



# Gas Products Condensed 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 detailed information, please refer to our individual product literature brochures. They are available on our Sensus gas products web site at [www.sensus.com/gas](http://www.sensus.com/gas)

# Sonix Ultrasonic Gas Meters

## Commercial Applications

### Overview

Sonix™ Ultrasonic gas meters utilize digital ultrasonic technology to ensure unprecedented accuracy and reliability, and with no moving parts, virtually eliminate maintenance and repair costs. Sonix meters feature an attractive and compact design that offers flexible installation options. Their small size – approximately one-fourth the size of a typical mechanical meter – provides for ease of installation even in the tightest spaces.

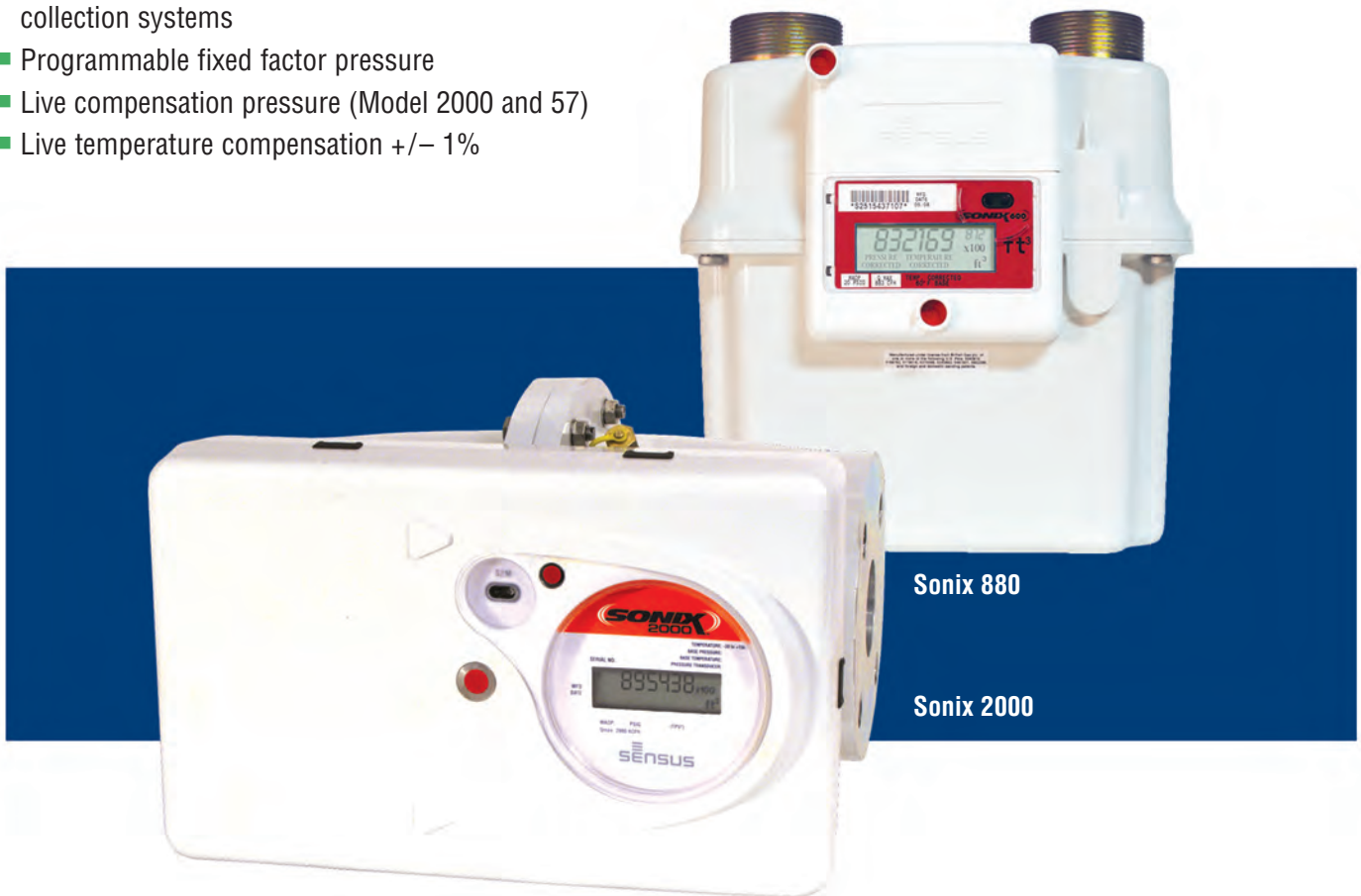
### Sonix meters offer “value added” features including:

- Compact size and light weight
- Installation flexibility, providing a compact installation in tight quarters
- Built-in memory with the capacity for 60 days of hourly data collection
- Sophisticated, anti-tampering deterrents and on-board diagnostics for immediate notification of tampering or changing conditions
- Pulse outputs for integration into third party data collection systems
- Programmable fixed factor pressure
- Live compensation pressure (Model 2000 and 57)
- Live temperature compensation +/- 1%

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) technologies more cost-effectively. Field maintenance, which requires no special tools or skills, consists of Battery Cartridge replacement once every 10 years.

### Applications

Sonix Ultrasonic gas meters are designed for commercial applications. They can be installed in most any orientation allowing for very compact commercial sets. Sonix meters can also be easily adapted to evolving system requirements. Sonix meters are intended for both indoor and outdoor installations. Operating temperatures range from -30° to 130° F (-35° to 55° C).



# Sonix Ultrasonic Gas Meters

## Commercial Applications

### U.S. Standard Models – General Specifications

Sonix Model	Dimensions			Approximate Meter Shipping Weight (lbs)	Maximum Working Pressure (PSIG)	Low-Flow Cut-Off (CFH)	Minimum Flow $\pm 2\%$ Accuracy (CFH)	Minimum Flow $\pm 1\%$ Accuracy (CFH)	Capacity $\Delta P=0.5"$ w.c. $\pm 1\%$ Accuracy (CFH)	Capacity $\Delta P=2.0"$ w.c. $\pm 1\%$ Accuracy (CFH)
	Height (in)	Length (in)	Depth (in)							
600	10.25	9.5	6.8	12.0	20	0.21	6	25	600	1,130
880						0.21	8	40	880	1,625
2000	11.4	12.6	8.9	28.6	60	2	10	50	2000	3000*

\*at 1.3" w.c.

### Metric Models – General Specifications

Sonix Model	Dimensions			Approximate Meter Shipping Weight (kg)	Maximum Working Pressure (bar)	Low-Flow Cut-Off (l/h)	Minimum Flow $\pm 2\%$ Accuracy (m <sup>3</sup> /h)	Minimum Flow $\pm 1\%$ Accuracy (m <sup>3</sup> /h)	Capacity $\Delta P=1.25$ mbar $\pm 1\%$ Accuracy (m <sup>3</sup> /h)	Capacity $\Delta P=5.0$ mbar $\pm 1\%$ Accuracy (m <sup>3</sup> /h)
	Height (mm)	Length (mm)	Depth (mm)							
16	260	241	173	5.4	1.4	0.006	0.70	0.7	16	33
25						0.006	1.13	1.1	25	46
57	290	320	226	13.0	4.1	0.006	1.42	1.4	57	85**

\*\*at 3.2 mbar

### Additional Information

Visit [www.sensus.com/sonix](http://www.sensus.com/sonix)

# Domestic/Residential Diaphragm Meters

## Under 500 Cubic Feet per Hour

### Overview

Sensus gives you the broadest product choice for your small volume measurement needs. Cubix250 is a true Class 250 meter with the endurance and accuracy to be a lower-cost alternative to larger residential meters. 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, R-315 and 415 meters feature the accuWAVE diaphragm, a highly-efficient molded diaphragm that delivers exceptional proof stability and extended life span which mean lower total cost of ownership. Modular designs reduce repair time and cost. Temperature compensated and non-temperature compensated versions available.



