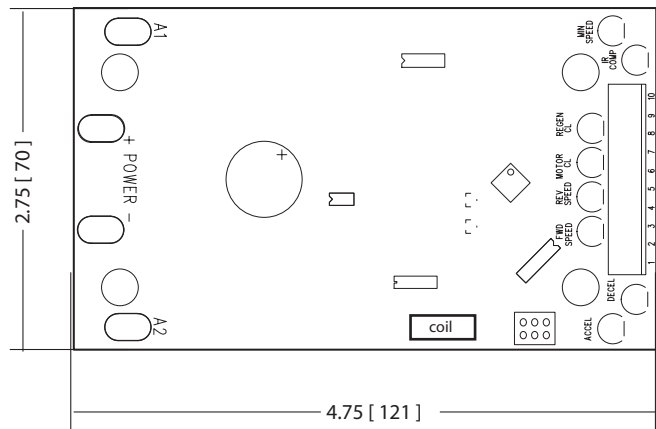
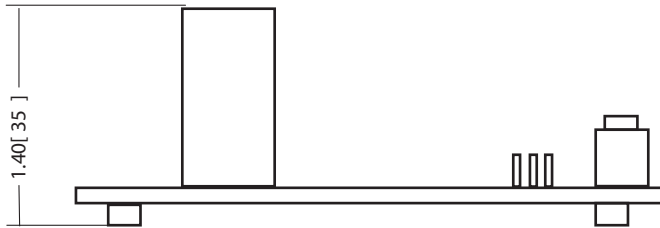


DIMENSIONS



ALL DIMENSIONS IN INCHES [MILLIMETERS]

SPECIFICATIONS

DC Input Voltage (VDC)	7-30
DC Output Voltage (VDC)	0-95% of input
Continuous Current (A)	10A
Peak Current (A)	20A Thermally Limited
Analog Input Voltage Range (VDC)	0-5
Input Impedance (Ohm)	>100K
Ambient Temperature (°C)	0-40

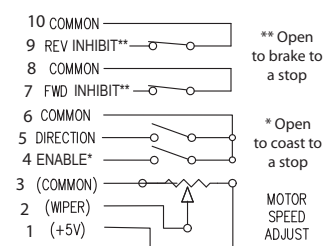
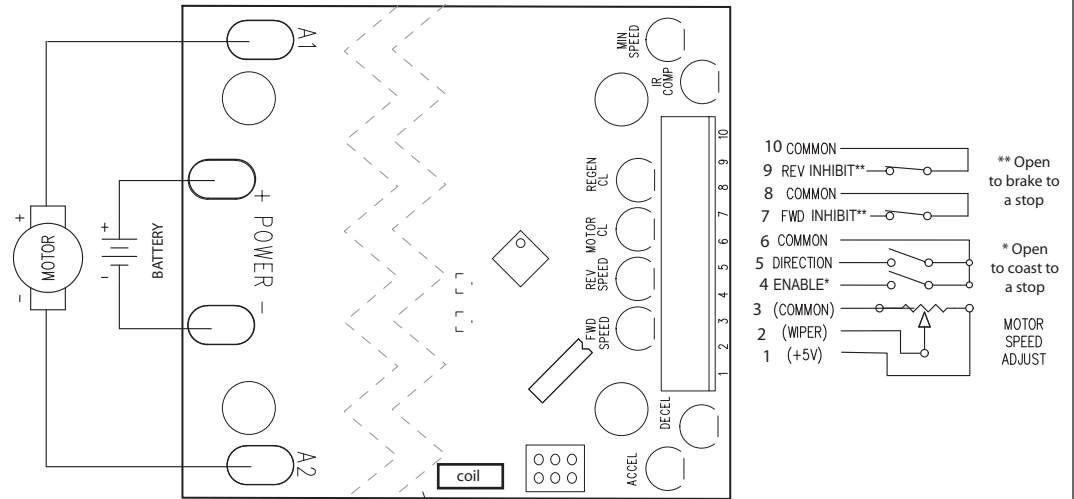


