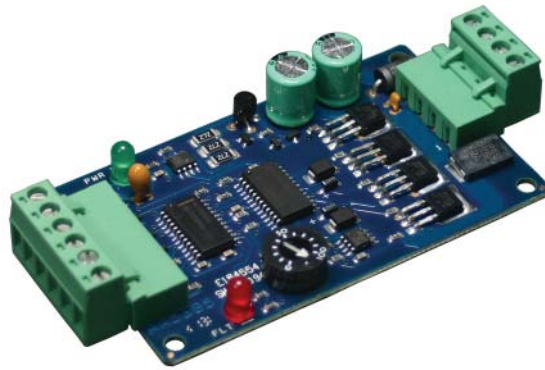


MBDC050-050101 50V, 10A Brush Controller

User's Guide



ANAHEIM AUTOMATION

4985 East Landon Drive, Anaheim, CA 92807
e-mail: info@anaheimautomation.com

(714) 992-6990 fax: (714) 992-0471
website: www.anaheimautomation.com

MBDC050-050101 Driver Features

- Maximum Current Limit Setting from 1.0-10.0 Amps
- Vary Speed Using an External DC Power Supply
- 2-Quadrant Operation
- Open-Loop Velocity Mode
- Cycle-by-Cycle Over Current Protection
- Requires 20-50VDC Input
- Run/Stop, Freewheel and Direction Inputs
- TTL-CMOS Compatible Inputs
- Screw-Type Terminal Block
- Molex Header Option:
 - 4 Pin: 26-48-1045
 - 6 Pin: 26-48-1065

General Description

The MBDC050-050101 is a speed controller designed to drive DC Brush Motors at currents up to 10A peak at in input voltage range of 20-50VDC. An on board potentiometer is used to set the peak motor current limit between 1.0-10.0A and an external DC power supply ranging from 1.5 to 4V can be applied to vary the speed of the motor. The direction of the motor can be preset by the direction control input. When using the freewheel input, it will override all other inputs into the driver. This controller features protection from over-current (cycle-by-cycle) and over voltage. The fault protection is set for a cycle-by-cycle motor turn-off.

Fault Protection

This driver is equipped with a Fault LED to alert the user of the following conditions:

1. Over-Current - the driver is equipped with cycle-by-cycle over current protection.
2. Over-Voltage - the driver is protected from transient voltage spikes.
3. Freewheel - when activated, motor will coast to a stop.
4. Thermal Shutdown

The fault protection is set for a cycle-by-cycle motor turn-off. Cycle-by-cycle over current limiting is done by monitoring the peak motor current and upon an over current of the set value of the potentiometer, the motor phases are immediately turned off and held off for the remainder of the internal PWM oscillation. A red Fault LED illuminates to notify the user when an error occurs.

Ordering Information

PART #	DESCRIPTION
MBDC050-050101	BDC Driver, 10A, 20-50VDC
PSA24V2.7A	DC Power Supply 24VDC at 2.7 Amps
PSA40V4A	DC Power Supply 40VDC at 4.0 Amps
PSA40V8A	DC Power Supply 40VDC at 8.0 Amps

Specifications

VSpeed Control: (TB1, Pin 1)

Below 1.5VDC - Motor Stopped
4VDC - Max Speed (5VDC max)

Control Inputs: (TB1, Pins 2-4)

TTL-CMOS Compatible

Logic "0" = 0-0.8VDC

Logic "1" = OPEN

All inputs (enable and direction) are pulled up through 10k ohm resistors.

Direction Control: (TB1, Pin 3)

Logic "1" (open) - Counterclockwise

Logic "0" - Clockwise

Freewheel: (TB1, Pin 4)

Logic "1" - Motor is Enabled

Logic "0" - Motor is de-energized and will coast to a stop

Run/Stop: (TB1, Pin 2)

Logic "1" - Motor will not run and if running will decelerate rapidly

Logic "0" - Motor will run

Power Requirements: (TB2, Pins 3)

20VDC (min) - 50VDC (max)

Output Current Rating:

1.0 - 10.0 Amps peak maximum operating current

0.5 - 5.0 Amps continuous operating current

Operating Temperature:

Board: 0° to +70° C

Motor Connection

Refer to the hookup diagram for typical driver applications. When connecting a motor for the first time, first connect the power input (20-50VDC) to TB2 a pin 3 and 4 and make sure the green LED light turns on. Power down the unit and then connect the phases of the motor to pin 1 and 2 of TB 2. For the motor to run, pin 2 must be connected to ground (pin 6) on TB1. An external DC voltage supply (1.5-4.0VDC) is connected to pin 1 and referenced to AGND (pin 6) of TB1 to vary the speed of the motor. Once these connections are made, power up and green LED should turn on and the motor should run.

