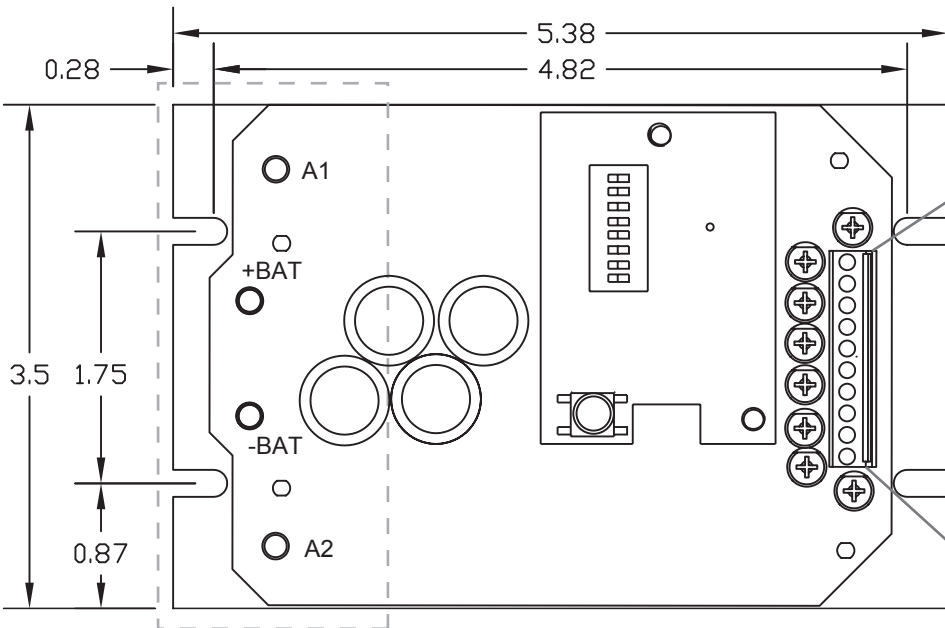
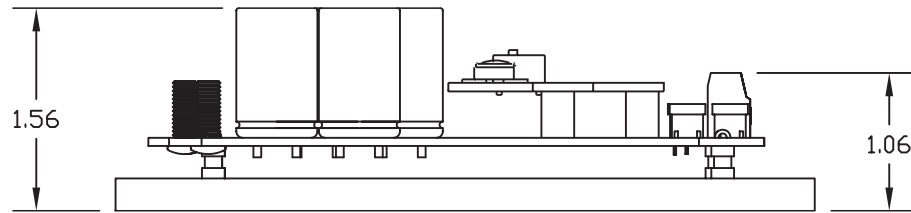


DIMENSIONS



ALL DIMENSIONS IN INCHES

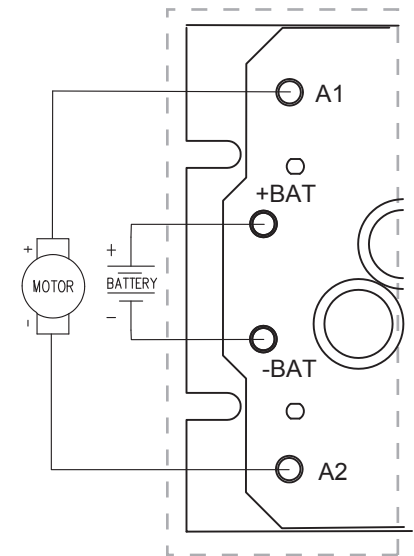
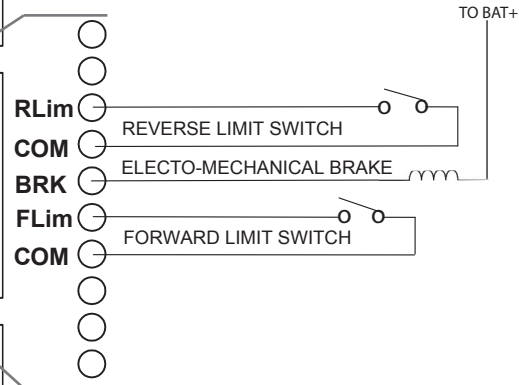


DC60-18-4Q-RF-0970

Low Voltage Regenerative Four Quadrant PWM DC Drive

QUICK START GUIDE

CONNECTIONS



SPECIFICATIONS

DC Input Voltage (V)	18 V
DC Output Voltage (V)	0-100% of input
Continuous Current (A)	30
1 Minute Peak Current (A)	60
Speed Range	80:1
Speed Regulation	1%
Ambient Temperature °F (°C)	32-104[0-40]

INSTALLATION INSTRUCTIONS

- Step 1: Connect Forward Limit switch, Reverse Limit switch, and the Electro-mechanical Brake connection as shown in above diagram.
- Step 2: Connect motor armature across A1 and A2.
CAUTION: Do not exceed 30 in-lbs. tightening torque on terminals
- Step 3: Connect battery to (BAT+) and (BAT-), taking note the polarity.
Note: Upon initial battery terminal connection some sparking may occur. To eliminate this sparking, temporarily place a resistor (typically 1kW) between BAT+ and its corresponding wire to allow the drive to charge slowly.
CAUTION: Do not exceed 30 in-lbs. tightening torque on terminals

WARNING: Reverse polarity battery supply connection can cause permanent damage to the drive.

CALIBRATION

ACC (Acceleration): The Acceleration trim potentiometer adjusts the rate at which the motor will accelerate. Turning the potentiometer clockwise decreases the rate at which the motor will accelerate (i.e. the motor will accelerate slower as the trim potentiometer is turned clockwise). This potentiometer has a range of 0 to 30 seconds.

