

SECTION 40 91 19.36 – TEMPERATURE MEASURING SYSTEMS

PART 1 - GENERAL

1.1 THE REQUIREMENT

- A. General: The CONTRACTOR shall provide temperature 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.

PART 2 - PRODUCTS

2.1 RESISTOR TEMPERATURE DETECTORS

- A. Insertion type Resistor Temperature Detectors (RTDs) shall be 100 ohms nominal at 0 degree C, tip-sensitive, three-wire platinum in 0.25-inch Type 316 stainless steel sheath with watertight potting. Time constant in agitated water shall not exceed 6.0 seconds. RTD shall comply with International Practical Temperature Scale (IPTS)-68 standards. Accuracy shall be plus or minus 0.1 degree C. Temperature transmitters shall be 2-wire devices with continuously adjustable span and zero adjustments, solid state circuitry, and a 4-20 mA DC output linearly proportional to the indicated temperature span. Where indicated with thermowells, RTDs shall be provided with 316 stainless steel thermowell, spring-loading device, extensions, union coupler, and explosion-proof aluminum connection head. Union shall extend out beyond the pipe lagging.
- B. Resistance temperature detector assemblies shall be:
 - 1. For potable water: **RdF Corporation model 2910-(0)-(100)-F-K transmitter complete with 21D-11-S-3-A-D-B-4 spring loaded probe**, or equal. Span shall be 0 degrees F to 200 degrees F.
- C. Wall mounted sensors are to be solidly mounted using an appropriate bracket.
- D. Provide temperature sensors as shown on the Contract Drawings.
 - 1. For indoor ambient air: **RdF Corporation model 2910-(-40)-(120)-F-K transmitter complete with 21D-11-S-3-A-D-B-4 spring loaded probe**, or equal.
- E. Insertion well mounted sensors are to be installed in existing **RdF Corporation (model S2-3-1.5-0-C)** thermowells that are suitable for potable water. Note: If an alternative RTD temperature sensor is proposed that will not mount in the existing thermowell the CONTRACTOR must arrange for:

1. The OWNER to program a system shutdown so that the required insertion can be made to the pipework.
2. A certified CONTRACTOR, qualified to undertake work on potable water systems, to make the insertion.
3. The necessary disinfection equipment, materials and documented procedure, to ensure that no contamination of the water distribution system is made during the insertion process.
4. All at the CONTRACTOR's expense.

F. The following RTD temperature measuring systems shall be provided:

Tag No.	Location	Service	Range	Type	NEMA Rating

2.2 THERMOSTATS

- A. The “tamper-proof” thermostat of steel construction is to be lockable to restrict operation to approximately 40 – 45 °F. A long life, industrial grade single pole single throw mechanism is to be employed. Differential sensitivity is to be approximately 3 °F. The “tamper-proof” thermostat is to be a **White-Rodgers 176-6**, or equal. The following “tamper-proof” low temperature override thermostats shall be provided:

Tag No.	Location	Service	Range	Type

2.3 COOLING THERMOSTATS

- A. Cooling thermostats are to be a long-life industrial grade single pole, double-throw type of steel construction. Differential to be 3°F. The cooling thermostat is to be a **White-Rodgers 179-1**, or equal. The following cooling thermostats shall be provided:

Tag No.	Location	Service	Range (°F)	Type

PART 3 - EXECUTION

3.1 GENERAL

- A. Temperature measuring systems shall be handled, installed, calibrated, loop-tested, precommissioned, and performance tested according to Section 40 90 00 – Process Control and Instrumentation Systems.

END OF SECTION 40 91 19.36