



An American Control Electronics Brand

# TAx01 Series

1Q SCR Chassis Adjustable Speed Drive  
for PMDC Brushed Motors

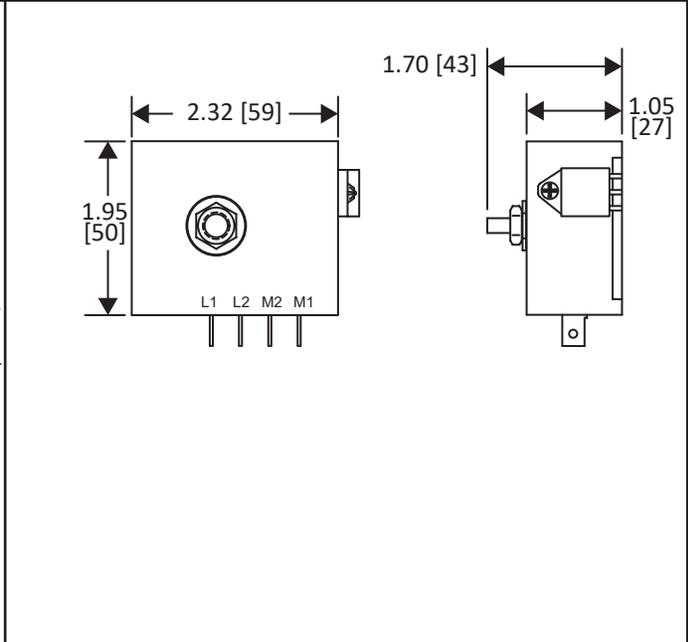
## Specifications Safety Warnings Dimensions

Model	Line Voltage (VAC)	Output Voltage Range (VAC)	Continuous Armature Current (Amps)	Horsepower Range
TA101U	115	0 - 110	10.0	1/8 - 1/2
TA101P	115	0 - 110	10.0	1/8 - 1/2
TA201U	230	0 - 220	10.0	1/4 - 1

AC Line Voltage.....115 or 230 VAC ± 10%, 50/60 Hz, single phase  
 AC Line Current.....Same as motor current at full speed  
 Acceleration Time.....0.5 seconds  
 Deceleration Time.....coast to stop  
 Vibration (0 - 50 Hz).....0.5G maximum  
 (>50 Hz).....0.1G maximum  
 Ambient Temperature Range.....10°C - 55°C  
 Weight TA101U.....0.20 lbs  
 TA101P.....0.42 lbs  
 TA201U.....0.20 lbs

**READ ALL SAFETY WARNINGS BEFORE INSTALLING THIS EQUIPMENT**

- DO NOT INSTALL, REMOVE, OR REWIRE THIS EQUIPMENT WITH POWER APPLIED. Have a qualified electrical technician install, adjust and service this equipment. Follow the National Electrical Code and all other applicable electrical and safety codes, including the provisions of the Occupational Safety and Health Act (OSHA), when installing equipment.
- Circuit potentials are at 115 or 230 VAC above earth ground. Avoid direct contact with the printed circuit board or with circuit elements to prevent the risk of serious injury or fatality. Use a non-metallic screwdriver for adjusting the calibration trim pots. Use approved personal protection equipment and insulated tools if working on this drive with power applied.
- Reduce the chance of an electrical fire, shock, or explosion by using proper grounding techniques, over-current protection, thermal protection, and enclosure. Follow sound maintenance procedures.
- Minarik Drives strongly recommends the installation of a master power switch in the line voltage input. The switch contacts should be rated for 250 VAC and 200% of motor nameplate current.
- Removing AC line power is the only acceptable method for emergency stopping.
- Do not disconnect any of the motor leads from the drive unless power is removed or the drive is disabled. Opening any one lead while the drive is running may destroy the drive.
- Under no circumstances should power and logic level wires be bundled together.
- This product does not have internal solid state motor overload protection. It does not contain speed-sensitive overload protection, thermal memory retention, or provisions to receive and act upon signals from remote devices for over temperature protection. If motor protection is needed in the end-use product, it needs to be provided by additional equipment in accordance with NEC standards.



## Installation

**Mounting**

- Drive components are sensitive to electrostatic discharge. Avoid direct contact with the circuit board. Hold the drive by the chassis only.
- Protect the drive from dirt, moisture, and accidental contact.
- Provide sufficient room for access to the terminals and calibration trim pots.
- Mount the drive away from heat sources. Operate the drive within the specified ambient operating temperature range.
- Prevent loose connections by avoiding excessive vibration of the drive.
- Mount the drive with its board in either a horizontal or vertical plane.

**Wiring**

Use 14 - 16 AWG wire for AC line and motor wiring.