### Applications

#### Cubix250 (CubixMR7) and R-275 (MR-8)

Residential / Domestic: Average Volume  
Operating temperature range: -30° F to 150° F

#### R-315 (MR-9)

Residential / Domestic: Medium Volume  
Operating temperature range: -30° F to 150° F

#### 415 (MR-12)

Residential / Domestic: Larger Volume  
Operating temperature range: -30° F to 150° F

### Indexes

A variety of index options are provided for Sensus residential meters. Plastic circular (dial) and direct (odometer) reading indexes are available with 1' (DR), 2', or 2'-1/2" proving hands. 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.

## Dimensions, Specifications and Connections

Meter Model	Dimensions (Inches)			Approx. 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 <sup>††</sup>	Width	Depth		Nat.	But.	Prop.	Air				
Cubix250* / CubixMR7	11 ½	9 ¼	8 ¼	8 ½	250	135	155	195	5	16	2	10, 20, 30 Lt., 1 ¼", 1A SPG, #2 SPG.
R-275*/MR-8	13 23/64	10 1/8	8 ½	14	275	150	175	215	5	8.0	2	10, 20, 30 Lt., 1 ¼", 1A SPG, #2 SPG.
R-315*/MR-9	13 23/64	10 1/8	8 ½	14	315	170	200	245	5	8.0	2	20, 30, 45 Lt., 1 ¼", 1A SPG, #2 SPG.
415**/MR-12	14 37/64	11 1/8	9 3/8	21	415	225	260	320	10	6.5	2	20, 30, 45 Lt., 1 ¼", 1A SPG., #2 SPG., #3 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.

### Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select “Meters – Residential Diaphragm”

# FlexNet Wireless Communications

*“The gas utility industry is evolving every day with new technologies that will enable companies to provide additional services to customers, as well as devices for meters and distribution lines that will streamline operations.” – FlexNet customer*

FlexNet 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. So they grow with your business and adapt to meet your company's changing needs.

- 1 SmartPoint
- 2 Watts of Power
- 3 Ways to Read

It's a successful formula for taking energy delivery to a new level.

## General Specifications

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.

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	-30°F to +150°F		
Power	Lithium thionyl chloride (LiSOCl <sub>2</sub> ) 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		

## Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select “Advanced Metering Infrastructure for Gas (AMI)”

# Three Modes of Operation Walk-by, Drive-by, or FlexNet Fixed-base

## Walk-by HandHeld Devices and CommandLink

Thanks to the versatile FlexNet CommandLink wireless interface, utility personnel can utilize virtually any compatible HandHeld 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.



## Remote Gas Shutoff (RGS-10)

The Sensus Remote Gas Shutoff (RGS-10) enables service personnel to efficiently shut off gas service on the first call and from a safe distance - or the office\* – when access to the meter involves risks such as:

- Dangerous conditions
- Gas leaks
- Agitated customers
- Protective pets

Designed to be built into the meter set, the RGS-10 offers both straight and 90° angle body configurations for piping flexibility. The rugged cast iron case houses a maintenance-free globe valve driven by a powerful electric motor. All electronics are completely sealed behind a UV-stabilized polycarbonate cover for protection from the elements. However, the RGS-10 offers a host of additional benefits beyond the ability to complete basic shut off, including:

- Downstream pressure monitoring with automatic shutoff
- Built in temperature monitor with automatic shutoff
- Self-exercising valve motor
- Tilt/tamper detection
- Event log with a time stamp
- Optional vibration detection with automatic shutoff
- Flexible access

\*through FlexNet fixed-base communication system



### General Specifications

The RGS-10 is an integral, direct mount to gas meter set (natural gas, propane, air, nitrogen, other clean dry gas).

Physical Characteristics	90° Angle Body	Straight Body
Size	5.6"w x 5.6"h x 5.4"d	5.6"w x 5.6"h x 5.7"d
Weight	6.0 Lbs	8.0 Lbs
Connections	3/4" x 3/4" NPT 1.0" x 1.0" NPT	3/4" x 3/4" NPT 1.0" x 1.0" NPT 1-1/4" x 1-1/4" NPT
Working Pressure	5 psi MWP Notes: RGS will open and close with 5 psi valve differential pressure Pressure sensor max readings are 25.5" wc at 0.1" sc resolution; or 40" wc at resolutions of 0.25", 0.5" or 1.0" wc Pressure sensor is not damaged by over-ranging	
Orifice	Stainless Steel	
Power	Sealed 3.6V Lithium thionyl chloride (LiSOCl <sub>2</sub> ) battery	
Frequency & Modulation	896-960 MHz, 8000 channels x 6.25 kHz steps; proprietary narrow band	
Memory	Non-volatile	
Operating Environment	Class 1/Div 2	
Power	Lithium thionyl chloride (LiSOCl <sub>2</sub> ) batteries in conjunction with a hybrid layer capacitor	
Warranty	20 years (projected on 480 close cycles)	
Operating Environment	Class 1/Div 2	
Operating Temperature	-30°F to +150°F	
Power	Lithium thionyl chloride (LiSOCl <sub>2</sub> ) batteries in conjunction with a hybrid layer capacitor	
Warranty	20 years (projected on 480 close cycles)	
Reference Standards	Shutoff: ASME B16.33 - bubble-tight shutoff Safety: UL 1604 & CSA C22.2 Part 213 - Class 1 Div. 2 Group D Nonincendive CSA C22.2 Part 157 Class 1 Div. 2 Intrinsic Safety	

### Additional Information

Visit [www.sensus.com/rgs](http://www.sensus.com/rgs)

## Sensus and 811

Each year, homeowners and professional excavators are injured or cause infrastructure damage in preventable incidents related to underground utility lines. As a commitment to safety, Sensus has partnered with the Common Ground Alliance to promote safe digging practices. All Sensus gas meters now display a

"Call 811 Before You Dig" message as standard equipment. We're doing this to help educate homeowners and remind professional excavators of the importance of locating underground utility lines to avoid inadvertently damaging them and risking injury.



**Know what's below.  
Call before you dig.**

Additional Information visit  
[www.sensus.com/811](http://www.sensus.com/811)

For more information on Pipeline Safety visit  
**811:** [www.call811.com](http://www.call811.com)

**Department of Transportation  
Pipeline & Hazardous Material Safety Administration  
(PHMSA):** [www.phmsa.dot.gov/pipeline](http://www.phmsa.dot.gov/pipeline)

RP1162 requirements  
[primis.phmsa.dot.gov/comm/PublicEducation.htm](http://primis.phmsa.dot.gov/comm/PublicEducation.htm)



## TPL-9 and T-10 Turbo-Meters

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 Sensus 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 compact, rugged design of the TPL-9 and T-10 Turbo-Meters, 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

### TPL-9 Turbo-Meter

Maximum Working Pressure – 1,440 PSIG  
With ASME 600 steel body and flange construction.  
Metric versions available.



### T-10 Turbo-Meter

Maximum Working Pressure – 1,500 PSIG  
With ASME 600 steel body and flange construction.  
Metric versions available.



## Applications

The TPL-9 and T-10 Turbo-Meters are designed for use in industrial, production, and distribution applications where greater accuracy in gas measurement is needed.

