



Natural Gas Products Catalog

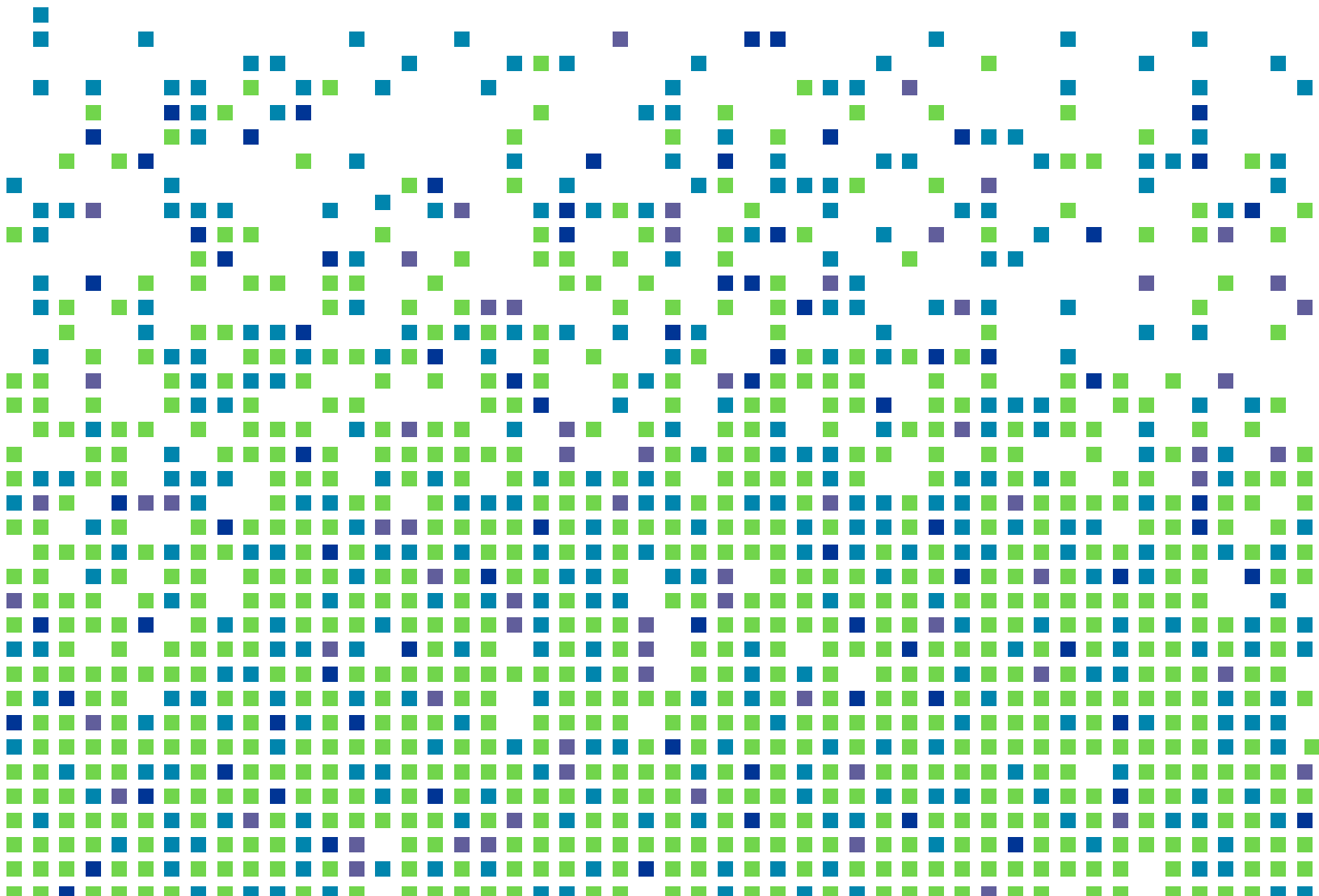


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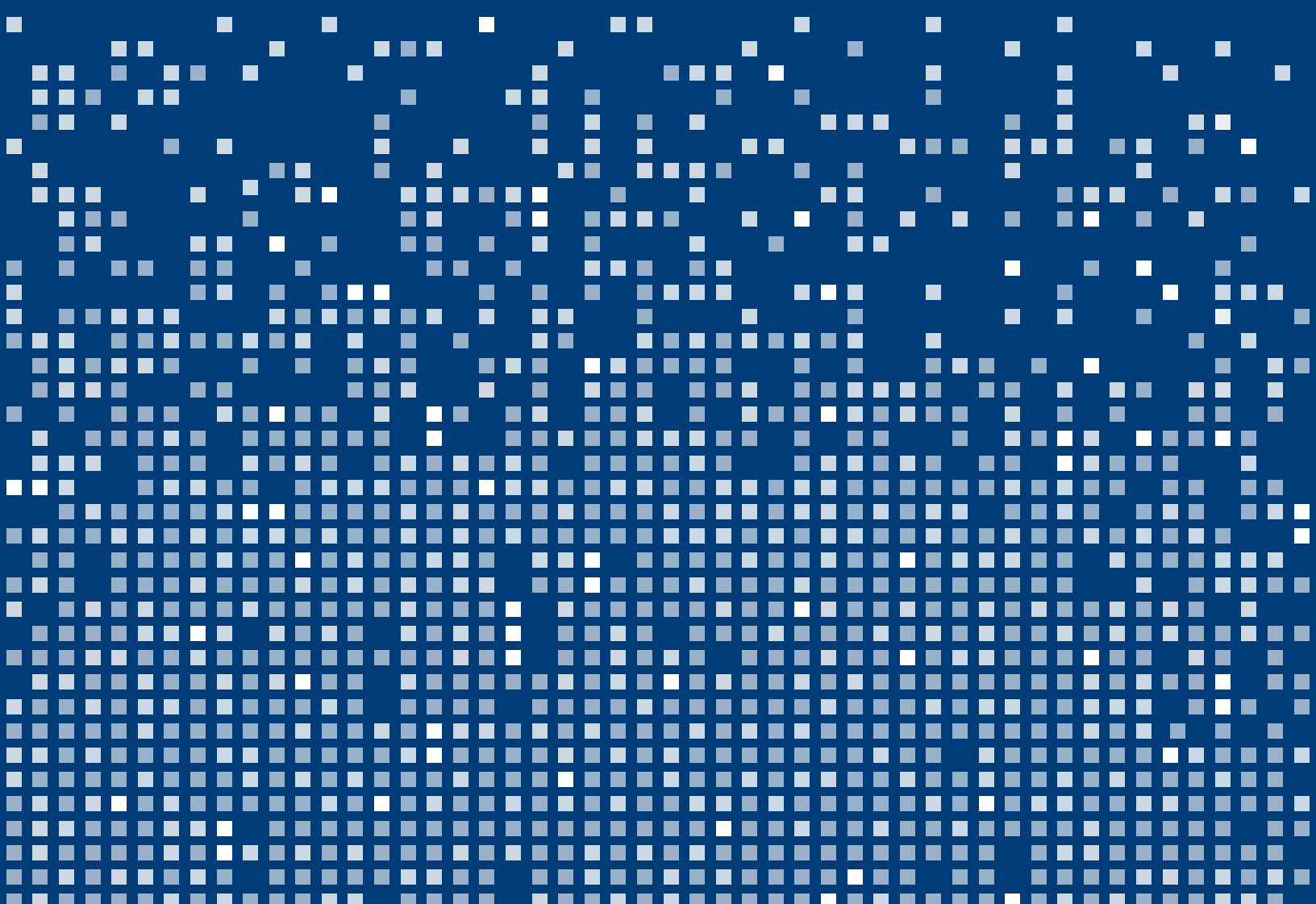
Thank you for your interest in Sensus gas products.

This catalog is designed to present the general descriptions and applications of our product offerings.

For more product information, please visit our website at sensus.com/gasproducts



Meters





Overview

What's inside matters. Sensus engineers have taken diaphragm technology to a new level, improving accuracy, reliability and overall product life span. All Sensus diaphragm meters in this size range incorporate the latest design and material advances for lower maintenance, longer life expectancy and better accuracy. The R-275 and 415 meters feature the accuWAVE™ diaphragm. This highly efficient molded diaphragm delivers exceptional proof stability which means: longer life span, improved long-term performance exceptional stability and lower overall lifetime cost.

Applications

The R-275 meter is designed for residential use while the 415 meter is suited for large volume residential and small commercial applications. Both meters have an operating temperature range of -30 to +150°F (-35° to +65°C).

Indexes

A variety of index options are provided for Sensus residential meters. Plastic circular (dial) and direct (odometer) reading indexes are available in 1' and 2' drive rates, with 2'-½' proving dials on the 2' index. First reading circle values range from 10 to 1,000 cubic feet. All indexes are available in standard or temperature compensated configurations. Metric meters feature DR cubic meter indexes.



Additional Information

Visit sensus.com/gasproducts

Dimensions and Specifications

U.S. Standard Models – General Specifications

Meter Model	Dimensions (Inches)			Approximate Weight (Lbs.)	Capacity - SCFH 1/2" w.c. Diff.				Maximum W.P. PSIG †	Number of Rev. per Ft³	Stuff. Box Shaft Ft³/Rev	Meter Connections Available
	Height††	Width	Depth		Nat.	But.	Prop.	Air				
R-275*	13 ²³ / ₆₄	10 ¹ / ₈	8 ¹ / ₂	14	275	150	175	215	5	8.0	2	10 Lt, 20 Lt, 30 Lt, 1 ¹ / ₄ ", 1A SPG, #2 SPG
415**	14 ³⁷ / ₆₄	11 ¹ / ₈	9 ¹ / ₈	21	415	225	260	320	10	6.5	2	20 Lt, 30 Lt, 45 Lt, 1 ¹ / ₄ ", 1A SPG, #2 SPG

Metric Models – General Specifications

Meter Model	Dimensions (Centimeters)			Approximate Weight (Kg.)	Capacity - Nm³/h 1,25 mBar				Maximum W.P. kPa †	Number of Rev. per M³	Stuff. Box Shaft M³/Rev	Meter Connections Available
	Height††	Width	Depth		Nat.	But.	Prop.	Air				
MR-8	33.8	25.7	21.6	6.4	8	4	5	6	34.47	8.0	0.05	10 Lt, 20 Lt, 30 Lt, 1 ¹ / ₄ ", 1A SPG, #2 SPG
MR-12	37.0	28.3	23.8	9.5	12	6	7	9	68.95	6.5	0.05	20 Lt, 30 Lt, 45 Lt, 1 ¹ / ₄ ", 1A SPG, #2 SPG

* Capacity ratings based on 20 Lt. connections per ANSI B-109.1

** Capacity ratings based on 30 Lt. connections per ANSI B-109.1

† High pressure units available

†† Height assumes 20 Lt. connection and varies slightly from other connections



Overview

Sonix® meters utilize digital ultrasonic technology to measure gas properties with unprecedented accuracy and reliability. Their no-moving-parts design virtually eliminates maintenance and repair costs. Sonix meters feature an attractive and compact design that offers flexible installation options. Their small size provides easy installation even in the tightest spaces.

