



GEM2 Master Specification

Basis of Design: GloTech's GEM2 Series Inline Electromagnetic Flow Meter. Manufacturers approved to bid, subject to compliance with requirements include:

- a. Proposed alternatives shall include a clause-by-clause compliance statement, supporting product documentation, and explicit identification of all deviations. Listing a manufacturer as eligible to bid shall not constitute approval of a noncompliant product.

Description: Provide an inline electromagnetic flowmeter complete with wet calibrated flow-measuring element, transmitter, visual display, ANSI Class 150 or 300 mounting flanges, and a calibration certificate from an ISO/IEC 17025: 2017-accredited facility.

Application Range: The 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 and material, installation requirements, expected flow rate, ambient conditions, and fluid characteristics which include but are not limited to pressure, temperature, conductivity, viscosity, and pH.

Sensing Technology: Electromagnetic velocity-measuring element.

Design: The meter shall utilize an integral electromagnetic measuring section. Insertion meters and multiple single-point probes installed in a spool piece shall not be acceptable. Measuring electrodes shall have a flat, flush-mounted profile at the liner surface; projecting or bullet-nose electrodes shall not be permitted. Electrode material shall be 316L stainless steel for the neoprene-lined configuration or titanium for the PTFE-lined configuration, as specified. Other electrode materials require project-specific approval based on fluid composition, concentration, and operating temperature.

Construction (Standard): Flowmeter shall consist of epoxy-painted carbon steel outer body, 304 stainless steel flow tube, and inner liner to be selected based on operating fluid temperature and pH.

Construction (Optional): For corrosive environments or project-specific requirements, the meter body may be manufactured from 304 stainless steel or 316 stainless steel while maintaining identical dimensions, pressure rating, and performance characteristics.

Grounding: Meters through 24 inches shall incorporate two measuring electrodes and two dedicated grounding/reference electrodes. Larger meters shall incorporate four measuring electrodes and two dedicated grounding/reference electrodes. Grounding lug plates and associated hardware shall be furnished.



Transmitter Enclosure: Transmitter enclosure shall be die-cast aluminum with powder-coated exterior, IP68 rated.

Power Supply: The meter shall be supplied with an internal, field-replaceable battery pack comprising a minimum of five (5) 3.6V, 19Ah lithium thionyl chloride cells. An external battery enclosure shall not be required. The meter shall also accept external power of 8–32 VDC or VAC.

Connectivity: Each flowmeter shall include integral Bluetooth communication with supported iOS and Android devices through the manufacturer's password-protected mobile app. Bluetooth shall support parameter configuration, viewing of live readings, retrieval and export of stored data, and over-the-air firmware updates without opening the transmitter enclosure or connecting a separate communication adapter.

Display: Main screen shall consist of a three-line backlit dot matrix. Display showcase flow totalizer and instantaneous flow rate showcased as 8-digit values with a dynamic decimal point and user-configurable units, flow direction, and battery status.

Totalizers: The meter shall provide a non-resettable flow totalizer and a separate user-resettable job totalizer. The job totalizer shall be resettable through the manufacturer's mobile app without resetting the main totalizer.

Reporting and Communication: Each flowmeter shall support communication via analog (4–20mA), digital (pulse output), and serial (Modbus RS485, Sensus) protocols for integration with telemetry systems via a data cable. A built-in data logger shall record key operational data locally, which shall be accessible wirelessly via Bluetooth.

Maximum Pressure Rating: The standard meter shall be rated for a maximum working pressure of 290 psig, subject to the applicable temperature and flange limitations. Higher-pressure configurations shall require manufacturer confirmation for the specified size, materials, and temperature.

Maximum Temperature Rating: Maximum process temperature shall be 140°F for the neoprene-lined configuration or 212°F for the PTFE-lined configuration, subject to the applicable pressure rating and installation conditions.

End Connections for NPS 2" to 24": Flange drilling and mating dimensions shall conform to ASME B16.5 Class 150 or Class 300, as specified. The complete meter pressure-temperature rating shall be documented for the selected configuration.

End Connections for NPS 26" and Larger: For NPS 26 through 60, flange drilling and mating dimensions shall conform to ASME B16.47 Series A or Series B, in the pressure class specified to match the mating piping. For sizes above NPS 60, dimensions and pressure rating shall be specified on approved project drawings.



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

Accuracy: Flowmeter accuracy shall be stated as a percentage of reading, within the manufacturer's documented operating range and installation conditions, as follows:

- a. $\pm 0.5\%$ of reading from 5% through 100% of the manufacturer's published maximum flow for the selected meter size.
- b. $\pm 1.0\%$ of reading from the documented low-flow cutoff up to 5% of that maximum flow.

Calibration: Each flowmeter shall undergo wet calibration within the expected operating range at an ISO/IEC 17025:2017-accredited laboratory whose scope covers the applicable flow calibration. The reference standard shall be traceable to national or international measurement standards. A calibration certificate shall be included with each unit, identifying its serial number, calibration data points, and associated uncertainty. Periodic recalibration shall not be required under normal service and installation conditions unless required by the Owner or evidence of performance degradation.

Warranty: Each flowmeter shall be covered by the manufacturer's two-year warranty.