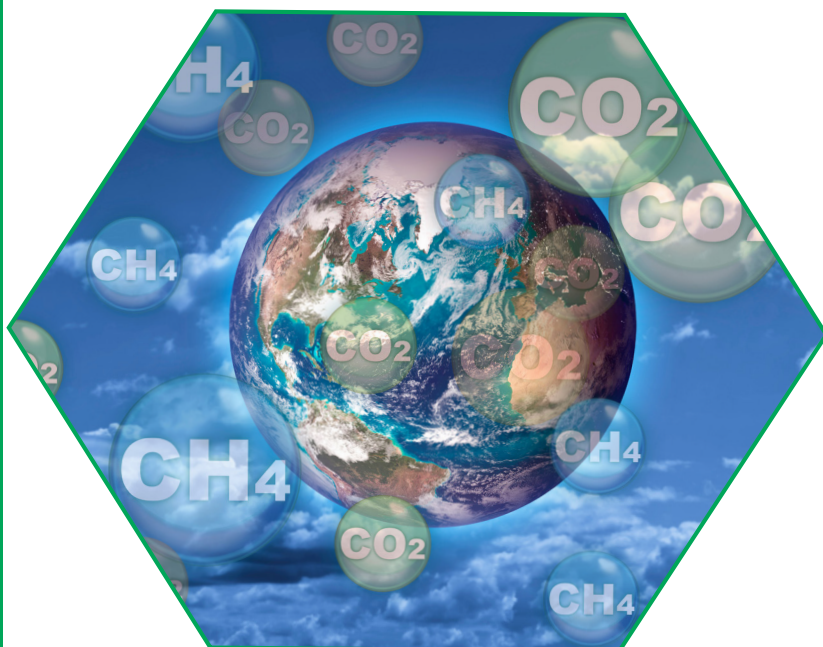









# iSonic 8X

Another contributor to world initiatives  
on net-zero emissions



Doing our part to help reduce  
methane emissions

-  US COMPANY
-  RELIABLE
-  RESPONSIVE
-  ACCURATE
-  BUILT-IN 4G WiFi
-  5 YEAR WARRANTY
-  ELIMINATES EMISSIONS

# The iSonic 8X, indisputably the new standard in custody transfer gas measurement



8 path, cross - Westinghouse configuration, proven as the most accurate, responsive, and reliable in the industry.

The iSonic was designed and developed in the US by an iconic team of engineers having collectively hundreds of years of experience designing/developing ultrasonic flowmeters.

The iSonic design falls nothing short of pure sophistication. It is graceful, ingenious, intuitive, and adaptable.

## iSONIC 8X

### FEATURES AND BENEFITS

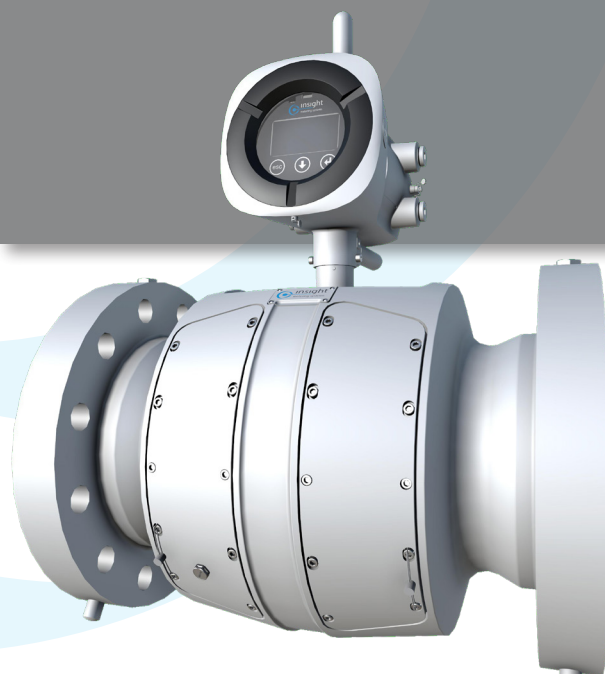
- ⦿ A multi-path flowmeter masterfully designed for custody transfer applications
- ⦿ Fully compliant with AGA 9, OIML R 137 Class 0.5, and ISO 17089. Conformities include ATEX 2014/34/EU, NEC/CEC (US/CA) explosion-proof and Intrinsically Safe
- ⦿ Available in sizes 3" - 24"  
2 standard path configurations:
  - ⦿ 8 path 4x4 cross Westinghouse
  - ⦿ 6 path 3x3 cross Westinghouse
  - ⦿ Other designs available
- ⦿ Designed for working pressures ranging from 14.7 - 3,750 psig
- ⦿ Suitable for most applications across the Oil & Gas value chain, including upstream, processing, midstream, and distribution
- ⦿ Meter body designed to keep the transducer cables protected and neatly confined. This practical feature greatly extends the life of the flowmeter

