



# Itron Intelis wireless M-Bus

The Core of our Water Management Platform

Intelis combines last end ultrasonic measurement technology with high performing radio frequency communication to help Water Utilities in revenue protection. With no moving parts, the Intelis allows for protection against unplanned maintenance costs and provides accurate measurement over the entire product life. Integrated AMR offers the benefits of tailored functionalities within a mobile and fixed collection system.

## FEATURES AND BENEFITS

- » High metrology accuracy & repeatability
- » Low pressure drops
- » No metering of air
- » Insensitive to sand or other particles in water
- » IP68, replaceable battery
- » Battery life time up to 15 years
- » Water temperature measurement
- » Standard wireless M-Bus protocol

## Technology

- » High end static technology for revenue protection
  - Highly accurate measurement of consumption, temperature, aids leak, air detection...
  - Long life to mitigate against unplanned maintenance costs
  - Resistant to network accidents
- » Monitoring intelligence
  - Water Management efficiency
  - Flow profile, backflow and tampering alarms, all programmable thresholds, abnormal consumptions...
- » Installations
  - Any position
  - IP 68 permanent immersion (acc. EN60529)
  - Direct sunlight exposure
  - Tamper resistant thanks to Integrated construction & insensitive to magnetic fields

## Communication

- » Integrated radio technology for mobile or fixed network collection systems (AMR)
- » Inductive communication for metrology verification
- » Optical pulse output for automatic test bench verification

## Approval and standards

- » MID, Directive 2014/32/UE
- » European Standard EN14154:2007
- » International Standard ISO 4064:2014
- » OIML R49 2005
- » Directive 2014/53/EU
- » ACS certification (compliance for potable drinking water)



## ENVIRONNEMENTAL-ECO DESIGN

Itron has adopted an eco-design approach. Ecodesign consists of taking the environmental impact of a product into account, over the whole of its lifecycle and in relation to various environmental aspects, while maintaining its functionality.

The Intelis was designed to provide our customers with a more environmentally friendly product. A life cycle assessment study was carried out to meet this challenge.

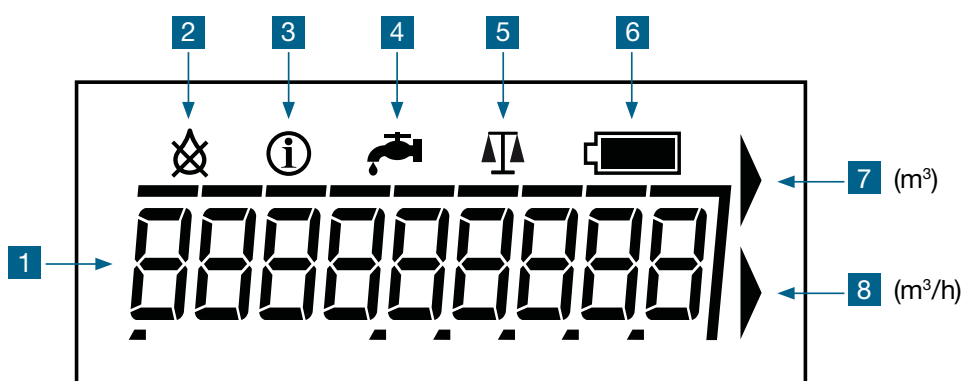
The recycling process has been optimised by creating a product that is easy to dismantle into separate components (batteries, PCB, brass...).

## MULTIFUNCTIONAL DISPLAY

- » Easy to read display
- » Visual alarms
- » Configurable display sequence



Intelis LCD display



- |   |  |   |
|---|--|---|
| <b>1 Main display 8/9 digits</b><br>- Index<br>- Flowrate<br>- Date & Time indication<br>- Alarm<br>- ... | <b>2 Air in pipe indicator</b><br><b>3 System or application Alarm indicator</b><br><b>4 Leakage indicator</b><br><b>5 Test mode indicator Recalibration indicator</b> | <b>6 Battery level indicator</b><br><b>7 Volume unit indicator</b><br>(Blinking when flowrate detected)<br><b>8 Flowrate unit indicator</b> |
|---|--|---|

## COMMUNICATION

Intelis integrates Itron Radio Technology.

This opens up to a large range of advanced and reliable AMR systems:

- » Radio walk-by systems
- » Radio fixed data collection systems

Automatic radio meter reading increases the reading reliability and significantly enhances the data acquisition speed.

The radio reading also opens accessibility to all meters even if the customer is absent or in hard to read locations.

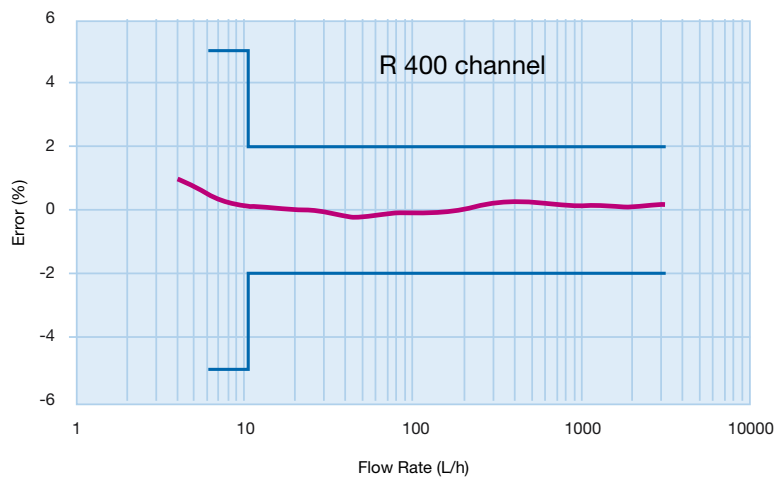
### Radio Side

Protocol	Wireless M-Bus according to EN 13757-3 & EN 13757-4
Operation mode	T1/C1
Frequency band	Compliant with OMS Annex O, PHY-A/PHY-B 434,75/868,95MHz
Duty cycle	1%
Chiprate	Typ. 100 kcps
Encryption	AES 128, Mode 5

