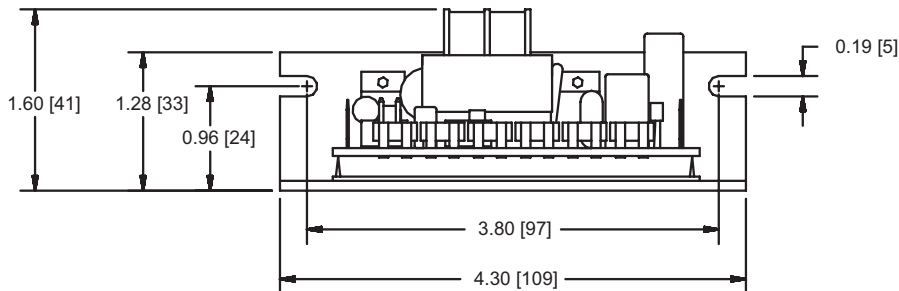
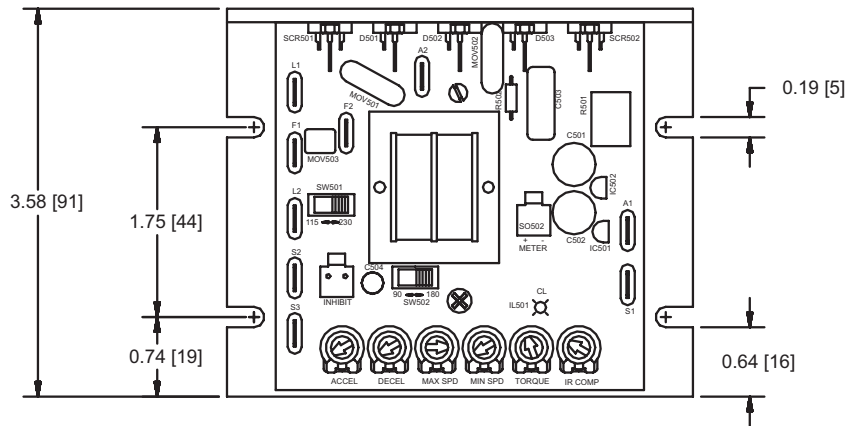




MM23001C

SCR, Adjustable Speed Drive
for DC Brush Motors

D I M E N S I O N S



Q U I C K S T A R T G U I D E

S P E C I F I C A T I O N S

AC Line Voltage	115 VAC or 230 VAC	50/60Hz, single phase
Armature Voltage (115 VAC Input)	0 - 90 VDC	
Armature Voltage (230 VAC Input)	0 - 180 VDC	
Armature Current	10 A	
Form Factor	1.37	at base speed
HP Rating (90 VDC)	1/8 - 1 HP	
HP Rating (180 VDC)	1/4 - 2 HP	
Field Voltage (115 VAC Input)	50 VDC (F1 to L1); 100 VDC (F1 to F2)	
Field Voltage (230 VAC Input)	100 VDC (F1 to L1); 200 VDC (F1 to F2)	
Max. Field Current	1 ADC	
Accel. Time Range:		
for 0 - 90 VDC Armature Voltage	0.5 - 11 seconds	
for 0 - 180 VDC Armature Voltage	0.5 - 22 seconds	
Decel. Time Range:		
for 0 - 90 VDC Armature Voltage	coast to a stop - 13 seconds	
for 0 - 180 VDC Armature Voltage	coast to a stop - 25 seconds	
Analog Input Voltage Range (signal must be isolated; S1 to S2):		
for 0-90 VDC Armature Voltage	0 - 1.4 VDC	
for 0-180 VDC Armature Voltage	0 - 2.8 VDC	

¹ Requires heatsink 223-0159 when above 5 Amps

S T A R T U P

1. Turn the speed adjust potentiometer to "0" (full CCW)
2. Apply AC line voltage
3. Set the POWER switch to the ON position
4. Slowly advance the speed adjust potentiometer clockwise (CW). The motor slowly accelerates as the potentiometer is turned CW. Continue until the desired speed is reached.
5. Set the POWER switch to the OFF position to coast the motor to a stop.

M I N A R I K D R I V E S

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CALIBRATION SETTINGS

MINIMUM SPEED (MIN SPD)

The MIN SPD trimpot establishes the motor speed obtained in response to the minimum input signal. It is factory set for zero speed.

To calibrate the MIN SPD pot, apply the minimum signal. Adjust the MIN SPD trimpot until the motor runs at the desired speed or is just at the threshold of rotation.

MAXIMUM SPEED (MAX SPD)

The MAX SPD setting determines the maximum motor speed when the speed adjust potentiometer, or voltage input signal is set for maximum forward speed. It is factory set for maximum rated motor speed.

To calibrate MAX SPD:

1. Set the MAX SPD trimpot full CCW.
2. Set the speed adjust potentiometer or voltage input signal for maximum forward speed.
3. Adjust MAX SPD until the desired maximum forward speed is reached.

