

# SPD-481500BLDC 48-72 Volt DC 1500-1800 Watt Brushless DC Motor Controller

**Battery Pack Compatibility:** Compatible with 48 Volt, 60 Volt, and 72 Volt Battery Packs

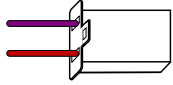
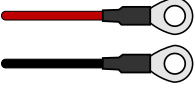
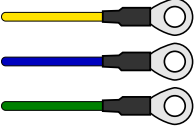
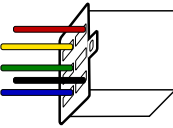
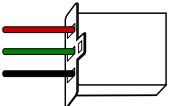
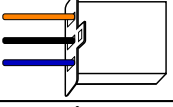

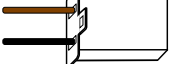
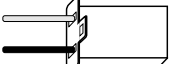
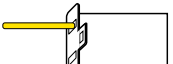
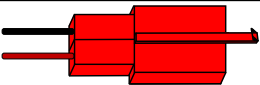
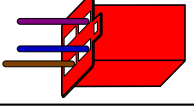

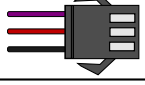


**Motor Compatibility:** Recommended for Brushless DC Motors Between 1500 and 1800 Watts

**Current Limit:** 45 Amps (45 Amps Maximum Current Output)

**Low Voltage Protection:** 41V with 48V Battery, 52V with 60V Battery, 60.5V with 72V Battery

**Sensor Information:** Works with both Sensored and Sensorless Brushless DC Motors

**Phase Information:** Compatible with 120 Degree and 60 Degree Motor Phases

Power Switch Wires		Purple to Power Switch Contact Red to Power Switch Contact
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		Orange to Black for High Speed Black to No Wire for Normal Speed Blue to Black for Low Speed
† Cruise Control Wires		Orange to Cruise Control Switch Contact Black to Cruise Control Switch Contact
† Reverse Wires		Brown to Reverse Switch Contact Black to Reverse Switch Contact
† ~ Switch E-Brake Wires		White to Brake Switch Contact Black to Brake Switch Contact
† ~ Voltage E-Brake Wire		Yellow to +12 Volt Brake Signal
† Alarm Power Wires		Red to Alarm Positive + Input Black to Alarm Positive - Input
† Alarm Signal Wires		Purple to Vehicle Power On Signal Blue to Motor Disable Signal Brown to Alarm Power On Signal
† Speedometer Wire		Yellow/Green to Speedometer
* Pedal Assist Sensor Wires		Purple 1-4 Volt Signal Input Red +5 Volt Output Black Ground
† Regen Braking Wires		Connect Together for Regen Braking or Leave Disconnected for No Regen Braking
** 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.

~ Use either the Switch E-Brake Wires connector or the Voltage E-Brake Wire connector. Do not use both.

\* 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 72 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 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.