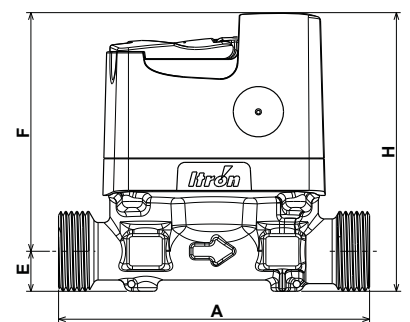
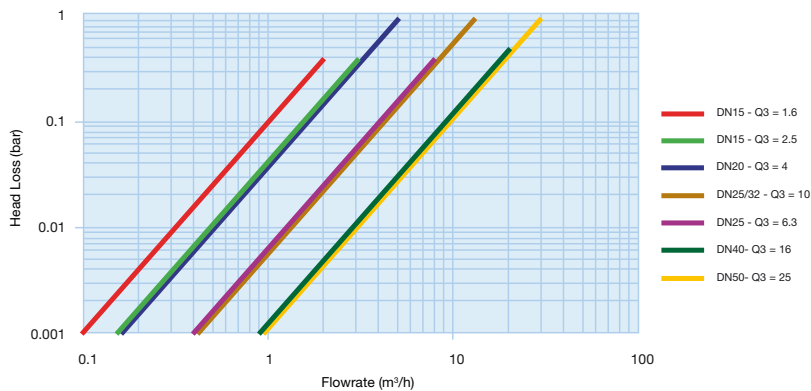
## Technical Characteristics

Nominal Diameter DN		mm	15		20		25		32	40	50
		inches	½"		¾"		1"		1¼"	1½"	2"
Approved dynamic Ratio = $Q_3 / Q_1$			160	160	160	160	160	160	160	160	160
			200	200	200	200	200	200	200	200	200
			250	250	250	250	250	250	250	250	250
				315	315	315	315	315	315	315	315
				400	400	400	400	400	400	400	400
						500					
						630					
Permanent flow rate	$Q_3$	m³/h	1.6	2.5	4	6.3	10	16	25		
Starting flow		l/h		2		6	15				
Minimum flow rate	$Q_1$	l/h		6.4		12.5	40				
Overload flow rate	$Q_4$	m³/h	2	3.125	5	7.9	12.5	20	31		
Nominal pressure	MAP	bar	16								
Permanent temperature	MAT	°C	+0.1 / +70								
Head Loss Class		bar	0,4	0,25	0,63	0,4	0.63	0.4	0.63		

## TYPICAL ACCURACY CURVE $Q_3=2,5 \text{ M}^3/\text{H}$

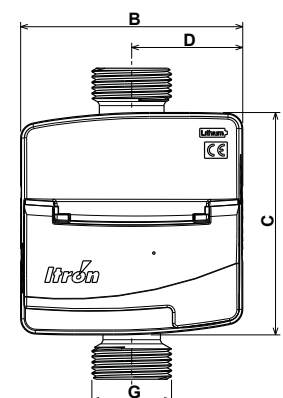


## HEAD LOSS



## DIMENSIONS

Nominal Diameter	mm	15	20	25	32	40	50
A	mm	110 - 165 - 170	130 - 190	260	260	300	300
G	inches	G ¾ B	G 1 B	G 1 ¼ B	G 1 ½ B	G 2 B	G 2 ½ B
B	mm		93				
C	mm		93				
D	mm		46.5				
E	mm	17		25.4	33	37.6	
F	mm	96		98.6	106.5		
H	mm	113		124	139.5	144.1	



## ENHANCED FUNCTIONALITIES

	Index	Record total volume of water consumed
	Instantaneous flow rate	Measure current flow rate over the last minute
	Air in pipe	Air is detected, meter stop counting
	Backflow	Total volume measured under back flow is recorded
	Broken pipe	Flow rate reaches abnormal flow rate for a minimum time
	Flow repartition	Real flow rate is recorded according to operational segments
	Leakage	Flow rate never goes under a minimum value Number of days with leakage is stored
	Battery alarm	Product battery is ending, when 12 months are left
	Peak flow	Record 5 highest flow rates
	Minimum flow	Record 5 lowest flow rates
	Peak temperature	Record 5 highest Water Temperature
	Alarm water temperature	Configuration low and High temperature alarms
	Time synchronization	Walk by / Drive by: Meter clock re-synch at every read Fixed network : daily automatic clock re-synchronization
	Volume below threshold	Total consumption below a low flow-rate threshold
	Volume above threshold	Total consumption above a high flow-rate threshold
	Time of use	Registers consumption within a defined intervals of the year
	Logging intervals	Record consumption hour/day/week/month intervals 54, 108, 216 intervals configurable storage
	Reversed meter	Alarm if > 1000l in reverse flow have been recorded
	Meter stopped	Alarm if no consumption over a configurable period has been recorded
	Fraud	When someone tries to open the meter
	Custom billing period	Store volume index at 4 preset dates
	Alarm reconfiguration	Store events of reconfiguration of a meter via radio Reconfiguration event is recorded.
	Event log	Last critical alarms are recorded date stamped



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