Sonix meters retain their calibration and advanced metering diagnostics throughout their life, and are designed to record and log any tampering or changes in operation. The electronic platform allows the user to incorporate optional Automatic Meter Reading (AMR) and Advanced Meter Infrastructure (AMI) technologies more cost effectively.

Applications

Sonix 600, 880 and 2000 meters are designed for both indoor and outdoor installations in commercial and industrial applications. Sonix IQ™ is a residential meter designed to meet the rigorous standards for outdoor installations in North America. Operating temperatures for all Sonix meters range from -30° to +130°F (-35° to +55°C).

Sonix meters offer durability, reliability and efficiency

- Compact size and light weight
- Built-in memory with the capacity for 60 days of hourly data collection (600/880/2000) and 90 days of hourly data collection (Sonix IQ)
- Sophisticated, anti-tampering deterrents and on-board diagnostics
- Pulse outputs for integration into third party data collection systems



Sonix 2000

Sonix® 600/880

Sonix IQ™

- Programmable fixed factor pressure
- Live compensation pressure (Models 2000 and 57)
- Live temperature compensation -30 to +130°F (-35° to +55°C)

Dimensions and Specifications

U.S. Standard Models – General Specifications

Sonix Model	Dimensions (Inches)			Approximate Meter Shipping Weight (Lbs)	Maximum Working Pressure (PSIG)	Low-Flow Cut-Off (CFH)	Minimum Flow ± 2% Accuracy (CFH)	Minimum Flow ± 1% Accuracy (CFH)	Capacity $\Delta P=0.5"$ w.c. ± 1% Accuracy (CFH)	Capacity $\Delta P=2"$ w.c. ± 1% Accuracy (CFH)
	Height	Length	Depth							
600	10.25	9.5	6.8	12.0	20	.021	6	25	600	1,130
800						.021	8	40	880	1,625
2000	11.4	12.6	8.9	28.6	60	2	10	50	2,000	3,000*
IQ 250	7.89	9.9	4.39	6.3	10	0.17			250	N/A
IQ 400	7.89	9.9	4.39	6.3	10	0.17			425	N/A

*At 1.3" w.c.

Metric Models – General Specifications

Sonix Model	Dimensions (Millimeters)			Approximate Meter Shipping Weight (Kg)	Maximum Working Pressure (Bar)	Low-Flow Cut-Off (l/h)	Minimum Flow ± 2% Accuracy (m³/h)	Minimum Flow ± 1% Accuracy (m³/h)	Capacity $\Delta P=1.25$ mbar ± 1% Accuracy (m³/h)	Capacity $\Delta P=5.0$ mbar ± 1% Accuracy (m³/h)
	Height	Length	Depth							
16	260	241	173	5.4	1.4	6	0.16	.70	16	33
25						6	0.22	1.1	25	46
57	290	320	226	13.0	4.1	57	0.28	1.4	57	85**
IQ 250	200.4	253.24	11.39	2.86	10	5			7	N/A
IQ 400	200.4	253.24	11.39	2.86	10	5			12	N/A

**At 3.2 mbar



Overview

The TPL-9 Turbo Meter is a 90° angled body meter designed for use with flow rates ranging from 900 scfh at 0.25 psig to 1,123,000 scfh at 1,440 psig. The 90° elbow configuration of the TPL-9 Turbo Meter permits compact installations with the inlet in either a horizontal or vertical plane.

The TPL-9 Turbo Meter's compact, rugged design coupled with Sensus' strict calibration procedures assures reliable and accurate field and in-plant measurement data. Both models incorporate the following design features:

- Fabricated steel bodies
- Available for both 2" & 3" applications
- Interchangeable modules
- Direct mounting of a wide variety of reading devices to the meter index plate
- External fittings allowing for shaft bearing lubrication while the meter is in operation

Accessories

- Optional Slot-Sensor Pickup for high frequency calibrated pulse outputs for electronic measuring systems
- Reed Switch
- Safety Interlock Device

Applications

The TPL-9 Turbo Meter is designed for use in industrial, production, fuel gas and distribution applications where greater accuracy in gas measurement is needed.



TPL-9

TPL-9 Dimensions, Specifications and Connections

Meter Model	Meter Size	Body Material	Dimensions (Inches)			Approx. Meter Shipping (Lbs.)	Maximum Working Pressure (PSIG)	Flow Rate	
			Height	Length	Depth			Minimum SCFH at 0.25 (PSIG)	Maximum SCFH at 1,500 (PSIG)*
TPL-9	2"	ASME 150 Steel	13 ³ / ₈	8 ¹ / ₆	6	35	275	900	1,170,000
		ASME 300 Steel	13 ³ / ₈	8 ³ / ₆	6 ¹ / ₂	39	720		
		ASME 600 Steel	14 ¹ / ₄	8 ⁵ / ₆	6 ¹ / ₂	43	1,440		
	3"	ASME 150 Steel	14 ³ / ₆	9 ⁵ / ₆	7 ¹ / ₂	45	275		
		ASME 300 Steel	14 ¹¹ / ₆	10 ¹ / ₆	8 ¹ / ₄	58	720		
		ASME 600 Steel	15 ¹ / ₆	11 ¹ / ₆	8 ³ / ₄	58	1,440		

*With ASME 600 steel construction

Note: Sensus TPL-9 Turbo Meters comply with the design and performance requirements of AGA Report No. 7



Overview

The T-10 Turbo Meter is a straight-through (wafer-style) meter designed for high pressure applications. Flow rates range from 2,050 scfh at 25 psig to 1,300,000 scfh at 1,500 psig. The all-aluminum rotors are machined from bar stock and individually balanced for optimum performance.

The T-10 Turbo Meter's compact, rugged design coupled with Sensus' strict calibration procedures assures reliable and accurate field and in-plant measurement data. Both models incorporate the following design features:

- Cast steel bodies
- Available for both 2" & 3" applications
- Interchangeable modules
- Direct mounting of a wide variety of reading devices to the meter index plate
- External fittings allowing for shaft bearing lubrication while the meter is in operation

Applications

The T-10 Turbo Meter is designed for use in industrial, production and distribution applications where greater accuracy in gas measurement is needed.

Indexes

Sensus offers a number of indexes to provide readouts in desired units at line conditions. The meters can also accommodate a variety of third-party instruments to correct for pressure, temperature or both. These accessories fit directly on the meter index plate and can provide pulse outputs for remote reading.

Variations

- All Sensus Turbo Meters feature modular design
- All Turbo Meters can be calibrated at operating pressures up to 900 psig for optimum accuracy
- Imperial and metric measurement



T-10

Additional Information

Visit sensus.com/gasproducts

T-10 Dimensions, Specifications and Connections

Meter Model	Meter Size	Body Material	Dimensions (Inches)			Approx. Meter Shipping (Lbs.)	Working Pressure (PSIG) with ASME		Flow Rate	
			Height	Length	Depth		150 Steel Flange Installation Kit	300/600 Steel Flange Installation Kit	Minimum SCFH at 25 (PSIG)	Maximum SCFH at 1,500 (PSIG)*
T-10	2"	ASME 600 Steel	11¼	7 ²⁷ / ₃₂	6¼	21	275	1,500	2,050	1,300,000
	3"		10 ¹ / ₁₆	7¾	6¼	19	275	1,500	2,050	1,300,000

*With ASME 600 steel construction

Note: Sensus T-10 Turbo Meters comply with the design and performance requirements of AGA Report No. 7



4, 6, 8, and 12 Inch (100, 150, 200 and 300 mm)

Overview

The Mark II™ Turbo Meters provide greater range, compact size, and simplified maintenance when compared to alternative methods of large volume measurement. They are industry leaders when it comes to providing more sophisticated measurement systems and direct data communications. Mark II meters readily accept a multitude of meter-mounted readout devices and provide calibrated pulse outputs for electronic measurement.

Meter	Rotor Blade Angle	Maximum Capacity ACFH at 0.25 psig
T-18	45°	18,000
T-27	30°	35,000
T-35	45°	60,000
T-57	30°	14,000
T-60	45°	27,000
T-90	30°	57,000
T-140	45°	90,000
T-230	30°	230,000

Features

- Top entry design allows moving parts that are contained in an interchangeable module to be lifted out of the meter body while the body remains in-line
- Thrust load balancing for increased bearing life at all operating conditions
- Gears and other moving parts housed in a sealed chamber protected from line contaminants
- Modules with 45° or 30° rotor blades to accommodate station upgrades without body or piping changes
- Unique internal flow conditioning and rotor designs extract the maximum amount of kinetic energy from flowing gas

Each pressure-containing component is hydrostatically tested at 1.5 or 2.0 times the maximum rated working pressure, depending on material. Additionally, each meter receives an air leak test at 1.1 times the pressure rating to verify pressure integrity.

Sensus maintains one of the most technologically sophisticated and accurate large volume, high pressure meter calibration facilities in the world. Repeated correlation tests with other large volume meter proving facilities, using various flowing media and reference standards, have verified the accuracy of Turbo Meter calibrations.



Mark II™ Turbo

Additional Information

Visit sensus.com/gasproducts

Applications

Mark II Turbo Meters are available to fit numerous applications and fulfill a variety of capacity requirements. Operating temperatures range from -20° to +165°F. Special construction is available for lower and higher operating temperatures. Contact your local Sensus Representative for information on specific applications.

Indexes

Sensus offers a number of indexes and accessories to provide read-outs in desired units at line conditions. In addition, third-party correcting instrumentation used to correct for pressure, temperature or both fit directly on the index plate without a special adapter.

