Intelis® 250 Gas Meter

Transforming Gas Metering with Even More Safety

The Intelis 250 Gas Meter offers unparalleled accuracy, reliability, and flexibility. Building on the proven success of the original Intelis Gas Meter, the Intelis 250 Gas Meter features optional pressure sensing with automatic high-pressure safety shutoff.

Weighing in at only 4.35 pounds, the Intelis 250 Gas Meter is the most compact and lightweight **250 Class** gas meter available in the North American market. The Intelis 250 Gas Meter is equipped with an internal safety shutoff valve on the outlet of every meter. It delivers distributed intelligence to gas metering by providing the ability to self-monitor and shut off the flow of gas during a high-flow or high-pressure incident, independent of operator involvement.

Leveraging Intelis as part of a smart-gas communication platform enables utilities to automatically make intelligent decisions across the gas distribution network, delivering opportunities for operational savings and enhanced customer and employee safety by potentially preventing an explosion.

KEY FEATURES

» Optional autonomous high-pressure shutoff

» Optional high-, low-, and tamper-pressure alarms

» Autonomous high-flow and high-temperature shutoff

» High-flow and high-temperature alarms

» Compact size

» Integrated safety shutoff valve with a precision seal that meets or exceeds EN16314 gas tightness guidelines

» Air-detection alarm

» Embedded radio frequency (RF) communications

» ±0.5% accuracy at room temperature

» Highest intrinsic safety rating of UL Class I, Division 1

» Whisper-quiet operation

» Hydrogen compatible up to 20%*

SPECIFICATIONS

ULTRASONIC MEASUREMENT PRINCIPLE

Ultrasonic meters are state-of-the-art technology and have been around for many decades, dating back to their introduction in the 1960s and commercial applications in the 1970s in Japan. The success of Intelis has been realized in the North American market, with Itron reaching its one millionth shipment in March 2023.

The Time of Flight single-path measurement method used in ultrasonic meters is simple yet highly effective. It utilizes two transducers, one upstream and one downstream of the gas flow. One transducer emits an ultrasonic signal, while the other senses it. The process is then reversed. The time difference between the ultrasonic signals traveling upstream versus downstream is then measured, allowing for precise gas flow measurements.

INTELIS 250 GAS METER FEATURES

A safety feature with a high-flow alarm and an integrated shutoff valve that acts similar to an excess flow valve is standard in every Intelis 250 Gas Meter. With a utility-configurable high-flow alarm, a threshold can be set in the meter indicative of an open fuel line downstream of the meter. This high-flow event automatically triggers the shutoff valve to close, potentially preventing an explosion and property damage or even loss of life. This safety feature is a key demonstration of intelligence at the meter and works in both mobile and network mode. It is mandatory to be on-site at the meter to re-open the valve to ensure safe conditions.

Pressure Sensing (Optional)

The Intelis 250 Gas Meter is capable of utilizing meter-inlet pressure readings to evaluate gas pressure against utility pre-set high- and low-pressure thresholds. When the high-pressure set point is detected, the meter automatically initiates valve closure within ten seconds of detection and sends a high-pressure alarm. The system is designed to react quickly to dangerous high-pressure events, ensuring that your customer is safe and is not subjected to over pressurization. When the low-pressure set point is detected, the meter initiates an alarm. This can be used in conjunction with other Intelis meters' data to provide utilities with situational awareness, such as determining potential disruptions to gas supply in a given segment of the distribution system.

Pressure data is available for reading when the meter is in network mode.

Tamper Alarms

In addition to an air-detection alarm, the Intelis 250 Gas Meter features optional pressure-tamper detection. The meter's firmware compares the pressure-reading value taken at each pressure-recording interval period to a utility-configured pressure tamper threshold value. If the new pressure reading is equal to or greater than the pressure-tamper threshold, a pressure-tamper started event is added to the meter's event log.

Tamper-pressure alarms are available in both mobile and network mode.

Reverse-Flow Detection Alarm

The Intelis 250 Gas Meter is equipped with a reverse-flow detection alarm that determines if gas is flowing from the outlet to inlet, instead of in the standard operating direction. If this occurs, an alarm is logged, providing valuable information on potential tampering.

High-Temperature Alarm

The Intelis 250 Gas Meter also features a high-temperature alarm that can be utilized to notify of potential fire or other dangerous conditions. The valve can be programmed to close upon high-temperature detection, providing an additional layer of safety.

Flexible RF Reading Options

The Intelis 250 Gas Meter offers the most flexibility in RF reading options of any Itron gas module. It is designed to be read by legacy ChoiceConnect™ handheld and mobile readers and under Itron's OpenWay® Riva™ and Gen™5 Industrial Internet of Things (IIoT) networks. With new features for IoT operation such as firmware download, sub-hourly interval data, and extended data storage, the integrated RF communications offers additional value to customers with solutions of every kind.

