BioTrak 645i/745i Flow Meter Procurement Specification

1. The flow meter shall operate on the Constant Delta Temperature (Constant ΔT) thermal mass flow measurement principal.
2. The flow meter shall include the DigiSense™ robust sensor.
3. The flow meter shall include the BioSelect™ gas menu with pre-programmed and field-selectable air, methane, and digester gas (methane and carbon dioxide mixtures).
4. The flow meter shall include BioCal™ calibration validation to verify the integrity and accuracy of the meter's measurement.
5. The flow meter shall have a built-in display of flow rate, flow total, temperature, and elapsed time. The readout shall utilize a backlit LCD display consisting of two 16-character lines.
6. The flow meter shall include a 4-key keypad for programming. Input parameters shall be protected by use of a password. Nonvolatile memory shall retain totalizer and programming for up to seven (7) years.
7. The flow meter shall include two 4-20mA outputs, one for flow rate with optional HART communications, and a second that is programmable for flow rate or process temperature.
8. The meter shall include a pulse/frequency output, configurable for flow totalization or alarms.
9. The flow meter shall have a built-in microprocessor allowing field programmability of the 4mA setting, 20mA setting, pulse output setting, pipe diameter, zero flow cutoff, standard temperature and pressure references (STP), and alarm settings.
10. The flow meter shall be compliant with agency approvals from CE, FM/FMc, ATEX, IECEx, and UKEX for use in potentially explosive atmospheres.
11. The flow meter shall measure air, methane, and digester gas flows over a velocity range of 15-25,000 standard feet per minute (sfpm). Sensor response time shall be 0.8 seconds (one time constant).
12. Flow measurement accuracy of the flow meter shall be ±1.0 percent of reading plus ±0.2 percent of full scale for air, or ±1.5 percent of reading plus ±0.5 percent of full scale for other gases. Repeatability of the flow measurement shall be ±0.2 percent of full scale.
13. Operating process temperature range of the flow meter shall be -40°F to 250°F. Accuracy of the flow meter's temperature measurement shall be ±1°F.
14. All wetted parts of the flow meter shall be 316 stainless steel with all welded design. Other alloys shall be optionally available for inline flow bodies.
15. All flow meter electronics shall be mounted in a NEMA 4X enclosure. Input power to the meter shall be 12-24VDC or 100-240VAC, 50-60 Hz.
16. The flow meter shall be configurable in insertion, inline, and remote styles.
17. Flow meter shall have the ability to be calibrated for use with dual plate flow conditioners for minimal straight-run requirements.
18. The flow meter shall include a USB serial port, plus optional RS485 Modbus RTU or HART.
19. The manufacturer shall provide an NIST-traceable calibration certificate for the flow meter.
20. The instrument shall be the BioTrak 645i/745i, manufactured by Sierra Instruments (www.sierrainstruments.com).

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