DC Motor Phidget

This DC Motor Phidget attaches to your **VINT hub** and controls the direction and voltage of one DC motor using high frequency pulse-width modulation to achieve smooth operation. It also has current control, allowing you to set a current limit, which puts a maximum on the amount of torque exterted by the motor and allows you to use larger power supplies than what the motor is normally rated for.

Quadrature Encoder Input

This controller comes equipped with an encoder input that can read in the quadrature signal from an encoder attached to the shaft of your motor. You can use this information to make a closed-loop position controller.

VoltageRatio Input

Similar to a VINT port opened in VoltageRatioInput mode, this port will read in a ratiometric sensor. This is useful for motors that come with attached potentiometers like a DC Linear actuator, so you can incorporate position feedback without needing to buy another input board.

High Compatibility

Many variations of brushed DC motors exist: permanent magnet motors, electromagnet motors, coreless motors, and linear motors. The DC Motor Controller can be used with any of these, as well as other devices that use pulse-width modulation such as small solenoids, incandescent light bulbs, and the hydraulics of pneumatic devices like small pumps and valves.

Motor Current Sensing

This Phidget also lets you monitor how much current is going through your motor coils at any given time. You can use this feature to determine how much physical resistance the motor is working against; the larger the load, the greater the current the motor will draw.

Reliability and Protection

The VINT port on this device is isolated, greatly improving reliability and eliminating ground loops.

The power terminals on this device are polarity protected: if you happen to hook up the power supply backwards, the device simply won’t power up and won’t be damaged.

There is a fuse included on-board to protect the controller in an over-current event. Board temperature and motor current can be monitored for cooling control and power management. This board has no power-saving features built in; if you want to control power consumption, you’ll need to switch the power supply using a relay. The attached fan can be configured and

automatically or manually controlled through the API.

Related Videos

Product Specifications

Board Properties	
Controlled By	VINT
Voltage Sensor	
Number of Voltage Inputs	1
Sampling Interval Min	500 ms/sample
Sampling Interval Max	60 s/sample
VoltageRatio Input Resolution	0.00026
Input Voltage Min (DC)	0 V DC
Input Voltage Max (DC)	5 V DC
Measurement Error Max	0.5 %
Sensor Input Impedance	324 k?©
Controller Properties	
Motor Type	DC Motor
Number of Motor Ports	1
Velocity Resolution	0.001 % Duty Cycle
Acceleration Resolution	1 % Duty Cycle/s
Acceleration Min	0.5 % Duty Cycle/s
Acceleration Max	10000 % Duty Cycle/s
Acceleration Time Min	10 ms
Acceleration Time Max	200 s

PWM Frequency	25 kHz
Sampling Interval Min	50 ms/sample
Sampling Interval Max	60 s/sample
Current Limit Resolution	17.9 mA
Electrical Properties	
Continuous Motor Current Max	25 A
Supply Voltage Min	8 V DC
Supply Voltage Max	30 V DC
Current Consumption (Unconfigured)	(VINT Port) 500 ?¼A
Current Consumption Max	(VINT Port) 2 mA
Power Consumption (Unconfigured)	288 mW
Power Consumption	motor power plus 700 mW
Encoder Interface	
Number of Encoder Inputs	1
Encoder Interface Resolution	x4
Count Rate Max	400000 pulses/s
Time Resolution	1 ?¼s
Sampling Interval Min	50 ms/sample
Sampling Interval Max	60 s/sample
Encoder Input Low Voltage Max	800 mV DC
Encoder Input High Voltage Min	2 V DC
Temperature Sensor	
Temperature Resolution	0.04 ?°C
Physical Properties	
Recommended Wire Size	10 – 26 AWG
Operating Temperature Min	-40 °C
Operating Temperature Max	85 °C