A LOOK INSIDE THE INTELIS 250 GAS METER

Ultrasonic Measuring Unit (UMU)

Safety Shutoff Valve

Dust Trap and Filter
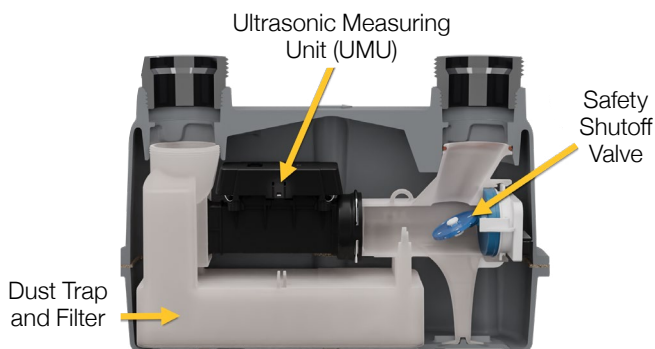
The Intelis 250 Gas Meter is an impressive 70% size reduction of the traditional diaphragm meter.

On-Board Self-Diagnostics

The Intelis 250 Gas Meter features on-board self-diagnostics, such as monitoring transducer failure, remaining battery capacity, gas temperature, and pressure sensor failure. This ensures that the meter is always performing optimally or alerting utilities of potential issues.
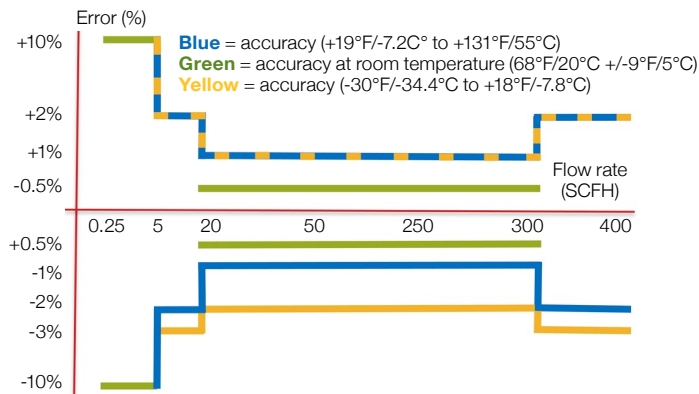
Long Battery Life

Itron continues its long-standing tradition of superb battery life performance. The entire meter package has a 20-year battery life, including the meter, RF communications, and valve when using recommended parameters.

Accurate and Reliable

The accuracy of the Intelis 250 Gas Meter is designed to meet ANSI B109.6 and Measurement Canada PS-G-06 and applicable requirements in ANSI B109.1. It achieves +/- 0.5% accuracy at room temperature from 20-300 SCFH. There are no moving parts for ultrasonic measurement, therefore the meter is less likely to drift over time. The solid-state design of the Intelis 250 Gas Meter prevents lock up due to contamination or freeze-ups.

% ERROR VS FLOW RATE

Blue = accuracy (+19°F/-7.2C° to +131°F/55°C)
Green = accuracy at room temperature (68°F/20°C +/-9°F/5°C)
Yellow = accuracy (-30°F/-34.4°C to +18°F/-7.8°C)

| Flow Rate Definitions	
Low Flow Cut Off Setpoint	0.176 CFH (5 L/H)
Pilot Flow	0.25 CFH (0.007 m³/h)
Qmin	5 CFH (0.14 m³/h)
Qt	20 CFH (0.57 m³/h)
Qmax	300 CFH (8.5 m³/h)
Qr	400 CFH (11.3 m³/h)

The accuracy of the Intelis 250 Gas Meter is Class 1. Specifically, this is +/– 1% from 20-300 CFH from 19°F/-7.2°C to +131°F/55°C. In addition, it achieves +/- 0.5% at room temperature. Graph is not to scale.
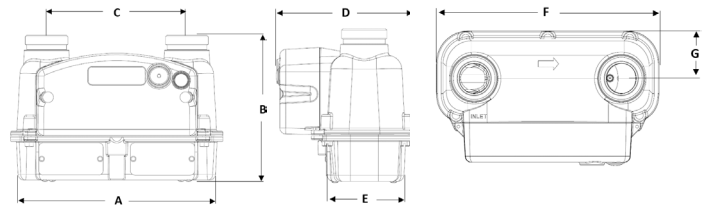

ACCELERATED LIFE TEST

Check (50 CFH) Avg   Open (250 CFH) Avg
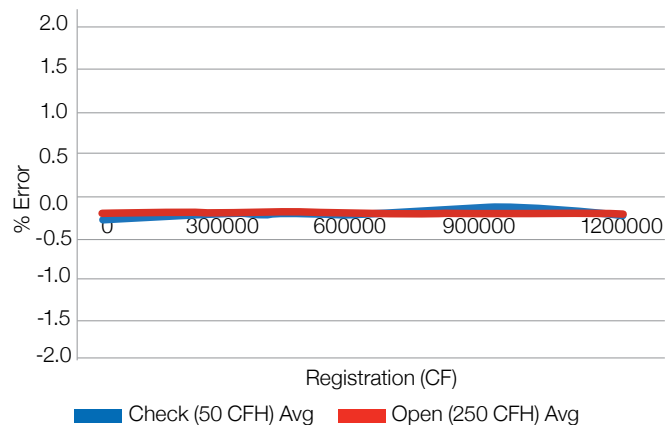
The accelerated life test of the Intelis 250 Gas Meter is stable and the Open (250 CFH) and Check (50 CFH) track tightly.

