



Specifications

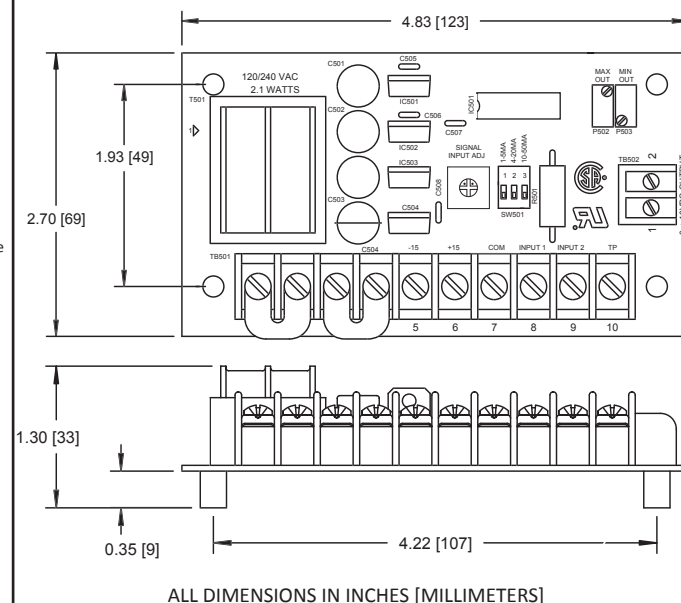
AC Line Voltage.....	115/230 VAC $\pm$ 10%, 50/60 Hz, single phase
Input Signal Range PWM.....	0 - 25 VDC
Voltage (Narrow).....	-25 - 25 VDC
Voltage (Wide).....	-250 - 250 VDC
Current.....	1 - 5, 4 - 20, 10 - 50 mA
Input Impedance Voltage / PWM Signal.....	>25K ohms
Current Signal 1-5 mA.....	1K ohms
Current Signal 4-20 mA.....	235 ohms
Current Signal 10-50 mA.....	100 ohms
PWM Input Switching Frequency.....	> 10 kHz
Output Voltage Range.....	-10 to 10 VDC
Output Voltage Range Linearity.....	0.01%
Output Impedance.....	800 ohms
Ambient Temperature Range.....	0°C - 50°C
Weight.....	0.4 lbs
Safety Certifications.....	UL/cUL Listed Equipment, file # E132235
	CSA Certified Component, file # LR41380

Safety Warnings

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 installed 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 proper grounding, over-current protection, thermal protection, and enclosure. Follow sound maintenance procedures.
- **ACE 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.
- Change voltage switch settings only when the drive is disconnected from AC line voltage. Make sure both switches are set to their correct position. If the switches are improperly set to a lower voltage position, it may cause damage to the transformer.
- Under no circumstances should power and logic level wires be bundled together.

Dimensions



Installation

Mounting

- Drive components are sensitive to electrostatic discharge. Avoid direct contact with the circuit components.
- Protect the drive from dirt, moisture, and accidental contact.
- Provide sufficient room for access to the terminal block 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. Four 0.25" (6 mm) wide holes in the board accept #8 pan head screws.

Wiring

Use 18 - 24 AWG wire for logic wiring.
Use 14 - 16 AWG wire for AC line (L1, L2) wiring.

Shielding Guidelines

As a general rule, ACE recommends shielding of all conductors. If it is not practical to shield power conductors, ACE recommends shielding all logic-level leads. If shielding of logic-level leads is not practical, the user should twist all logic leads with themselves to minimize induced noise. Refer to the user's manual for details on earth grounding shielded wires and filtering.

Fusing

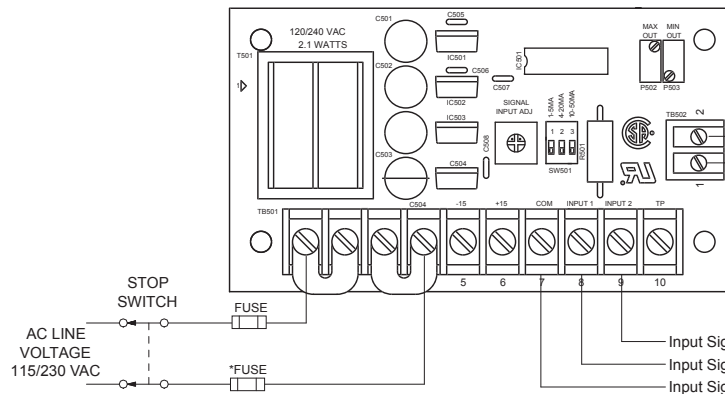
ACE drives require an external line fuse for protection. Use fast acting fuses rated for 250 VAC or higher and 150% of the maximum armature current. Fuse the HOT leg of the AC line when using 115 VAC and both lines when using 230 VAC.

Connections

Line Input

Connect the AC line power leads to terminals L1 and L2, or to a double-throw, single-pole master power switch (recommended). The switch should be rated at a minimum of 250 VAC and 200% of motor current.

POWER



Input Signal

Connect the input signal common (-) to terminal 7 (COM). If using a PWM, mA, or VDC analog signal less than or equal to 25 VDC, connect your signal reference (+) to terminal 8 (INPUT 1). If using a VDC analog signal greater than 25 VDC, connect your signal reference (+) to terminal 9 (INPUT 2).

