



The next generation of water metering: The worldwide requirement, answered

SmartFlow's™ unique low power Ultrasonic Flow Measurement Technology, ensures the problems encountered with mechanical meters become a thing of the past. Through its low cost and life-long 100% accuracy the SmartFlow™ meter provides a genuine low cost solution with significant savings, whilst promoting a stable platform of trust between customer and provider.

SmartFlow™

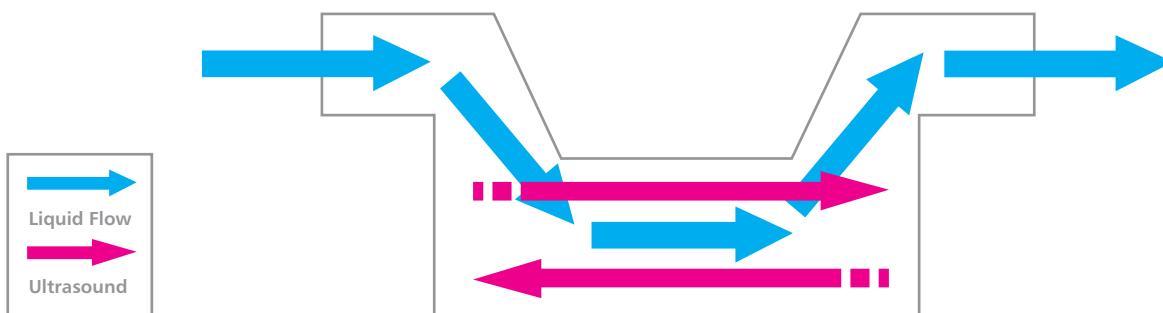
A truly innovative design - maintenance free, with no moving parts and hollow bore technology. The SmartFlow™ water meter is unaffected by sand and grit particles. Guaranteed not to record air, it is the only meter to truly overcome all global network issues, providing 100% accuracy for life.

Unique Ultrasonics for Domestic metering

Developed from patented Bulk meters, SmartFlow™ is the first inline water meter available, bringing performance improvements and economic benefits to the domestic market.

SmartFlow™ uses an Ultrasonic transit time inline flow cell to measure water with 100% accuracy. Sound transmitted upstream is accelerated by the flow, sound transmitted downstream is decelerated. The resulting time difference is proportional to flow and converted by a microcontroller into an output signal.

Flow Measurement

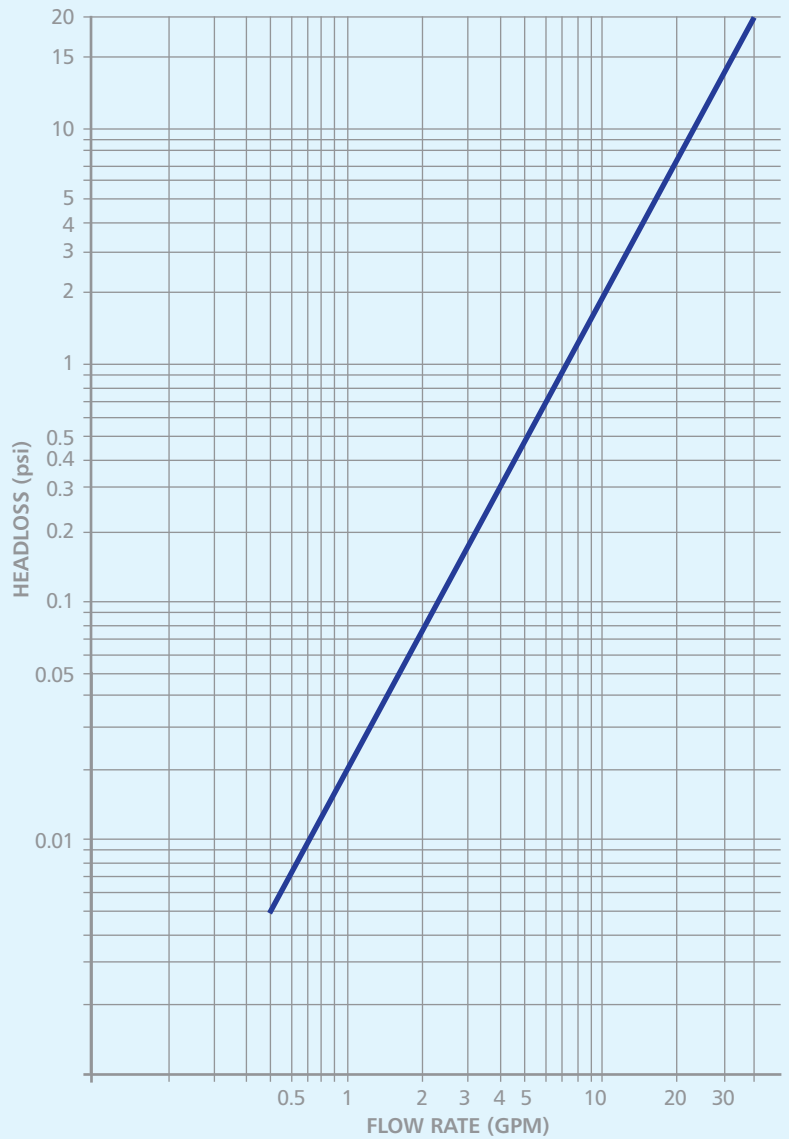


The 5/8", 5/8" x 3/4" and 3/4" water meters use a low pressure loss inline flow cell measurement chamber.

