

SECTION 40 91 16.05 – PROCESS ANALYZER AND CURRENT MEASURING SYSTEMS

PART 1 - GENERAL

1.1 THE REQUIREMENT

- A. General: The CONTRACTOR shall provide in-line liquid flow measuring systems, complete and operable, in accordance with the Contract Documents.
- B. The requirements of Section 40 90 00 – Process Control and Instrumentation Systems apply to this Section.
- C. All instruments shall be FM-approved, or equal.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Power Input: Analyzers shall be the fully isolated 2-wire type, unless the type is not available, in which case the analyzer shall be the fully isolated four wire type with power supply of 115 volts plus and minus 10 percent, 60 Hz plus and minus 5 percent.
- B. Signal Output: Outputs shall be current regulated 4-20 mA DC capable of driving 0 to 600 ohms.
- C. Ambient Conditions: Analyzers shall be suitable for continuous automatic on-line analysis of the indicated parameter under the conditions indicated.
 - 1. Equipment shall operate satisfactorily in ambient temperatures between minus 20 degrees and plus 120 degrees, or shall be provided with isothermal enclosures so that accuracies will not exceed one percent of span.
 - 2. Process fluid temperatures will range between 40 and 100 degrees F, unless indicated otherwise.
- D. Sample Flow: Samples shall not pass through housings containing electronics, unless indicated otherwise.
- E. Local Indication: Each analyzer shall be provided with local indication scaled in process units.
- F. Calibration: Each analyzer shall be fitted with calibration connections at the analyzer.
- G. Single Manufacturer: All electrodes, fittings, and transmitters on analyzers measuring the same parameter shall be products of a single manufacturer.
- H. All instruments shall be FM-approved, or equal.

2.2 INFRARED EXPLOSIVE GAS MONITOR (LEL)

A. Gas Monitor

1. Shall monitor for combustible hydrocarbon concentrations and shall be loop powered from a 4-20 mA signal.
2. The monitor shall self-test and automatically signal fault and fouled optics by driving the current to below 2.5 mA.
3. The sensor shall be immune to poisoning by silicone and hydrides and impervious to etching by halogen compounds.
4. The analyzer shall be unimpaired by high concentrations or prolonged exposure to hydrocarbons as well as oxygen depleted atmospheres.
5. The sensor shall incorporate multi-layered filter system protects optics from dirt and water and shall be heated.
6. The sensor shall detect methane, ethane, propane, butane, ethylene, and propylene.
7. The accuracy shall be 3 percent from 0 to 50 percent LFL, and 5 percent from 51 percent to 100 percent.
8. Stability shall be 12 months at 2 percent LFL.
9. Temperature shall be -40 degrees C to +75 degrees C at 0 percent to 99 percent relative humidity.
10. The response time shall be less than 10 seconds.
11. The unit shall be made from copper-free aluminum and stainless steel and shall be rated NEMA-4X.
12. The unit shall include a tall cover/Window junction box for one person, non-intrusive calibration.

Service	Range	NEMA Rating
Indoor	0-100% LEL	4X

- B. The unit shall be certified by CENELEC, FM, and CSA.
- C. The analyzer shall be **Detector Electronics Corporation model PIR9400**, or equal.
1. Provide analyzers as shown on the Contract Drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Process analyzers shall be handled, installed, calibrated, loop-tested, precommissioned, and performance tested according to Section 40 90 00 – Process Control and Instrumentation Systems. The Manufacturer shall provide two sets of classes over 2 days, 4 hours each, of on-site training sessions over 2 days for each type of instrument, except the current transducers.

END OF SECTION 40 91 16.05