- ⦿ Also available as an option, a sun-shield designed to protect the electronics and display from damaging sun rays

The iSonic was designed to meet the harsh environment from the field including abrasion, extended temperatures and corrosion.

Factory standard body material is carbon steel with multilayer epoxy coating.

We offer different materials and coatings to meet other challenging applications.

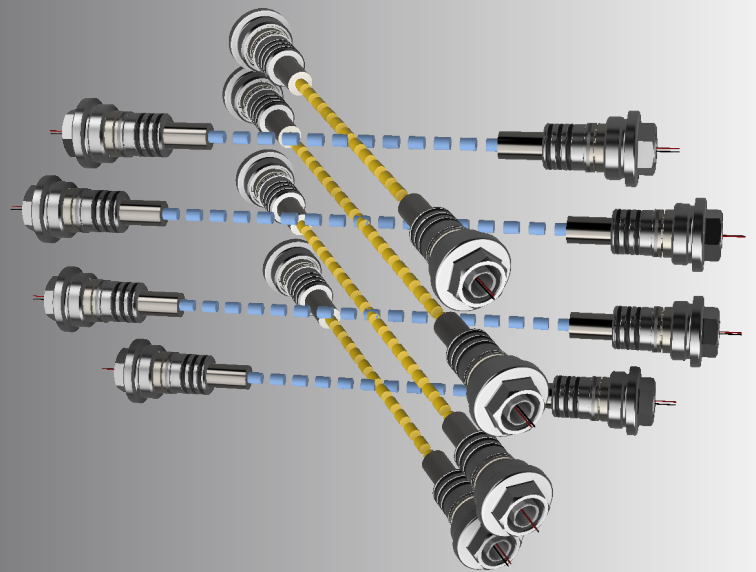
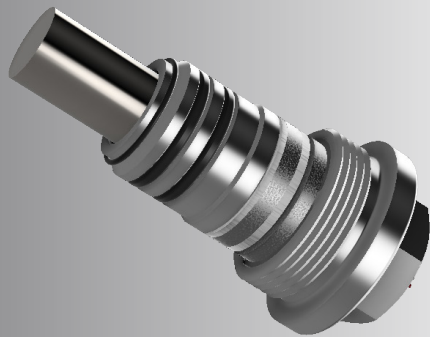









# Transducer Design

The iSonic transducers were designed to meet today's most demanding rigorous applications. Fully encapsulated in Titanium and Stainless Steel able to resist extreme harsh environments including, wet-gas, corrosives, and abrasive contaminants commonly found in pipelines.

The iSonic (patent pending) transducer is today's most innovative, intelligent and proven design. Whether by choice or application we offer three transducer versions to address a wide range of applications including; high pressure, low pressure and sour environments.



## iSonic Transducer Features & Benefits

-  Transducer piezo-crystals operate outside the process, fully protected from abrasion, corrosion, and pipeline hazards, ensuring durability, reliability, repeatability and accuracy.
-  The transducer mounting arrangement (**patent pending**) provides unparalleled acoustic isolation that yields extraordinary signal to noise ratios, resulting in total elimination of meter body crosstalk-interference and path sampling at higher speed levels never achieved before.
-  Inherent transducer reciprocity allows for replacing the transducers without affecting the meter's accuracy or needing re-calibration. Matching transducers is unnecessary.
-  Insight metering systems extensive expertise in transducer design and development ensures performance and reliability as well as able to customize to meet every application.
-  Intelligent transducer, combined with high speed electronics and lightning-fast signal processing can guarantee accurate, reliable measurement 24/7 even under most severe flowing conditions.