Accessories

- Optional Slot-Sensor Pulser for mid-range frequency calibrated pulse outputs for electronic measuring systems
- Spare replacement modules

Variations

- Special construction meters available for temperatures above or below the recommended range of -20° to +165°F (-29° to +74°C)
- Available with ASME flanges
- Modules with 45° or 30° blade angles



Mark II Turbo Meter – 45° Rotor Blade Dimensions, Specifications and Connections Approximate

Meter Model	Body Material	Dimensions (Inches)			Approximate Meter Shipping Weight (Lbs.)	Minimum Acceptable Spin Time (Sec.)	Maximum Working Pressure (PSIG)	Flow Rate		Ft ³ per Rev. of Mech. Output Shaft
		Height	Length	Depth				Minimum SCFH at 0.25 (PSIG)	Maximum SCFH at 1,500 (PSIG)	
4" T-18	Aluminum	11 $\frac{1}{16}$	14	9	36	70*	175	1,200	2,339,000	100
	ASME 150 Steel	11 $\frac{1}{16}$	15 $\frac{1}{2}$	9	105	70*	270			
	ASME 300 Steel	12 $\frac{3}{16}$	15 $\frac{1}{2}$	10	140	70*	750			
	ASME 600 Steel	12 $\frac{1}{4}$	15 $\frac{1}{2}$	10 $\frac{3}{4}$	175	70*	1,500			
6" T-35	Aluminum	14 $\frac{3}{16}$	16	11	75	140	175	1,750	4,549,000	100
	ASME 150 Steel	14 $\frac{3}{16}$	22 $\frac{1}{2}$	11	174	140	270			
	ASME 300 Steel	15 $\frac{1}{8}$	22 $\frac{1}{2}$	12 $\frac{1}{2}$	280	140	750			
	ASME 600 Steel	15 $\frac{1}{8}$	22 $\frac{1}{2}$	14	336	140	1,500			
8" T-60	Aluminum	16 $\frac{1}{16}$	21	13 $\frac{1}{2}$	134	170	175	3,000	7,798,000	1,000
	ASME 150 Steel	16 $\frac{1}{16}$	27 $\frac{1}{4}$	13 $\frac{1}{2}$	284	180	270			
	ASME 300 Steel	17 $\frac{1}{16}$	27 $\frac{1}{4}$	15	430	180	750			
	ASME 600 Steel	18 $\frac{1}{16}$	27 $\frac{1}{4}$	16 $\frac{1}{2}$	596	180	1,500			
12" T-140	Ductile Iron	22 $\frac{1}{16}$	30	19	510	300	220	5,600	18,196,000	1,000
	ASME 300 Steel	23 $\frac{3}{16}$	32 $\frac{1}{2}$	20 $\frac{1}{2}$	790	300	750			
	ASME 600 Steel	23 $\frac{1}{16}$	32 $\frac{1}{2}$	22	1,030	300	1,500			

*Plastic rotors: T-18=50 seconds, T-30=90 seconds, T-60=170 seconds

Mark II Turbo Meter – 30° Rotor Blade Dimensions, Specifications and Connections Approximate

Meter Model	Body Material	Dimensions (Inches)			Approximate Meter Shipping Weight (Lbs.)	Minimum Acceptable Spin Time (Sec.)	Maximum Working Pressure (PSIG)	Flow Rate		Ft ³ per Rev. of Mech. Output Shaft
		Height	Length	Depth				Minimum SCFH at 0.25 (PSIG)	Maximum SCFH at 1,500 (PSIG)	
4" T-27	Aluminum	11 $\frac{1}{16}$	14	9	36	70	175	1,800	3,509,000	100
	ASME 150 Steel	11 $\frac{1}{16}$	15 $\frac{1}{2}$	9	105	70	270			
	ASME 300 Steel	12 $\frac{3}{16}$	15 $\frac{1}{2}$	10	140	70	750			
	ASME 600 Steel	12 $\frac{1}{4}$	15 $\frac{1}{2}$	10 $\frac{3}{4}$	175	70	1,500			
6" T-57	Aluminum	14 $\frac{3}{16}$	16	11	75	140	175	2,850	7,408,000	100
	ASME 150 Steel	14 $\frac{3}{16}$	22 $\frac{1}{2}$	11	174	140	270			
	ASME 300 Steel	15 $\frac{1}{8}$	22 $\frac{1}{2}$	12 $\frac{1}{2}$	280	140	750			
	ASME 600 Steel	15 $\frac{1}{8}$	22 $\frac{1}{2}$	14	336	140	1,500			
8" T-90	Aluminum	16 $\frac{1}{16}$	21	13 $\frac{1}{2}$	134	170	175	4,500	11,697,000	1,000
	ASME 150 Steel	16 $\frac{1}{16}$	27 $\frac{1}{4}$	13 $\frac{1}{2}$	284	180	270			
	ASME 300 Steel	17 $\frac{1}{16}$	27 $\frac{1}{4}$	15	430	180	750			
	ASME 600 Steel	18 $\frac{1}{16}$	27 $\frac{1}{4}$	16 $\frac{1}{2}$	596	180	1,500			
12" T-140	Ductile Iron	22 $\frac{1}{16}$	30	19	510	300	220	9,200	29,893,000	1,000
	ASME 300 Steel	23 $\frac{3}{16}$	32 $\frac{1}{2}$	20 $\frac{1}{2}$	790	300	750			
	ASME 600 Steel	23 $\frac{1}{16}$	32 $\frac{1}{2}$	22	1,030	300	1,500			

Notes:

Mark II Turbo Meter flange dimensions conform to ASME B-16.42-1996 (aluminum and ductile iron bodies) and ASME B-16.5-1996 (cast steel bodies)

Mark II Turbo Meters conform to construction, installation and usage recommendations defined in the following industry standards: Measurement of Gas by Turbine Meters - American Gas Association; Transmission Measurement Committee Report No. 7, Measurement of Gas Flow by Turbine Meters - American National Standard, ASME MFC-4M 1986; Gas Measurement Manual, Part No. Four, Gas Turbine Metering - American Gas Association; General Provisions for Gas Meters - OIML Recommendation No. 6; Rotary Piston Gas Meters and Turbine Gas Meters - OIML Recommendation No. 32; and Measurement of Gas Flow in Closed Conduits - Turbine Meters - ISO 9951



Overview

Auto-Adjust® II Turbo Meters are designed to provide highly accurate readouts of large volume, high revenue dollar measurements. They use the same bodies and nose cones as our Mark II™ Turbo Meter line, but feature dual rotors for self-checking and automatic adjustment of meter performance as well as a sealed module design with additional straightening vanes in the modules. These enhancements add to the dependable and accurate performance expected of Auto-Adjust II Turbo Meters. Because the Auto-Adjust uses the Mark II meter bodies, the Auto-Adjust measuring module easily fits into an existing Mark II body, upgrading the meter set to the superior Auto-Adjust measurement system.

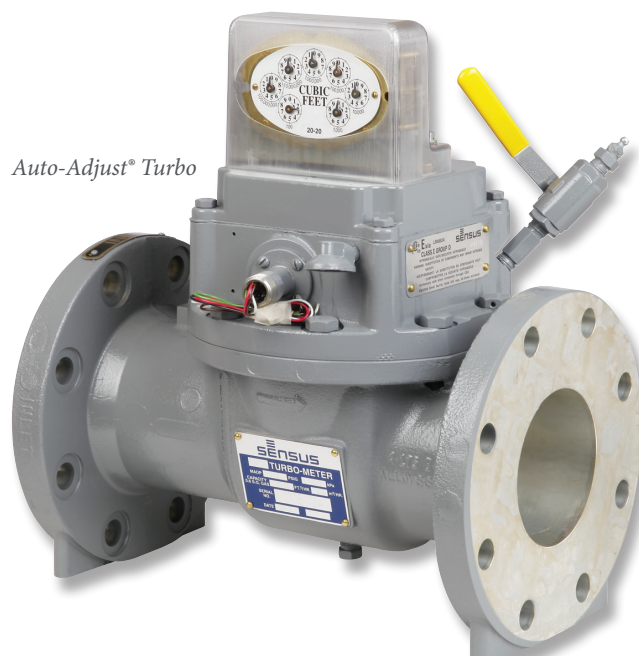
The development of the Auto-Adjust II Turbo Meter product line was a major breakthrough in large volume measurement. Here are some examples of why Auto-Adjust technology has become a benchmark in measurement accuracy:

- Improved retention of calibration accuracy in service
- Automatic adjustment of meter accuracy to initial calibration accuracy despite meter component wear
- Ability to make the meter virtually insensitive to deviations in upstream flow conditions
- Real-time evaluation of meter performance without disruption of service*
- Advanced warning of a deteriorating condition well before meter failure occurs*
- Full curve linerization providing enhanced accuracy of +/- 0.25% over entire calibrated range*

*When selected and used with compatible Auto-Adjust electronics

Sensus has licensed the AAT Algorithm to preferred electronic volume corrector and flow computer manufacturers, offering all the advantages of its patented, self-check and self-adjusting features.

Sensus maintains one of the most technologically sophisticated and accurate large volume, high pressure meter calibration facilities in the world. Repeated correlation tests with other large volume meter proving facilities using various flowing media and reference standards have verified the accuracy of Sensus Turbo Meter calibrations.



Auto-Adjust® Turbo

Additional Information

Visit sensus.com/gasproducts

Applications

Auto-Adjust® II Turbo-Meters fit numerous applications including production, transmission, distribution and industrial in-plant measurement. They are ideal for applications demanding the highest accuracy.

Operating temperatures range from -20° to +165°F. Special construction is available for lower and higher operating temperatures.

Meter	Rotor Blade Angle	Maximum Capacity ACFH at 0.25 psig
AAT-18	45°	18,000
AAT-35	45°	27,000
AAT-60	45°	35,000
AAT-140	45°	57,000
AAT-27	30°	60,000
AAT-57	30°	90,000
AAT-90	30°	140,000
AAT-230	30°	230,000



Auto-Adjust® II Turbo Meter – 45° Rotor Blade Angle

Dimensions, Specifications and Connections Approximate

Meter Model	Body Material	Dimensions (Inches)			Meter Shipping (Lbs.)	Approx. Min. Accept. Spin Time (Sec.)		Working Pressure (PSIG)	Flow Rate		Ft³ per Rev. of Mech. Output Shaft
		Height	Length	Depth		Main Rotor	Sensing Rotor		Minimum SCFH at 0.25 (PSIG)*	Maximum SCFH at 1,500 (PSIG)	
4" AAT-18	Aluminum	11 $\frac{1}{16}$	14	9	36	110	200	175	1,800	2,339,000	100
	ASME 150 Steel	11 $\frac{3}{4}$	15 $\frac{1}{2}$	9	105	110	200	270			
	ASME 300 Steel	12 $\frac{5}{16}$	15 $\frac{1}{2}$	10	140	110	200	750			
	ASME 600 Steel	12 $\frac{1}{16}$	15 $\frac{1}{2}$	10 $\frac{3}{4}$	175	110	200	1,500			
6" AAT-35	Aluminum	14 $\frac{3}{16}$	16	11	75	170	200	175	3,500	4,549,000	100
	ASME 150 Steel	14 $\frac{3}{16}$	22 $\frac{1}{2}$	11	174	170	200	270			
	ASME 300 Steel	15 $\frac{1}{8}$	22 $\frac{1}{2}$	12 $\frac{1}{2}$	280	170	200	750			
	ASME 600 Steel	15 $\frac{1}{8}$	22 $\frac{1}{2}$	14	336	170	200	1,500			
8" AAT-60	Aluminum	16 $\frac{1}{16}$	21	13 $\frac{1}{2}$	134	300	300	175	5,400	7,798,000	1,000
	ASME 150 Steel	16 $\frac{1}{16}$	27 $\frac{1}{4}$	13 $\frac{1}{2}$	284	300	300	270			
	ASME 300 Steel	17 $\frac{1}{16}$	27 $\frac{1}{4}$	15	430	300	300	750			
	ASME 600 Steel	18 $\frac{1}{16}$	27 $\frac{1}{4}$	16 $\frac{1}{2}$	596	300	300	1,500			
12" AAT-140	Ductile Iron	22 $\frac{3}{16}$	30	19	510	400	300	220	14,000	18,196,000	1,000
	ASME 300 Steel	23 $\frac{3}{16}$	32 $\frac{1}{2}$	20 $\frac{1}{2}$	790	400	300	750			
	ASME 600 Steel	23 $\frac{1}{16}$	32 $\frac{1}{2}$	22	1,030	400	300	1,500			