DIMENSIONS

	A	B	C	D	E	F	G
inches	8.4	6.4	6.0	5.4	3.1	9.1	1.9
mm	214.4	161.9	152.4	138.3	78.6	230.6	48.8

Dimensions are for 20LT.

PACKAGING

	Meters per layer	Layer per pallet	Meters per pallet	Pallet dimensions (inches) LxWxH	Total pallet weight (lbs) estimate	FTL (full truck load) # pallets	FTL total meters
6 pack	36	5	180	50 x 39 x 43	865	44	7920
Bulk pack	30	6	180	48 x 35 x 44.5	845	45	8100

SPECIFICATIONS

General Specifications

Meter Capacity	300 CFH at ½" water column or 8.5 m³/h at 0.125 kPa
Measurement Principle	Ultrasonic time of flight
Accuracy - metrology	Class 1 and ±0.5% at room temperature
Accuracy - pressure	+/- 1% full scale from -13°F to +131°F (-25°C to +55°C)
Meter Type	Temperature compensated (TC) or non-temperature compensated (NTC)
Hub Center-to-Center	6" (152.4 mm)
Hub Size Options	– 10LT – 20LT – 30LT – 1A/Sprague standard – 1-1/4" NPT (1" Pittsburgh) – 1" BS746 – ISO G 1-1/4"
Meter MAOP	10 PSIG (69 kPa)
Valve	Actuated swing valve, meets or exceeds EN16314 Section 7.13.4.5 and 7.13.4.8 (2013)
LCD Displayed Units	CCF (100 x cubic feet) or cubic meter
LCD Resolution	4 or 5 digits to the left of the decimal and 3 or 4 digits to the right of the decimal
Case	Aluminum case with ASA 49 gray powder coat finish
Weight	4.35 lbs (1.97 kg)
Gas Type	Natural Gas Type H, E, L (per EN 437) Reference gases G20, G21, G23, G25, G26, G27 Up to 20% Hydrogen-compatible*
Battery Information	4 Lithium Manganese Dioxide (LiMnO2) 'A' cell batteries, replaceable
Battery Life	20 years for meter, RF and valve using recommended parameters
Badging	Standard aluminum manufacturing and optional customer badge
Test Pulse Weight (volume per pulse)	0.10CF, 0.25CF, 0.50CF, 1.0CF, 10dm³, 50dm³, 3.0dm³

Standards	Designed in compliance with ANSI B109.6 and Measurement Canada PS-G-06 and applicable requirements in ANSI B109.1
Intrinsically Safe per UL 913	Highest rating of UL Class I, Division 1

Component Materials

UMU (ultrasonic measuring unit)	PBT + PC (Polybutylene terephthalate + Polycarbonate)
Valve Plastics	PBT (Polybutylene terephthalate)
Inlet & Outlet Tubes	POM (Polyoxymethylene)

Operating Temperature Ratings

Measurement	-30°F (-34°C) to +131°F (55°C)
Valve	-13°F (-25°C) to +131°F (55°C)
RF Communications	-40°F (-40°C) to +158°F (70°C)
LCD	-40°F (-40°C) to +185°F (85°C)**

Storage Temperature Rating

Measurement/Valve/RF	-40°F (-40°C) to +158°F (70°C)

Software

Minimum Software Required for OpenWay Riva***	Field Collection System (FCS) 4.5.3 with Itron Mobile 3.3 Field Deployment Manager (FDM) Tools 5.0.0.63 (not supported in Gen5 network mode) Field Tools 2.4.1474 Itron Security Manager (ISM) 3.6 (for network mode) and 4.6 (for mobile mode) OpenWay® Collection Manager (OWCM) 5.7 Temetra™/Temetra™ Mobile 1.15
Minimum Software Required for Gen5 (Coming soon)	Gen™3, 4, 5 CPD hardware running UtilOS® 5.6 and UtilityIQ® 5.2 FCS 4.6.1 with Itron Mobile 3.6 ISM 4.2 (for network mode) and 4.6 (for mobile mode) Field Tools TBD Temetra/Temetra Mobile 1.15

* Refer to *Intelis Gas Meter Technical Reference Guide* (815-0119-00) for details

** Electro-optical characteristic and optical performance is affected during high-temperature operation (approximately 176°F/80°C to 185°F/85°C) and low-temperature operation (approximately -22°F/-30°C to -40°F/-40°C). Performance recovers under normal temperature range.

*** Refer to *OpenWay® Riva™ System Upgrade GSR 5.0 (TDC-8011)* for the required OpenWay Riva network software

RELATED DOCUMENTS

» *Intelis™ Gas Meter Technical Reference Guide* (815-0119-00)

» *Intelis™ Gas Meter Proving and Setup Guide* (815-0154-00)

» *Intelis™ Gas Meter Ordering Guide* (815-0335-00)

» *Field Deployment Manager (FDM) Mobile Application Guide*

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