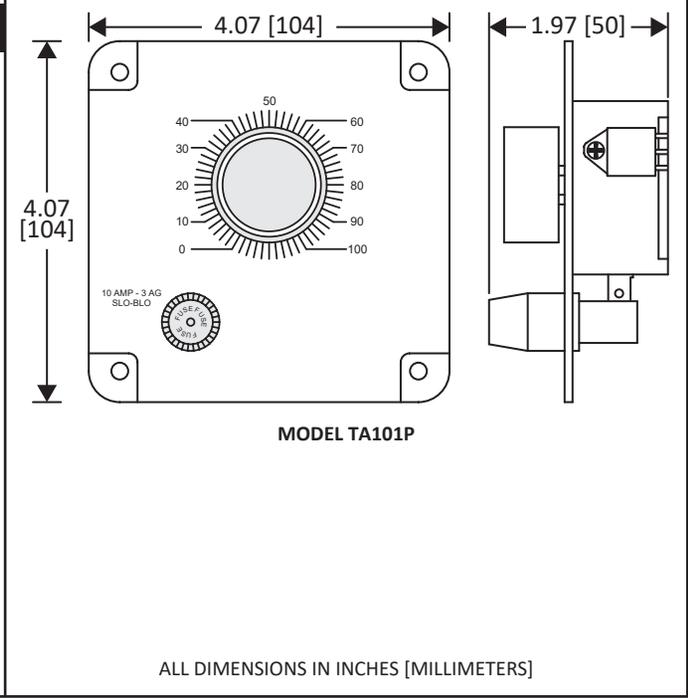
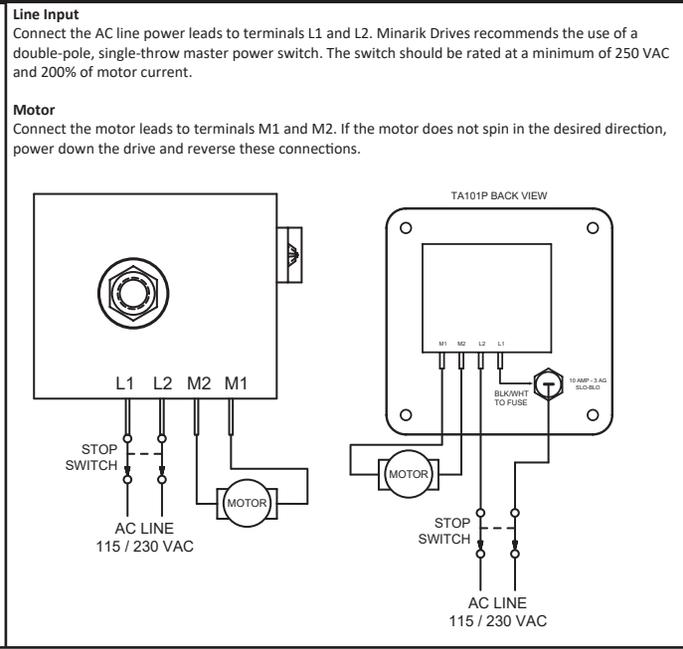
**Shielding Guidelines**

As a general rule, it is recommended to shield all conductors. If noise is produced by devices other than the drive, ground the shield at the drive end. If noise is generated by the drive, ground the shield at the end away from the drive. Do not ground both ends of the shield.

**Fusing**

The drives require an external line fuse for protection. Model TA101P supplies a 250 VAC, 10 amp, 3 AG slo-blo fuse. Fusing must be provided for models ACT100-10-PT1 and ACT200-10-PT2. Fuse the HOT leg of the AC line.

## Connections



# Startup

## STARTUP

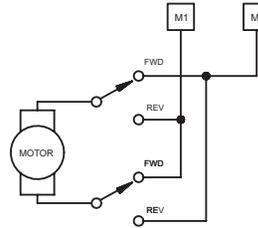
- Verify that no foreign conductive material is present on the printed circuit board.

1. Turn the speed adjust potentiometer full counterclockwise (CCW) until it clicks, putting the drive in an OFF condition.
2. Apply AC line voltage.
3. Turn the speed adjust potentiometer clockwise (CW) until it clicks, putting the drive in an ON condition.
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. To stop, turn the speed adjust potentiometer full counterclockwise (CCW) until it clicks.

# Operation

## Reversing

To reverse motor direction, set the motor for zero speed or remove the AC line. Swap the M1 and M2 terminals. **The motor must come to a complete stop before changing directions.**



# Calibration

**Minimum Speed (P2):** The P2 setting determines the minimum motor speed when the speed adjust potentiometer is set for minimum speed. It is factory set for zero speed. To calibrate P2:

1. Set the P2 trim pot full CCW.
2. Set the speed adjust potentiometer for minimum speed.
3. Adjust the P2 trim pot until the desired minimum speed is reached or is just at the threshold of rotation.

**IR Compensation (P3):** The P3 setting determines the degree to which motor speed is held constant as the motor load changes. To calibrate P3:

1. Set the P3 trim pot full CCW.
2. Increase the speed adjust potentiometer until the motor runs at midspeed without load. 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 P3 trim pot until the motor runs at the speed measured in step 2. If the motor oscillates (overcompensation), the P3 trim pot may be set too high (CW). Turn the P3 trim pot CCW to stabilize the motor.
5. Unload the motor.