*Respective mechanical outputs: 1,200 scfh, 1,750 scfh, 3,000 scfh and 5,600 scfh

Auto-Adjust® II Turbo Meter – 30° Rotor Blade Angle

Dimensions, Specifications and Connections Approximate

Meter Model	Body Material	Dimensions (Inches)			Meter Shipping (Lbs.)	Approx. Min. Accept. Spin Time (Sec.)		Working Pressure (PSIG)	Flow Rate		Ft³ per Rev. of Mech. Output Shaft
		Height	Length	Depth		Main Rotor	Sensing Rotor		Minimum SCFH at 0.25 (PSIG)*	Maximum SCFH at 1,500 (PSIG)	
4" AAT-27	Aluminum	11 $\frac{1}{16}$	14	9	36	110	200	175	2,700	3,509,000	100
	ASME 150 Steel	11 $\frac{3}{4}$	15 $\frac{1}{2}$	9	105	110	200	270			
	ASME 300 Steel	12 $\frac{5}{16}$	15 $\frac{1}{2}$	10	140	110	200	750			
	ASME 600 Steel	12 $\frac{1}{16}$	15 $\frac{1}{2}$	10 $\frac{3}{4}$	175	110	200	1,500			
6" AAT-57	Aluminum	14 $\frac{3}{16}$	16	11	75	170	200	175	5,700	7,408,000	100
	ASME 150 Steel	14 $\frac{3}{16}$	22 $\frac{1}{2}$	11	174	170	200	270			
	ASME 300 Steel	15 $\frac{1}{8}$	22 $\frac{1}{2}$	12 $\frac{1}{2}$	280	170	200	750			
	ASME 600 Steel	15 $\frac{1}{8}$	22 $\frac{1}{2}$	14	336	170	200	1,500			
8" AAT-90	Aluminum	16 $\frac{1}{16}$	21	13 $\frac{1}{2}$	134	300	300	175	9,000	11,697,000	1,000
	ASME 150 Steel	16 $\frac{1}{16}$	27 $\frac{1}{4}$	13 $\frac{1}{2}$	284	300	300	270			
	ASME 300 Steel	17 $\frac{1}{16}$	27 $\frac{1}{4}$	15	430	300	300	750			
	ASME 600 Steel	18 $\frac{1}{16}$	27 $\frac{1}{4}$	16 $\frac{1}{2}$	596	300	300	1,500			
12" AAT-230	Ductile Iron	22 $\frac{3}{16}$	30	19	510	400	300	220	14,000	29,893,000	1,000
	ASME 300 Steel	23 $\frac{3}{16}$	32 $\frac{1}{2}$	20 $\frac{1}{2}$	790	400	300	750			
	ASME 600 Steel	23 $\frac{1}{16}$	32 $\frac{1}{2}$	22	1,030	400	300	1,500			

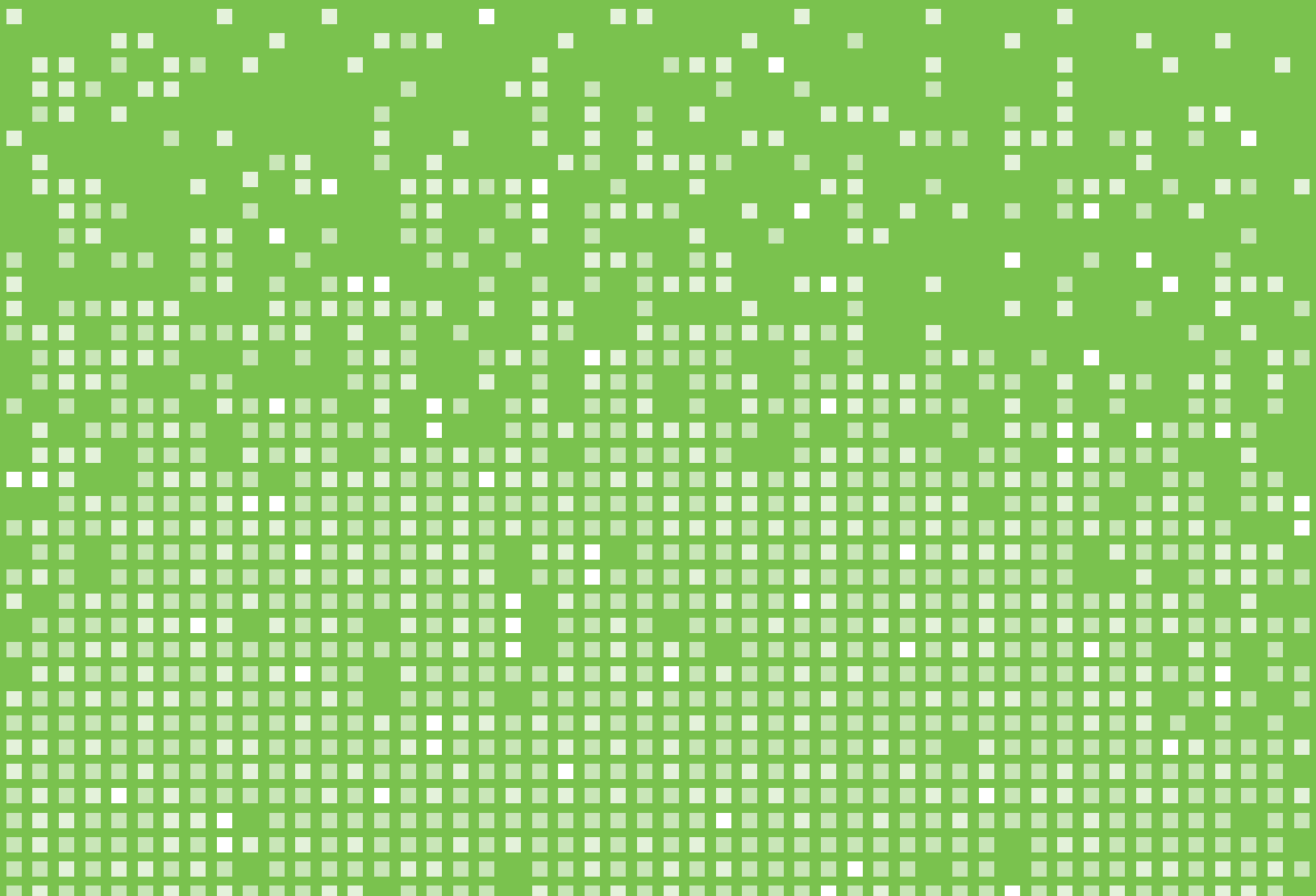
*Respective mechanical outputs: 1,200 scfh, 1,750 scfh, 3,000 scfh and 5,600 scfh

Auto-Adjust® II Turbo Meter flange dimensions conform to ASME B-16.42 and ASME B-16.5-1996

Auto-Adjust® II Turbo Meters conform to construction, installation and usage recommendations defined in the following industry standards: Measurement of Gas by Turbine Meters - American Gas Association, Transmission Measurement Committee Report No. 7; Measurement of Gas Flow by Turbine Meters - American National Standard, ASME MFC-4M 1986; Gas Measurement Manual, Part No. Four, Gas Turbine Metering - American Gas Association; General Provisions for Gas Meters OIML Recommendation No. 6; Rotary Piston Gas Meters and Turbine Gas Meters OIML Recommendation No. 32; and Measurement of Gas Flow in Closed Conduits - Turbine Meters - ISO 9951

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Communications





Overview

The FlexNet® communication network provides a simple, reliable and flexible infrastructure for managing gas utilities at peak performance. The key to the FlexNet system lies in our meter-based SmartPoint® transceivers. Broadcasting at two watts of power, our SmartPoints communicate over longer distances with far less infrastructure than other AMI systems. That means less dependence (and recurring costs) on external partnerships and greater independence for your organization. What's more, FlexNet SmartPoint transceivers offer AMR-to-AMI migratability. They can be installed as walk-by, drive-by or FlexNet fixed base communication endpoints, then upgrade their broadcast platform automatically without having to re-visit the endpoint for true operational efficiency.

Walk-by Hand-held Devices and CommandLink

Thanks to the versatile FlexNet CommandLink® wireless interface, utility personnel can utilize virtually any compatible Hand-Held Device (HHD) or laptop computer to access a complete suite of functional controls within a SmartPoint transceiver. HHDs or computers must be equipped with Windows® Mobile6® OS, Bluetooth® technology, programmable GPS and 50 MB of available memory.

Vehicle-based Drive-by

The FlexNet Vehicle Gateway Base Station (VGB) is a short range vehicle-based transceiver used for the acquisition of data from SmartPoint-equipped devices. The VGB is compact, portable and can be used in any vehicle providing 12-volt DC power. Data is collected as the carrier vehicle travels within range of meters and equipment.

FlexNet Fixed Base Communications

The FlexNet Base Station is a long-range radio transceiver that communicates information to and from the utility Regional Network Interface (RNI) with FlexNet SmartPoint modules deployed throughout a utility network. FlexNet Base Station transceivers are mounted in NEMA-certified enclosures at strategic locations within your service territory, ensuring optimal coverage over large geographic areas.

SmartPoint GM Transceivers

The SmartPoint GM residential and commercial transceivers for diaphragm meters are designed for direct mount to the meter, interfacing with the gas meter drive assembly and allowing re-use of the existing meter index.



*SmartPoint® GM
Industrial Transceiver*

*SmartPoint® GM
Commercial
Transceiver*

*SmartPoint® GM
Residential Transceiver*

Specifications

Market Served	Residential	Commercial	Industrial
Operating Environment	Class 1/Div 2	Class 1/Div 1	Class 1/Div 1
Broadcast Power	2 Watts		
Frequency Range	896-960 MHz		
Channels	8000 x 6.25 kHz steps		
Modulation	Proprietary narrow band		
Memory	Non-volatile		
Operating Temperature	-40° to +150°F (-40° to +65°C)		
Power	Lithium thionyl chloride (LiSOCI ₂) batteries in conjunction with a hybrid layer capacitor		
Warranty	20 years, pro-rated		
Approvals	US: FCC CFR 47 Part 90, 24D, 101C, Part 15 licensed operation		
	Canada: Industry Canada (IC) RSS-134, RSS-119, RSS-210		



Overview

With a battery-powered Sensus® Smart Gateway Sensor Interface, gas and water utilities can connect to a variety of applications in all locations—even in areas where no power or land-based communications are available.