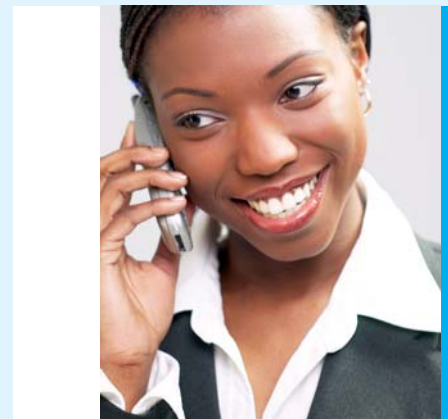
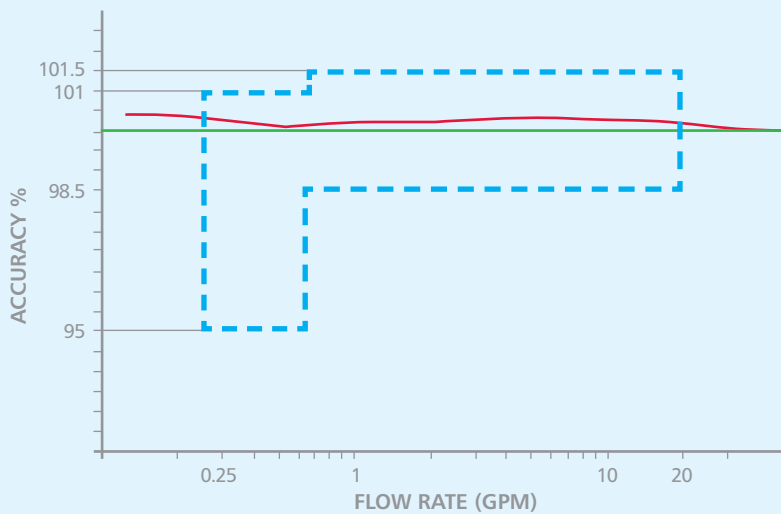
SmartFlow™ Benefits

- Unaffected by grit or particulates
- Does not measure air
- Accuracy guaranteed for life of meter
- No moving, vibrating or pressure changing parts
- Full bore meter with no reduction in pipe size. No metallic components in contact with water and thus, no corrosion
- Silent operation
- 15 year battery life which can be replaced with zero effect to performance
- Wide temperature specification
- Strainers and non-return valves not required (but can be included)
- No reverse flow measurement
- Tested up to 464 psi
- AMR compatible, even with old mechanical metering AMR systems
- Automatic viscosity and temperature compensation
- Tamper Resistant
- 10 year warranty

Pressure Headloss Curve



SmartFlow™ Meter Accuracy Curve



The Real Cost of Water Metering

SmartFlow™ clearly illustrates excellent whole life cost benefits in comparison to mechanical meters, which can be as much as five times as expensive over 20 years. In fact, with a minimal cost for the meter and a

relatively insignificant cost for a battery replacement, SmartFlow™ is totally justifiable, as it loses no revenue, and more importantly, becomes completely cost effective in a very short period of time.

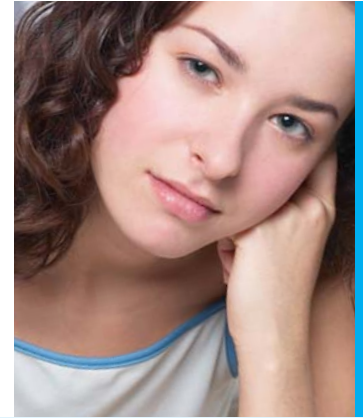
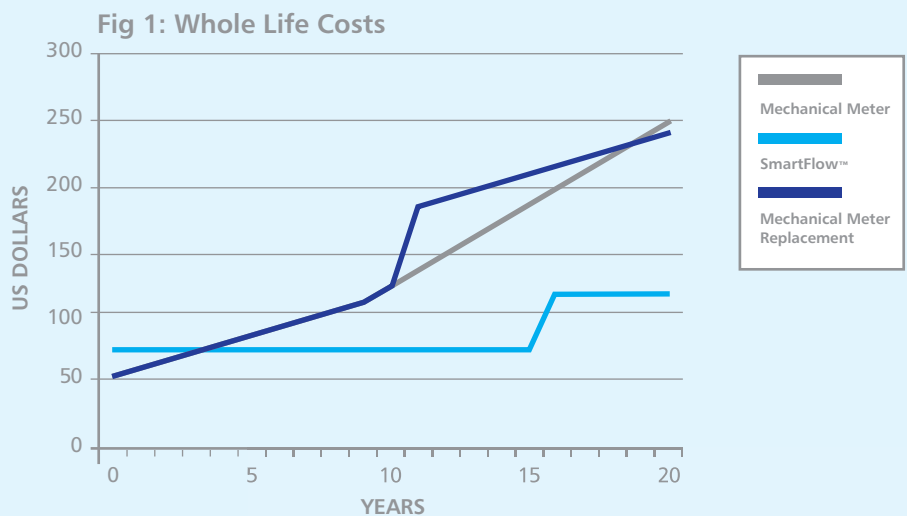