Insight SmartLink, an intelligent, intuitive and simplified diagnostic software designed to facilitate the meter's configuration, monitoring, and troubleshooting. It guides operators through any suspect / upset conditions before measurement is compromised. This software was created focusing on "simplicity" avoiding complex and complicated data screens. The user no longer struggles with confusing charts, too many screens and too much data.

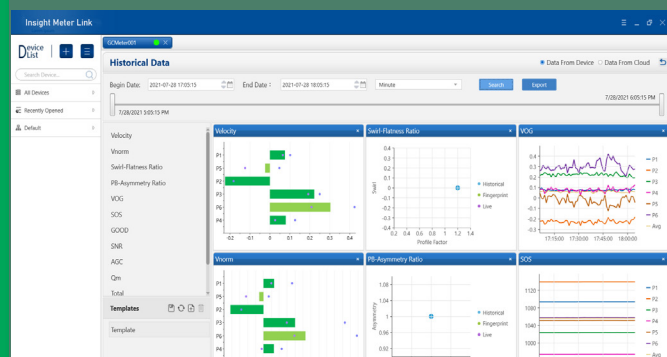
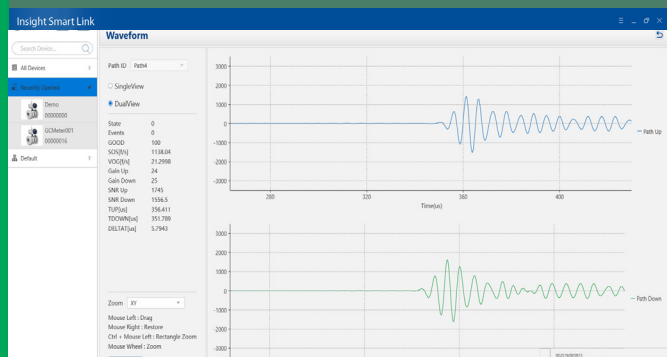
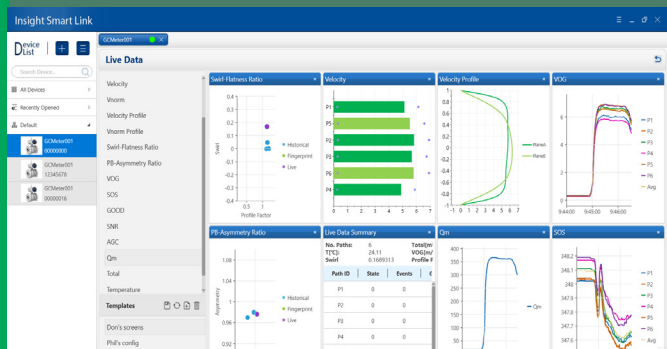
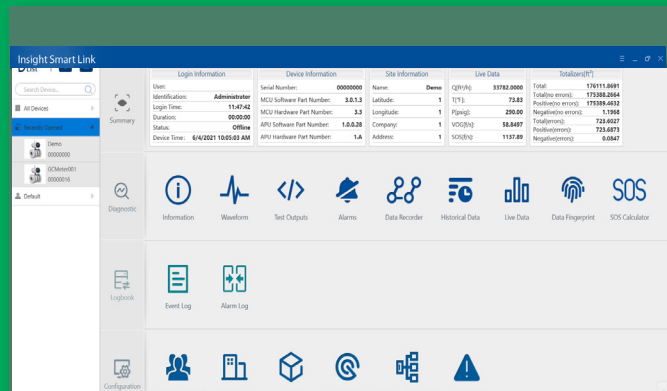
SmartLink was designed with an Intelligent dashboard, simplified and easily personalized by selecting graphical or numerical data and dragging in to an intuitive dashboard. Simplified adaptable to meet most user's needs for reliable, accurate and continuous flow analysis. SmartLink provides performance-based and dynamic flow-based diagnostics to ensure continuous performance, reliability and accuracy 24/7.



Performance-Based diagnostics for each path include; gas velocity, signal to noise ratios, speed of sound, gain, percent-performance and more.



Dynamic-Based diagnostics include; turbulence, swirl, cross-flow, profile factor and other disturbances in the pipeline.





