

SECTION 13424 - PRESSURE MEASUREMENT

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes the following:

1. Pressure seals.
2. Diaphragm seals.
3. Pressure switch.
4. Pressure to current (P/I).
5. Differential pressure to current (DP/I).

1.02 SUBMITTALS

A. Shop Drawings: Submit in accordance with Sections 01300 and 13410, Shop Drawings covering the items included under this Section.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with specified requirements, manufacturers offering products which may be incorporated in Work include:

1. Pressure Switch:
 - a. Allen-Bradley, Bulletin 836T.
 - b. Square D, Class 9012.
2. Diaphragm Seals:
 - a. Endress-Hauser.
 - b. Siemens.
 - c. ABB.
3. Pressure to Current:
 - a. Endress-Hauser.
 - b. Siemens.
 - c. ABB.
4. Differential Pressure to Current:
 - a. Endress-Hauser.
 - b. Siemens.
 - c. ABB.

2.02 PRESSURE SWITCH

A. Pressure switches shall be rated minimum 3 amps at 120-volt AC with SPDT or DPDT contacts as shown on Drawings.

B. Pressure switches shall have an adjustable differential.

- C. Proper ranges and NEMA 12, 4 or 7 housing requirements shall be as shown on Drawings. CONTRACTOR shall obtain the proper device for each application.
- D. If there is insufficient data on Drawings to determine range, overpressure, differential, and number of poles on switch, CONTRACTOR shall obtain information from ENGINEER.
- E. Shop Drawing shall show switch model number, range, differential, overpressure, contact data, and ENGINEER's number for each device.
- F. Single-pole switches and a relay will not be accepted as a substitute for 2-pole switches. Two single-pole switches individually set will not be accepted as a substitute for 2-pole switches.
- G. Pressure switch parameters vary greatly with manufacturers. If, in the judgment of ENGINEER, pressure switch submitted is operating at limits of range, overpressure, or differential, it will not be accepted if another manufacturer has a more appropriate device for application.

2.03 DIAPHRAGM SEALS

- A. Diaphragm seals shall isolate the process measuring instruments from the process fluid. The diaphragm seal shall be of the removable type. The diaphragm seal shall be filled with liquid, compatible for the process shown to be measured on Drawings. The diaphragm seal shall be supplied with gaskets, bolts, capillary tubing, and fill fluids.

2.04 PRESSURE TO CURRENT (P/I)

- A. Pressure to current signal converter shall be 2-wire, solid-state electronic, temperature-compensated, strain gauge or capacitive type. Process pressure shall be applied to sealing diaphragm in measuring section. This pressure shall be transmitted to a measuring element connected to the electronics of the transmitter. Transmitter shall output an isolated 4-20 mA signal proportional to pressure measurement. Adjustable electronic damping shall be provided from 0 to 40 seconds in electronically adjustable increments of 0.1 second.
- B. Positive overage protection shall be provided. Diaphragms and wetted parts shall be 316 stainless steel, except where other special alloys are required to prevent corrosion.
- C. Accuracy shall be within plus or minus 0.075 percent of calibrated span for spans from 1:1 to 15:1 of URL. Stability shall be plus or minus 0.125 percent of URL for a minimum of 6 months.
- D. Turn down 100:1 or better.
- E. Signal converter shall be supplied with a pre-piped stainless steel 3-valve manifold or Double Block & Bleed valve assembly and pipe with flange for mounting. Two sediment traps shall be provided on water systems. Connectors may be either flanged or threaded as required. Materials of construction shall be 316 SS. Assembly shall be supplied by same manufacture as pressure transmitter or Parker Hanifin.
- F. Units shall be supplied with digital display and shall display the programmed scale of the device. Units shall be HART protocol capable and supplied with HART hand-held configurator (per project). See specification section 16050 2.01.

2.05 DIFFERENTIAL PRESSURE (DP/I)

- A. Differential pressure to current signal converters shall be 2-wire, solid-state electronic, temperature-compensated, strain gauge or capacitive type. High and low process pressure shall be applied to sealing diaphragms in measuring section. These pressures shall be transmitted to a measuring element connected to the electronics of the transmitter. Transmitter shall output an isolated 4-20 mA signal proportional to differential pressure measurement. Adjustable electronic damping shall be provided from 0 to 40 seconds in electronically adjustable increments of 0.1 second.
- B. Positive overage protection shall be provided. Diaphragms and wetted parts shall be 316 stainless steel, except where other special alloys are required to prevent corrosion.
- C. Accuracy shall be within plus or minus 0.075 percent of calibrated span for spans from 1:1 to 15:1 of URL. Stability shall be plus or minus 0.125 percent of URL for a minimum of 6 months.
- D. Turn down 100:1 or better.
- E. Signal converter shall be supplied with a pre-piped stainless steel 3-valve manifold or Double Block & Bleed valve assembly and pipe with flange for mounting. Two sediment traps shall be provided on water systems. Connectors may be either flanged or threaded as required. Materials of construction shall be 316 SS. Assembly shall be supplied by same manufacture as pressure transmitter or Parker Hanifin.
- F. Units shall be supplied with digital display and shall display the programmed scale of the device. Units shall be HART protocol capable and supplied with HART hand-held configurator (per project). See specification section 16050 2.01.

PART 3 - EXECUTION

3.01 GENERAL

- A. Examination, Installation, Field Quality Control, Demonstration: In accordance with Section 13410.

END OF SECTION