### SPD-481000BLDC 48-64 Volt DC 1000 Watt Brushless DC Motor Controller

**Battery Pack Compatibility:** Compatible with 48 Volt, 60 Volt, and 64 Volt Battery Packs  
**Motor Compatibility:** Recommended for Brushless DC Motors Between 1000 and 1200 Watts  
**Current Limit:** 45 Amps (45 Amps Maximum Current Output)  
**Low Voltage Protection:** 41 Volts with 48 Volt Battery Pack, 52 Volts with 60 Volt Battery Pack, 52.5 Volts with 64 Volt Battery Pack  
**Sensor Information:** Compatible with both Sensored and Sensorless Brushless DC Motors  
**Phase Information:** Compatible with 120 Degree and 60 Degree Motor Phases

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
</table>
| Power Switch Wire          | Red to Power Switch Contact  
The Other Power Switch Contact Goes To Battery Positive + |
| Input Power Wires          | Red Wire to Battery Positive +  
Black Wire to Battery Negative - |
| Motor Phase Wires          | Yellow to Yellow Motor Phase Wire  
Blue to Blue Motor Phase Wire  
Green to Green Motor Phase Wire |
| † Motor Hall Sensor Wires  | Red to Red Motor Hall Wire +5V  
Black to Black Motor Hall Wire Ground  
Yellow to Yellow Motor Hall Wire  
Green to Green Motor Hall Wire  
Blue to Blue Motor Hall Wire |
| † Throttle Wires           | Red +5 Volt Output  
Green 1-4 Volt Signal Input  
Black Ground |
| † 3 Speed Control Wires    | Black to Blue for High Speed  
Black to No Wire for Normal Speed  
Black to Brown for Low Speed |
| † Reverse Wires            | Gray to Reverse Switch Contact  
Black to Reverse Switch Contact |
| † Switch E-Brake Wires     | Black to Brake Switch Contact  
White to Brake Switch Contact |
| † Voltage E-Brake Wire     | Yellow to +12 Volt Brake Signal |
| † Speedometer Wire         | Green to Speedometer |
| † Alarm Power Wires        | Black to Alarm Positive - Input  
Red to Alarm Positive + Input |
| † Alarm Signal Wires       | Red to Vehicle Power On Signal  
Blue to Motor Disable Signal  
Yellow to Alarm Power On Signal |
| † Cruise Control Wires     | Black to Cruise Control Switch Contact  
Orange to Cruise Control Switch Contact |
| ** Self Learning Wires     | Connect Together to Program Controller  
Disconnect After Programming Is Complete |

† Optional Connections: These wires do not need to be connected for the controller to operate.  
* Either the Throttle and or Pedal Assist Sensor needs to be connected for the controller to operate.  
** The Self Learning Wires must be used to program the controller after installation. Controller programming directions are available on the next page.
Controller Programming Directions

The controller requires programming after installation otherwise the motor may not operate normally or the motor’s shaft may not rotate in the direction that it needs to.

Programming Directions

1. Prop the drive wheel in the air or remove the chain or belt from the motor. When the Self Learning Wires are plugged together the motor will automatically spin at a reduced speed so the drive wheel of the vehicle need to be propped in the air so it can spin freely, or the chain or belt needs to be removed if propping the drive wheel in the air is not possible.

2. Turn the vehicle’s power switch or key switch on.

3. Plug the Self Learning Wires together. If the motor is now spinning in the direction that you want it to then unplug the Self Learning Wires and turn off the vehicle’s power switch or key switch. Programming is now complete and the vehicle is ready to use.

4. If the motor spins in the oposite direction that you want it to when the Self Learning Wires are plugged together then unplug the Self Learning Wires, wait 10 seconds, and then plug the Self Learning Wires together again. If the motor is now spinning in the direction that you want it to then unplug the Self Learning Wires and turn off the vehicle’s power switch or key switch. Programming is now complete and the vehicle is ready to use.

5. If following the programming directions above does not work then turn the vehicle’s power switch or key switch off, wait 10 seconds, and try again.

Installation Notes

Switch and Voltage E-Brake Wires

1. The Switch and Voltage E-Brake Wires are optional to connect to and the controller will operate normally with nothing connected to them.

2. The E-Brake is designed to help slow the vehicle down, however, not to bring it to a full stop. Mechanical brakes must be used in conjunction with the E-Brake if the E-Brake is used. The E-Brake will be stronger on 48 Volt vehicles than it will on 60 and 64 Volt vehicles which is the nature of multi-Voltage brushless motor controllers.

3. The Switch E-Brake Wires connect to a normally open SPST brake switch.

4. The Voltage E-Brake Wire connect to a +12 Volt DC brake light wire.

5. The switch and Voltage E-Brake connectors are optional to use, however, if they are used then use either one or the other, and do not use both of them at the same time.

Cruise Control, Reverse, and 3 Speed Control Wires

1. The Cruise Control, Reverse, and 3 Speed Control Wires are optional to connect to and the controller will operate normally with nothing connected to them.

2. The Cruise Control Wires connect to a 2 position On-Off maintained contact SPST switch.

3. The Reverse Wires connect to a 2 position On-Off maintained contact SPST switch.

4. The 3 Speed Control Wires connect to a 3 position On-Off-On maintained contact SPDT switch.