Note: Check the MIN SPD and MAX SPD adjustments after recalibrating to verify that the motor runs at the desired minimum and maximum speed.

TORQUE

The TORQUE setting determines the maximum torque for accelerating and driving the motor. To calibrate TORQUE, use the following procedure:

1. With the power disconnected from the drive, connect a DC ammeter in series with the armature.
2. Set the TORQUE trimpot to minimum (full CCW).
3. Set the speed adjust potentiometer or voltage reference signal to maximum speed (full CW).
4. Carefully lock the motor armature. Be sure that the motor is firmly mounted.
5. Apply line power. The motor should be stopped.
6. Slowly adjust the TORQUE trimpot CW until the armature current is 150% of motor rated armature current.
7. Turn the speed adjust potentiometer CCW.
8. Remove line power.
9. Remove the stall from the motor.
10. Remove the ammeter in series with the motor armature if it is no longer needed.

IR COMPENSATION (IR COMP)

The IR COMP trimpot setting determines the degree to which motor speed is held constant as the motor load changes. It is factory set for optimum motor regulation.

Use the following procedure to recalibrate the IR COMP setting:

1. Set the IR COMP trimpot to minimum (full CCW).
2. Rotate the speed adjust potentiometer until the motor runs at midspeed without load (for example, 900 RPM for an 1800 RPM motor). A handheld tachometer may be used to measure motor speed.
3. Load the motor armature to its full load armature current rating. The motor should slow down.
4. While keeping the load on the motor, rotate the IR COMP trimpot until the motor runs at the speed measured in step 2. If the motor oscillates (overcompensation), the IR COMP trimpot may be set too high (CW). Turn the IR COMP trimpot CCW to stabilize the motor.
5. Unload the motor.

ACCELERATION (ACCEL)

The ACCEL setting determines the time the motor takes to ramp to a higher speed. ACCEL is factory set for the fastest acceleration time (full CCW).

To set the acceleration time:

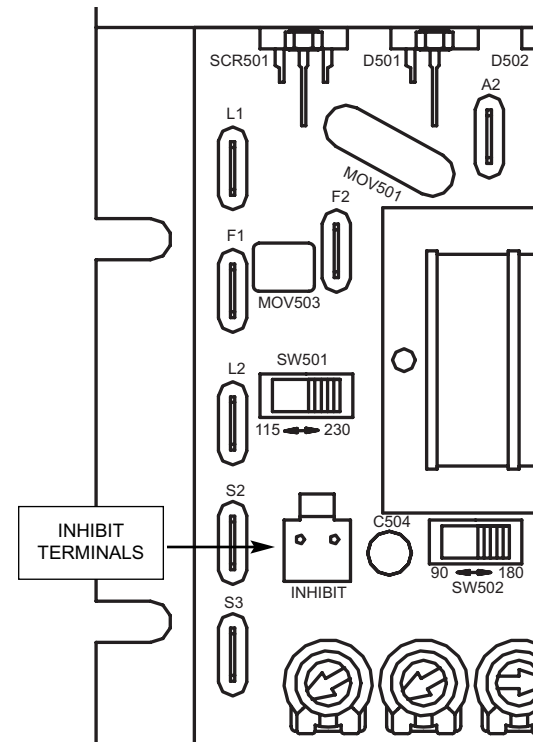
1. Set the speed adjust potentiometer full CCW. The motor should run at minimum speed.
2. Turn the speed adjust potentiometer full CW and measure the time it takes the motor to go from minimum to maximum speed.
3. If the time measured in step 2 is not the desired acceleration time, turn the ACCEL trimpot CW for a slower acceleration time, or CCW for a faster acceleration time. Repeat steps 1 through 3 until the acceleration time is correct.

DECELERATION (DECEL)

The DECEL setting determines the time the motor takes to ramp to a lower speed. DECEL is factory set for the fastest deceleration time (full CCW).

To set the deceleration time:

1. Set the speed adjust potentiometer full CW. The motor should run at maximum speed.
2. Turn the speed adjust potentiometer full CCW and measure the time it takes the motor to go from maximum to minimum speed.
3. If the time measured in step 2 is not the desired deceleration time, turn the DECEL trimpot CW for a slower deceleration time, or CCW for a faster deceleration time. Repeat steps 1 through 3 until the deceleration time is correct.



INHIBIT TERMINALS

Short the INHIBIT terminals to coast the motor to minimum speed (See Diagram Above for INHIBIT terminal location). Open the INHIBIT terminals to accelerate the motor to set speed.

Twist inhibit wires and separate them from power-carrying wires or sources of electrical noise. Use shielded cable if the inhibit wires are longer than 18 inches (46 cm). If shielded cable is used, ground only one end of the shield to earth ground. Do not ground both ends of the shield.

Minarik Drives offers two accessory plug harnesses for connecting to the INHIBIT terminals: part number 201-0024 [inhibit plug with 18 inches (46 cm) leads]; and part number 201-0079 [inhibit plug with 36 inches (91 cm) leads].