The **IB-ESX** (p/n 950002) interface board has been developed to allow the **ESX Series** electric expansion valves to be easily interfaced with third party controllers. The **IB-ESX** accepts 4-20 milliamp signals, at 300, 600 and 1,000 ohm impedances, as well as 0-10 volt DC signal.

**CONFIGURE the BOARD**

When used with a 0-10 volt input signal, a jumper should be placed on the pins labeled CN3 as shown in the Figure 1. This is the default jumper position. The impedance for this input is 40 k ohms.

When used with a 4-20 milliamp input, the board must be matched to the impedance of the external controller. Refer to the manufacturer’s literature and choose the jumper position on CN4 as shown Figure 1. Possible impedance selections on CN4 are 1,000 ohms (1k), 600 ohms, and 300 ohms.

The IB-ESX will run the ESX in the proper uni-polar mode and will initialize the valve with 512 closing steps at 50 steps per second. The valve will be driven closed whenever the incoming signal drops to 4.2 milliamps or 0.5 volts DC, to assure proper operation with varying signal tolerance.

Choose “Open on Rise” or “Close on Rise” operation using the middle two pins on jumper CN2. The jumper is stored on one pin only and will cause the valve to open as input signal rises, i.e. valve is closed at 0 volts or 4 milliamps and fully open at 10 volts or 20 milliamp input. By placing the jumper on both pins, the operation is reversed so that the valve will be fully open at 0 volts or 4 milliamps. Other pins on CN2 have been clipped at the factory and are not used for operation of the valve.

**MOUNT the BOARD**

The **IB Series** is based on a 3.0” x 3.0” circuit card with 0.125” mounting holes, 0.25” from each corner. If desired, these mounting holes may be used with customer supplied non-metallic standoffs. The **IB Series** does, how-
Incorrect wiring will cause the fuse to fail, a spare fuse is included and may be replaced with any 1 amp 250 volts delay fuse type GMC1 or equivalent. Wiring should be corrected before replacing the fuse.

2. The primary input of the transformer should be protected by Metal Oxide Varister (MOV) surge suppressors, supplied with the IB. For protection from electrical transients, connect one MOV between one leg of the input voltage of the 24 VAC transformer and earth ground. Connect a second MOV between the other leg of the input voltage of the 24 VAC transformer and earth ground. See Figure 2.

3. The pumpdown terminals must be supplied with a “dry” contact from a switch or relay. No external power should be applied to these terminals.

Note: The terminals are labeled IN and GND. The GND terminal is shared with the grey ESX wire.

**OPERATION and TROUBLESHOOTING**

When properly configured and installed the **IB Series** requires no maintenance. They incorporate a number of operational features to assure trouble free service. On power-up the board will initialize by giving the valve a large number of steps to assure that the valve is fully shut. The routine will require approximately 11 seconds for the IB-ESX. The valve will not respond to input signals during this time.

If the valve is required to shut during operation, the pumpdown terminals should be used. When given a pumpdown signal, the board will shut the valve immediately and overdrive by 50 steps to reset valve position. On removal of the pumpdown signal the valve will resume position as dictated by the external control signal.

If power is lost to the IB-ESX or power wire to the valve severed, the valve will remain in its last position. Solenoid valves may be desired, before the step motor valve, on critical applications.

To force the valve shut during operation for test purposes, simply remove the jumper from CN4 or CN3, depending on configuration. To resume normal operation, replace the jumper.

To allow for component tolerances, the IB will shut the valve when the input signal reaches 4.2 milliamps or .5 volts depending on the configuration.