*Note: The maximum speed of the motor can be achieved by connecting pin 1 to pin 5 of TB1.

Speed Adjust Setting (TB1)

The speed of the motor can be adjusted by varying the external DC voltage supply from 1.5 - 4V applied at pin 1 and referenced to AGND (pin 6 on TB1).

Motor Direction (TB1)

The motor direction feature allows the changing of the rotation of the motor. This input should not be changed while the motor is running. An open input causes the motor to turn in the CCW direction, while a low at this input causes the motor to turn in the CW direction.

Motor Freewheel (TB1)

The motor freewheel feature allows the de-energizing of the motor phases. An open input at this input causes the motor to run, while a low signal at this input causes the motor to coast to a stop or remain stopped.

Motor Run/Stop (TB1)

The motor run/stop feature allows the motor to run or to remain stopped. A low signal at pin 2 on TB1 allows the motor to run, while a high signal will cause the motor to be stopped.

Heating Considerations

The temperature of the board should never be allowed to rise above 70 degrees Celsius. If necessary, mount the unit to an additional heat sink or air should be blown across the heat sink to maintain suitable temperatures.

Terminal Descriptions

PIN #	DESCRIPTION
1	VSpeed (1.5-4.0VDC)
2	Run/Stop
3	Direction
4	Freewheel
5	VRef
6	AGND

TB1: Input Terminals

PIN #	DESCRIPTION
1	Motor Phase OUT 1
2	Motor Phase OUT 2
3	Vin (20-50VDC)
4	PGND

TB2: Input and Motor Terminals

External Potentiometer Setting

Potentiometer Setting	Peak Current (Amps)
0%	1.0A
10%	1.8A
20%	2.8A
30%	3.7A
40%	4.6A
50%	5.6A
60%	6.7A
70%	7.8A
80%	8.7A
90%	9.7A
100%	10.0A