## TPL-9

### Dimensions, Specifications and Connections

Meter Model	Meter Size	Body Material	Dimensions (Inches)			Approx. Meter Shipping Weight (lbs.)	Maximum Working Pressure PSIG	Minimum Flow Rate (SCFH) at .25 (PSIG)	Maximum Flow Rate (SCFH) at 1,500 (PSIG)
			Height	Width	Depth				
TPL-9	2"	ASME 150 Steel	13 5/8	8 1/16	6	35	275	900	1,170,000
		ASME 300 Steel	13 7/8	8 9/16	6 1/2	39	720		
		ASME 600 Steel	14 1/4	8 15/16	6 1/2	43	1,440		
	3"	ASME 150 Steel	14 5/16	9 15/16	7 1/2	45	275		
		ASME 300 Steel	14 11/16	10 1/16	8 1/4	58	720		
		ASME 600 Steel	15 1/16	11 1/16	8 1/4	58	1,440		

#### Note:

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

## T-10

### Dimensions, Specifications and Connections

Meter Model	Meter Size	Body Material	Dimensions (Inches)			Approximate Meter Shipping Weight (lbs.)	Working Pressure (PSIG) With ASME		Flow Rate	
							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	11.25	7.84	6.25	21	275	1,500	2,050	1,300,000
	3"		10.44	7.75	6.25	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.

Sensus offers a number of indexes to provide read-outs 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. A 90° “gooseneck” adapter is available for horizontal TPL-9 installations.

### Indexes

Both Circular Reading (VCR) and Direct Reading (VDR) indexes, housed in plastic covers, are available. The VDR index is also available in an aluminum box with a switch output to transmit totalized volume to a remote counter or instrument.

### Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select “Meters – Industrial Turbine”

### Accessories

- 90° “gooseneck” for TPL-9 horizontal installations
- Optional Slot-Sensor Pickup for high frequency calibrated pulse outputs for electronic measuring systems
- Reed Switch (TPL-9)
- Safety Interlock Device (TPL-9)

### 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

# Mark II Turbo-Meters

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

## Overview

Sensus Mark II Turbo-Meters provide greater range, compact size, and simplified maintenance when compared to alternative methods of large volume measurement. They are in the forefront of the industry trend toward more sophisticated measurement systems and direct data communications. Mark II Turbo-Meters readily accept a multitude of meter-mounted readout devices and provide calibrated pulse outputs for electronic measurement. The Mark II design incorporates the following 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 rotor bearings at all operating conditions.
- Gears and other moving parts housed in a sealed chamber protected from line contaminants.
- Rotors with 45° or 30° blade angles for various flow conditions.
- Unique rotor designs extract the maximum amount of kinetic energy from flowing gas.

Each meter body casting is hydrostatically tested at 1.5 or 2.0 times (depending on material) the maximum rated working pressure. 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.

Meter	Rotor Blade Angle	ASME 600 Steel Body Maximum Working Pressure PSIG
T-18	45°	1,500
T-27	30°	1,500
T-35	45°	1,500
T-57	30°	1,500
T-60	45°	1,500
T-90	30°	1,500
T-140	45°	1,500
T-230	30°	1,500

## Applications

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



## Mark II Turbo Meter – 45° Rotor Blade

### Dimensions, Specifications and Connections

Meter Model	Body Material	Dimensions (Inches)			Approximate Meter Shipping Weight (lbs.)	Minimum Accept. Spin Time (Sec.)	Maximum Working Pressure (PSIG)	Flow Rate		FT <sup>3</sup> 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 <sup>9</sup> / <sub>16</sub>	14	9	36	50*	175	1,200	2,339,000	100
	ASME 150 Steel	11 <sup>9</sup> / <sub>16</sub>	15 ½	9	105	50*	270			
	ASME 300 Steel	12 <sup>5</sup> / <sub>16</sub>	15 ½	10	140	50*	750			
	ASME 600 Steel	12 <sup>11</sup> / <sub>16</sub>	15 ½	10 ¾	175	50*	1,500			
6" T-35	Aluminum	14 <sup>3</sup> / <sub>16</sub>	16	11	75	140	175	1,750	4,549,000	100
	ASME 150 Steel	14 <sup>3</sup> / <sub>16</sub>	22 ½	11	174	140	270			
	ASME 300 Steel	15 <sup>1</sup> / <sub>8</sub>	22 ½	12 ½	280	140	750			
	ASME 600 Steel	15 <sup>1</sup> / <sub>8</sub>	22 ½	14	336	140	1,500			
8" T-60	Aluminum	16 <sup>11</sup> / <sub>16</sub>	21	13 ½	134	170	175	3,000	7,798,000	1,000
	ASME 150 Steel	16 <sup>11</sup> / <sub>16</sub>	27 ¼	13 ½	284	180	270			
	ASME 300 Steel	17 <sup>13</sup> / <sub>16</sub>	27 ¼	15	430	180	750			
	ASME 600 Steel	18 <sup>9</sup> / <sub>16</sub>	27 ¼	16 ½	596	180	1,500			
12" T-140	Ductile Iron	22 <sup>1</sup> / <sub>16</sub>	30	19	510	300	220	5,600	18,196,000	1,000
	ASME 300 Steel	23 <sup>3</sup> / <sub>16</sub>	32 ½	20 ½	790	300	750			
	ASME 600 Steel	23 <sup>15</sup> / <sub>16</sub>	32 ½	22	1,030	300	1,500			

\*Plastic Rotor

## Mark II Turbo Meter – 30° Rotor Blade

### Dimensions, Specifications and Connections

Meter Model	Body Material	Dimensions (Inches)			Approximate Meter Shipping Weight (lbs.)	Minimum Accept. Spin Time (Sec.)	Maximum Working Pressure (PSIG)	Flow Rate		FT <sup>3</sup> 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 <sup>9</sup> / <sub>16</sub>	14	9	36	53	175	1,800	3,509,000	100
	ASME 150 Steel	11 <sup>9</sup> / <sub>16</sub>	15 ½	9	105	53	270			
	ASME 300 Steel	12 <sup>5</sup> / <sub>16</sub>	15 ½	10	140	53	750			
	ASME 600 Steel	12 <sup>11</sup> / <sub>16</sub>	15 ½	10 ¾	175	53	1,500			
6" T-57	Aluminum	14 <sup>3</sup> / <sub>16</sub>	16	11	75	140	175	2,850	7,408,000	100
	ASME 150 Steel	14 <sup>3</sup> / <sub>16</sub>	22 ½	11	174	140	270			
	ASME 300 Steel	15 <sup>1</sup> / <sub>8</sub>	22 ½	12 ½	280	140	750			
	ASME 600 Steel	15 <sup>1</sup> / <sub>8</sub>	22 ½	14	336	140	1,500			
8" T-90	Aluminum	16 <sup>11</sup> / <sub>16</sub>	21	13 ½	134	180	175	4,500	11,697,000	1,000
	ASME 150 Steel	16 <sup>11</sup> / <sub>16</sub>	27 ¼	13 ½	284	180	270			
	ASME 300 Steel	17 <sup>13</sup> / <sub>16</sub>	27 ¼	15	430	180	750			
	ASME 600 Steel	18 <sup>9</sup> / <sub>16</sub>	27 ¼	16 ½	596	180	1,500			
12" T-230	Ductile Iron	22 <sup>1</sup> / <sub>16</sub>	30	19	510	300	220	9,200	29,893,000	1,000
	ASME 300 Steel	23 <sup>3</sup> / <sub>16</sub>	32 ½	20 ½	790	300	750			
	ASME 600 Steel	23 <sup>15</sup> / <sub>16</sub>	32 ½	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). 3 pipe diameter length body is available in both ASME and ISO flanges. ISO 7005-1 (steel flange) and ISO 7005-2 (cast iron flange).

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.

## Mark II Turbo-Meters

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.

### Indexes

Both Circular Reading (VCR) and Direct Reading (VDR) indexes, housed in plastic covers, are available. The VDR index is also available in an aluminum box with a switch output to transmit totaled volume to a remote counter or instrument.

### Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select “Meters – Industrial Turbine”

### Accessories

- Optional blade tip sensor pickups for redundant high frequency pulse outputs in electronic measuring systems
- 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° F to 165° F
- 3-pipe diameter length construction for OIML applications
- Available with either ASME or ISO flanges
- 45° or 30° rotor blade angles

# Auto-Adjust® II Turbo-Meters

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

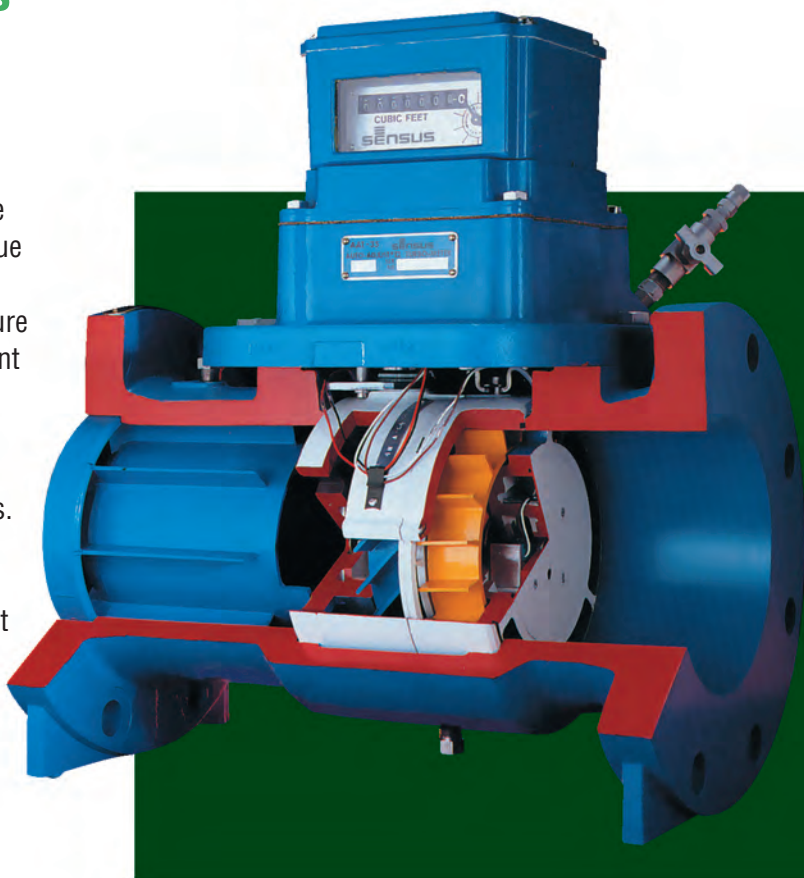
## Overview

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 integral straightening vanes. 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. Some examples of why Auto-Adjust technology has become a benchmark in measurement accuracy include:

- 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 (when used with the Auto-Adjust electronics).
- Advanced warning of a deteriorating condition well before meter failure occurs (when used with the Auto-Adjust electronics).
- Full curve linerization providing enhanced accuracy of  $\pm 0.25\%$  over entire calibrated range (when selected and used with the Auto-Adjust electronics).

Sensus provides a variety of instruments to use with the Auto-Adjust II Turbo-Meter, affording all the advantages of its patented, self-checking 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.

## Applications

Auto-Adjust® II Turbo-Meters fit numerous applications including production, transmission, distribution, and industrial in-plant measurement use. Applications demanding the highest accuracy are especially suitable for the Auto-Adjust II Turbo-Meter.

Operating temperatures range from  $-20^{\circ}\text{F}$  to  $165^{\circ}\text{F}$ . Special construction is available for lower and higher operating temperatures.

Contact your local Sensus Representative for information on specific applications.

# Auto-Adjust® II Turbo-Meters

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

Auto-Adjust® Turbo Meter – 45° Rotor Blade Angle  
Dimensions, Specifications and Connections

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 3/16	14	9	36	110	200	175	1,800	2,339,000	100
	ASME 150 Steel	11 3/4	15 1/2	9	105	110	200	270			
	ASME 300 Steel	12 5/16	15 1/2	10	140	110	200	750			
	ASME 600 Steel	12 11/16	15 1/2	10 3/4	175	110	200	1,500			
6" AAT-35	Aluminum	14 3/16	16	11	75	170	200	175	3,500	4,549,000	100
	ASME 150 Steel	14 3/4	22 1/2	11	174	170	200	270			
	ASME 300 Steel	15 1/8	22 1/2	12 1/2	280	170	200	750			
	ASME 600 Steel	15 7/8	22 1/2	14	336	170	200	1,500			
8" AAT-60	Aluminum	16 11/16	21	13 1/2	134	300	200	175	5,400	7,798,000	1,000
	ASME 150 Steel	16 11/16	27 1/4	13 1/2	284	300	200	270			
	ASME 300 Steel	17 13/16	27 1/4	15	430	300	200	750			
	ASME 600 Steel	18 9/16	27 1/4	16 1/2	596	300	200	1,500			
12" AAT-140	Ductile Iron	22 3/16	30	19	510	400	200	220	14,000	18,196,000	1,000
	ASME 300 Steel	23 3/16	32 1/2	20 1/2	790	400	200	750			
	ASME 600 Steel	23 15/16	32 1/2	22	1,030	400	200	1,500			

\*Respective mechanical outputs

1,200 scfh, 1,750 scfh, 3,000 scfh and 5,600 scfh

Meter	Rotor Blade Angle	ASME 600 Steel Body Maximum Working Pressure PSIG
AAT-18	45°	1,500
AAT-35	45°	1,500
AAT-60	45°	1,500
AAT-140	45°	1,500
AAT-27	30°	1,500
AAT-57	30°	1,500
AAT-90	30°	1,500
AAT-230	30°	1,500

## Auto-Adjust® Turbo Meter – 30° Rotor Blade Angle Dimensions, Specifications and Connections

Meter Model	Body Material	Dimensions (Inches)			Meter Shipping (lbs.)	Approx Min. Accept. Spin Time (sec.)		Working Pressure (PSIG)	Flow Rate		FT <sup>3</sup> 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 3/16	14	9	36	110	200	175	2,700	3,509,000	100
	ASME 150 Steel	11 3/4	15 1/2	9	105	110	200	270			
	ASME 300 Steel	12 5/16	15 1/2	10	140	110	200	750			
	ASME 600 Steel	12 11/16	15 1/2	10 3/4	175	110	200	1,500			
6" AAT-57	Aluminum	14 3/16	16	11	75	170	200	175	5,700	7,408,000	100
	ASME 150 Steel	14 3/16	22 1/2	11	174	170	200	270			
	ASME 300 Steel	15 1/8	22 1/2	12 1/2	280	170	200	750			
	ASME 600 Steel	15 7/8	22 1/2	14	336	170	200	1,500			
8" AAT-90	Aluminum	16 11/16	21	13 1/2	134	240	200	175	9,000	11,697,000	1,000
	ASME 150 Steel	16 11/16	27 1/4	13 1/2	284	240	200	270			
	ASME 300 Steel	17 13/16	27 1/4	15	430	240	200	750			
	ASME 600 Steel	18 9/16	27 1/4	16 1/2	596	240	200	1,500			
12" AAT-230	Ductile Iron	22 3/16	30	19	510	300	200	220	14,000	29,893,000	1,000
	ASME 300 Steel	23 3/16	32 1/2	20 1/2	790	300	200	750			
	ASME 600 Steel	23 15/16	32 1/2	22	1,030	300	200	1,500			

\*Respective mechanical outputs

1,800 **scfh**, 2,850 **scfh**, 4,500 **scfh** and 9,200 **scfh**

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

3-pipe diameter length body is available in both ASME and ISO 7005-1 (Steel Flanges) and ISO 7005-2 (Cast Iron Flanges).