DEC (Deceleration): The Deceleration trim potentiometer adjusts the rate at which the motor will decelerate. Turning the potentiometer clockwise decreases the rate at which the motor will decelerate (i.e. the motor will decelerate slower as the trim potentiometer is turned clockwise). This potentiometer has a range of 0 to 30 seconds.

MAX SPD (Maximum Speed): The Maximum Speed trim potentiometer adjusts the maximum speed the motor is allowed to operate at. Turning the trim potentiometer clockwise will increase the maximum speed that is allowed with the Speed potentiometer. This potentiometer has a range of 9 to 18V for an 18V system.

*Note: The output voltage of the drive will be no greater than the battery system voltage.

REV MAX SPD (Reverse Maximum Speed): The Reverse Maximum Speed trim potentiometer has the same function and ranges as the Maximum Speed trim potentiometer with the exception that it only adjusts the maximum speed in the reverse direction and is independent of the forward maximum speed.

*Note: The output voltage of the drive will be no greater than the battery system voltage.

TQ LIM (Torque Limit): The Torque Limit trim potentiometer adjusts the amount of current the drive will support. Turning the potentiometer clockwise will increase the amount of current that can be supplied with a maximum of 60A (full clockwise) and minimum of 2A (full counter-clockwise).

REG TQ LIM (Regenerative Torque Limit): The Regenerative Torque Limit trim potentiometer, being that this drive is a regenerative type, adjusts the amount of current that will be sourced back to the supply under deceleration or braking.

OPERATION OVERVIEW

Forward Limit (FLim): When the Forward limit is reached, the drive will regenerative brake to a stop. The drive will convert the mechanical energy of the motor into electrical energy and use that energy to charge the battery. The drive then engages the brake.

Reverse Limit (RLim): When the Reverse limit is reached, the drive will regenerative brake to a stop. The drive will convert the mechanical energy of the motor into electrical energy and use that energy to charge the battery. The drive then engages the brake.

Brake (BRK): The Brake output is for use with an external electro-mechanical brake. The drive only provides a ground for the brake; the positive voltage supply for the mechanical brake must be sourced externally. The brake solenoid must be connected as shown in the wiring diagram. The drive will only engage the brake once the motor has slowed to a stop.

DIP SWITCHES

Each receiver comes with an 8 dip switch module. These control the drive's channel association from the transmitter. When replacing a system, match the dip switches on the old system to the new one. A general guide is you should have on of each of the following systems:

DIP	Channel	DIP	Channel
1-2	A1	3-4	A2
5-6	A3	7-8	A4

LED STATUS INDICATION

Pwr LED:

Unlit -- The drive does not have power or is asleep.

Blinking -- The supply voltage is greater than 32V or less than 7V which is out of the supply range.

Solid -- Receiver board is receiving power.

Cur Lim/Fault LED:

Solid -- The drive is in either Torque Limit or Regenerative Torque Limit.

Continuous Blinking -- The drive is overheating. Provide more adequate ventilation for the drive or decrease the load.

Two Blinks -- The drive is approaching an under-voltage trip or has entered an under-voltage trip.

Three Blinks - The drive has entered an Over-voltage trip.

Four Blinks -- The drive has detected a short circuit on output.

Mode LED:

Blinking -- In pairing mode

Solid -- Receiver has received a signal from the transmitter

Up LED:

Solid -- Drive is receiving the up signal from the transmitter.

Down LED:

Solid -- Drive is receiving the down signal from the transmitter.

WIRELESS CONTROL

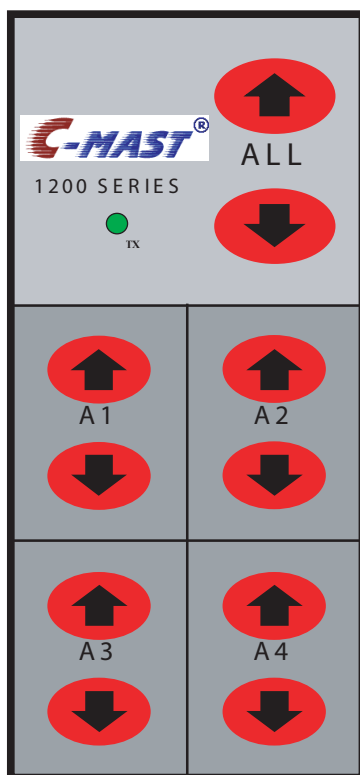
ALL (Up and Down): By pressing the All Up or All Dow buttons on the transmitter, you will actuate all the legs at once.

A1 (Channel 1): By pressing the A1 Up or A1 Down buttons on the transmitter, you will control just the Channel 1 leg.

A2 (Channel 2): By pressing the A2 Up or A2 Down buttons on the transmitter, you will control just the Channel 2 leg.

A3 (Channel 3): By pressing the A3 Up or A3 Down buttons on the transmitter, you will control just the Channel 3 leg.

A4 (Channel 4): By pressing the A4 Up or A4 Down buttons on the transmitter, you will control just the Channel 4 leg.



RADIO FREQUENCY COMPLAANCE

This product complies with FCC OET Bulletin 65 radiation exposure limits set forth for an uncontrolled environment.

Operation is subject to the following conditions:

- (1) This device may not cause harmful interference.**
- (2) This device must accept any interference received, including interference that may cause undesired operation.**

Changes not expressly approved by Minarik Drives could void the user's authority to operate the equipment.

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