Hookup Drawing

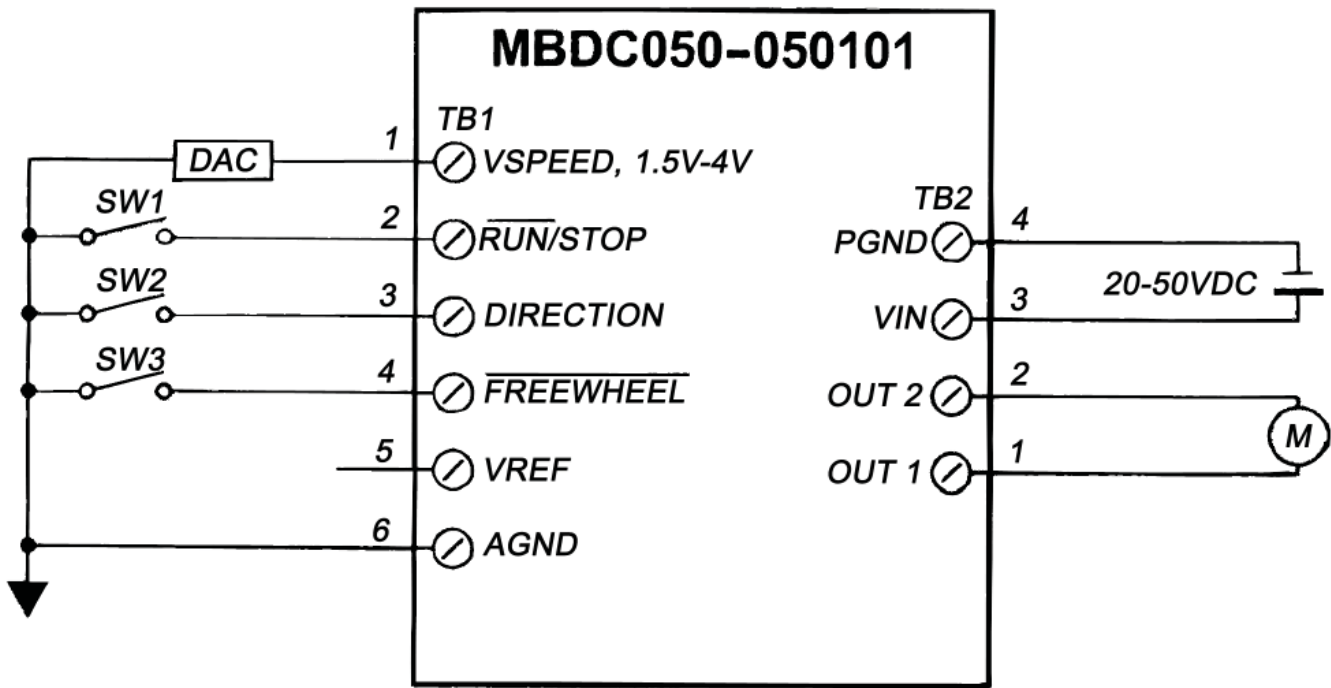
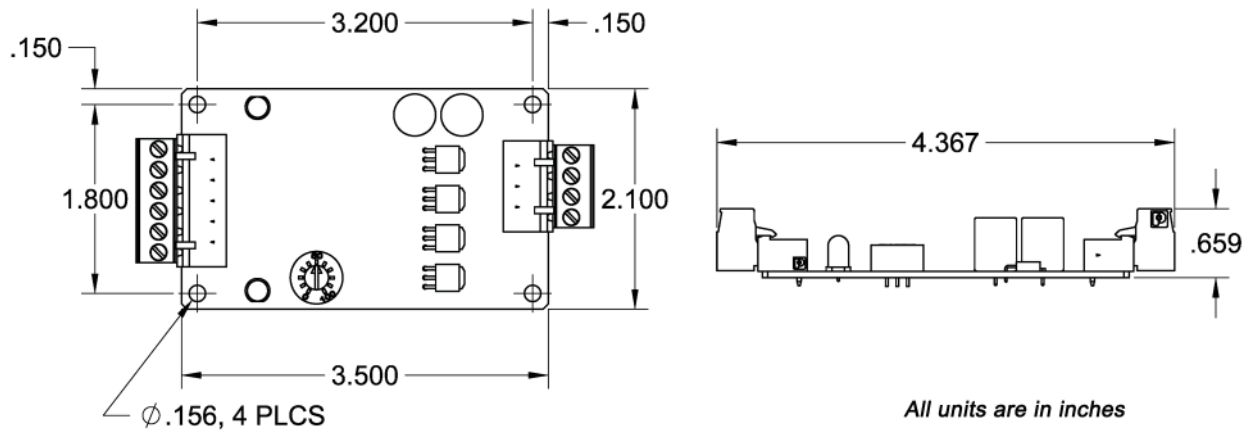


Figure 1: Hook Up for External Voltage Speed Control

Dimensions



COPYRIGHT

Copyright 2007 by Anaheim Automation. All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual, or otherwise, without the prior written permission of Anaheim Automation, 4985 E Landon Drive, Anaheim, CA 92807.

DISCLAIMER

Though every effort has been made to supply complete and accurate information in this manual, the contents are subject to change without notice or obligation to inform the buyer. **In no event will Anaheim Automation be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation.**

Anaheim Automation's general policy does not recommend the use of its' products in life support applications wherein a failure or malfunction of the product may directly threaten life or injury. Per Anaheim Automation's Terms and Conditions, the user of Anaheim Automation products in life support applications assumes all risks of such use and indemnifies Anaheim Automation against all damages.

LIMITED WARRANTY

All Anaheim Automation products are warranted against defects in workmanship, materials and construction, when used under Normal Operating Conditions and when used in accordance with specifications. This warranty shall be in effect for a period of twelve months from the date of purchase or eighteen months from the date of manufacture, whichever comes first. **Warranty provisions may be voided if products are subjected to physical modifications, damage, abuse, or misuse.**

Anaheim Automation will repair or replace at its' option, any product which has been found to be defective and is within the warranty period, provided that the item is shipped freight prepaid, with previous authorization (RMA#) to Anaheim Automation's plant in Anaheim, California.

TECHNICAL SUPPORT

If you should require technical support or if you have problems using any of the equipment covered by this manual, please read the manual completely to see if it will answer the questions you have. If you need assistance beyond what this manual can provide, contact your Local Distributor where you purchased the unit, or contact the factory direct.

ANAHEIM AUTOMATION