs***

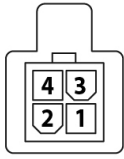
There are 5 positive switching outputs. Each output is rated to a maximum of 20 Amps, output current settings are adjustable between 5, 10, 15 and 20 Amps. If more than 1 output is being used for high current output, distribute the layout to allow for best heat dissipation in the unit.

3.3) ***CAN Bus Serial Interface.***

The MCS-5E has one CAN2.0 full speed interface. This interface is designated for interfacing only with MCS compatible products as a slave device.

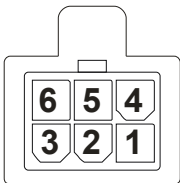
4) Wiring and Connections

4.1) *Output Connector.* (Three off)



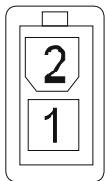
Pin	Name	Function		
1	Input 1	Positive switching	Input	
2	Output 1a	Positive switching	Output	8A Max.
3	Output 1b	Positive switching	Output	8A Max.
4	Output 1c	Positive switching	Output	8A Max.

4.2) *Output Connector.* (Two off)



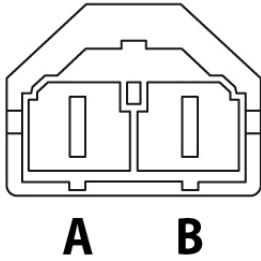
Pin	Name	Function		
1	Input 1	Positive switching	Input	
2	Output 1a	Positive switching	Output	8A Max.
3	Input 2	Negative switching	Input	
4	Output 1b	Positive switching	Output	8A Max.
5	Output 1c	Positive switching	Output	8A Max.
6	Headlight Input		Input	8A Max.

4.3) *System Comms Connector In and Out (x2)*



Pin	Name	Function		
1	CAN Data Low	Data		
2	CAN Data High	Data		

4.4) Power Connector.