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

### Variations

- Special construction meters available for temperatures beyond the recommended range of -20° F to 165° F
- Blade tip sensors and/or slot sensors for high frequency pulse outputs
- Pipe diameter length construction for OIML applications available with either ANSI or ISO flanges
- Available with Circular Reading (VCR) or Direct Reading (VDR) indexes
- 45° or 30° rotor blade angles option
- All Sensus Turbo-Meters feature interchangeable modules
- Imperial and metric measurement

### Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select "Meters – Industrial Turbine"

# Auto-Adjust Turbo-Meter Instruments

## Overview

Instruments for Auto-Adjust Turbo Meters, manufactured by Mercury Instruments for Sensus, perform the complete Auto-Adjust algorithm and have field testing/proving capability. They are programmed with a laptop computer with the MasterLink software program.

Since MasterLink is the primary interface software, technicians may already be familiar with its functionality and data access. MasterLink also provides live graphing of main rotor frequency, sensing rotor frequency, Delta-A, and adjusted volume flow rate – all on a single graph.

## Turbo Monitor

The Turbo Monitor receives the pulse outputs from a Sensus Auto-Adjust meter. It performs the self-checking and self-adjusting equations per the Auto-Adjust algorithm.

Available remote outputs include a form A pulse for adjusted volume, and normal, abnormal, and pulsating gas alarms. A 4-20 mA output may be programmed as adjusted volume flow rate or Delta A. The optional frequency board can output adjusted volume flow rate as a scalable frequency. The Turbo Monitor information may be accessed via local communications when directly connected to a computer, or remotely via modem communications. The Turbo Monitor is approved for Class 1, Div. 1 and Div. 2 operation. It can be mounted directly on the meter, or remotely wall mounted.



## Outputs

- Level 1 and 2 Delta-A alarms (Form-A alarm pulse)
- Adjusted volume Form-A volume pulse (Totalized pulse to remote device)
- Adjusted volume flow rate or Delta-A (4-20 mA analog)
- Main rotor frequency (buffered)
- Sensing rotor frequency
- Adjusted flow rate via optional Turbo Frequency Board

## Additional Features

- Linearized Calibration Data
- AC, DC, and Solar Option Available
- Integral alphanumeric display with push button via Turbo Frequency Board
- Optional high frequency output
- Level 1 and Level 2 Delta-A alarms with separate Form-A output channels with user-defined alarm limits
- Pulsating gas alarm
- Adjusted volume pulses (Form-A output)
- 4-20 mA output signal for either Delta-A or adjusted volume rate flow
- 4-year warranty
- Wall Mount (shown), meter mount and pipe mount options available

## Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select “Meters – Industrial Turbine”  
Then select “Auto-Adjust Meters”



### Turbo Corrector

The Turbo Corrector performs all functions of the Turbo Monitor with the addition of live pressure and temperature measurements. This allows the unit to calculate corrected volume based on adjusted volume, or unadjusted volume. The audit trail can store historical information in 15 minute, 30 minute, hourly, or daily intervals. The Turbo Corrector information may be accessed via local communications when directly connected to a computer, or remotely via modem communications.

#### Outputs

- Adjusted volume (low-frequency pulse to Mini-AT Board)
- Unadjusted volume (low-frequency pulse to Mini-AT Board)
- Adjusted volume pulse Form-A volume pulse (Totalized pulse to remote device)
- 4-20 mA analog output signal (user selectable Delta-A or adjusted volume flow rate)
- Corrected volume pulse Form-A pulse (Totalized pulse to remote device)
- Adjusted flow rate via optional Turbo Frequency Board
- Level 1 and 2 Delta-A alarms (Form-A alarm pulse)
- Main rotor frequency (buffered)
- Sensing rotor frequency

#### Additional Features

- Linearized Calibration Data
- Corrected volume base on adjusted volume
- AC, DC, and solar power options available
- Internal & external modem options available
- Simultaneous live graphing of main rotor frequency, sensing rotor frequency, Delta-A, and adjusted volume flow rate using MasterLink software
- Form-A volume pulse output for adjusted volume pulses
- 4-20 mA output signal for either Delta-A or adjusted volume rate flow
- 4-year warranty
- CSA-approved for Class 1, Div-1 and Div-2

#### Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select “Meters – Industrial Turbine”  
Then select “Auto-Adjust Meters”



### Turbo Prover

The Turbo Prover is a battery powered portable instrument that connects directly to a Sensus Auto-Adjust meter. By programming the unique AAT parameters into the Turbo Prover via the Masterlink 32 software and a computer, you are given the ability to ‘prove’, or ‘field test’ the Auto-Adjust meter in normal gas flowing conditions.

#### Additional Features

- Battery powered
- Portable
- Integral alphanumeric display with push button activation
- Live turbine graphics via MasterLink 32
- 4-year warranty

#### Outputs

- Level 1 and 2 Delta-A alarms
- Adjusted volume
- Adjusted volume flow rate
- Main rotor frequency (buffered)
- Sensing rotor frequency (buffered)

#### Additional Information

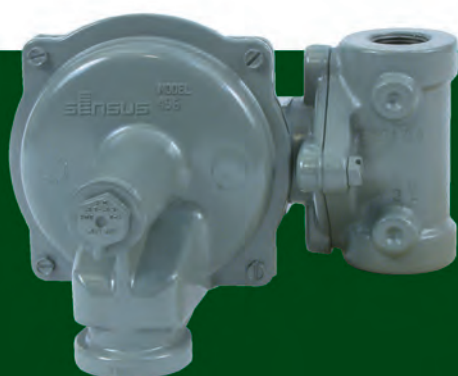
Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select “Meters – Industrial Turbine”  
Then select “Auto-Adjust Meters”

# Residential Service Regulators

## Models 496, 61R2 and 143-80

### Overview

Sensus residential service regulators have a simple, modern design and rugged construction, offering greater dependability, precise pressure control, and outstanding performance. The 4" "roll-out" style diaphragm 496 and 6" diaphragm 61R2 and 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 service.



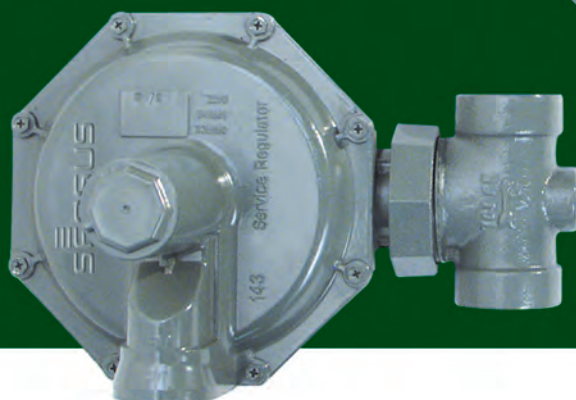
### 496

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



### 61R2

**Max. Inlet Pressure – 125 PSIG**  
**Max. Outlet Pressure – 2 PSIG**  
**Max. Capacity – 3,000 SCFH**



### 143-80

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

### Applications

Our family of service regulators is designed and built for domestic gas service, as well as 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 air, LPG, dry CO<sub>2</sub>, propane, and other gases. Operating temperatures range from -20° F to 150° F. The 496, 61R2 and 143-80 service regulators are not recommended for buried service.