Output Signal

The drive will output a scalable 0 $\pm$ 10 VDC between terminals 1 (signal common -) and 2 (signal reference +)

LOGIC

Output Signal Reference (+)
Output Signal Common (-)

Input Signal Reference (+): 0 $\pm$ 250 VDC
Input Signal Reference (+): 0 - 25 VDC PWM, 0 $\pm$ 25 VDC; 1-5, 4-10, 10-50 mA
Input Signal Common (-)

Startup

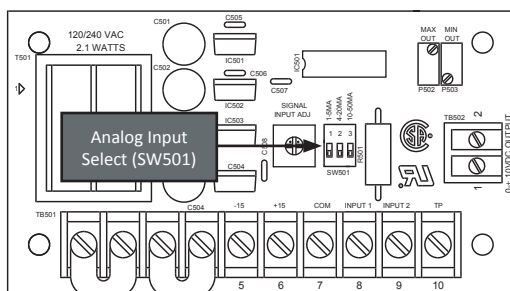
SELECT SWITCHES

STARTUP

Signal Select (SW501)

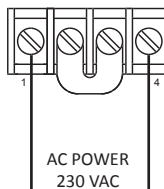
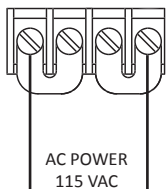
Set the signal select switch SW501 to the corresponding input signal. Set all DIP switches OFF when a voltage input signal is used. Set only DIP switch 1 ON when a 1-5 mA current input signal is used. Set only DIP switch 2 ON when a 4-20 mA current input signal is used. Set only DIP switch 3 ON when a 10-50 mA current input signal is used. The OFF position is when the switch it towards the screw terminal.

Input Signal Level	DIP SWITCH SETTING		
	1	2	3
PWM / Voltage	OFF	OFF	OFF
1-5 mA	ON	OFF	OFF
4-20 mA	OFF	ON	OFF
10-50 mA	OFF	OFF	ON



Line Input Jumpers

Connect the 115/230 VAC line input to terminals 1 and 4. If using a 115 VAC, leave the jumper between terminals 1 and 2 and the second jumper between terminals 3 and 4. If using a 230 VAC, remove one of the jumpers and move the second jumper to between terminals 2 and 3.



Calibration

Signal Input Adjust (SIGNAL INPUT ADJ): The SIGNAL INPUT ADJ setting is used to set the maximum Test Point voltage to approximately 5 VDC, as measured between terminals TP and COM. The importance of this step is to scale an voltage input signal to keep it within the comparator chip's range. The SIGNAL INPUT ADJ is only calibrated when the ISO202-1 is following a voltage input signal.

Minimum Output (MIN OUT): The MIN OUT setting determines the minimum motor speed when the input signal is set for is set for minimum speed. It is a 15-turn trim pot.

Maximum Output (MAX OUT): The MAX OUT setting determines the minimum motor speed when the input signal is set for is set for maximum speed. It is a 15-turn trim pot.

INPUT PWM CALIBRATION

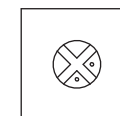
1. Verify that all DIP switches are set to OFF on SW501.
2. Set the SIGNAL INPUT ADJ trim pot to the approximate input range position, as indicated by the trim pots on the right.
3. Apply the minimum PWM input signal.
4. Measure the voltage between terminals 1 and 2 on TB501. Adjust the MIN OUT trim pot until the desired voltage is reached.
5. Apply the maximum PWM input signal.
6. Measure the voltage between terminals 1 and 2 on TB501. Adjust the MAX OUT trim pot until the desired voltage is reached.
7. Measure the voltage between terminals 7 (COM) and 10 (TP). Adjust the SIGNAL INPUT ADJ until the voltage is 5 VDC.
8. Repeat steps 3 - 7 until no further calibration is needed.

INPUT VOLTAGE CALIBRATION

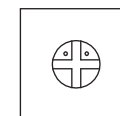
1. Verify that all DIP switches are set to OFF on SW501.
2. Set the SIGNAL INPUT ADJ trim pot to the approximate input range position, as indicated by the trim pots on the right.
3. Apply the minimum voltage input signal.
4. Measure the voltage between terminals 1 and 2 on TB501. Adjust the MIN OUT trim pot until the desired voltage is reached.
5. Apply the maximum voltage input signal.
6. Measure the voltage between terminals 1 and 2 on TB501. Adjust the MAX OUT trim pot until the desired voltage is reached.
7. Measure the voltage between terminals 7 (COM) and 10 (TP). Adjust the SIGNAL INPUT ADJ until the voltage is 5 VDC.
8. Repeat steps 3 - 7 until no further calibration is needed.

INPUT CURRENT CALIBRATION

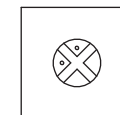
1. Verify that the correct DIP switch is set to ON on SW501.
2. Set the SIGNAL INPUT ADJ trim pot full counter-clockwise.
3. Apply the minimum current input signal.
4. Measure the voltage between terminals 1 and 2 on TB501. Adjust the MIN OUT trim pot until the desired voltage is reached.
5. Apply the maximum current input signal.
6. Measure the voltage between terminals 1 and 2 on TB501. Adjust the MAX OUT trim pot until the desired voltage is reached.
7. Repeat steps 3 - 6 until no further calibration is needed.



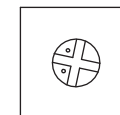
0 - 5 VDC
Input Range



0 - 10 VDC
Input Range



0 - 25 VDC
Input Range



0 - 250 VDC
Input Range