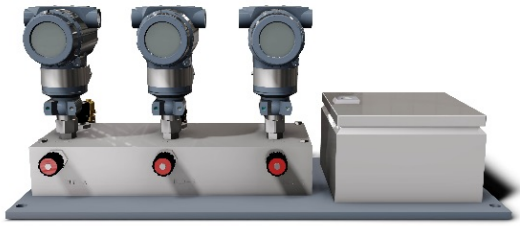
Turbine Mechanical Equipment – Pressure Status Manifold

Features

- Manifold
- Pressure transmitters
- Needle valves
- Test points



Overview

Pressure status manifolds (PSM) are used to monitor critical pressure (or vacuum) headers and provide the control system with three independent analog inputs. Two out of three voting logic is used in the control system to generate trip signals based on the header status. Each of the three transmitters has a pressure-blocking valve and a pressure drain valve. These valves allow the transmitters to be tested individually and provide instrument isolation for online replacement. A PSM can be used to monitor most critical system where redundant control system inputs are required.

Manifold

The hydraulic manifold is machined from a solid 6061-T6 aluminum block. All crossing ports are de-burred and smoothed when possible to decrease resistance to flow. All of the field connections are o-ring seal type ports, specifically SAE standard design. Each port is uniquely identified with metal impression stampings. The stampings on the manifold correspond to the text description of the ports on the PSM assembly drawing. Four through holes for mounting bolts are located at the corners of the manifold for mounting. Test point connections are located between each set of isolation and drain valves.

Pressure Transmitters

The pressure transmitters are compact heavy-duty instruments, rated for IP 65 exposure, that supply a 4-20 mA output signal proportional to the process pressure being monitored. The transmitters utilize a shock resistant, thin film, sensor as the pressure to electrical conversion element. All transmitters are 100% tested and factory calibrated.

Needle Valves

Needle valves are used in the PSM design for two purposes. The first needle valve in each set is used to isolate the pressure transmitter from the pressure header. This needle valve is stamped BLK on the manifold. The second needle valve, stamped BLD on the manifold, is used to drain fluid from the transmitter for set point verification.

Test Points

Test points are used throughout the Emerson hydraulic system for troubleshooting. The PSM has a test point tap on the process header chamber, located between the needle valves, for each of the pressure transmitters. This test point can be used to check the process pressure, or in conjunction with the two needle valves it can be used to verify the operation of a transmitter.

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