



RoboClaw 2x15A Motor Controller with USB (V4)



The USB versions of the RoboClaw 2x15A and 2x30A add a USB interface but are otherwise identical to the 2x15A (V4) and 2x30A (V4) without USB that they replace.

Overview

The RoboClaw from Orion Robotics (formerly Basic Micro) is an efficient, versatile, dual-channel synchronous regenerative motor controller. It can supply two brushed DC motors with 5 A, 15 A, 30 A, or 60 A continuous (depending on the model) at voltages from 6 to 34 V, and it allows for peak currents up to twice the maximum continuous rating.

The RoboClaw features dual quadrature decoding capability. A built-in PID routine can be used for closed-loop speed control, maintaining motor speeds even if the load varies, or the encoder counts and speeds can be read directly from the RoboClaw for use with an external control system. Analog feedback is also supported for closed-loop position control.

This RoboClaw features a USB interface that acts as a virtual serial (COM) port, allowing it to be controlled directly from a computer. Several other interface modes are supported by the RoboClaw as well: it can be controlled via TTL serial for use with an embedded system, RC hoy servo pulses for use as an RC-controlled electronic speed control (ESC), or analog voltages for use with potentiometers or analog joysticks.

Key Features

- **Simple bidirectional control of two brushed DC motors**
- **6 V to 34 V operating supply range**
- **5 A to 60 A maximum continuous current output, depending on controller model**
- **Automatic current limiting reduces duty cycle when motor current is between 1× and 2× the controller's rated current**
- **Four communication or control options:**
 - 1. USB serial interface (virtual COM port)**
 - 2. Logic-level (TTL) serial interface for direct connection to microcontrollers or other embedded controllers**
 - 3. Hoy radio control (RC) pulse width interface for direct connection to an RC receiver or RC servo controller**
 - 4. 0 V to 2 V (5 V tolerant) analog voltage interface for direct connection to potentiometers and analog joysticks**
- **Dual feedback inputs for PID closed-loop control:**
 - **Speed control with quadrature encoders, up to 19.6 million encoder pulses per second**
 - **Position control with analog encoders or potentiometers**
 - **(Open-loop control with no feedback also available)**
- **Screw terminals for quick connect/disconnect**
- **Configurable via pushbutton interface**

- Regenerative braking
- Tolerates high-speed direction changes
- Jumper-selectable 5 V BEC
- Battery monitoring and under-voltage cutoff protects batteries from over-discharging

RoboClaw Comparison Table

	2x5A	2x15A	2x30A	2x60A
Motor channels:	2			
Operating voltage:	6 V to 34 V			
Continuous output current:	5 A	15 A	30 A	60 A
Peak output current:	10 A	30 A	60 A	120 A
5V BEC(1) max current:	150 mA	3 A		
USB interface:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Width:	1.7" (4.2 cm)	2.1" (5.2 cm)	3.4" (8.6 cm)	
Length:	1.9" (4.8 cm)	2.9" (7.4 cm)	3.9" (10 cm)	
Weight:	17 g	59 g	63 g	205 g

1 Battery Eliminator Circuit

Sample Code

Orion Robotics has written an Arduino library for the RoboClaw that makes it easy to interface these motor controllers with an Arduino. The library comes with several example sketches that demonstrate different methods of controlling the RoboClaw.

[Documentation on producer website.](#)