Pin	Name	Function		
A	Ground			
B	12-24 VDC	Input	40A MAX	

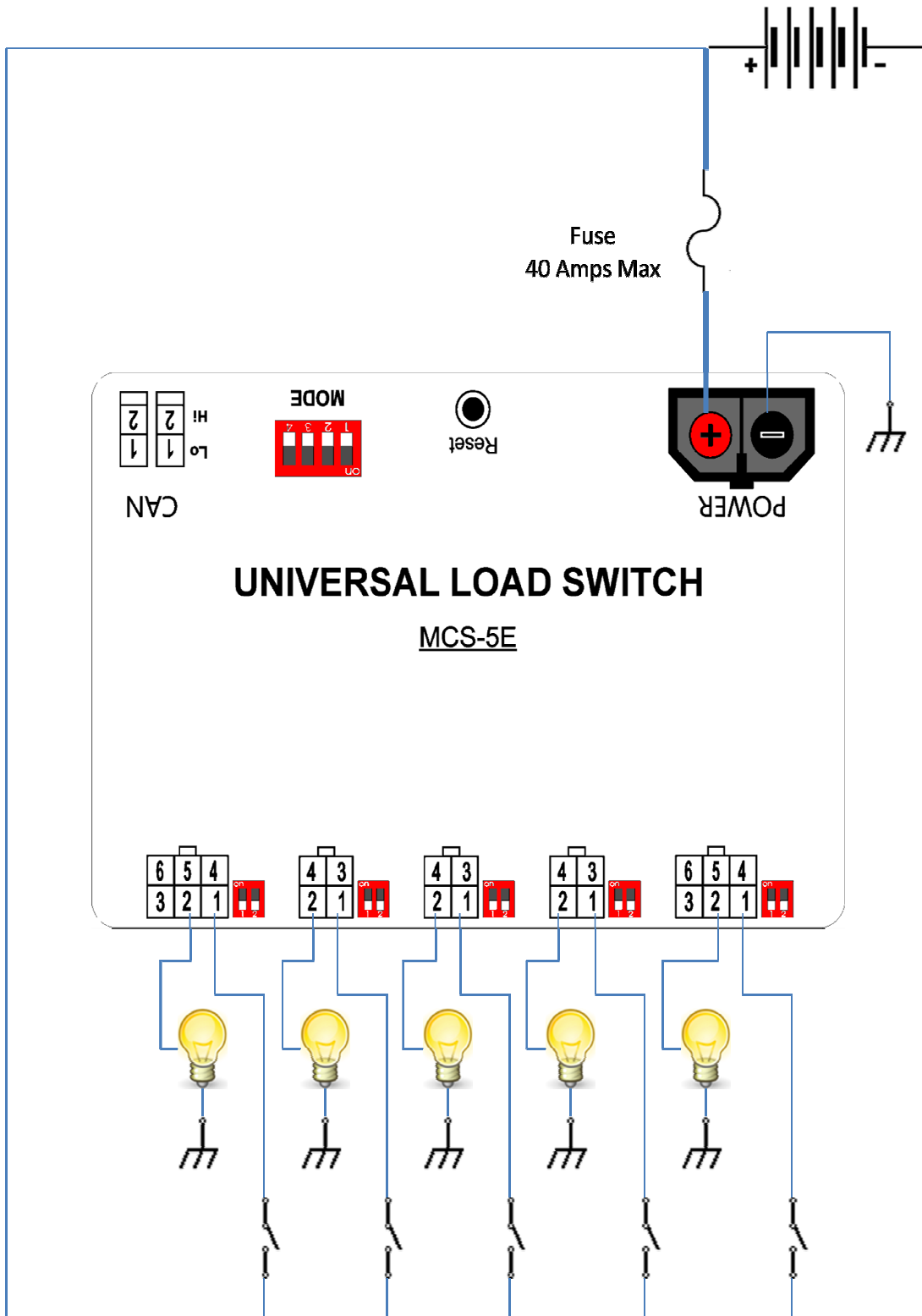
5) DIP Switch settings

Dip 1	Dip 2	Dip 3	Dip 4	Function
X	OFF	OFF	OFF	Manual Mode 0 - Relay Pack
X	OFF	OFF	ON	Manual Mode 1 - Headlight Flasher, Runlock and Single Relay.
X	OFF	ON	OFF	Manual Mode 2 - Headlight Flasher with Three Relays.
X	OFF	ON	ON	Manual Mode 3 - Runlock with Three Relays.
OFF	ON	OFF	OFF	CAN Mode - Address 0- MCS Expansion Module 1 - DEFAULT
OFF	ON	OFF	ON	CAN Mode - Address 1- MCS Expansion Module 2