Leveraging the FlexNet® communication network, you can use the interface application to remotely monitor pressures, temperatures, levels and switches. You can also quickly resolve issues by transmitting and forwarding alarms to utility systems or individuals. What's more, you can analyze the data you've stored over time to develop new insights into your operating conditions.

The sensor interface is flexible. It features two 4-20ma analog inputs and two discrete inputs, making it ideal for a number of possible applications. This cost-effective device gives you the power to gather information previously too difficult to capture.

Features

- Battery powered
- Two 4-20 mA analog inputs and two Form A digital inputs per unit
- 15 minute data sampling reported six times per day
- IP66 packaging for outdoor applications
- Wall or pipe-mount options
- Intrinsically Safe Class1 Div2
- Maintenance-free
- Interfaces with other system infrastructure such as CMEP and Multispeak
- One year warranty



*Smart Gateway
Sensor Interface*

Specifications

Dimensions	6.4"W x 4.0"H x 2.8"D (16.26 cm x 10.16 cm x 7.11 cm)
Weight	1.5 lbs (.68 kg)
Color	Grey
Frequency Range	900-950 MHz
Channels	8000 x 6.25 kHz steps
Modulation	Proprietary frequency band
Operating Temperature	-22° to +185°F (-30° to +85°C)
Installation Environment	The Smart Gateway is designed for installation on a wall or pipe where it is not subject to water submergence
Installation Kits	Pipe/wall-mount Wall-mount only Optional multi-cable
Wiring Requirements	See Installation Guide
Battery	Single "D" cell lithium thionyl chloride
Approvals	US: FCC Title 47 CFR: Part 24D, Part 101C, Part 15 Canada: Industry Canada (IC) RSS-134, RSS-119

Additional Information

Visit sensus.com/gasproducts



Overview

FlexNet® EasyLink™ is the simple, cost-effective way to transition from ERT meter reading technology to the FlexNet communication network. One FlexNet EasyLink device reads both ERTs and Sensus SmartPoint® modules at the same time. You are no longer trapped by legacy technology and can migrate from AMR to AMI at your own pace. Keep existing ERTs in the field while simultaneously deploying SmartPoint modules to make the switch.

Applications

- Read SCM and SCM+ ERTs as well as SmartPoints with a single device
- Read Sensus FlexNet water, gas and electric SmartPoints
- Detect ERTs in bubble-up and wake-up modes
- Real-time data transfer and route updates
- Leverage existing technology investments while migrating to AMI
- Implement multi-communications solution for added security and redundancy

FlexNet EasyLink Solution Components

FlexNet EasyLink Reader

The Reader is compact and portable, allowing it to be used in any vehicle providing 12-volt DC power.

FlexNet EasyLink WorkBook Application

The FlexNet EasyLink WorkBook application provides on-screen mapping to view meter reading routes and meter status.

FlexNet EasyLink WorkSpace Application

The FlexNet EasyLink WorkSpace application is a comprehensive software program that offers flexibility for managing AMR processes.



EasyLink™ Reader

Specifications

Service	Radio-based mobile utility meter reading system
Physical Characteristics	EasyLink Reader in case 8"W x 12"D x 4"H (20.32 cm x 30.48 cm x 10.16 cm) (includes magnetic-mount antennas and hard shell carrying case)
Weight	18 lbs (8.16 kg)
Temperature	Operating: -4° to +122°F (-20° to +50°C) Storage: -40° to +185°F (-40° to +85°C)
Power	12-volt DC adapter through EasyLink Reader 7 watts
Frequency Range	FlexNet RX: 901-932Mhz FlexNet TX: 940-960Mhz ERT RX: 908-924MHz ERT TX: 952-956MHz
Receiver Sensitivity	Sensitivity depends on modulation and channel BW. For 7FSK in a 25Khz channel, sensitivity spec is -120dBm
Memory	Non-volatile
Approvals	Licensed operation US:FCC CFR 47, Part 24D, Part 101C, Part 15: Canada: Industry Canada (IC) RSS-134, RSS-210
Software	EasyLink WorkBook Application and EasyLink WorkSpace Application

Additional Information

Visit sensus.com/gasproducts



Overview

SentryPoint™ provides an around-the-clock solution to remotely monitor corrosion by automating the collection of data from test points and rectifiers throughout your system. Powered by the FlexNet® communication network, our battery-powered endpoints deliver hourly readings from the most remote locations. Plus, built-in alarms alert you to breaches in coverage, power failures and more within an hour of the occurrence, so you know what's happening, when and where.

Applications

- Works on both galvanic and impressed-current systems
- Hourly test point readings – alarms within one hour of occurrence
- No new hardware – monitors existing test points and rectifiers
- Supports safety initiatives – eliminates employee exposure to electrical shock at rectifiers
- Saves time – corrosion specialists focus on maintenance, not data collection
- Supports PHMSA Instant-Off tests – avoids power cycling of your cathodic protection system
- Improves operational efficiency
- Reduces costs for vehicles and employee travel time

SentryPoint Cathodic Protection Solution Components:

SentryPoint Cathodic Protection Test Point

The CPTP100 measures and collects protective voltage data at cathodic protection test stations, then transmits it back to the utility for display, analysis, and interpretation.

SentryPoint Cathodic Protection Rectifier Monitor and Controller

The Bullhorn RM4160 collects data from cathodic protection rectifiers associated with impressed current protected pipe sections.

SentryPoint Cathodic Protection Application

Our SentryPoint application gives you complete control to view and analyze data from your test points equipped with SentryPoint monitors.

Detailed specifications

Available on product data sheets



SentryPoint™ Cathodic Protection Test Point (CPTP100)



SentryPoint™ Cathodic Protection Rectifier Monitor and Controller (Bullhorn RM4160)

Capabilities

SentryPoint Cathodic Protection Test Point

The CPTP100 collects data from test stations associated with either galvanic or impressed current protected pipelines, and supports the following types of measurements:

- Pipe-to-soil with protective current
- Pipe-to-soil with interrupted current
- Casing-to-pipe
- Coupon-to-soil with interrupted current
- Pipe-to-native coupon with interrupted current

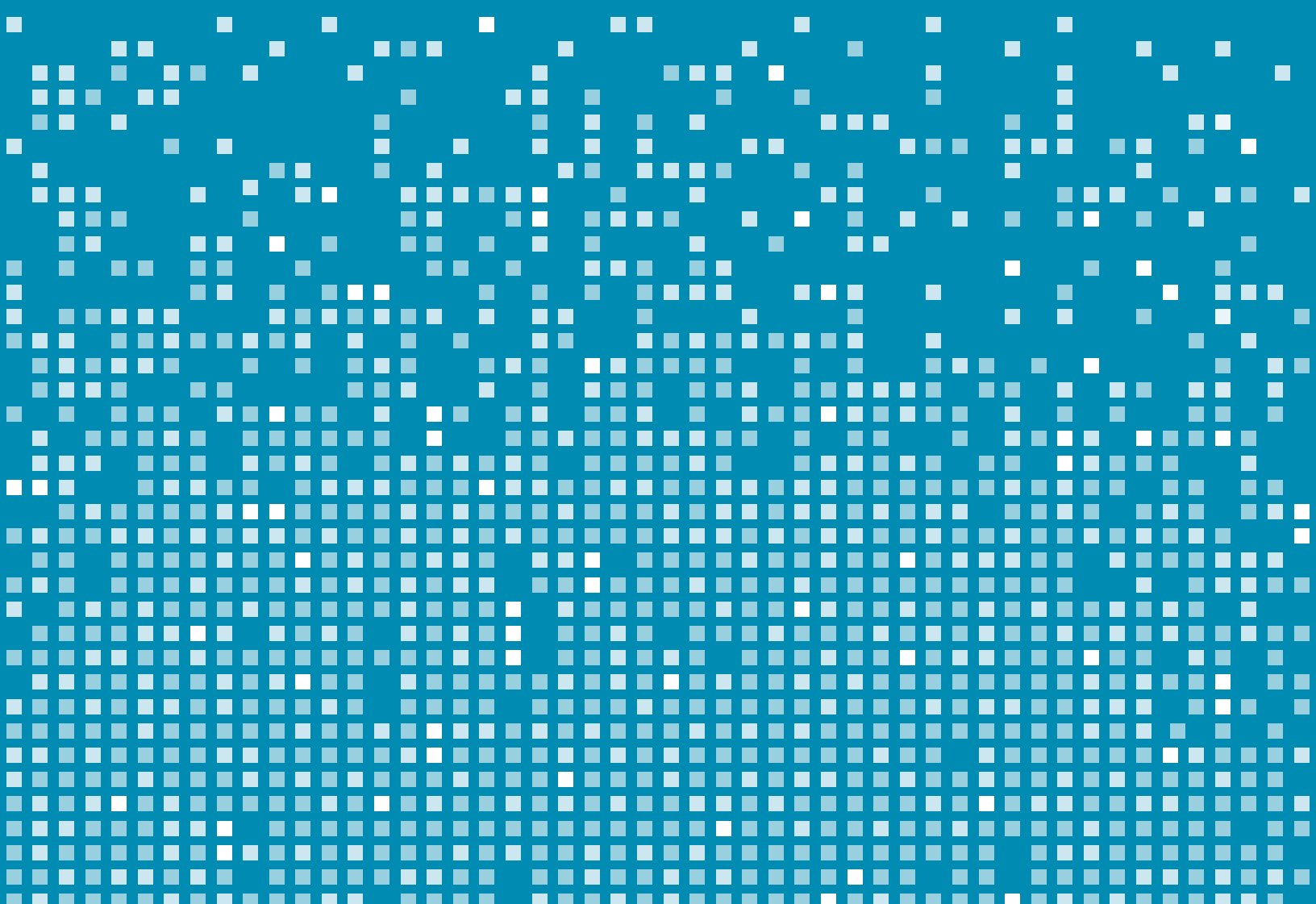
SentryPoint Cathodic Protection Rectifier Monitor and Controller

The Bullhorn RM4160 collects data from cathodic protection rectifiers associated with impressed current protected pipe sections and supports the following features:

- Mains AC voltage input
- Rectified DC voltage
- DC current output
- Configurable high and low alarm thresholds
- Back-up battery status
- Time-synchronized current interruption for Instant-Off tests

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Regulators





Overview

Sensus residential service regulators have a sleek, modern design and rugged construction, offering greater dependability, precise pressure control and outstanding performance. The 4" roll-out style diaphragm 496 and 6" diaphragm 143-80 are designed to be installed in numerous mounting positions and are simple to adjust and service. The union nut style connection of the 143-80 makes it especially easy to install and maintain.