Fig 1: Whole life costs of a Mechanical Meter vs SmartFlow™.

Meter and installation included in the initial cost. Accuracy error of mechanical meter based on 1.5% pa for the first 10 years and 3% for after 10 years. Lost revenue based on annual water charge of 400 US\$ pa. 15 year battery replacement cost included for SmartFlow™.



Automatic Meter Reading (AMR Systems)

SmartFlow™ uses an Industry Standard open protocol to interface to a wide range of AMR solutions.

SmartFlow™ is available with established Touchpad AMR, and radio frequency AMR, such as, walk-by, drive-by, and fixed network.

SmartFlow™ is also equipped to meet the demands of the future with SmartConnect™, an RF Mesh Network. The integration of SmartConnect™ into SmartFlow™ makes it the only water meter to offer the next generation

of AMR, worldwide. SmartConnect™ gives 'live' access to each and every meter in an installation by creating a RF network that transfers readings from meter to meter and back.

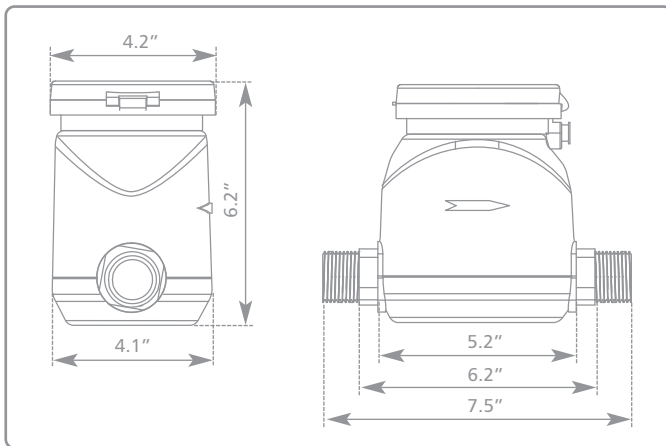


Technical Specification

SmartFlow™ - Metrology Product Summary

PRODUCT	SIZE (inches)	LOW FLOW (GPM)	HIGH FLOW (GPM)	HEAD LOSS AT MAX FLOW	THREAD SIZE STRAIGHT TO ANSI/ ASME B1.20.1 (inches)	DIMENSIONS (inches)		METER WEIGHT (lbs)
						Length	Height	
SFA200	5/8"	0.10	20	<7.5 psi	3/4"	7 1/2"	6 1/2"	1.3
SFA225	5/8" x 3/4"	0.10	20	<7.5 psi	1"	7 1/2"	6 1/2"	1.3
SFA325	3/4"	0.15	30	<7.5 psi	1"	7 1/2"	6 1/2"	1.6

Water Meter Dimensions (inches)



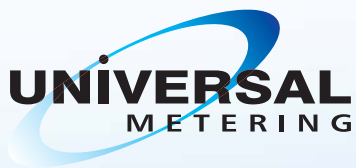
SmartFlow™ - Meter Specification

FEATURE	SPECIFICATION
Principle of operation	Ultrasonic transmit time using inline flow cell
Approvals	Compliant to ANSI/AWWA C750, OIML R49-1
Battery life	10 years
Temperature tolerance	185°F ambient and water
Pressure rating	232 psi (Max. Operating Pressure) 464 psi (Max. Tested Pressure)
Display	9 digit LCD, Factory Fixed in one of four positions
Enclosure rating	IP68 to BS EN 60529 : 1992
Interfaces	4 pin IP68 rated connector giving: <ul style="list-style-type: none"> NPN open collector pulse output Interface to SmartFlow™ Inductive Touch pad Serial interface for AMR using SmartFlow™ communications protocol
Materials	Wetted parts: EMS Grivory HTV-4X1 black 9225 (WRAS listed). Other parts: Polycarbonate (logos can be customized for OEMs and utilities)
Reverse flow	Indicated but not accumulated
Strainers/non-return valves	Not required to protect meter

SmartFlow™ Approvals

- Potable water materials WRAS listed
- ISO:9001 manufacturing certification
- ISO:14001 environmental compliance certification
- Compliant to ANSI/AWWA C750
- EEC conformity
- OIML R49-1





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