OFF	ON	ON	OFF	CAN Mode - Address 2- MCS Expansion Module 3
OFF	ON	ON	ON	CAN Mode - Address 3- MCS Expansion Module 4
ON	ON	OFF	OFF	CAN Mode - Address 4- MCS Expansion Module 5
ON	ON	OFF	ON	CAN Mode - Address 5- MCS Expansion Module 6
ON	ON	ON	OFF	CAN Mode - Address 6- MCS Expansion Module 7
ON	ON	ON	ON	CAN Mode - Address 7- MCS Expansion Module 8

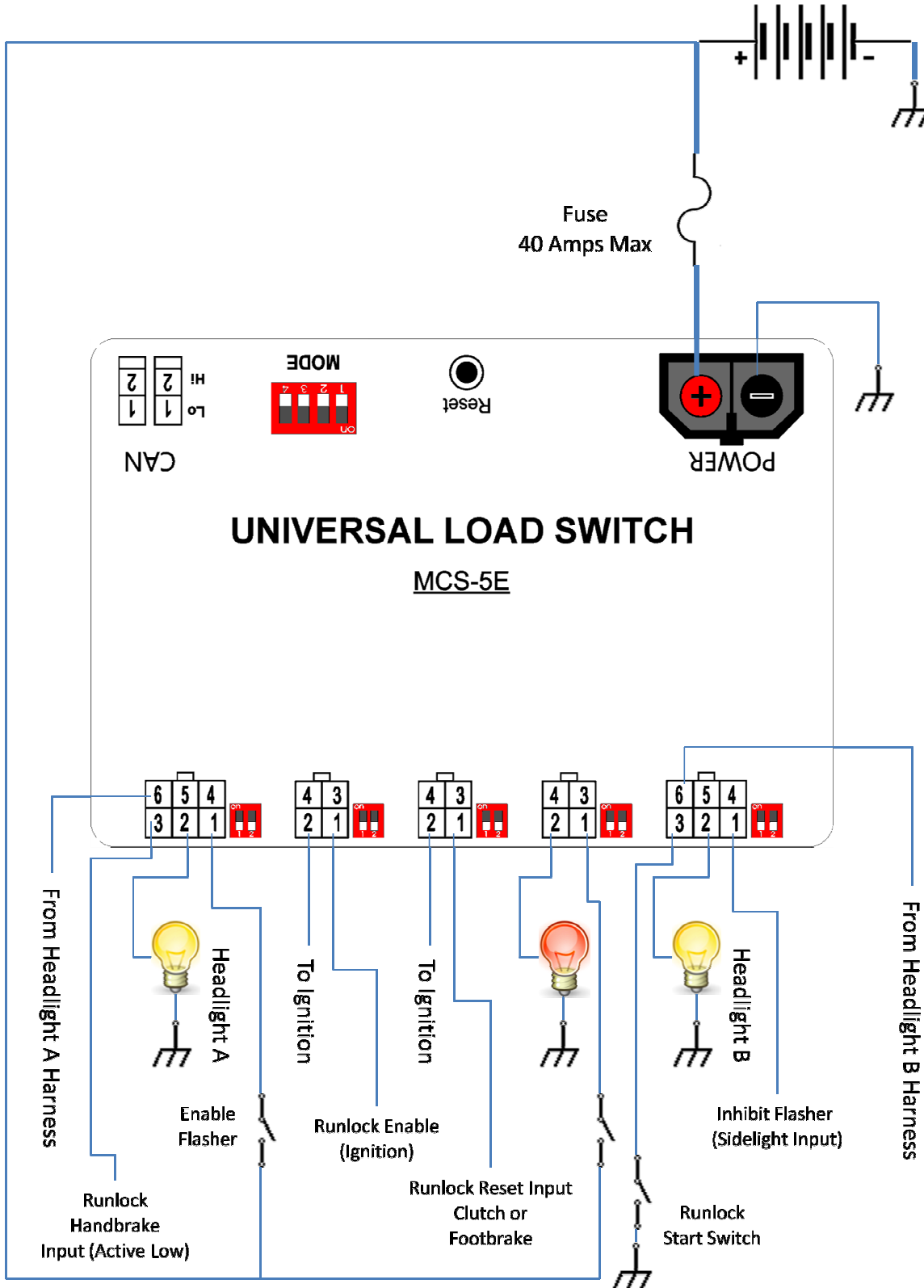
X - If Dip 1 is turned on in any of the manual modes, low voltage dropout protection is enabled.