DC20-12/24-4Q

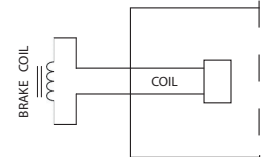
Low Voltage Regenerative Four Quadrant PWM DC Drive

QUICK START GUIDE

CONNECTIONS



OPTIONAL ELECTRO-MECHANICAL BRAKE CONNECTION



DESCRIPTION

The DC20-12/24-4Q is a PWM regenerative DC drive, meaning it can brake and/or reverse on-the-fly without mechanical switches. The drive's regenerative properties allow energy from the motor to be applied back to the battery, thus extending battery life. The drive's microprocessor allows the flexibility to add custom routines or functions for OEMs.

STEP ONE: WIRE DRIVE

A: Connect **speed potentiometer** (10 k Ohm) to **pins 1, 2, and 3**. Pin 1 is the 5 VDC (CW side of speed pot), pin 2 is the input (wiper of speed pot), and pin 3 is the common (CCW side of speed pot). In place of a speed pot to control speed, a 0-5 VDC analog signal can be applied to pins 2 and 3 to control speed. Note that common pins 3, 6, 8, and 10 are at the same electrical potential as the battery (or power supply) negative connected to NEG.

B: Connect optional **enable switch to pins 4 and 6**. A jumper wire can be used if no enable switch is desired. A NPN open collector output can also be used to control the enable. Close the enable to run, open the enable to coast to a stop.

C: Connect optional **direction switch to pins 5 and 6**. A NPN open collector output can also be used to control the direction. Close the direction switch to reverse on-the-fly. Leave pins 5 and 6 open if reversing is not required.

D: Connect optional **forward inhibit switch to pins 7 and 8** and/or another optional **reverse inhibit switch to pins 9 and 10**. A NPN open collector can also be used for each of these connections. Open the inhibit to regenerative brake to a stop, close to run. The inhibit inputs also work great for end of travel limit switch inputs to the drive. Activating the reverse inhibit while the motor is in forward direction will have no effect on operation, and vice versa. Pins 7 and 9 can be tied together to create one inhibit, independent of direction.

E: Connect **DC motor armature to A1 and A2**.

F: Connect **DC supply voltage to POS (positive) and NEG (negative)**. Note polarity, hooking up backwards will cause damage to the drive. The drive is auto-ranging, meaning there are no voltage switches that need to be preset.

G: Optional. Connect electro-mechanical DC brake to the two terminals labeled COIL on the board. Polarity does not matter. The voltage to the COIL output is removed after a short delay once the enable input is opened, or the inhibit input is opened. The voltage is reapplied to the COIL output once the drive has been enabled and the run command reapplied.

STEP TWO: CALIBRATION

The DC20-12/24-4Q is tested and calibrated at the factory. Adjusting trim pots may be necessary to fine tune the drive to your motor and application.

ACCEL: Sets the time required to ramp up to a set speed. Turning the trimpot clockwise adds more time.

DECEL: Sets the time required to ramp down to a set speed. Turning the trimpot clockwise adds more time.

FWD MAX SPD: Sets the maximum forward voltage to the motor when the speed pot or external reference signal is set to maximum. Turning the trimpot clockwise adds more voltage.

REV MAX SPD: Sets the maximum reverse voltage to the motor when the speed pot or external reference signal is set to a maximum. Turning the trim pot clockwise adds more voltage.

MOTOR CL: Sets the maximum amount of current the motor can draw while running. Turning the trimpot clockwise allows more current.

REGEN CL: Sets the maximum amount of braking current to the motor. Turning the trimpot clockwise allows more current.

IR COMP: Determines the degree to which motor speed is held constant as the motor load changes. It is factory set for optimum motor regulation. Too high (clockwise) of a setting may cause motor oscillation.

MIN SPEED: Sets the minimum voltage to the motor when the speed pot or external reference signal is set to a minimum.

MINARIK DRIVES