# Brushless DC Motor Phidget

Brushless DC motors have several advantages over their brushed counterparts: They have longer lifespans, run quieter, and have built-in position control thanks to the hall-effect sensor that tells the controller which coil to activate. In operation, brushless motors behave similarly to stepper motors, with the rotor being pulled into discrete positions with electromagnetism.

The DCC1100 requires a 8-30V DC external power supply and can control a single brushless DC motor from a port on your VINT Hub (see the Compatible Products tab for a list of hubs). In software you can either control the motor velocity, acceleration and stall velocity directly, or you can use the PositionController object to set the motor position using our closed-loop PID controller. For more information on how to use and configure the PositionController, take a look at the technical section of the DCC1100 User Guide.

**Safety and Reliability**

The DCC1100 has been designed with safety in mind:

- An on-board temperature chip is accessible via the TemperatureSensor object, so your program will be able to watch out for overheating.
- The VINT port is electrically isolated from the rest of the board, making it simple to build a Phidgets system without having to worry about ground loops or damage to your hub or computer.
- A fuse is included on-board for safety in case of power surges.

**Hall-Effect Input**

| 3019 Cable | Motor Wire |
|---|---|
| Black | Ground |
| Green | Hall-Effect ‘C’ |
| White | Hall-Effect ‘B’ |
| Red | +5V |
| Brown | Hall-Effect ‘A’ |

To make connection simple, the DCC1100 has a 5-pin molex connector to interface with the motor’s hall-effect output. All BLDC motors sold at Phidgets have the mating connector soldered to the end of the cable. If you have your own motor, you can cut a Phidget Encoder cable in half and solder them together as follows:

For specifications that deal with acceleration and velocity limits, see the API tab.

**Product Specifications**

| | |
|---|---|
| **Board Properties** | |
| Controlled By | VINT |
| **Electrical Properties** | |
| Supply Voltage Min | 8 V DC |
| Supply Voltage Max | 30 V DC |
| Current Consumption (Unconfigured) | (VINT Port) 500 µA |
| Current Consumption Max | (VINT Port) 650 µA |
| Continuous Motor Current Max | 20 A |
| **Controller Properties** | |
| Motor Type | Brushless DC |
| Number of Motor Ports | 1 |
| Velocity Resolution | 0.003 Duty Cycle |
| **Hall-Effect Sensor** | |
| Hall-Effect Voltage | 5 V DC |
| **Physical Properties** | |
| Operating Temperature Min | -40 °C |
| Operating Temperature Max | 85 °C |