### Dimensions, Specifications and Connections

Regulator	Model	Working Pressure (PSIG)		Capacity (SCFH)	Height		Dimensions (inches)		Depth		Shipping Weight (lbs.)
		Min.	Max.		Min.	Max.	Min.	Max.	Min.	Max.	
496	10, 20	1.0	125	2,250	7.2	7.2	8.3	8.8	5.7	5.7	4.1
61R2	10, 20	1.0	125	3,000	5.7	5.7	10.0	10.2	7.4	7.4	5.3
143-80	1, 2, 2HP	0.5	125	2,400	7.2	7.2	10.7	10.7	6.9	6.9	5.5
	6	0.5	60	2,300							

## Variations

### Model 496 and 61R2

- Angled (Model -10) or straight (Model -20)
- Variable mounting positions
- Regulator standard with internal relief valve (IRV)
- Vent: 3/4" or 1" NPT
- Pipe sizes: 3/8" 1/2", 3/4" or 1" (Model 496)
- Pipe sizes: 3/4" 1" or 1-1/4" (Model 61R2)
- Five springs available to provide five different outlet pressure ranges from: 4" w.c. to 5 psig

### Model 143-80

- Standard regulator
- Regulator with internal relief valve (IRV)
- Vent: 3/4" or 1" NPT
- Regulator with low pressure cut-off and IRV
- Pipe sizes: 3/4", 1", or 1-1/4"
- Seven springs available to provide outlet pressure ranges from 3-1/2" w.c. to 6 psig

Basic Models	Description	High Pressure Models
496	Regulator with Internal Relief Valve (IRV)	N/A
61R2	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

## Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select “Regulators – Domestic”

# Industrial Service Regulators

## Models 243-12, 243-8, and 243-8HP

### Overview

Sensus large capacity industrial service regulators are designed and built for commercial, industrial, and gas distribution use. As a result of the collar connection between the fully inter-changeable bodies and the diaphragm case, they have remarkable field versatility. They are easy to install, adjust, inspect, and service in all piping arrangements.

### Applications

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 CO<sub>2</sub>, nitrogen, and other inert gases. Please contact your Sensus representative for information on special construction which may be available for certain corrosive gases.

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

### Dimensions, Specifications and Connections

Regulator Model		Maximum Pressure (PSIG)	Maximum Capacity (SCFH)	Dimensions (inches)						Shipping <sup>†</sup> Weight (lbs.)
				Height		Width		Depth		
				Min.	Max.	Min.	Max.	Min.	Max.	
243-12-	1, 2	125	27,000	15 7⁄8	16 11⁄16*	10 3⁄16	14	*	*	27
243-8-			20,000	12 5⁄8						25
243-12-	4, 6	75	13,150	15 7⁄8						27
243-8-		60	7,900	12 5⁄8						25
243-8	HP	125	24,000	15 5⁄8						29

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

<sup>†</sup>Add 9 lbs. for flanges on 2" body.

### Variations

- Variable mounting positions
- Standard Regulator (243-12-1 & 243-8-1)
- Regulator with internal relief valve (243-12-2 & 243-8-2)
- Standard regulator with low pressure cut-off (243-12-4 & 243-8-4)
- Regulator with internal relief valve and low pressure cut-off (243-12-6 & 243-8-6)
- High pressure model (243-8HP)
- Monitoring and/or external control line
- Pressure loaded model (243-8PL, see page 29)
- Pilot operated model (243-RPC, see page 29)
- Duplex overpressure tandem model (243-DOT)

- Orifice sizes: .207", 1/4", 3/8", 1/2", 3/4", 1", 1-1/4" with 10° valve and 3/4", 1", & 1-1/4" with 30° valve
- Pipe sizes: 1-1/4", 1-1/2", 2" screwed or 2" flanged construction
- 12 springs available to provide a variety of outlet pressure ranges

### Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select "Regulators – Commercial Service, Combustion and Field"



### 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

# Field & High Pressure Service Regulators

## Models 046 and 141-A

### Overview

Field and high pressure service regulators combine simplicity of design with rugged construction, exceptional performance, and operational safety 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 just about all high pressure applications. They are easy to install, adjust, inspect, and service in all piping arrangements. The 141-A regulator is designed for high pressure work such as feeding intermediate and small volume loads from gas transmission lines. It is excellent for single and double stage reduction ahead of the service regulator.

### 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 CO<sub>2</sub>, nitrogen, and other inert gases. The 141-A can be used on pipeline taps serving remote farm, domestic, commercial, and industrial customers. It can also be used on other kinds of high pressure loads including producer field work, high pressure burners, compressed air systems, etc.

The 046 and 141-A regulators are designed for outdoor or indoor installation. Operating temperatures range from -20° F to 150° F. Please contact your Sensus representative for information concerning special high temperature construction for the 046 family. Sensus 046 and 141-A regulators are not recommended for buried service.

### Dimensions, Specifications and Connections

Regulator	Model	Maximum Working Pressure (PSIG)	Maximum Capacity (SCFH)	Dimensions (inches)	
				Height	Width
141-A		1,500	55,000	12 ¾	6*
046-	1, C	1,000	38,000	11	8 11/16
	2	925	14,000		

\*Without vent



Regulator Model	Shipping Weight (lbs.)
141-A	26
046	8
046-C	12
046-2	9

# Field & High Pressure Service Regulators

## Models 046 and 141-A

### Variations

#### Model 046

- Variable mounting positions
- Aluminum or cast iron diaphragm cases
- High temperature construction available
- Standard Regulator (046-1 w/ 1" NPT Vent)
- Regulator with internal relief valve (046-2 w/ 1" NPT Vent)
- High pressure service
- Three valve assembly materials – Polyurethane Tan, Buna-N, and Viton
- Orifice sizes: 1/8", 3/16", 1/4", 5/16", 3/8", & 1/2"
- Pipe sizes: 3/4", 1", & 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 141-A

- 1/4" NPT vent
- High pressure service
- Tan molded polyurethane soft seats for pressure cuts below 300 psig and/or inlet pressures below 600 psig  
Green molded polyurethane soft seats for pressure cuts below 300 psig and/or inlet pressures above 600 psig
- Orifice sizes: 1/8", 1/4", 3/8", 1/2", 5/8", and 7/8"
- Pipe size 2" screwed
- Five springs available to provide outlet pressure ranges from 5 psig to 400 psig

### Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select “**Regulators – Commercial Service, Combustion and Field**”

# Industrial Combustion Regulators

## Models 121 and 122

### 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.

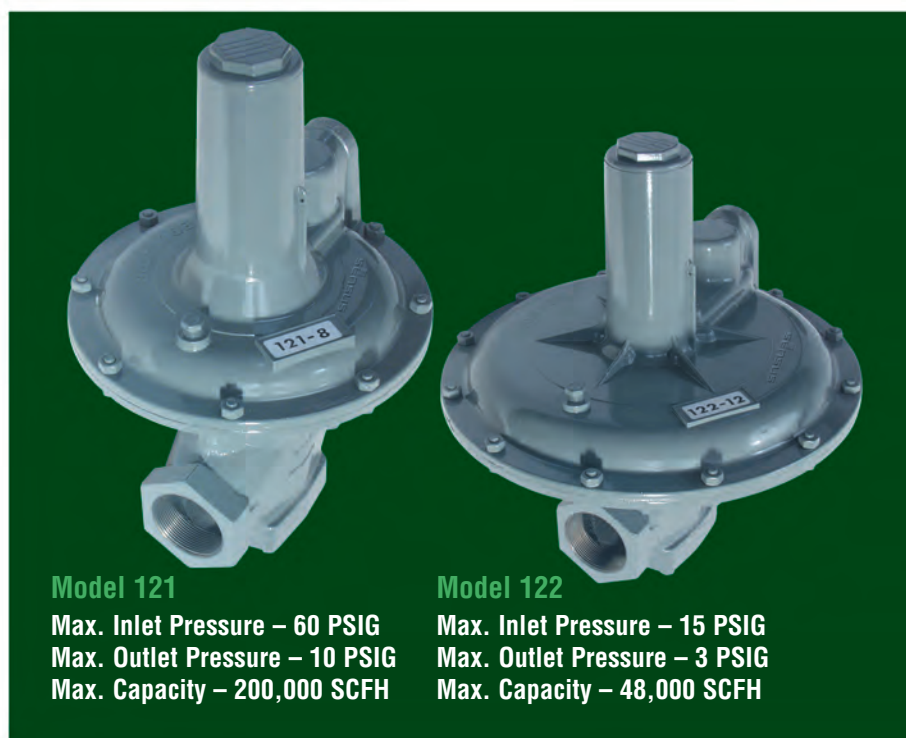
### Model 122

The 122 regulator is designed specifically for industrial combustion applications. Carefully engineered internal sensing produces accurate pressure control without an external control line. Plus, just in case the specific application necessitates one, a tap is provided on the 122 regulator to make the connection of an external control line a simple matter. Variations are available to allow the 122 to serve the following functions: zero governor (atmospheric regulator), differential regulator, and back pressure regulator (relief valve).

