RUBIN® SONIC Smart

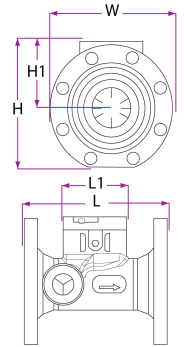## Technical data sheet

Product description

RUBIN® SONIC Smart Ultrasonic Bulk Meter, developed, manufactured, and calibrated by INTEGRA Metering, is designed for the utility water networks and smart metering applications.

Based on a unique sensor technology, a direct ultrasonic measurement provides superior stability of the measurement over time for accurate billing and monitoring of the water consumption at a minimum pressure drop.

Dimensions

Nominal diameters	Dimensions	mm	50	65	80	100	125	150	200
		Inches	2	2" ¹/²	3	4	5	6	8
Weight		Kg	10	12	13	15	18	25	36
Dimensions	Total length (L)	mm	200	200	225	250	250	300	350
	Height (H1)	mm	97	103	108	115	127	134	152
	Total height (H)	mm	182	198.5	215.5	233.5	259.5	275.5	312
	Width (W)	mm	165	185	200	220	240	260	340
	Housing length (L1)	mm	110	110	110	110	110	110	110

Technical characteristics

Metrological data

Nominal diameters	DN	mm	50	65	80	100	125	150	200
		Inches	2	2" ¹/²	3	4	5	6	8
Continuous flowrate	Q_3	m³/h	40	63	63	100	160	250	400
Overload flowrate	Q_4	m³/h	50	78.75	78.75	125	200	313	500
Transitional flowrate	Q_2	m³/h	0.13	0.2	0.2	0.32	0.51	0.8	1.28
Min. flowrate	Q_1	m³/h	0.08	0.13	0.13	0.2	0.32	0.5	0.8
Starting flowrate	Q_{START}	m³/h	0.04	0.065	0.065	0.1	0.15	0.25	0.4
Pressure drop classe @ Q_3	ΔP	-	ΔP16
Measuring range	R	-	R 500
Flange standard	-	-	ISO ANSI BSI	ISO	ISO ANSI BSI	ISO ANSI BSI	ISO	ISO ANSI BSI	ISO PN16/10

RUBIN® SONIC Smart
Technical data sheet

Power supply

Type	Lithium battery
Lifetime	Up to 16 years*

* Depending on sending interval of radio telegram, telegram length and operating temperature.

Display characteristics

Display indication	LCD 10 digits
Units	m^3, L, hour
Displayed values	Volume, flow, reverse flow, display test, events and alarms status, F/W version
Events and alarms	Reverse flow, low battery, leakage, air bubbles, burst, frost, heat, dry, over temperature, no consumption

ParamApp®: an app for diagnostics and configuration

ParamApp® is a powerful and user-friendly Android application developed by INTEGRA Metering dedicated to commissioning, configuration and diagnostics of smart devices or smart meters directly on site, with a smartphone and through NFC. https://integra-metering.com/paramapp

ParamApp® action			
Editable parameters		**Diagnostics**	
Display	Net or forward volume, reverse volume, index decimals, flowrate decimals, sequence timings	Recorded parameters	• Temperature (minimum, average, maximum) • Flowrate (minimum, average, maximum) • Volume (minimum, average, maximum) • Events and alarms
Communications	Pulse configuration, M-Bus communication parameters, M-Bus parameters, LoRaWAN force join or message	Recording granularity	Hourly, daily, monthly, yearly
		Data export	CSV
		Data reading	RUBIN® SONIC Smart allows data collection even with an empty battery

