#### **F-1000 Master Specification**

Basis of Design: **ONICON Model F-1000** Series Insertion Turbine Flowmeter. Manufacturers approved to bid, subject to compliance with requirements

1. Insert additional MFG’s pre-approved to bid.

Description: Provide an insertion turbine flowmeter complete with NIST traceable, wet calibrated flow-measuring element, integral transmitter, installation valves, depth gage and calibration certificate. Flowmeter shall be wet tappable, allowing insertion and removal from the flow stream without system shutdown.

Application Range: This contractor shall be responsible for selecting the flowmeter options submitted based on the application. Flowmeter shall be constructed, calibrated, and scaled for the intended application in terms of pipe size, pipe material, installation requirements, expected flow rate, ambient conditions and fluid characteristics which include but are not limited to pressure, temperature, conductivity, and viscosity.

Sensing Technology: Axial Turbine flow-measuring element; either single or dual turbine based on application requirements.

Design: Axial insertion turbine design with electronic impedance-based sensing circuit. Dual insertion turbine shall incorporate two contra rotating turbines and an averaging circuit to reduce measurement errors due to flow distortions, such as swirl, when installed in piping configurations with reduced straight run.

1. Single axial turbine sensing element acceptable for line sizes 1.25” and larger.
2. Dual axial turbine sensing element acceptable for line sizes 2.5” and larger.

Construction: Plated brass or 316L stainless steel with attached tag indicating calibration information.

Maximum Pressure Rating: 400 psig

Maximum Temperature Rating: 280 deg F

End Connections:

1. For NPS 1” and Smaller: Threaded or sweat.
2. For NPS 1.25” and Larger: 1” Male NPT for use with 1” full port Isolation Valve, Minimum.

Flow Range: Flow-measuring element and transmitter shall cover operating range of equipment or system served.

Accuracy: Flowmeter shall provide calibrated outputs, directly from the integral transmitter, throughout the operating range with the accuracy stated as follows:

Plus or minus 0.5% of rate at calibrated velocity

Plus or minus 1.0% of rate from 3.0 to 30.0 ft/sec velocity (10:1 turndown).

Plus or minus 2.0% of rate from 0.4 to 20 ft/sec velocity (50:1 turndown).

Calibration: Each flowmeter shall receive a wet calibration, within the expected operating range, against a primary volumetric standard that is traceable to NIST.

Optional Bluetooth: Bluetooth shall provide instantaneous flow rate, totalized flow, and diagnostic parameters wirelessly via Utility program.

Optional Local Display: Local display shall provide instantaneous flow rate information, totalized flow information and shall be factory configured for connection to a specific flowmeter.

Operating and Installation Instructions: Installation and operating instructions shall be provided for each flowmeter.

Warranty: Each flowmeter shall be covered by the manufacturer’s one year no fault and three year warranty.