6) Wiring and Connections

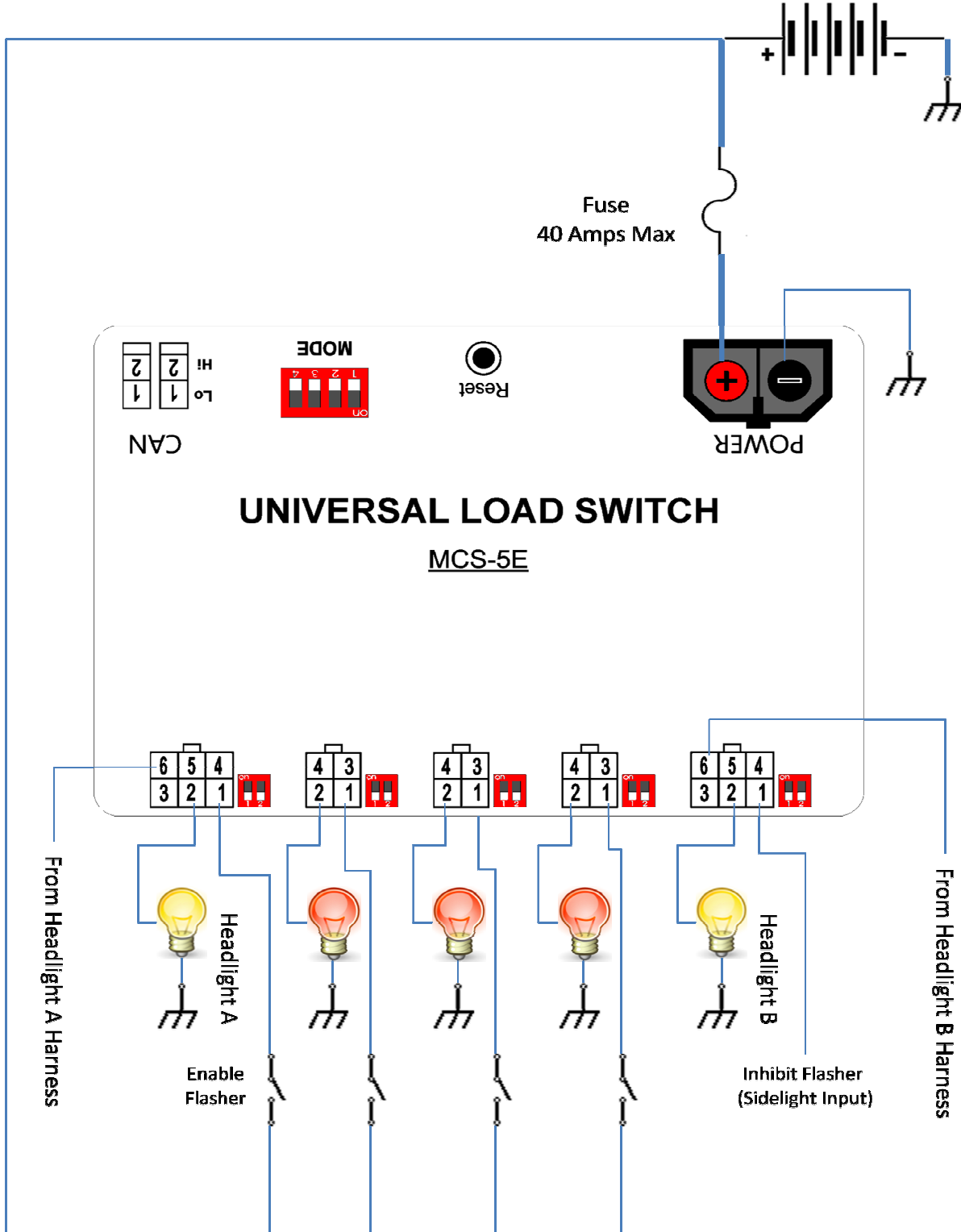
Mode 1
5 x Relay



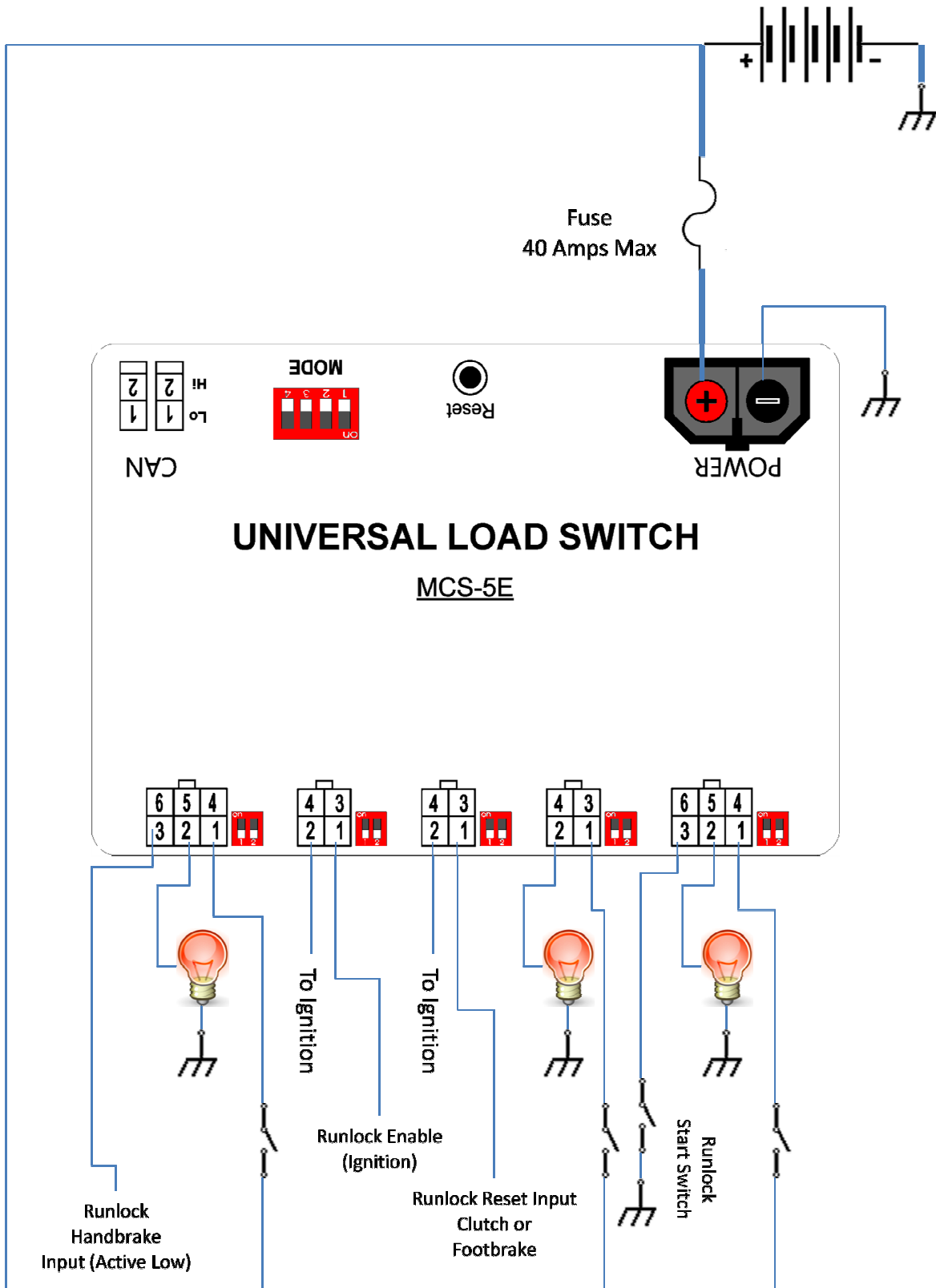
Mode 2
Headlight Flasher, Runlock and Single Relay



Mode 3
Headlight Flasher and Three Relays



Mode 4
Runlock and Three Relays



7) Document Revision History

V1.2	Reworked DIP Switch table to include CAN Options. (Nov 28th 2012, GH)