Communication systems

Global view of communication systems

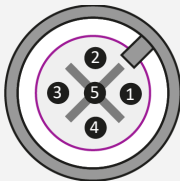| Global view of communication systems		
Naming	Connector	Wireless
MB	M-Bus and Pulse output (without cable cut tamper)	-
OC	Pulse output (with cable cut tamper)	-
LW8	M-Bus and Pulse output (without cable cut tamper)	MultiCom: simultaneous LoRaWAN 868 MHz and wM-Bus 868 MHz
LW	M-Bus and Pulse output (without cable cut tamper)	LoRaWAN EU 868 MHz
W8	M-Bus and Pulse output (without cable cut tamper)	wM-Bus 868 MHz
OCS	Pulse output (with cable cut tamper)	Sigfox
OCSG	Pulse output (with cable cut tamper)	Sigfox GPS

Detail of communication systems

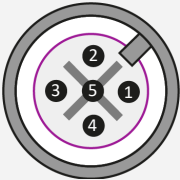| LoRaWAN communication system			
Frequency	868.95 MHz	Readout interval	Permanent
Standard	LoRaWAN EU	Telegram type	Historical or OMS type
Connection mode	Over-the-air activation (OTAA) by default	Class	A
		Historical type telegram	Time stamp, instant volume (net or forward), instant alarm / event, 12 hourly volumes
Transmission interval	Twice a day	OMS telegram content by default	Net or forward volume, reverse volume, medium temperature, date / time, target monthly value, target date, events / alarms, remaining battery lifetime
Emitted power	25 mW (14 dBm)		

wM-Bus 868 MHz communication system			
Frequency	868.95 MHz	Readout interval	Permanent
Standard	OMS V4 (OMS V3 compliant) / EN13757	Encryption	Profile A (security mode 5) or profile B (security mode 7)
Connection mode	T1 (unidirectional)	Telegram content by default	Net or forward volume, reverse volume, medium temperature, date / time, target monthly value, target date, events / alarms, remaining battery lifetime
Transmission interval	16 seconds by default (configurable for drive-by or walk-by)		
Emitted power	25 mW (14 dBm)		

M-Bus communication system				
Standard	OMS V4 (OMS V3 compatibility) / EN13757	Male connector definition		
Readout interval	Permanent	M 12X5 male connector	Pinout	Function
Baud rate	2400 by default		1	M-Bus B
Telegram content by default	Net or forward volume, reverse volume, medium temperature, date / time, target monthly value, target date, events / alarms, remaining battery lifetime		2	Pulse
			3	GND
			4	Direction
			5	M-Bus A

Pulse output communication system				
Pulse output type	Open collector	Male connector definition		
Pulse max frequency	25 Hz	M 12X5 male connector	Pinout	Function
Pulse weight	100 L / Pulse by default		1	Not used
			2	Pulse (OC 1)
Pulse length	50 ms		3	Ground
			4	Direction (OC 2)
			5	Cable cut

RUBIN® SONIC Smart

Technical data sheet

Sigfox communication system			
Frequency	SigFox	Readout interval	Permanent
Transmission interval	Twice a day	Telegram content by default	ID, Net or forward volume, reverse volume, time, day count, temperature
Emitted power	25 mW (14 dBm)		

Conditions relating to RUBIN® SONIC Smart

Operating conditions

Nominal pressure	PN 16 (PN10 DN200: PN 10)
Protection class	IP 68
Medium	Potable water
Medium temperature	From 0.1°C to + 50°C
Environnement temperature	From 1°C to + 70°C
Storage conditions	Minimum −10°C and +70°C maximum (maximum 4 weeks at T> 35°C)
Environnement class	B (indoor installation) / 0 (outdoor installation)
Mechanical environment class	M1
Electromagnetic environment class	E2
Sensitivity	U0D0
Measurement flowrate	Bi-directional

Approvals, certificates and regulations

EU directives compliance: MID 2014/32/UE. RoHS 2 2011/65/EU, REACH

Drinking water approval: ACS, WRAS, BELGAQUA, SVGW, KTW 270

Market approval: CE marking, OMS V4 (wM-Bus), certifié LoRa Alliance (LoRaWAN)