PRESSURE TRANSDUCER and TEMPERATURE SENSOR

INSTALLATION AND SERVICE INSTRUCTIONS

Pressure Transducers and Temperature Sensors are used in conjunction with Sporlan's Temperature Control Board (TCB) or other controllers to control Electronic Expansion Valves, Electronic Discharge Bypass Valves, or Electronic Evaporator Pressure Regulating Valves.

PRESSURE TRANSDUCER

There are several different pressure ranges for the pressure transducer. The two most commonly used transducers measure 150 or 300 psig gage pressure. The Superheat, Chiller, Subcool-O-Matic, Refrigeration, Pressure, and Kelvin (R-410A) use a 300 psig transducer, while the Kelvin for all other refrigernts uses the 150 psig. The transducer can be indentified b the product label on the transducer body

300 psig 2CP5-50-1
150 psig 2CP5-63-2 (Green shrink wrap)

The pressure transducer is used in conjunction with the **Superheat Controller** or **Chiller Controller** to provide pressure/temperature superheat control of Sporlan SEI or SEH Electric Expansion Valves. The transducer is threaded to screw onto a standard 1/4 inch SAE Flare pressure tap, and should be mounted on the suction line near the temperature sensor. There are three color-coded lead wires and the transducer is polarized.

NOTE: Improved Cable for Pressure Transducers
Pressure Transducers Part Numbers 952740 (2m 300psig), 952503 (5m 300psig), 953091 (2m 150psig), 953092 (5m 150psig) now include an improved hermetic cable. **Please note that the color code has changed.**

Controller Terminal	Old Pigtail leads	New Hermetic Cable
1+ or 2+	Red	Black
1- or 2-	Black	Green
1S or 2S	Green	White

Sporlan has three different temperature sensors for different applications. All of them are solid state devices that change electrical resistance in response to a change in temperature.

The **air sensor** (item # 952669) is most often used in the discharge air stream of the evaporator. The sensor location should be chosen using the same criteria as would be used for location of a thermostat. Heat sources such as lights and anti-sweat heaters, as well as areas with poor air flow should be avoided. The sensor should be mounted in the air stream using a clip such as that pictured in figure 1.

The **surface sensor** (item # 952662) is typically mounted on the suction line, as close to the evaporator as possible using the wire ties included, see the diagram in figure 2. In the case of sensors used for **two temperature** superheat control, one sensor is mounted on the liquid line at the inlet to the evaporator, and the other is mounted on the suction line at the outlet of the evaporator.

The **well sensor** (item # 952795) is used on suction lines 7/8" or larger utilizes the same sensing element as the surface sensor, but is provided with a **well.** The **well** is a specially designed brass fitting, which is threaded into a 1/4" NPT hole or fitting in the suction line. The sensor probe is inserted into the well along with the heat transfer grease. See figure 3. These sensors are generally used with iron pipe which has very poor thermal transfer properties. Be sure to wrap the threads on the well fitting with Teflon tape or use some form of thread sealant.

The Kelvin sensor 952551 (white) can be mounted on the suction line for superheat control. Refer to Figure 2. For T2 air control mount sensor as shown in figure 1 in a location best suited for air temperature control.

figure 1

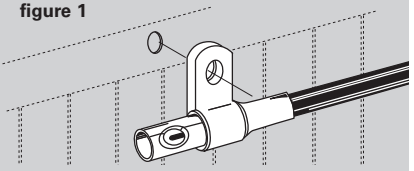


figure 2

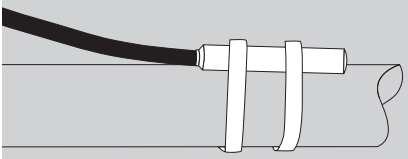
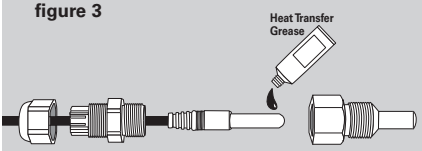


figure 3



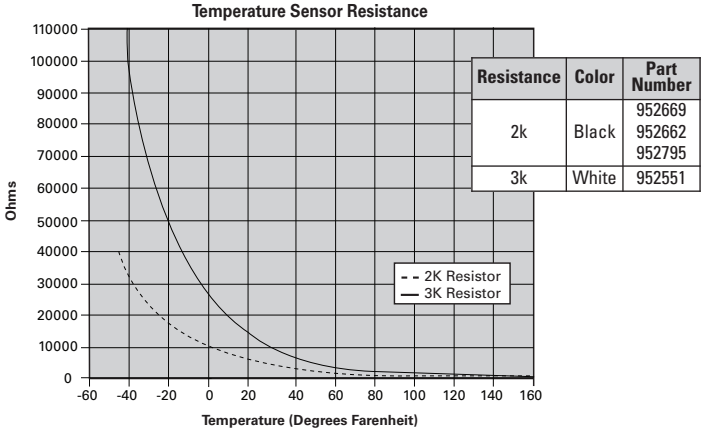
SERVICE INSTRUCTIONS

Neither the pressure transducer or temperature sensor can be repaired. Using the charts below, measurements can be taken to assure that they are functioning correctly. If components are found to be out of tolerance, they should be replaced.

TEMPERATURE SENSOR

As mentioned above, the temperature sensor changes electrical resistance in response to temperature changes. Disconnect the sensor from the controller, then check and record the resistance through the temperature sensor. Check the temperature of the suction line at the sensor location, and compare to the chart in figure 4. Example: at 0° F, the resistance through the 2k temperature sensor should be approximately 10,000 Ohms. Reconnect the temperature sensor to the controller.

figure 4

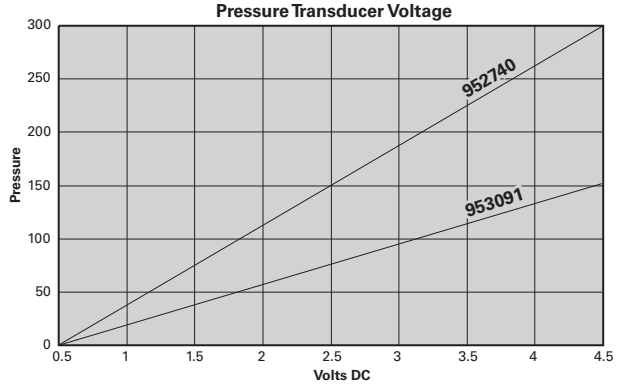


Resistance	Color	Part Number
2k	Black	952669 952662 952795
3k	White	952551

PRESSURE TRANSDUCER

The output voltage of the pressure transducer changes in response to pressure changes within the system. With the system running and using a DC voltmeter, measure the voltage between the white and green lead wires from the transducer. Remove the transducer from its fitting, and replace it with a **union tee** with a core depressor. Install the transducer on one of the male fittings of the **tee,** and a pressure gauge on the other. Read the pressure on the gauge and compare the findings to the chart in figure 5. Example: at 50 PSI, the voltage between the two leads should be approximately 1.1 VDC. Reinstall the pressure transducer on the system.

figure 5



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