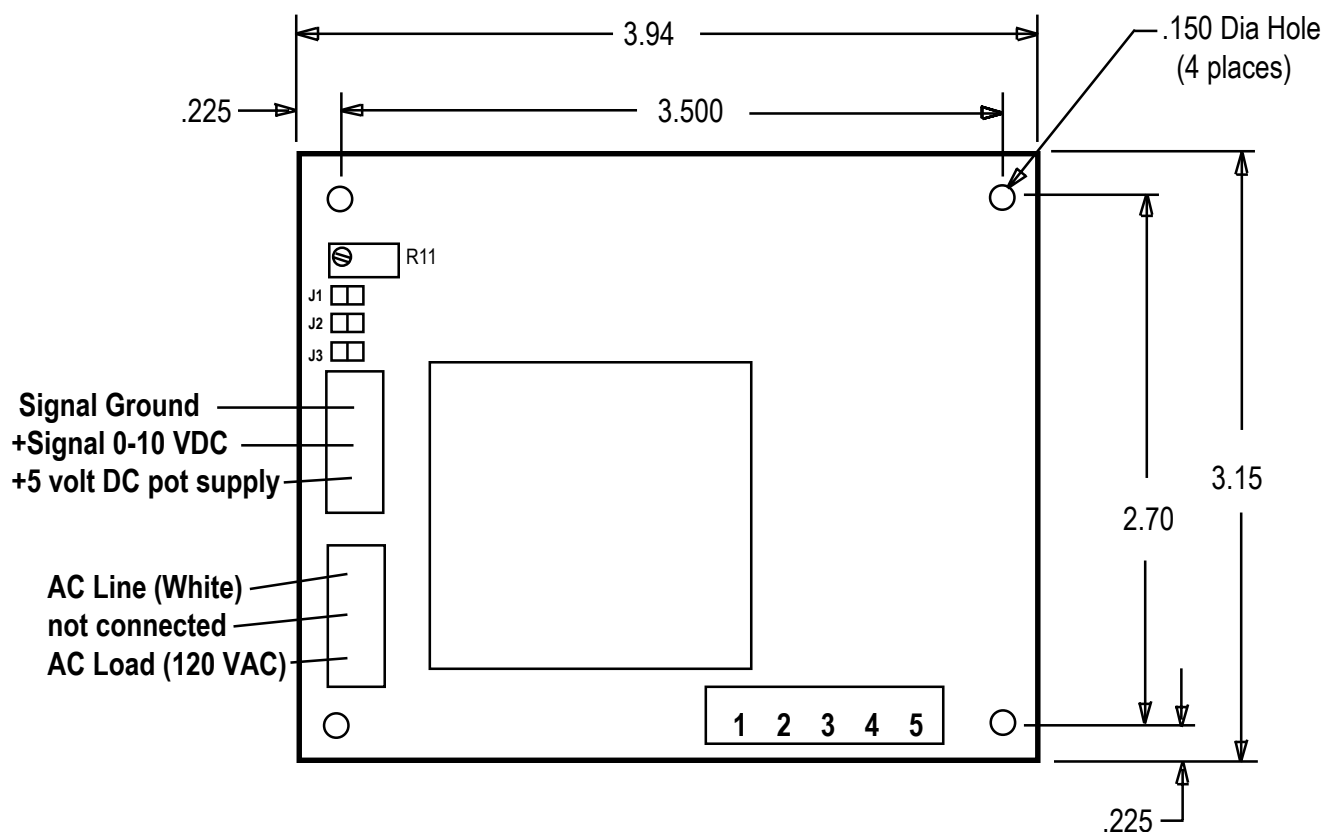


MODEL 470 ELECTRONIC VACUUM REGULATOR CONTROL BOARD INTERFACE



- 1 Ground (White to Regulator)**
- 2 Pressure Sensor Ground (Green to Regulator)**
- 3 + 5 VDC Supply (Red to Regulator)**
- 4 Pressure Sensor Signal + (Brown to Regulator)**
- 5 Regulator Control (Black to Regulator)**

Notes:

1. Board assembly must be mounted on stand-off supports to provide a minimum of 1/4 inch clearance between board surface and mounting surface. Conductive materials must not touch the bottom of the board since it could short out components and damage the board. The board must be mounted in an enclosure to prevent accidental contact with "electrically live components."

2. A 5K or 10K ohm, single turn or multi-turn, potentiometer can be used for the control signal if the customer desires. Additionally, if desired the potentiometer can be powered directly from the board. In such cases, the potentiometer resistance element terminals must be connected between "Signal Ground" and "+5 volt DC pot supply". The wiper (variable output) connected to the + Signal 0 to 10 VDC terminal.

3. "Remote Sensing Port" should be connected to the vacuum system at the location where it is desired to control the vacuum level. Use of this port eliminates the pressure drop effect due to air flow in the piping between the regulator and point of desired vacuum control. If the pressure drop due to flow is not critical and the remote sensing port is not used, it must be plugged off for the regulator to function properly.

Notes continued:

4. A multi-turn potentiometer is provided on the board for use as a control source to set the vacuum level, if desired. Operation in this manner eliminates the need for a user to provide a separate external potentiometer. However, this type of potentiometer is only recommended for infrequent adjustment of the vacuum setting by a technician as in the case of setup/periodic adjustment, since the control board is to be installed inside an enclosure to prevent contact with live AC electrical sources. Additionally, limited adjustment of the on board potentiometer is suggested, because a "trimmer potentiometer" is inherently designed only for limited adjustment life. To configure the board for operation using the on-board multi-turn potentiometer install jumpers J1 and J2 located in the upper left corner of the board. The potentiometer will not operate without the jumpers installed.

5. Regulator dynamic response can be tuned by adjusting a small bronze needle valve located inside the black cover of the mechanical portion of the regulator. The function of the needle valve is to create a small bleed of ambient air into the regulator, which is required to create vacuum control. A white silicone rubber housing contains a filter screen which is used to prevent any dust from entering into the regulator. The operation of the regulator requires that a vacuum level be established internally under the portion directly beneath where the cover attaches. This vacuum level is the vacuum set-point (the same vacuum as the regulated output). The maximum level of vacuum attainable is in part dependent on the amount of opening of the needle valve. A larger opening will provide maximum dynamic response at low differential vacuum settings (pressures just less atmospheric pressure). However, as the opening of the needle valve is increased the maximum vacuum level which can be attained is reduced. So it is important to check the regulators performance at both the maximum and minimum vacuum settings when adjusting the needle valve. Typically, a needle valve opening of approximately 1/2 to 3/4 turn will provide good performance over the entire vacuum range. If additional vacuum is needed, try reducing the needle valve setting. If faster response is required when adjusting the control signal from a greater vacuum setting to a lesser vacuum setting, try slightly increasing the needle valve opening.