Applications

Our family of service regulators is designed and built for domestic gas service, in addition to some commercial and industrial applications, such as burners, furnaces, ovens, heaters, gas engines, etc. Although mainly used with natural gas, they perform equally well when used with LPG vapor, air, dry CO₂, nitrogen and other non-corrosive gases. Operating temperatures range from -20° to +150°F. The 496 and 143-80 service regulators are not recommended for buried service.

Variations

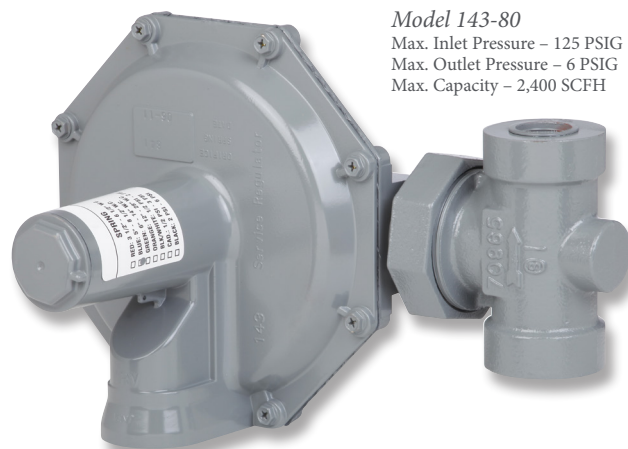
Model 143-80 Variations

- Standard regulator (-1)
- Regulator with internal relief valve (IRV) (-2)
- Regulator with low pressure cut-off and IRV (-6)
- Pipe sizes: ¾", 1" or 1¼"
- Seven springs available to provide outlet pressure ranges from 3½" w.c. to 6 psig

Model 496 Variations

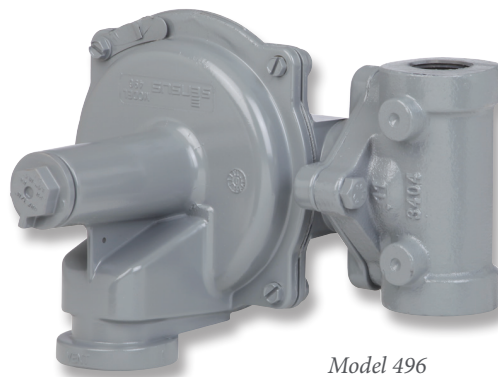
- Angled (Model -10) or straight (Model -20)
- Variable mounting positions
- Internal relief valve (IRV) standard
- Pipe sizes: ⅜", ½", ¾" or 1"
- Five springs available to provide five different outlet pressure ranges from 4" w.c. to 2 psig

* Straight body only



Model 143-80

Max. Inlet Pressure – 125 PSIG
Max. Outlet Pressure – 6 PSIG
Max. Capacity – 2,400 SCFH



Model 496

Max. Inlet Pressure – 125 PSIG
Max. Outlet Pressure – 2 PSIG
Max. Capacity – 2,250 SCFH

Basic Modes	Description	High Pressure Models
496	Regulator with Internal Relief Valve (IRV)	N/A
143-80-1	Standard Regulator	N/A
143-80-2	Regulator with Internal Relief Valve (IRV)	143-80-2HP
143-80-6	Regulator with IRV and Low Pressure Cut-off (LPCO)	N/A

Dimensions, Specifications and Connections

Regulator	Model	Working Pressure (PSIG)		Capacity (SCFH)	Dimensions (Inches)						Shipping Weight (Lbs.)
		Min.	Max.		Max.	Height		Width		Depth	
496	10, 20	1.0	125	2,250	7.2	7.2	8.3	8.8	5.7	5.7	4.1
143-80	1, 2, 2HP	0.5	125	2,400	7.7	8.4	10.43	10.7	6.9	6.9	5.5
	6	0.5	60	2,300							



Overview

Sensus large capacity industrial service regulators are designed and built for commercial, industrial and gas distribution use. They are easy to install, adjust, inspect and service in all piping arrangements thanks to the collar connection between the fully interchangeable bodies and the diaphragm case. In addition, they have remarkable field versatility. Our family of large capacity industrial service regulators can be used in a variety of applications such as: factories, foundries, district regulator stations, commercial laundries, hotels, motels, bakeries, schools, hospitals, churches, etc. They are designed for use on all types of gas fueled equipment including boilers, burners, furnaces, ovens, heaters, kilns, engines, air conditioners, etc. Although mainly used with natural gas, they perform equally well when used with LPG vapor, air, dry CO₂, nitrogen and other non-corrosive gases. Please contact your Sensus representative for information on special construction which may be available for certain corrosive gases.

Operating temperatures range from -20° to +150°F. Sensus 243 regulators are not recommended for buried service.

Variations

- Variable mounting positions
- Standard Regulator (243-12-1 and 243-8-1)
- Regulator with internal relief valve (243-12-2 and 243-8-2)
- Regulator with internal relief valve and low pressure cut-off (243-12-6 and 243-8-6)
- High pressure model (243-8HP)
- Monitoring and/or external control line
- Pilot operated model (243-RPC, 243-RPC-A and 243-RPC-B)
- Seven orifice sizes available to match the capacity to the load requirement
- Pipe sizes: 1¼", 1½", 2" NPT or 2" flanged and 2" flanged 10" long body construction
- Twelve springs available to provide a variety of outlet pressure ranges



Model 243

Max. Inlet Pressure – 125 PSIG
 Max. Outlet Pressure 243-8 – 5 PSIG
 Max. Outlet Pressure 243-12 – 3 PSIG
 Max. Outlet Pressure 243-8HP – 10 PSIG
 Max. Outlet Pressure 243-LPCO – 1 PSIG
 Max. Capacity 243-8 – 20,000 SCFH
 Max. Capacity 243-12 – 27,000 SCFH
 Max. Capacity 243-8HP – 24,000 SCFH
 Max. Capacity 243-8LPCO – 7,900 SCFH
 Max. Capacity 243-12LPCO – 13,150 SCFH

Additional Information

Visit sensus.com/gasproducts

Dimensions, Specifications and Connections

Regulator Model		Maximum Pressure (PSIG)	Maximum Capacity (SCFH)	Dimensions (Inches)						Shipping Weight † (Lbs.)
				Height		Width		Depth		
				Min.	Max.	Min.	Max.	Min.	Max.	
243-12-	1, 2	125	27,000	15%	16 ¹ / ₁₆ *	10 ³ / ₁₆	14	*	*	27
243-8-			20,000	12%						25
243-12-	6	75	13,150	15%						27
243-8-		60	7,900	12%						25
243-8	HP	125	24,000	15%						29

*Dimensions are affected by mounting position, flanged or screwed connections, diaphragm case size and whether or not the unit is HP or standard

†Add 9 lbs. for flanges on 2" body



Overview

Industrial combustion regulators are designed to provide greater capacity, higher inlet pressure, more accurate performance and faster speed of response. In most cases, this will allow the use of a smaller regulator. Both models of regulators have high strength, corrosion resistant, die-cast diaphragm cases and cast iron bodies, assuring a highly functional regulator at a competitive price. Both models incorporate soft seat valve material plus a precision machined knife-edge orifice to provide a positive, tight shutoff.

Model 121

Beyond its standard configuration, the 121 regulator has variations that can serve the following functions: zero governor (atmospheric regulator), differential regulator, back pressure regulator (relief valve), vacuum regulator and vacuum breaker. The 121 is an external control regulator that can be used in commercial, industrial combustion and distribution applications.

Model 122

The 122 regulator is designed specifically for industrial combustion applications. Carefully engineered internal sensing produces accurate pressure control without an external control line. However, the 122 case includes an integral tap for easy installation of an external control line if one is required.

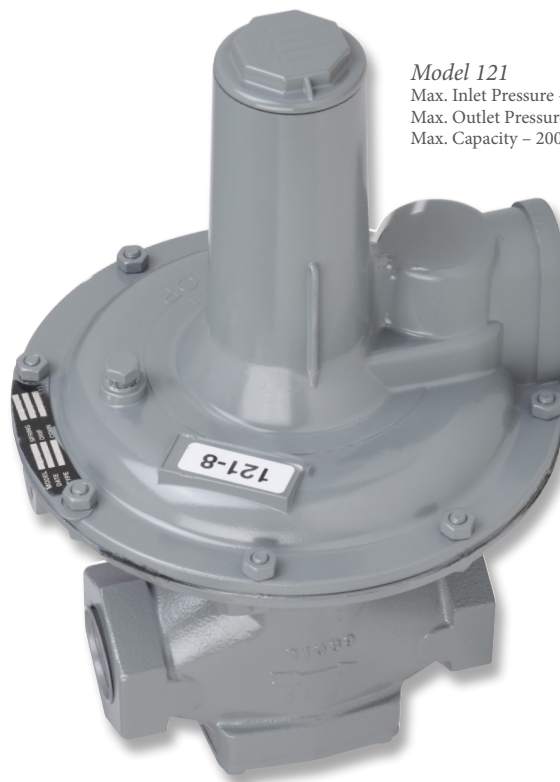
Applications

Industrial combustion regulators can be used in a variety of commercial and industrial applications including: burners, boilers, furnaces, air heaters, kilns or gas engines where fast response will improve performance. Although mainly used with natural gas, they perform equally well when used with LPG vapor, air, dry CO₂, nitrogen and other non-corrosive gases.

The 121 and 122 regulators are designed for both outdoor and indoor installation. Operating temperatures range from -20° to +150°F. Sensus 121 and 122 regulators are not recommended for buried service.