# iSonic Sizing Guidance


iSonic Sizing		Table 1 - Flow Rates (MMSCFD)										
		Max Rated Velocity   3 to 24 in = 120 ft/s and 30 in = 100 ft/s										
METER SIZE		3	4	6	8	10	12	16	18	20	24	30
Operating Pressure (psig)	100	3.6	6.0	13.1	22.9	37.0	48.8	84.4	107.2	135.6	195.3	254.3
	200	6.7	11.3	24.6	42.9	69.2	91.4	158.0	200.6	253.9	365.6	476.0
	300	9.8	16.6	36.0	62.9	101.5	134.0	231.6	294.0	372.1	535.8	697.7
	400	12.9	21.9	47.5	82.9	133.7	176.5	305.2	387.4	490.3	706.1	919.4
	500	16.0	27.1	58.9	102.9	166.0	219.1	378.7	480.8	608.6	876.3	1,141
	600	19.1	32.4	70.3	122.8	198.2	261.6	452.3	574.3	726.8	1,047	1,363
	700	22.2	37.7	81.8	142.8	230.5	304.2	525.9	667.7	845.0	1,217	1,584
	800	25.3	42.9	93.2	162.8	262.7	346.8	599.5	761.1	963.3	1,387	1,806
	900	28.5	48.2	104.7	182.8	294.9	389.3	673.1	854.5	1,082	1,557	2,028
	1,000	31.6	53.5	116.1	202.8	327.2	431.9	746.7	948.0	1,200	1,728	2,250
	1,100	34.7	58.7	127.6	222.8	359.4	474.5	820.2	1,041	1,318	1,898	2,471
	1,200	37.8	64.0	139.0	242.7	391.7	517.0	893.8	1,135	1,436	2,068	2,693
	1,300	40.9	69.3	150.5	262.7	423.9	559.6	967.4	1,228	1,554	2,238	2,915
	1,400	44.0	74.5	161.9	282.7	456.2	602.2	1,041	1,322	1,673	2,409	3,136
	1,500	47.1	79.8	173.3	302.7	488.4	644.7	1,115	1,415	1,791	2,579	3,358
	1,600	50.2	85.1	184.8	322.7	520.7	687.3	1,188	1,508	1,909	2,749	3,580
	1,700	53.4	90.4	196.2	342.7	552.9	729.9	1,262	1,602	2,027	2,919	3,801
	1,800	56.5	95.6	207.7	362.6	585.2	772.4	1,335	1,695	2,146	3,090	4,023
1,900	59.6	100.9	219.1	382.6	617.4	815.0	1,409	1,789	2,264	3,260	4,245	
2,000	62.7	106.2	230.6	402.6	649.6	857.6	1,483	1,882	2,382	3,430	4,466	

