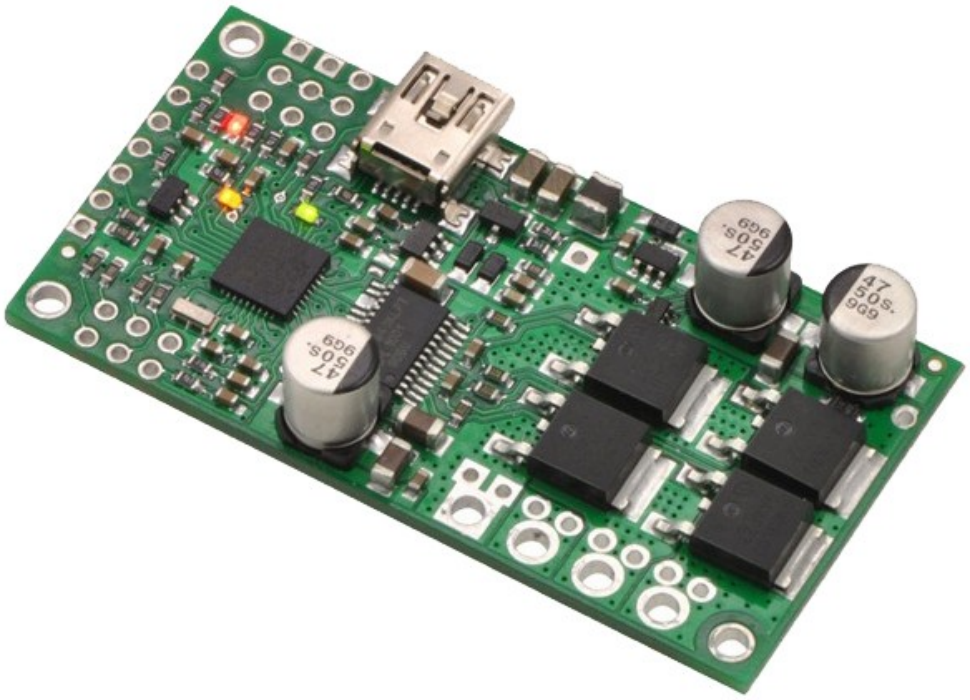
RB-Pol-153

Pololu 24v23 5.5-40V, 23A Motor Controller



Features:
• Simple bidirectional control of one DC brush motor.
• 5.5 V to 30 V (18v7, 18v15, and 18v25) or 40 V (24v12 and 24v23) operating supply range.
• 7 A to 25 A maximum continuous current output without a heat sink, depending on controller model
• Four communication or control options:
-USB interface for direct connection to a PC.
-Logic-level (TTL) serial interface for direct connection to microcontrollers or other embedded controllers.
-Hobby radio control (RC) pulse width interface for direct connection to an RC receiver or RC servo controller.
-0–3.3 V analog voltage interface for direct connection to potentiometers and analog joysticks.-
• Simple configuration and calibration over USB with free configuration program (Windows 7, Vista, Windows XP, and Linux compatible).

The Pololu Simple Motor Controllers are versatile, general-purpose motor controllers for brushed, DC motors. A wide operating range of up to 5.5–40V and the ability to deliver up to several hundred Watts in a small form factor make these controllers suitable for many motor control applications. With a variety of supported interfaces—USB for direct connection to a computer, TTL serial for use with embedded systems, RC hobby servo pulses for use as an RC-controlled electronic speed control (ESC), and analog voltages for use with a potentiometer or analog joystick—and a wide

array of configurable settings, these motor controllers make it easy to add basic control of brushed DC motors to a variety of projects. Although this motor controller has many more features than competing products, a free configuration utility (for Windows 7, Vista, Windows XP, and Linux) simplifies initial setup of the device and allows for in-system testing and monitoring of the controller via USB.

Additional Features:
• Adjustable maximum acceleration and deceleration to limit electrical and mechanical stress on the system.
• Adjustable starting speed, maximum speed, and amount of braking when speed is zero.
• Optional safety controls to avoid unexpectedly powering the motor.
• Input calibration (learning) and adjustable scaling degree for analog and RC signals.
• Under-voltage shutoff with hysteresis for use with batteries vulnerable to over-discharging (e.g. LiPo cells).
• Adjustable over-temperature threshold and response.
• Adjustable PWM frequency from 1 kHz to 22 kHz (maximum frequency is ultrasonic, eliminating switching-induced audible motor shaft vibration).
• Error LED linked to a digital ERR output, and connecting the error outputs of multiple controllers together optionally causes all connected controllers to shut down when any one of them experiences an error.
• Field-upgradeable firmware.

USB/Serial features:
• Controllable from a computer with native USB, via serial commands sent to the device's virtual serial (COM) port, or via TTL serial through the device's RX/TX pins.
• Example code in C#, Visual Basic .NET, and Visual C++ is available in the Pololu USB Software Development Kit
• Optional CRC error detection to eliminate communication errors caused by noise or software faults.
• Optional command timeout (shut off motors if communication ceases).
• Supports automatic baud rate detection from 1200 bps to 500 kbps, or can be configured to run at a fixed baud rate.
• Supports standard compact and Pololu protocols as well as the Scott Edwards Mini SSC protocol and an ASCII protocol for simple serial control from a terminal program.
• Optional serial response delay for communicating with half-duplex controllers such as the Basic Stamp.
• Controllers can be easily chained together and to other Pololu serial motor and servo controllers to control hundreds of motors using a single serial line.

RC features:
• 1/4 µs pulse measurement resolution.
• Works with RC pulse frequencies from 10 to 333 Hz.
• Configurable parameters for determining what constitutes an acceptable RC signal.
• Two RC channels allow for single-stick (mixed) motor control, making it easy to use two simple motor controllers in tandem on an RC-controlled differential-drive robot (you might find our RC servo Y splitter cables • useful for connecting two SMCs to a single RC receiver).
• RC channels can be used in any mode as limit or kill switches (e.g. use an RC receiver to trigger a kill switch on your autonomous robot).

• Battery elimination circuit (BEC) jumper can power the RC receiver with 5 V or 3.3 V.

Analog features:
• 0.8 mV (12-bit) measurement resolution.
• Works with 0 to 3.3 V inputs.
• Optional potentiometer/joystick disconnect detection.
• Two analog channels allow for single-stick (mixed) motor control, making it easy to use two simple motor controllers in tandem on a joystick-controlled differential-drive robot.
• Analog channels can be used in any mode as limit or kill switches.

Dimensions:
• Size: 2.3" x 1.2" x 0.4"
• Weight: 12g (Without included hardware)

Specifications:
• Motor channels: 1
• Control interface: USB; non-inverted TTL serial; RC servo pulses; analog voltage (Autodetects baud rates between 1200 and 500,000 bps, or can be set to any fixed baud rate in this range)
• Minimum operating voltage: 5.5 V
• Maximum operating voltage: 40 V
• Continuous output current per channel: 23 A (Typical results at room temperature without a heat sink)
• Maximum PWM frequency: 21.77 kHz
• Maximum logic voltage: 3.3 V (All digital inputs are 5V tolerant)
• Reverse voltage protection?: N
• Partial kit?: Y