[PhidgetMotorControl 1-Motor](#)

Note: This revision of the 1065 comes with a built-in heatsink for the driver chip to prevent it from overheating.

The 1065 lets you control the direction, velocity and acceleration of one DC Motor. The motor is powered by an external power supply (9 to 28VDC).

Brushed DC Motors are very simple to understand, but very difficult to control precisely. By applying a voltage, or pulsing a voltage rapidly, at the terminals of the motor, current flows through the motor, and it will begin rotating. Depending on the direction of the current, the motor will rotate clockwise or counterclockwise. The 1065 changes the effective voltage by changing the percentage of time the full supply voltage is applied to the motor. By switching the voltage very quickly (a technique called PWM), the controller is made smaller, more efficient, and cheaper.

Rough control of actual motor speed can be achieved automatically in software by using the Back EMF property, or current sensing.

Precise control of DC motors can be achieved by using encoders. You can implement control loops through software by using the data provided by the on-board digital inputs, analog inputs and encoder input. There is an event that triggers every 16 ms that returns the back-EMF value for the attached motor, which can be very useful for PID control. For more information, see the API in the [User Guide](#).

The 1065 also provides over-current, over-voltage, and over-temperature protection to insure that the board and motor is not damaged.

Comes Packaged with

- Hardware mounting kit:

- 4x M3 Bolts (2cm Length)

- 4x Plastic spacers (5mm Length)

- 4x M3 Nuts

Product Specifications

Controller Properties

API Object Name	MotorControl
Motor Type	DC Motor
Number of Motor Ports	1
Velocity Resolution	0.39 % Duty Cycle
Acceleration Resolution	24.5 % Duty Cycle/s
Acceleration Min	24.5 % Duty Cycle/s
Acceleration Max	6250 % Duty Cycle/s
Acceleration Time Min	31.3 ms
Acceleration Time Max	8.2 s

Board Properties

Controlled By	USB (Mini-USB)
API Object Name	DCMotor

Encoder Interface

Number of Encoder Inputs	1
Count Rate Max	500000 cycles/s
Encoder Interface Resolution	x1
Update Rate	125 samples/s
Time Resolution	0.33 ms
Encoder Input Low Voltage Max	800 mV DC
Encoder Input High Voltage Min	2.1 V DC
Encoder Pull-up Resistance	2.4 kΩ

Electrical Properties

Supply Voltage Min	9 V DC
Supply Voltage Max	28 V DC
Continuous Motor Current Max	5 A
Overcurrent Trigger	8 A
Current Consumption Min	20 mA
Current Consumption Max	100 mA
USB Speed	Full Speed

Physical Properties

Recommended Wire Size (Power Terminal)	12 – 24 AWG
Operating Temperature Min	0 °C
Operating Temperature Max	70 °C

Voltage Inputs

Number of Voltage Inputs	2
Input Impedance	900 kΩ
5V Reference Error Max	0.5 %
Update Rate	125 samples/s

Digital Inputs

Number of Digital Inputs	2
Pull-up Resistance	15 kΩ
Low Voltage Max (True)	800 mV DC
High Voltage Min (False)	2.1 V DC
Low Voltage Trigger Length Min	4 s
High Voltage Trigger Length Min	16 s
Digital Input Voltage Max	± 15 V DC
Digital Input Update Rate	125 samples/s
Recommended Wire Size	16 – 26 AWG