Series 38 Control System

Introduction

The Sigma Series 38 Control System is a compact, pneumatic unit for operating a single pneumatic actuator. The operation includes manual start-up/reset with temporary override, high/low pressure sensing of flowline pressure and shutdown in the event of abnormal pressure outside predetermined limits. Various configurations available include manual and automatic reset features and optional equipment such as pressure regulator(s), needle valves for isolation and testing (if desired) and pressure gauges for monitoring. The unit is completely pre-assembled on a manifold bar with a 1/2"FNPT connection in the bottom for installation directly to a flowline tap point.

System Components

All 38 Series Control units have five basic components assembled in a single unit. These are:

1. **Manual Reset Relay: 11LV100 (Manual Reset) or 11ALV100 (Auto-reset)**
2. **381***-103 High Pilot**
3. **381***-103 Low Pilot**
4. **380200-001 Manifold Bar**
5. **ControlAir Regulator**

These five items are connected with premium Swagelok fittings and 1/4" OD x .035 stainless steel tubing. Optional equipment can be added such as needle valves, pressure gauges, primary higher pressure regulator (MECO or equivalent), and trip indicators.

Installation

To install the unit in the field, it is assumed that a 1/2" FNPT collar exists on the flowline adjacent to the actuator. A needle valve should be installed in the collar in order to isolate the sensing manifold bar for testing purposes. The control system is in turn mounted directly on the needle valve via the 1/2" NPT in the bottom of the manifold bar (see picture). Supply pressure to power the system and the actuator is connected to the tee located on the inlet of the regulator. The last connection to be made is the connection from the outlet port of the Manual Reset Relay to the actuator.

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Operation

Upon completion of the above installation, the unit is ready to be placed in service in the following sequence:

1. **Adjust regulator output pressure to required pressure as specified by the actuator manufacturer by turning the screw on the regulator to increase pressure, reading the gauge until the correct value is achieved. Lock the setting with the lock nut on the adjustment screw.**
2. **After confirming all connections are secure, pull the handle on the relay and push in on the latch pin located on the side of the relay valve below the handle. At this point pressure will flow to the actuator which will begin moving to the open position.**
3. **All functions from this point will be automatic. As soon as flowline pressure is established within operating range, the pressure sensors will attain their in-service condition, the latch pin on the relay valve will release to its normal position and the relay valve will be in automatic mode. (*If the latch pin does not "pop" out, the pressure sensors are not set correctly and should be re-calibrated*). If pressure in the flowline increases or decreases beyond the design operating range, the respective pressure sensor will trip releasing pressure on the relay valve causing the relay to shift which will exhaust pressure from the actuator closing the gate valve.**
4. **For non-automatic systems, resetting is achieved by repeating step 2 above. For automatic reset systems, no action is required. This system (automatic reset) will return to service when the condition that caused the shutdown is corrected.**

Troubleshooting Guide