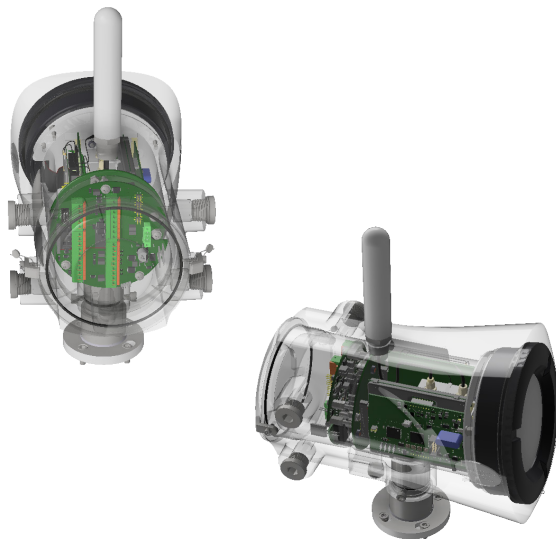
Typical Operation Max Range Sizing		Table 2 - Flow Rates (MMSCFD)										
		Sizing max velocity 80 ft/sec for Meter sizes 3 to 24 in ( for 30 in @ 70 ft/s )										
METER SIZE		3	4	6	8	10	12	16	18	20	24	30
Operating Pressure (psig)	100	2.4	4.0	8.8	15.3	24.7	32.5	56.3	71.4	90.4	130.2	178.0
	200	4.5	7.5	16.4	28.6	46.2	60.9	105.3	133.7	169.2	243.7	333.2
	300	6.5	11.1	24.0	41.9	67.7	89.3	154.4	196.0	248.1	357.2	488.4
	400	8.6	14.6	31.6	55.2	89.1	117.7	203.4	258.3	326.9	470.7	643.6
	500	10.7	18.1	39.3	68.6	110.6	146.1	252.5	320.6	405.7	584.2	799
	600	12.8	21.6	46.9	81.9	132.1	174.4	301.5	382.8	484.5	698	954
	700	14.8	25.1	54.5	95.2	153.6	202.8	350.6	445.1	563.4	811	1,109
	800	16.9	28.6	62.2	108.5	175.1	231.2	399.7	507.4	642.2	925	1,264
	900	19.0	32.1	69.8	121.9	196.6	259.6	448.7	569.7	721	1,038	1,419
	1,000	21.0	35.6	77.4	135.2	218.1	287.9	497.8	632.0	800	1,152	1,575
	1,100	23.1	39.2	85.0	148.5	239.6	316.3	546.8	694	879	1,265	1,730
	1,200	25.2	42.7	92.7	161.8	261.1	344.7	595.9	757	957	1,379	1,885
	1,300	27.3	46.2	100.3	175.1	282.6	373.1	644.9	819	1,036	1,492	2,040
	1,400	29.3	49.7	107.9	188.5	304.1	401.4	694	881	1,115	1,606	2,195
	1,500	31.4	53.2	115.6	201.8	325.6	429.8	743	943	1,194	1,719	2,351
	1,600	33.5	56.7	123.2	215.1	347.1	458.2	792	1,006	1,273	1,833	2,506
	1,700	35.6	60.2	130.8	228.4	368.6	486.6	841	1,068	1,352	1,946	2,661
	1,800	37.6	63.8	138.5	241.8	390.1	515.0	890	1,130	1,430	2,060	2,816
1,900	39.7	67.3	146.1	255.1	411.6	543.3	939	1,193	1,509	2,173	2,971	
2,000	41.8	70.8	153.7	268.4	433.1	571.7	988	1,255	1,588	2,287	3,127	


# iSonic 8X Weight and Dimensions

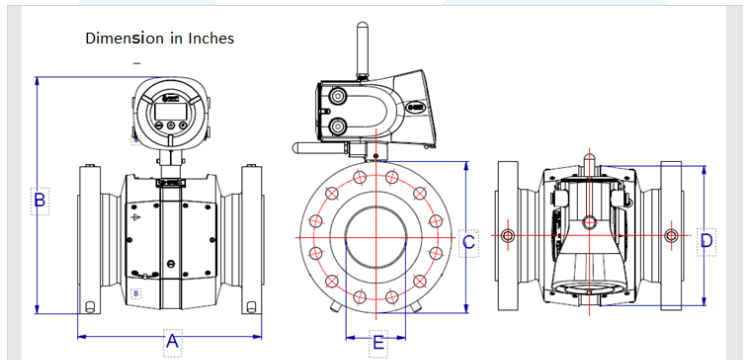
 The iSonic's body is forged Carbon Steel and machined utilizing multi-tasking CNC to ensure highest precision.

 The iSonic standard overall length is 3D for sizes 3 - 16 inch, making it suitable for new or existing compact skid designs. Consult the factory for other lengths to meet installation requirements.

 The iSonic is easily adaptable in the field and control room. With Mod-bus protocol and multiple I/O facilitates seamless integration into any Flow Computer, RTU and SCADA.



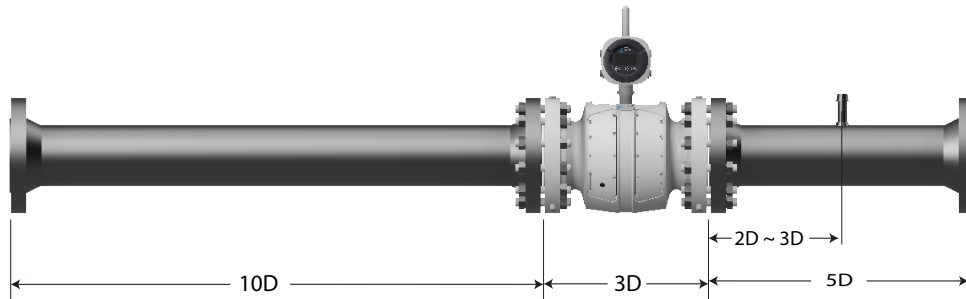
 The iSonic's electronic enclosure it's a magnificent craftsmanship, ergonomic, ample I/O, and easy access to facilitate maintenance and repairs