Additional Information

Visit sensus.com/gasproducts



Model 121

Max. Inlet Pressure – 60 PSIG
Max. Outlet Pressure – 10 PSIG
Max. Capacity – 200,000 SCFH

Variations

Model 121 Variations

- Zero governor/atmospheric regulator model
- Differential regulator model
- Back pressure regulator
- High pressure
- Vacuum regulator model
- Vacuum breaker model
- Pipe sizes: 1", 1¼", 1½", 2", 2½" and 3" NPT; 2", 3" and 4" flanged
- A large selection of springs are available to cover outlet pressure ranges from 1-1/2" w.c. to 10 psig
- Optional adjustable maximum and minimum travel stops
- Optional travel indicator
- V-Port valves available 1½", 2" and 2½"
- 121-PL pressure loaded model
- 121-RPC Relay Pilot Control variable pressure loaded model



Model 122 Variations

- Zero governor/atmospheric regulator model
- Differential regulator model
- Internal (standard) or external control
- Back pressure regulator
- Pipe sizes: 1", 1¼", 1½", 2" and 2½"
- A large selection of springs are available to cover outlet pressure ranges from 1¼" w.c. to 2 psig
- Optional adjustable maximum and minimum travel stops
- Optional travel indicator



Model 122

Max. Inlet Pressure – 15 PSIG
Max. Outlet Pressure – 3 PSIG
Max. Capacity – 48,000 SCFH

Dimensions, Specifications and Connections

Regulator Model	Pipe Size (Inches)	Inlet Pressure (PSIG)	Capacity (SCFH)		Dimensions (Inches)			Shipping Weight (Lbs.)
		Max.	Min.	Max.	Height*		Width	
121-12	1½	60	3,000	95,000	16½		14	40
	2		4,000	175,000				40
	2½		4,500	195,000				45
121-8 & 8HP	¾ x 1	60	1,000	44,000	8	8HP	10⅝	25
	1 x 1				15⅞	21	10⅝	
	¾ x 1¼				15⅞	21	10⅝	
121-8	1½	60	8,500	71,500	16⅞		10⅝	40
	2	60	15,000	130,000	16⅞		10⅝	
	2½	60	16,700	144,000	16⅞		10⅝	
121-8HP	1½	60	16,500	68,000	21⅞		10⅝	40
	2	60	30,000	123,000	21⅞		10⅝	40
	2½	60	33,500	135,000	21⅞		10⅝	45
121-12	3	40	35,000	200,000	19⅞		14	75†
	4	40	60,000	240,000	21		14	135
121-16	3	40	9,700	260,000	22⅞		18	90†
122-8	1	15	1,000	11,500	13½		10¼	15
122-8	1¼	15	1,500	15,800	13½		10¼	15
122-12	1½	15	3,000	20,000	15⅝		14	28
122-12	2	15	4,000	40,000	15⅝		14	28
122-12	2½	15	4,500	48,000	15⅝		14	30

*Dimensions differ for models with ASME 125 flanges

†Screwed connection model



Models 461-S, 461-57S and 461-X57

Overview

The 461 two-inch self-operated family of regulators is designed to fit a wide range of intermediate capacity regulator needs.

Model 461-S

The 461-S, 461-8S and 461-12S models are balanced valve, spring type regulators designed for distribution and industrial applications. They are extremely dependable with simple design, sturdy construction and fast response. Service and adjustment are easy, and overall operation is stable and sensitive.

Model 461-S Applications

The 461-S models are ideal for distribution and industrial applications where a single seat regulator is too small and the usual 2" balanced valve regulators are too large. Their large exit areas give them a broad capacity capability making them applicable to a wide variety of load handling requirements. They can also be used in monitor applications without any modification.

Model 461-57S

The 461-57S is a spring operated regulator that incorporates a roll-out diaphragm which approximates the performance of a pilot operated regulator. The roll-out diaphragm makes this exceptional performance possible because its action reduces droop to a minimum. The 461-57S also offers the advantages of simplicity, dependability, reduced potential of freeze-up and exceptionally fast response.

Model 461-57S Applications

The 461-57S is perfect for most intermediate capacity applications including gas distribution systems, district regulator sets, city gate stations, town border stations, monitoring and most industrial applications.

Model 461-X57

The 461-X57 is a high pressure spring operated regulator that incorporates the same roll-out diaphragm principle that achieved such success in the widely used 461-57S regulator, but at higher outlet pressures. The 461-X57 also offers pilot-type performance with spring operated regulator simplicity. The roll-out diaphragm makes this exceptional performance possible because its action reduces droop to a minimum. The 461-X57 also offers fast response and ease of installation, adjustment and servicing.

Model 461-X57 Applications

The 461-X57 is optimized for most high pressure, intermediate capacity applications including high pressure regulator sets, gas distribution systems, town border stations, transmission systems, monitoring and most high pressure industrial applications.



461-S, 461-8S, 461-12S
Max. Inlet Pressure – 175 PSIG
Max. Outlet Pressure – 10 PSIG
Max. Capacity – 189 MSCFH

461-X57
Max. Inlet Pressure – 1,000 PSIG
Max. Outlet Pressure – 250 PSIG
Max. Capacity – 1,014 MSCFH

461-57S
Max. Inlet Pressure – 1,000 PSIG
Max. Outlet Pressure – 100 PSIG
Max. Capacity – 1,014 MSCFH

Additional Information

Visit sensus.com/gasproducts

All Sensus Intermediate Capacity Regulators

Although mainly used with natural gas, all Sensus intermediate capacity regulators perform equally well when used with LPG vapor, air, dry CO₂, nitrogen and other non-corrosive gases.

All Sensus intermediate capacity regulators are designed for outdoor or indoor installation. Operating temperatures range from -20° to +150°F. Sensus intermediate capacity regulators are not recommended for buried service.



Variations

Model 461-S, 461-8S, 461-12S Variations

- 461-S heavy duty 1/4" vent
- 461-8S and 12-S 1" vent
- Cast iron diaphragm housing (461-S)
- Lightweight aluminum diaphragm housing (461-8S and 461-12S)
- Cast iron, ductile iron, or cast steel body*
- Balanced valves - full and reduced sizes
- V-Port available on 1" valves
- Remote control line with restriction
- Screwed end or ASME 125, 250 or 300 flanged connections
- A large selection of springs is available to cover outlet pressure ranges from 2" w.c. to 10 psig
- 461-SR for inlet pressure control (relief valve/back pressure regulator)
- Optional travel indicator

*Maximum inlet pressures determined by diaphragm case material
See chart in bulletin BR-G-REG-1330

Model 461-57S Variations

- Cast iron body (screwed end or ASME 125 FF flanged)
- Ductile iron body (with ASME 250 RF flanges only)
- Cast steel body (ASME 300 or 600 RF flanged)
- Relief valve/back pressure regulator (461-57SR)
- Double or single seat balanced valves
- V-Port available on 1" valves
- Remote control line with restriction
- Screwed end or ASME 125, 250, 300 or 600 flanged connections
- Six separate springs plus a dual spring combination are available to provide seven outlet pressure ranges from 3 psig to 100 psig

Model 461-X57 Variations

- Ductile iron body (ASME 250 RF flanged only)
- Cast steel body (ASME 300 flanged or 600 RF flanged only)
- V-Port available on 1" valves
- Remote control line with restriction
- Relief valve/back pressure regulator (461-57SR)
- Piston standby with ball check sentry
- Three separate springs are available to provide outlet pressure ranges from 75 psig to 250 psig

Dimensions, Specifications and Connections

Regulator	Model	Maximum Working Pressure (PSIG)	Maximum Capacity (MSCFH)	Dimensions (Inches)			Shipping Weight † (Lbs.)
				Height	Width	Depth	
461-	S	175	189	23½	14¼	14¼	75-90
	8S			22¾	10¾	10¾	75-90
	12S			17¼	14	14	75-90
	57S X57	1,000 1,000	1,014 1,014	24½ 25¾	6½ 10½	6½ 6¼	70-90 85-90

*Dimensions may vary with type and rating of connection

†Shipping weight is dependent on body material and flange type



Models 441-S, 441-57S and 441-X57

Overview

The 441-S, 441-57S and 441-X57 families of regulators are designed to fit your low or high pressure, large capacity regulator needs while providing accurate and reliable performance.

Model 441-S

The 441-S models are balanced valve, spring type regulators designed for use in low pressure, high capacity systems. They are general purpose regulators that are manufactured in a selection of pipe sizes and inner valve sizes. They are extensively used and have been proven in many types of distribution and industrial applications. Simple basic design has been combined with sturdy construction to make them exceptionally dependable with unique features which make them easy to adjust and service.

Model 441-S Applications

Large, flexible diaphragms combined with accurately calibrated springs enable these large capacity regulators to produce precise pressure control while maintaining a high level of sensitivity and stability. The combination of their fast response, dependability and accuracy make the 441-S models ideal for monitoring, as well as other applications where speed and accuracy are significant.

Model 441-57S

These high pressure, large capacity regulators incorporate a roll-out diaphragm that approximates the performance of a pilot operated regulator. The roll-out diaphragm makes this exceptional performance possible because its action reduces droop to a minimum. The 441-57S models also offer the advantages of simplicity, dependability, reduced potential of freeze-up and exceptionally fast response.

Model 441-57S Applications

The 441-57S is perfect for most high pressure, large capacity applications, including gas distribution systems, district regulator sets, city gate stations, town border stations, monitoring, large capacity burners, boilers and most industrial applications.

Model 441-X57

These unique high pressure, large capacity spring operated regulators incorporate the same roll-out diaphragm principle that achieved such success in the widely used 441-57S regulator, but at higher outlet pressures. The 441-X57 offers pilot type performance with spring operated regulator simplicity. The roll-out diaphragm makes this exceptional performance possible because its action reduces "droop" to a minimum. The 441-X57 also offers fast response and ease of installation, adjustment and servicing.



441-S
Max. Inlet Pressure – 100 PSIG
Max. Outlet Pressure – 6 PSIG
Max. Capacity – 1,014 MSCFH

Model 441-X57 Applications

The 441-X57 is ideal for most high pressure, large capacity applications including high pressure regulator sets, gas distribution systems, town border stations, transmission systems, monitoring and most high pressure large capacity industrial applications.

All Sensus Large Capacity Regulators

Although mainly used with natural gas, all Sensus large capacity regulators perform equally well when used with LPG vapor, air, dry CO₂, nitrogen and other non-corrosive gases.

All Sensus large capacity regulators are designed for outdoor or indoor installation. Operating temperatures range from -20° to +150°F. Sensus large capacity regulators are not recommended for buried service.



Variations

Model 441-S Variations

- NPT end or ASME 125, 250 or 300 flanged connections
- Cast iron body (2" NPT connection and ASME 125 FF flanged)
- Ductile iron body (3" ASME 125 RF flanged)
- Cast steel body (4" ASME 300 RF flanged)
- Balanced valves - full and reduced sizes
- V-Port valves
- 10", 12", 14", 16", 18" and 20" diaphragm cases
- Monitoring, zero governor and differential regulation configurations
- Relief valve and back pressure valve models available (441-SR)
- Six separate springs are available to provide outlet pressure ranges from 4½" w.c. to 6 psig
- Remote control line with restriction
- Optional travel indicator

Model 441-57S Variations

- Cast iron body (2" NPT end & ASME 125 FF flanged)
- Ductile iron body (ASME 250 RF flanged)
- Balanced valves - full and reduced sizes
- V-Port valves
- Remote control line with restriction
- Screwed end or ASME 125, 250, 300 or 600 flanged connections
- Six separate springs plus one dual spring combination are available to provide seven outlet pressure ranges from 3 psig to 100 psig

Model 441-X57 Variations

- Ductile iron body (2" and 3" ASME 250 RF flanged)
- Cast steel body (ASME 300 & 600 RF flanged)
- V-Port valves
- Piston standby with ball check sentry
- Relief valve and back pressure valve models available (441-X57R)
- Monitor applications
- Balanced valves - full and reduced sizes
- Three separate springs are available to provide outlet pressure ranges from 75 psig to 250 psig

Dimensions, Specifications and Connections

Regulator Model		Pipe Size (Inches)	Maximum Working Pressure (PSIG)	Maximum Capacity (MSCFH)	Dimensions (Inches)			Shipping Weight* (Lbs.)
					Height	Width	Depth	
441 -	S	2	100	311	30	19	**	130-175
		3		508	30	21		160-220
		4		1,014	35½	23		20-340
	57S	2	1,000	2,764	30⅞	10	8¾	115-140
		3		3,362	30⅞	11¾		140-180
		4		3,343	34½	13¾		240-300
		6		2,908	40½	17¾		445-520
	X57	2		2,165	30	10	6¼	140
		3		2,165	30	12½	9⅞	180

* Shipping weight varies for flanged models

** Varies with diaphragm case size

Additional Information

Visit sensus.com/gasproducts



Overview

Field and high pressure service regulators have it all – simplicity of design with rugged construction, exceptional performance and operational safety. These features enable them to provide dependable, flexible and economical answers for pounds-to-pounds pressure regulation applications.

