INTEGRA METERING

RUBIN® SONIC

Technical data sheet

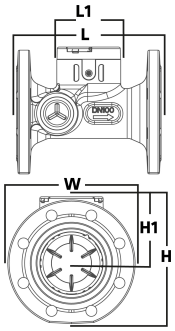
Product description

RUBIN® SONIC 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

Dimensions	DN	50	65	80	100	125	150	200
	Thread	2	2" 1/2	3	4	5	6	8
Weight	Kg	10	12	13	15	18	25	36
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

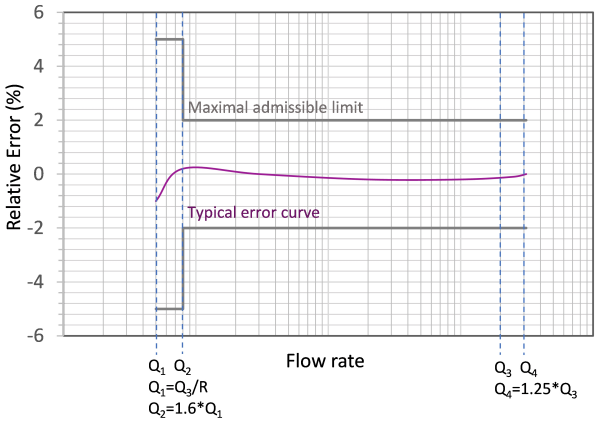


Metrological data

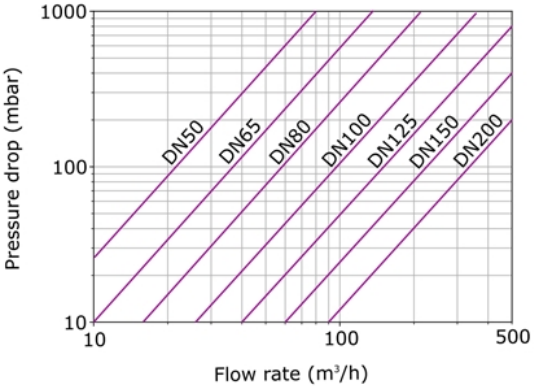
Nominal diameter	DN		50	65	80	100	125	150	200
	Thread		2	2" 1/2	3	4	5	6	8
Continuous flow	Q_3	m^3/h	40	63	63	100	160	250	400
Overload flow	Q_4	m^3/h	50	78.755	78.75	125	200	313	500
Transition flow	Q_2	m^3/h	0.13	0.2	0.2	0.32	0.51	0.8	1.28
Minimum flow	Q_1	m^3/h	0.08	0.13	0.13	0.2	0.32	0.5	0.8
Starting flow	Q_{START}	m^3/h	0.04	0.065	0.065	0.1	0.15	0.25	0.4
Pressure drop class @ 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

** The standards for flanges may vary depending on the market. For more information, please contact our sales department.*

Metrological class 2



Pressure drop



Please note that these diagrams should not be regarded as absolute and may be subject to variation.

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/product/paramapp/

ParamApp® action			
Editable parameters		Diagnostics	
Display	Net or forward volume, reverse volume, index decimals, flow rate 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, LoRaWAN force join or message	Recording granularity	Hourly, daily, monthly, yearly
		Data export	CSV
		Data reading	RUBIN® SONIC allows data collection even with an empty battery

Communication systems

Global view of communication systems

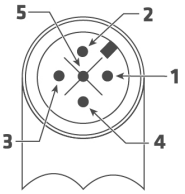
The availability of communication systems may vary depending on the market. For more information, please contact our sales department.

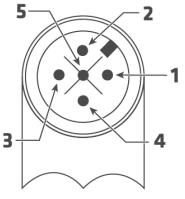
Naming	Connector	Wireless
MB	M-Bus and Pulse output (without cable cut tamper)	-
OC	Pulse output (with cable cut tamper)	-
LW8	M-Bus and Pulse output (without cable cut tamper)	MultiCom: simultaneous LoRaWAN 868 MHz and wM-Bus 868 MHz
LW	M-Bus and Pulse output (without cable cut tamper)	LoRaWAN EU 868 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 V 1.0.3	Telegram type	Historical or OMS type
Emitted power	25 mW (14 dBm)	Class	A
Transmission interval	Twice a day	Historical type telegram	Time stamp, instant volume (positive or net), instant alarm / event, 12 hourly volumes
Connection mode	Over-the-air activation (OTAA) by default	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

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

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

**OC 1 and OC 2 can be respectively any volume pulse + direction, a positive pulse and positive volume pulses, depending on the configuration.*

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

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
Environmental temperature	From 1° C to + 70° C
Storage temperature	Minimum –10° C and +70° C maximum (maximum 4 weeks at T> 35° C)
Environment class	B (indoor installation) / O (outdoor installation)
Mechanical environment class	M1
Electromagnetic environment class	E2
Sensitivity	U0D0 Inlet section . 0 DN ; Outlet section . 0 DN
Measurement flow rate	Bi-directional

Approvals and certificates

Approvals and certificates may vary depending on the market. For further information, please contact our sales department.

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

Drinking water approvals: ACS, WRAS, BELGAQUA, SVGW, DVGW, KTW 270

Market approval: CE marking

Other certifications: OMS V4 (wM-Bus), certified LoRa Alliance (LoRaWAN)