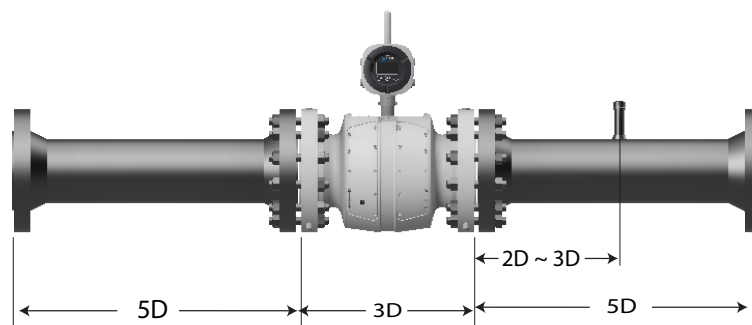
Size	NPS	Flange(#)	Weight (Lbs)	A (in)	B (in)	B + Antenna	C (in)	D (in)	E (in)
3	150	80	80	9.4	17.2	21.1	7.5	8.4	2.9
3	300	87	87	9.4	17.6	21.4	8.3	8.4	2.9
3	600	90	90	9.4	17.6	21.4	8.3	8.4	2.9
3	900	127	127	15.7	18.2	22.1	9.5	8.4	2.9
4	150	124	124	11.8	18.5	22.3	9.0	9.8	3.7
4	300	138	138	11.8	19.0	22.8	10.0	9.8	3.7
4	600	155	155	11.8	19.3	23.2	10.8	9.8	3.7
4	900	212	212	19.7	19.7	23.6	11.5	9.8	3.7
6	150	363	363	17.7	21.5	25.4	11.0	14.0	5.5
6	300	394	394	17.7	22.3	26.1	12.5	14.0	5.5
6	600	443	443	17.7	23.0	26.9	14.0	14.0	5.5
6	900	575	575	29.5	23.5	27.4	15.0	14.0	5.5
8	150	569	569	23.6	23.8	27.6	13.5	16.5	7.3
8	300	620	620	23.6	24.5	28.4	15.0	16.5	7.3
8	600	702	702	23.6	25.3	29.1	16.5	16.5	7.3
8	900	805	805	23.6	26.3	30.1	18.5	16.5	7.3
10	150	837	837	29.5	26.1	29.9	16.0	18.8	9.3
10	300	913	913	29.5	26.8	30.7	17.5	18.8	9.3
10	600	1068	1068	29.5	28.1	31.9	20.0	18.8	9.3
10	900	1181	1181	29.5	28.8	32.7	21.5	18.8	9.3
12	150	1299	1299	35.4	28.6	32.4	19.0	21.1	10.6
12	300	1402	1402	35.4	29.3	33.2	20.5	21.1	10.6
12	600	1547	1547	35.4	30.1	33.9	22.0	21.1	10.6
12	900	1741	1741	35.4	31.1	34.9	24.0	21.1	10.6
14	150	1479	1479	41.3	30.2	34.1	21.0	22.4	12.2
14	300	1631	1631	41.3	31.2	35.1	23.0	22.4	12.2
14	600	1755	1755	41.3	31.6	35.4	23.8	22.4	12.2
14	900	1976	1976	41.3	32.3	36.2	25.3	22.4	12.1
16	150	1823	1823	33.5	32.5	36.3	23.5	24.5	14.0
16	300	1982	1982	33.5	33.5	37.3	25.5	24.5	14.0
16	600	2179	2179	33.5	34.2	38.1	27.0	24.5	14.0
16	900	2382	2382	35.4	34.6	38.4	27.8	24.5	13.9
18	150	2161	2161	35.4	34.2	38.1	25.0	26.8	15.7
18	300	2407	2407	35.4	35.7	39.6	28.0	26.8	15.7
18	600	2664	2664	35.4	36.3	40.2	29.3	26.8	15.7
18	900	3102	3102	39.4	37.2	41.1	31.0	26.8	15.7
20	150	2645	2645	38.4	36.5	40.3	27.5	29.0	17.7
20	300	2941	2941	38.4	38.0	41.8	30.5	29.0	17.7
20	600	3285	3285	38.4	38.7	42.6	32.0	29.0	17.7
20	900	3900	3900	43.3	39.6	43.4	33.8	29.0	17.4
24	150	3789	3789	42.3	40.7	44.6	32.0	33.3	21.3
24	300	4261	4261	42.3	42.7	46.6	36.0	33.3	21.3
24	600	4722	4722	42.3	43.2	47.1	37.0	33.3	21.3
24	900	6303	6303	49.2	45.2	49.1	41.0	33.3	20.9