### 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 CO<sub>2</sub>, nitrogen, and other inert gases.

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



# Industrial Combustion Regulators

## Models 121 and 122

### Dimensions, Specifications and Connections

Regulator Model	Pipe Size Inches	Working Pressure		Capacity (SCFH)		Dimensions (Inches)			Shipping Weight (lbs.)
		Min.	Max.	Min.	Max.	Height*	Width	Depth	
121-12	1 ½	8" w.c.	60 PSIG	3,000	95,000	16 ½	14	14	40
	2			4,000	175,000				40
	2 ½			4,500	195,000				45
121-8 & 8HP	¾ x 1	8" w.c.	60 PSIG	1,000	44,000	8	8HP	10 ⅜	25
	1 x 1					15 ⅞	21	10 ⅜	
	¾ x 1 ¼					15 ⅞	21	10 ⅜	
121-8	1 ½	3 PSIG	60 PSIG	8,500	71,500	16 ⅜	10 ⅜	10 ⅜	40
	2	3 PSIG	60 PSIG	15,000	130,000	16 ⅜	10 ⅞	10 ⅞	
	2 ½	3 PSIG	60 PSIG	16,700	144,000	16 ⅜	10 ⅜	10 ⅜	
121-8HP	1 ½	3 PSIG	60 PSIG	16,500	68,000	21 ⅝	10 ⅜	10 ⅜	40
	2	3 PSIG	60 PSIG	30,000	123,000	21 ⅝	10 ⅞	10 ⅞	40
	2 ½	3 PSIG	60 PSIG	33,500	135,000	21 ⅝	10 ⅜	10 ⅜	45
121-12	3	2 PSIG	40 PSIG	35,000	200,000	19 ⅜	14	14	75 <sup>†</sup>
	4	2 PSIG	40 PSIG	60,000	240,000	21	14	14	135
121-16	3	8" w.c.	40 PSIG	9,700	260,000	22 ⅜	18	18	90 <sup>†</sup>
	4	8" w.c.	15 PSIG	17,200	252,000	24 ½	18	18	150
122-6	¾	8" w.c.	15 PSIG	600	7,150	9 ¾	7 ⅜	7 ⅜	7
122-8	1	8" w.c.	15 PSIG	1,000	11,500	13 ½	10 ¼	10 ¼	15
122-8	1 ¼	8" w.c.	15 PSIG	1,500	15,800	13 ½	10 ¼	10 ¼	15
122-12	1 ½	8" w.c.	15 PSIG	3,000	20,000	15 ⅝	14	14	28
122-12	2	8" w.c.	15 PSIG	4,000	40,000	15 ⅝	14	14	28
122-12	2 ½	8" w.c.	15 PSIG	4,500	48,000	15 ⅝	14	14	30

\*Dimensions differ for models with ASME 125 flanges. †Screwed connection model

### Variations Model 121

- Zero governor/atmospheric regulator model
- Differential regulator model
- Back pressure regulator/relief valve model
- High Pressure
- Vacuum regulator model
- External control line
- Vacuum breaker model
- Pipe sizes: 1", 1-1/4", 1-1/2", 2", 2-1/2", & 3", screwed; 2", 3", & 4", flanged
- A large selection of springs are available to cover most 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 1-1/2", 2", 2-1/2"
- 121-PL Pressure loaded model (see page 29)
- 121-RPC Relay Pilot Control variable pressure loaded model (see page 29)

### Variations Model 122

- Zero governor/atmospheric regulator model
- Differential regulator model
- Internal or external control
- Back pressure regulator/relief valve model
- Pipe sizes: 3/4", 1", 1-1/4", 1-1/2", 2", & 2-1/2"
- A large selection of springs are available to cover outlet pressure ranges from 1-1/4" w.c. to 2 psig
- Optional adjustable maximum and minimum travel stops
- Optional travel indicator

### Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select  
**Regulators – Commercial Service, Combustion and Field**

## 2" Self-Operated Intermediate Capacity Regulators

**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.

### Applications

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.

### Model 461-57S

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.

### Applications

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

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.

### Applications

Perfect 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.

### 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 CO<sub>2</sub>, nitrogen, and other inert gases.

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



**461-S  
461-8S  
461-12S**

Max. Inlet Pressure – 175 PSIG  
Max. Outlet Pressure – 10 PSIG  
Max. Capacity – 189 MSCFH



**461-57S**

Max. Inlet Pressure – 1,000 PSIG  
Max. Outlet Pressure – 100 PSIG  
Max. Capacity – 1,014 MSCFH



**461-X57**

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

# 2" Self-Operated Intermediate Capacity Regulators

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

### Dimensions, Specifications and Connections

Regulator	Model	Maximum Working Pressure (PSIG)	Maximum Capacity (MSCFH)	Dimensions* (inches)			Shipping <sup>†</sup> Weight (lbs.)
				Height	Width	Depth	
461 –	S	175	189	23 ½	14 ¼	14 ¼	75-90
	8S			22 ¾	10 ¾	10 ¾	75-90
	12S			17 ¼	14	14	75-90
	57S	1,000	1,014	24 ½	6 ½	6 ½	70-90
	X57	1,000	1,014	25 ¾	10 ½	6 ¼	85-90

\* Dimensions may vary with type and rating of connection.

† Shipping weight is dependent on body material and flange type.

### Variations

#### Model 461-S, 461-8S, 461-12S

- 8", 8-1/2", or 12" heavy duty 1/2" NPT vent diaphragm case
- Cast iron diaphragm housing (461-S)
- Lightweight aluminum diaphragm housing (461-8S, 461-12S)
- Cast iron, ductile iron, or cast steel body\*\*
- Balanced valves - full and reduced sizes
- Remote control line with restriction
- Screwed end or ASME 125, 250, or 300 flanged connections
- 1" V-Port valves
- 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 R-1330.

#### Model 461-57S

- 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
- Double or single seat balanced valves
- Remote control line with restriction
- Screwed end or ASME 125, 250, 300, or 600 flanged connections
- 1" V-Port valves
- 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

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

### Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select "Regulators – Self Operated"

# Self-Operated Low & High Pressure Large Capacity Regulators

**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.

## 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.

## 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.

## Applications

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

A unique high pressure, large capacity spring operated regulator that incorporates 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.

## Applications

Perfect 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 CO<sub>2</sub>, nitrogen, and other inert gases.

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



**441-S**

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



**441-57S**

Max. Inlet Pressure – 1,000 PSIG  
Max. Capacity – 3,362 MSCFH  
Max. Outlet Pressure – 100 PSIG



**441-X57**

Max. Inlet Pressure – 1,000 PSIG  
Max. Capacity – 2,165 MSCFH  
Max. Outlet Pressure – 250 PSIG

# Self-Operated Low & High Pressure Large Capacity Regulators

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

### 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	35 ½	23		20-340
	57S	2"	1,000	2,764	30 11⁄16	10	8 ¾	115-140
		3"		3,362	30 11⁄16	11 ¾		140-180
		4"		3,343	34 ½	13 7⁄8		240-300
		6"		2,908	40 ½	17 ¾		445-520
	X57	2"		2,165	30	10	6 ¼	140
		3"		2,165	30	12 ½	9 1⁄8	180

\* Shipping weight varies for flanged models.

\*\* Varies with diaphragm case size.

