

## SECTION 40 73 23/26

### ABSOLUTE-PRESSURE AND GAUGE-PRESSURE TRANSMITTERS

#### PART 1-GENERAL

**A.** The Cerabar PMC71 digital pressure transmitter with capacitive, oil-free ceramic measuring cell is typically used in fluid process applications, both hygienic and industrial, for pressure, level, volume or mass measurement in liquids and gases. It guarantees high degree of system safety thanks to a vacuum-proof ceramic membrane with integrated breakage detection. Quick Setup with adjustable measuring range allows simple commissioning, reduces costs and saves time. SIL2/3 according to IEC 61508.

#### **B. 1.02 SUBMITTALS**

**A.** Furnish complete Product Data, Shop Drawings, Test Reports, Operating Manuals, Record Drawings, Manufacturer's certifications, Manufacturer's Field Reports

**B.** Product Data:

1. Dimensional Drawings.
2. Materials of Construction.
3. Measurement accuracy.
4. Range and range ability.
5. Enclosure Rating.
6. Classification Rating.
7. Power.
8. Output options.

#### **1.03 QUALITY ASSURANCE**

**A.** Manufacture instruments facilities certified to the quality standards of ISO Standard 9001 - Quality Systems - Model for Quality Assurance in Design/Development, Production, Installation, and Servicing.

#### **1.04 DELIVERY, STORAGE, AND HANDLING**

**A.** Store all instruments in a dedicated structure with space conditioning to meet the recommended storage requirements provided by the Manufacturer.

### **1.05 PROJECT OR SITE CONDITIONS**

- A. Provide instruments suitable for the installed site conditions including, but not limited to, material compatibility, site altitude, process and ambient temperature, and humidity conditions.

### **1.06 WARRANTY**

- A. The transmitter shall have a standard one year warranty from date of shipment and if the meter is commissioned by a factory certified technician, the warranty is extended to three years from the date of shipment.

### **1.07 MAINTENANCE**

- A. Provide all parts, materials, fluids, etc. necessary for maintenance and calibration purposes throughout the warranty period. Deliver all of these supplies before project substantial completion.

### **1.08 LIFECYCLE MANAGEMENT**

- A. Instrument documentation, like original calibration certificates, manuals and product status information shall be accessed via a web enabled system with a license. The instrument-specific information shall be accessed via its serial number. When services are provided by an authorized service provider the services information like subsequent field calibrations shall be archived and accessible via this web enabled system.

## **PART 2-PRODUCTS**

### **2.01 MANUFACTURER**

- A. Endress+Hauser- Cerabar S PMC71

### **2.02 MANUFACTURED UNITS**

- A. The transmitter shall be a 2-wire, high-performance capacitive pressure transmitter with digital communications capabilities including HART, Profibus PA or Foundation Fieldbus as required by the plans.
- B. Measure capacitance changes in the sensor as pressure varies and produces a linear 4-20mA DC output proportional to the pressure. The unit shall have self-diagnostic capability and a non-volatile memory; Histo-ROM memory module for monitoring of events, configuration changes and periodic recording of temperature/pressure values.

- C. Display shall be an integrally mounted 4-line LCD scaled with engineering units.
- D. Transmitter shall have a static pressure limit at least 1.5 times the nominal pressure range. Unit shall use DC loop-power supply 10.5 to 45 VDC with self-diagnostic capability and a non-volatile memory.
- E. Sensor shall be a high purity aluminum oxide ceramic element with no oil fill and an elastomer seal.
- F. The unit shall be rated for process temperature of minus 13°F to 302°F and an ambient environment of minus 40 degrees F to 185 degrees F.
- G. Reference accuracy shall be +/- .075% of calibrated span including non-linearity hysteresis and non-reproducibility in accordance with IEC 60770. Total performance accuracy including non-linearity hysteresis and non-reproducibility in addition to thermal change of the zero point shall be +/- .2% URL.
- H. The transmitter shall be programmable via Hall magnetic switch external pushbuttons without pressure source or hand held device.
- I. Unit shall have ATEX, FM, CSA or IECEx approvals as required.

### **2.03 ACCESSORIES**

- A. Mounting set for installation of the transmitter on a wall or pipe (2")

### **2.04 SOURCE QUALITY CONTROL**

- A. Factory calibration of each pressure sensor traceable to the National Institute of Standards and Technology (NIST).
- B. A real-time computer generated printout of the actual verification data indicating apparent and actual pressures at 0 percent, 50 percent and 100 percent of the calibrated range shall be included with each device.
- C. Provide ISA data sheet ISA-TR20.00.01. Use the latest revision of form 20P2201. Complete the form with all known data, and dash out the inapplicable fields. Incomplete data sheets submitted will be result in a rejected submittal.

### **2.05 SAFETY**

- A. All electrical equipment shall meet the requirements of ANSI/NFPA 70, NATIONAL ELECTRIC CODE, latest edition.
- B. All devices shall be certified for use in hazardous areas: Class I, II, III Div. 1, 2, Groups A-G; temperature rating T6 (85° C)
- C. Electrical equipment housing shall conform to NEMA 4x/6p classification.

## **PART 3-EXECUTION**

### **3.01 EXAMINATION**

- A. Examine the complete set of plans, the process fluids, pressures, and temperatures and furnish instruments that are compatible with installed process condition.
- B. Examine the installation location for the instrument and verify that the instrument will work properly when installed.

### **3.02 INSTALLATION**

- A. As shown on installation details and mechanical Drawings.
- B. As recommended by the manufacturer's installation and operation manual.

### **3.03 FIELD QUALITY CONTROL**

- A. Demonstrate the performance of all instruments to the ENGINEER before commissioning.
- B. ENGINEER to witness all instrument calibration verification in the field.
- C. Each instrument shall be tested before commissioning and the ENGINEER shall witness the response in the PLC control system and associated registers.

### **3.04 ADJUSTING**

- A. Verify set-up and configurations of all instruments in accordance with the Manufacturer's instructions.

### **3.05 PROTECTION**

- A. All instruments shall be fully protected after installation and before commissioning. Replace any instruments damaged before commissioning:
  - 1. The ENGINEER shall be the sole party responsible for determining the corrective measures.