# iSonic Installation Recommendations

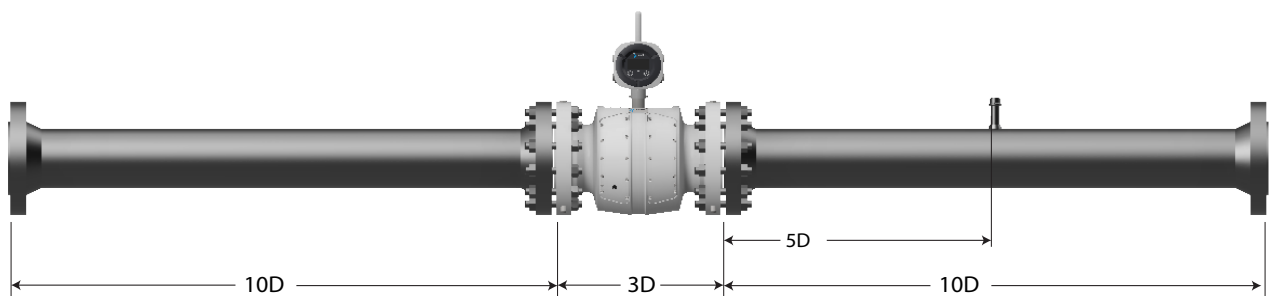
**Installation - standard, flow conditioner not required**