The 046 family of regulators is offered in a number of variations to fit most high pressure applications. They are easy to install, adjust, inspect and service in all piping arrangements.

Applications

Field and high pressure service regulators can be used in a variety of applications. Typical applications for the 046 family include farm taps, field regulator applications and high pressure industrial air or gases. Although mainly used with natural gas, they perform equally well when used with LPG vapor, air, dry CO₂, nitrogen and other non-corrosive gases.

The 046 regulators are designed for outdoor or indoor installation. Operating temperatures range from -20° to +150°F. Sensus 046 regulators are not recommended for buried service.

Model 046 Variations

- Variable mounting positions
- Aluminum or cast iron diaphragm cases
- Standard Regulator (046-1 w/ 1" NPT Vent)
- Regulator with internal relief valve (046-2 w/ 1" NPT Vent)
- High pressure service
- Two valve assembly materials – Polyurethane Tan and Buna-N
- Orifice sizes: 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2"
- Pipe sizes: 3/4", 1" and 1 1/4"
- Six springs available to provide outlet pressure ranges from 3 psig to 200 psig
- Five springs available for internal relief valve model 046-2 to provide outlet pressure ranges from 3 psig to 125 psig



Model 046

Max. Inlet Pressure – 1,000 PSIG
Max. Outlet Pressure – 200 PSIG
Max. Capacity – 38,000 SCFH
Max. Capacity – 14,000 SCFH (046-2)

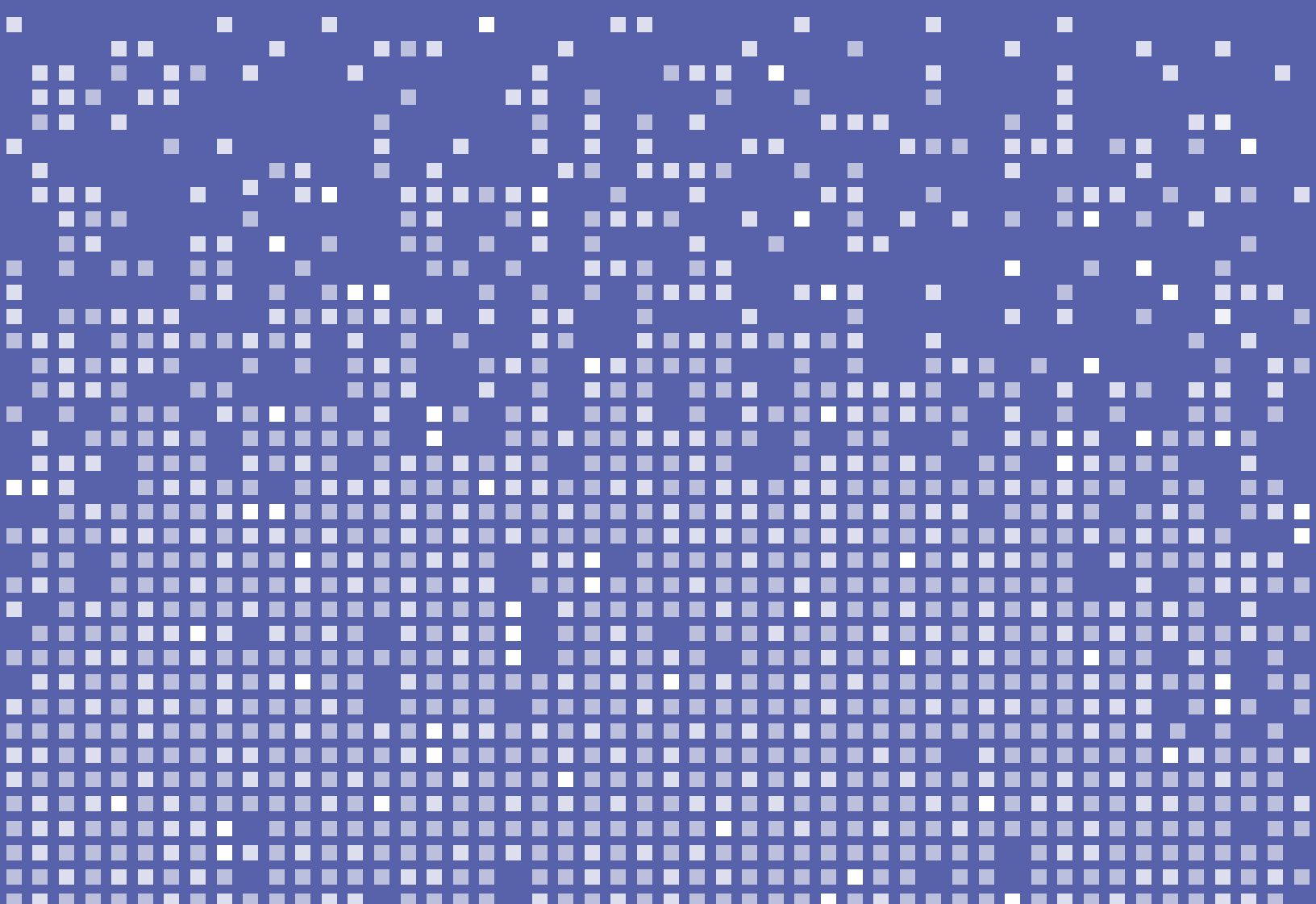
Additional Information

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Other Devices





Overview

Sensus safety relief valves are compact, easy to install and offer an economical installation with large relieving capacity. In addition, operation is positive and simple.

250-DW

Sensus 250-DW is an angled body, dead-weight loaded safety relief valve with a large exit area for a high flow rate. It incorporates a deep molded diaphragm that provides maximum lift while not affecting initial relief. Once installed, the design of the 250-DW allows the valve to be removed without disturbing the piping.

250-S

The 250-S shares the same basic design and offers the same benefits as the 250-DW, but is spring loaded instead of deadweight loaded.

257S

The 257S is a unique safety relief valve. It features the same roll-out diaphragm principle with a double ported single valve that has achieved such remarkable success in the widely used 441-57S and 461-57S regulators. The roll-out diaphragm is a combination of strength and flexibility in which diaphragm action is constantly matched with spring action. This design offers large capacity, tight seat and reseal, sturdy construction, no adjustments and easy servicing.

Applications

Safety relief valves are designed for use in large capacity applications, including gas distribution systems, metering sets and industrial applications. Although mainly used with natural gas, all Sensus safety relief valves perform equally well when used with LPG vapor, air, dry CO₂, nitrogen and other non-corrosive gases.

All Sensus safety relief valves are designed for outdoor or indoor installation. Operating temperatures range from -20° to +150°F. Sensus safety relief valves are not recommended for buried service.



Variations

250-DW Variations

- Available with 2" NPT or 2", 3" or 4" ASME 125 FF flanged connections
- 2½" or 3" valve lift diameter (3" model only)
- Relief ranges from 8 oz. to 55 oz.

250S Variations

Five separate springs are available to provide a variety of relief pressure adjustment ranges from 1 psig to 80 psig

257S Variations

- Available with 2", 3" or 4" flanged ASME 125 FF connections
- Piston standby with ball check sentry
- Six separate springs plus one dual spring combination are available to provide seven relief pressure ranges from 2 psig to 100 psig

Dimensions, Specifications and Connections

Safety Relief Valve Model	Size	Relief Pressure (PSIG)		Maximum Discharge Capacity (SCFH)	Dimensions (Inches)		Shipping Weight* (Lbs.)
		Min.	Max.		Height	Width †	
250-DW	2"	0.5	6	32,200	16¾	6½	30-40
	3"			50,200	18¾	10	65
	4"			102,000	20	12	110
250-S	2"	3.0	30	86,400	19½	6½	30-40
	3"			182,000	20¾	10	65
	4"			156,800	22¼	12	110
257S	2"	2.0	100	320,000	24¼	10	95
	3"			578,000	24¾	11¾	105
	4"			978,000	26½	12½	125

* Shipping weight and dimensions vary for flanged models

† Width does not include bug vent



Overview

The Sensus QR-S is a mechanical damping device that enhances gas pressure regulator response to meet the instantaneous ignition requirements of high-efficiency gas equipment.

Whether you’re replacing older burners and boilers or installing new high-efficiency units, existing pipe configurations and other equipment can impact operation. That’s because electronic ignitions on high-efficiency equipment can create negative pressure in the line as gas is quickly drawn into the combustion chamber. The immediate call for gas can exceed pressure regulator settings, resulting in high lock-up or excessive pressure drop conditions that terminate ignition.

The QR-S is a simple solution that maintains precise pressure without negatively impacting high-efficiency burner or boiler operation.

Benefits

- Enhanced response time
- Eliminates extreme pressure drop at start-up
- Easy field retrofit
- Cost effective solution
- Patent pending design
- Set pressure adjustable with QR-S installed
- Rated to 25 psig MAOP

Applications

The QR-S is ideal for high-efficiency boilers, burners and generators.



QR-S

Regulator Compatibility

Model	Variations	Body Style
243-8	-1, -2	1¼", 1½", 2"
243-12	-1, -2	1¼", 1½", 2"

Additional Information

Visit sensus.com/gasproducts

About Sensus

Sensus helps a wide range of public service providers—from utilities to cities to industrial complexes and campuses—do more with their infrastructure to improve quality of life in their communities. We enable gas utilities to go beyond basic meter reading and reach farther using advanced applications to remotely pipeline pressure and corrosion. We help our partners apply Smart Gas technology and data-driven insights that help realize true ROI - Return on Intelligence.

Learn more at sensus.com and follow @SensusGlobal on [Facebook](#), [LinkedIn](#), [Twitter](#) and [Instagram](#).

About Xylem

Xylem (XYL) is a leading global water technology company committed to developing innovative technology solutions to the world's water challenges. The Company's products and services move, treat, analyze, monitor and return water to the environment in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced infrastructure analytics solutions for water, electric and gas utilities. The Company's approximately 17,000 employees bring broad applications expertise with a strong focus on identifying comprehensive, sustainable solutions.

Headquartered in Rye Brook, New York, with 2018 revenue of \$5.2 billion, Xylem does business in more than 150 countries through a number of market-leading product brands.



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