

# 1002PI/PIS Series

## DIFFERENTIAL PRESSURE INSTRUMENTS

Please read all instructions carefully before attempting to install your new Orange Research instrument.

**CAUTION:** Do not exceed nameplate maximum operating pressure. Use only fluids compatible with wetted parts.

### HOW IT WORKS

The instrument operates on the difference between two pressures (delta-P). The sensing element is a spring biased piston which moves linearly in proportion to the difference between two basic pressures. A magnet on the **HI** pressure side of the piston assembly moves with the piston and rotates a follower magnet located adjacent to the pressure cavity. The gauge pointer is located at the end of the rotary magnet shaft and rotates with the magnet to provide gauge readings proportional to differential pressure variations. There are no mechanical seals between the pressure side of the instrument and the gauge mechanism side. This is accomplished by coupling the forces between two adjacent magnets through a solid wall.

**SWITCH UNITS:** On indicating switch models, reed switches are located adjacent to the pressure chamber and are actuated when the piston magnet field interacts at a preset point with the reed switch. Switch set points are adjustable (see below).

### INSTALLATION

Check instrument and identify the **HI** and **LO** markings on the nameplate. **HI** identifies the high pressure port; **LO** the low pressure port. If instrument is installed backwards, it will neither operate nor be damaged. Reverse connections if installed backwards. The instrument can be line or panel mounted.

Under normal conditions 1002PI/PIS Series Instruments are designed for line pressure to 3000 psig and can sustain a continuous 3000 psig forward or reverse overpressure regardless of the instrument measuring range.

It is recommended that the instrument be located above the pressure source to allow drainage of the unit.

**IMPORTANT:** Because of the magnetic movement, this instrument should never be mounted in direct contact with a steel surface; otherwise, a calibration shift will occur. Mount the instrument so that the pressure body is at least 1 inch away from metal surfaces with non-magnetic spacers or an aluminum mounting bracket. Flush panel mounted instruments will not be affected by contact with stainless steel or aluminum panels.

### MAINTENANCE

Your Orange Research instrument will provide years of maintenance-free operation. Other than replacing a broken lens there is only one area where this instrument may need attention. Erratic pointer or switch action may indicate that cleaning is required. Please consult the factory for guidance on how to properly clean your instrument.

### RECALIBRATION

Recalibration of this instrument is not required. However, if the range spring is damaged or a new dial is required, the instrument must be returned to the factory for the parts and recalibration.

**NOTE:** When ordering replacement parts, identify instrument S/N from the nameplate. Identify parts required and quantity.

### SWITCH ADJUSTMENT

Reed switch set points are field adjustable. To change the reed switch setting, a source of hydraulic pressure will be needed. Loosen the set screw holding the reed switch. To increase the set point, slide the switch tube toward the **LO** port. To decrease the set point, slide the switch tube toward the **HI** port. Repeat as required until new setting is reached. Tighten the screw holding the switch tube in place and recheck the new actuation point.

**CAUTION:** Do not over-tighten the switch holding screw – this is a cone-point set screw and digs into the tube with light pressure.

### SWITCH WIRE COLOR

- A SPST white and white
- B SPST green (N/C); blue (common)
- C SPDT green (N/C); red (N/O); blue (common)