

# RHINO MOTION CONTROLS

RMCS-2302

50V 20A DC motor driver w/t PWM speed control  
(Max. 50Vdc and 20A)



## Installation Manual and Datasheet

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Page 1

**High-Torque DC Motor Driver w/t PWM Interface [RMCS-230X]**

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## Key Features

- Smooth and quiet operation at all speeds
- Zero-Backlash DC Servo Motor Performance
- Input supply voltage from 12VDC to 50VDC
- Selectable Gain Multiplier
- Selectable Error Limit
- Pots for tuning of Speed, Back Emf and Dampness.
- LED indication for power and error states

## Description

Thank you for purchasing RMCS-2302 50V 20A drive/controller. The Speed and Direction of the DC motor are controlled by PWM and DIRECTION digital interface.

## Technical Specifications

Specification	Min	Max	Units	Comments
Supply Voltage	12	50	Volts DC	Between +Ve and GND
Current	0.5	20	Amps	Current Limit Pot
DIR voltages	0	5	Volts DC	Between + and – input pins
Ambient Temp.	0	70	Celsius	
Humidity	0	95%		Non condensing
PWM Frequency	1	20	kHz	

## Mechanical Specifications

Specification	Details
Dimensions (L*W*H)	100mm * 75mm *25mm
Weight	155gms
Heat Sink	Anodized Aluminum 3mm thickness
Mounting Screw Holes	3.6mm minimum diameter

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Page 2

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## Power and Motor Terminal Assignments

Terminal No.	Terminal Name	Description
Terminal 1	GND	Power Ground or Power –Ve
Terminal 2	+V	Power +Ve (12VDC to 50VDC Max wrt. GND)
Terminal 3	Motor 1	DC motor connection 1
Terminal 4	Motor 2	DC motor connection 2

## INPUT Terminal Assignments

Terminal No.	Terminal Name	Description
Terminal 1	PWM+	PWM signal input
Terminal 2	PWM-	GND
Terminal 3	DIR+	0/5V input for altering DIR
Terminal 4	DIR-	GND

## Potentiometer settings (From left of board)

Pot No.	Pot Name	Description
Pot 1	Proportional Gain	Proportionally increase or decrease the speed gain
Pot 2	Integral Gain	To compensate for load using back EMF setting
Pot 3	Differential Gain	To reduce or increase the dampness of the PWM and direction input

## Power Supply Selection

A high-torque DC motor requires high current during startup and during high load or irregular load conditions. The general rule of thumb to make sure your power supply is adequate for a DC motor is to make sure it can supply the maximum current required by the motor during stall condition. It is also good practice to have sufficient low –ESR decoupling capacitors on the output of the supply before you connect it to a DC motor drive. This is to make sure that the motor driver does not reset or suffer from variations in speed due to an insufficient or unregulated supply.

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Page 3

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## Service and Support

Service and support for this product are available from the Rhino Motion Controls Web site (<http://www.rhinomc.com>) and our customer service email: [info@rhinomc.com](mailto:info@rhinomc.com)

## Six-Month Warranty

Rhino Motion Controls ([rhinomc.com](http://rhinomc.com)) warrants its products against defects in materials and workmanship for a period of 6 months from shipment delivery. During the warranty period, Rhino Motion Controls will either, at its option, repair or replace products which proved to be defective.

## Exclusions

The above warranty does not extend to any product damaged by reasons of improper or inadequate handlings by customer, improper or inadequate customer wirings, unauthorized modification or misuse, or operation beyond the electrical specifications of the product and/or operation beyond environmental specifications for the product.

## Obtaining Warranty Service

To obtain warranty service, please contact our customer service department at [info@rhinomc.com](mailto:info@rhinomc.com) before returning product for service. Please make sure that you have gone through this entire installation manual and datasheet before deciding that your product is liable for replacement or repair under this 6-month warranty. Customer shall prepay shipping charges for products returned to Rhino Motion Controls for warranty service, and Rhino Motion Controls shall pay for return of products to customer.

## Warranty Limitations

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