**Installation - compact, flow conditioner not required**



**Installation - bi-directional, flow conditioner not required**

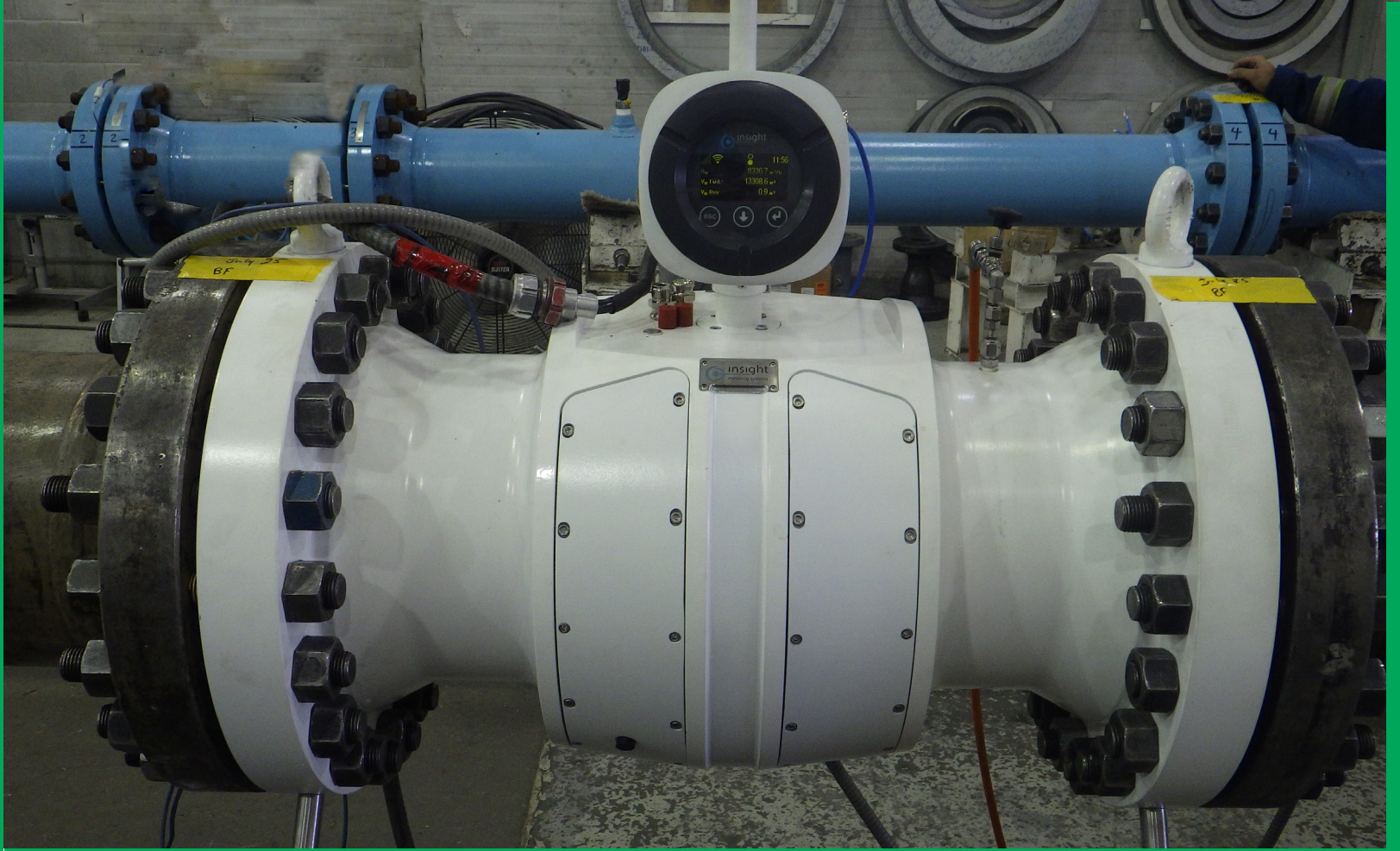




# iSonic Technical Specifications

iSonic - Technical Data		
Path Arrangement	6 paths – Cross Configuration (3 inch only) 8 paths– Cross Configuration	
Size	3" to 24" (Standard) other sizes on request	
Measurement Principle	transit time	
Repeatability	≤0.05% (standard calibration)	
Accuracy	OIML R137 Class 0.5	
Pipe requirements	With or Without Flow Conditioner	Upstream straight length ≥ 5D, Downstream straight length ≥ 3D
Gas Temperature Range	–40 °C to +110 °C	
Pressure Range	0 psig to 2250 psig (Standard 150#, 300#, 600#, 900#) 100 psig to 3750 psig (Extended 1500#)	
Ingress protection	IP66	
Environment		
Ambient temperature	–40 °C to +70 °C	
storage temperature	–40 °C to +70 °C	
Ambient humidity	≤95%, non-condensing	
Conformities and Haz Loc Approvals		
Conformities	OIML R 137-1&2:2012      ISO 17089-1 ATEX: 2014/34/EU      AGA-Report No. 9	
Hazardous Approvals	ATEX/IECEX Ex db ia mb IIB+H2 T6...T4  NEC/CEC (US/CSA) Explosion-proof / Intrinsically Safe: Class I, Div. 1 Groups B, C, D, T6...T4	
Inputs/Outputs		
Analog Outputs	2	4 to 20mA, electrically isolated
Analog Inputs	2	4 to 20mA
Digital Outputs	4	2 x status, 2 x pulse $f_{max} = 10\text{kHz}$  passive, electrically isolated, internal or external power, open collector
Communication Ports	RS485	Modbus RTU 3 x RS485
	Ethernet	1 x Ethernet 1 x Wi-Fi
	Cloud communication	4G
Power		
Voltage	12-30 VDC	
Power Consumption	5W, (6W during 4G communication)	
Data Storage		
Archived data	Meter	Every Minute (10,000 records) Hourly (10,000 records) Daily (5,000 records)
	Cloud	Every Minute (10,000 records), on demand Hourly (no limit) Daily (no limit)
Alarm/Event Log	Meter	Event Log (10,000 events) Parameter modification Log (1,000 modifications) Alarm Log (1,000 alarms)
	Cloud	Event Log (no limit) Parameter Modification Log (no limit) Alarms Log (no limit)





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