### Variations

#### Model 441-S

- Cast iron body (2" screwed connection and ASME 125 FF flanged)
- Ductile iron body (ASME 125 RF flanged)
- Cast steel body (ASME 300 RF flanged)
- Balanced valves - full and reduced sizes
- 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)
- Screwed end or ASME 125, 250, or 300 flanged connections
- V-Port valves
- Six separate springs are available to provide outlet pressure ranges from 4-1/2" w.c. to 6 psig
- Remote control line with restriction
- Optional travel indicator

#### Model 441-X57

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

#### Model 441-57S

- Cast iron body (2" screwed end & ASME 125 FF flanged)
- Ductile iron body (ASME 250 RF flanged)
- Cast steel body (ASME 300 & 600 RF flanged)
- Double or single seat balanced valves
- Remote control line with restriction
- Screwed end or ASME 125, 250, 300, or 600 flanged connections
- Relief valve and back pressure valve models available (441-57SR)
- V-Port valves
- Six separate springs plus one dual spring combination are available to provide seven outlet pressure ranges from 3 psig to 100 psig

### Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select "Regulators – Self Operated"

# Pilot Operated Intermediate & Large Capacity Regulators

**Models 1100, 1200, 243-PL, 243-RPC, 121-PL, 121-RPC, 441-VPC**

## Overview

Our 1100, 1200, 121-PL, 121-RPC, 243-PL, 243-RPC, and 441-VPC pilot operated regulators are designed to fit your specialized intermediate and large capacity regulator needs. These regulators provide sensitivity, high capacity, and a high degree of accuracy for fixed factor billing on modulating loads.

## Note:

Solenoid load applications are not recommended. Load limiting regulators on the inlet supply to the pilot will improve the accuracy of these products.

## Model 1100 and 1200

Two of the most versatile of all 2" pilot operated regulators available to the gas industry, the 1100 and 1200 offer interchangeable pilot springs covering the complete controlled pressure range with no sacrifice in accuracy or performance.

The Model 1100 can be used for any installation requiring accurate control where the inlet pressure does not exceed 400 psig, with an outlet pressure range from 3" w.c. to 100 psig, and flows up to 400,000 scfh.

The Model 1200 is used for any installation requiring intermediate capacity and high outlet pressure applications including high pressure regulator sets, town border stations, city gate stations, high pressure distribution and transmission systems, and high pressure industrial sites. Outlet pressures range from 20 to 600 psig and the unit can handle flows up to 789,000 scfh.

## Model 243-PL

A constant pressure loaded regulator, the 243-PL is designed for applications beyond the model 243. It can deliver higher outlet pressures and increased capacities, all with the accuracy that a pressure loaded regulator can provide.

The Model 243-PL can be used for most of the applications served by the model 243 regulators, but at increased outlet pressures as high as 35 psig and capacities up to 76,000 scfh.

## Model 243-RPC

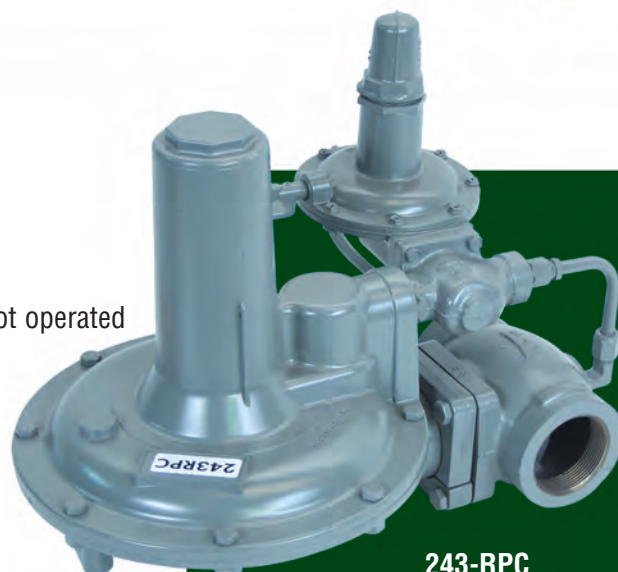
These are rugged and reliable pilot operated regulators that incorporate the same relay operation principle as the well known 441-VPC. They offer exceptionally precise regulation and are accurate to within  $\pm 0.5\%$  (absolute outlet pressure) from minimum to wide open flow.

The Model 243-RPC is used for fixed factor pressure measurement, pressure compensated metering, and other applications requiring exceptionally precise pressure control.

## Model 121-PL

This pressure loaded external control regulator provides the performance of the model 121 industrial regulator, plus the ability to serve applications requiring higher outlet pressures and increased capabilities.

The Model 121-PL is used for industrial applications requiring outlet pressures and capacities above the standard model 121 regulators, and where more precise regulation is required.



**243-RPC**

## 1100

Max. Inlet Pressure – 400 PSIG  
Max. Outlet Pressure – 100 PSIG  
Max. Capacity – 414 MSCFH

## 1200

Max. Inlet Pressure – 1,200 PSIG  
Max. Outlet Pressure – 600 PSIG  
Max. Capacity – 789 MSCFH

## 243-PL

Max. Inlet Pressure – 150 PSIG  
Max. Outlet Pressure – 35 PSIG  
Max. Capacity – 76,000 SCFH

## 243-RPC

Max. Inlet Pressure – 150 PSIG  
Max. Outlet Pressure – 35 PSIG  
Max. Capacity – 76,500 SCFH

## 121-PL

Max. Inlet Pressure – 60 PSIG  
Max. Outlet Pressure – 35 PSIG  
Max. Capacity – 185,000 SCFH

## 121-RPC

Max. Inlet Pressure – 60 PSIG  
Max. Outlet Pressure – 35 PSIG  
Max. Capacity – 185,000 SCFH

## 441-VPC

Max. Inlet Pressure – 1,200 PSIG \*  
Max. Outlet Pressure – 600 PSIG  
Capacity – 19,353 MSCFH

\* With Type 53 or 521 Pilots.

# Pilot Operated Intermediate & Large Capacity Regulators

## Model 121-RPC

A relay pilot operated regulator that utilizes the same pilot operation as the popular 243-RPC regulator. Offering higher outlet pressures, increased capacity and precise regulation, the model 121-RPC fits many applications that would typically require a larger regulator.

The Model 121-RPC is used for applications requiring exceptionally precise pressure control; and as with the 121-PL, outlet pressures up to 35 psig and capacities as high as 186,000 scfh.

## Model 441-VPC

These variable pressure control regulators incorporate the extremely successful 441 series regulators with a pilot for sensing regulated pressure and controlling overall operation. This extremely responsive pilot is actually a very specialized type of small regulator. It senses the regulated pressure and puts out a power signal (loading pressure) which operates the main valve, thereby controlling the flow of gas. Furthermore, it performs each of these related functions with a high degree of accuracy. The result is precision regulation of pressure, to a set point, from minimum to maximum flow. Use of a 441-VPC is especially recommended where extremely close control is required.

These regulators can be remotely controlled by using air loading in the pilot upper case.

The Model 441-VPC is available in six different assemblies offering maximum inlet pressures from 175 to 1,200 psig and available in 2", 3", 4", 6", and 8" pipe sizes. Because of the exceptionally close control offered by the 441-VPC family, they are ideal for applications such as district and station regulator sets, distribution systems, transmission systems, compressor stations, and large capacity industrial combustion systems where a high degree of accuracy is required.

## Dimensions, Specifications

Regulator		Model	Maximum Working Pressure (PSIG)	Maximum Capacity (SCFH)	Dimensions (inches)			Shipping Weight (lbs.)*	
					Height		Width		
1100		511	400	414,000	25 ½		11	75-95	
1200		511	400	789,000	24 ¾		10 ½	105-110	
		521	1,200	789,000	25 ¾		10 ½	110-115	
		53		789,000	29 ¾		11 ¼	120-125	
243-		PL	150	76,000	12 ⅝		16 ¾	28-30	
		RPC & RPC-A						30-32	
		RPC-B		66,000				40	
121-		PL	60	186,000	16⅞		10⅞	43-45	
		RPC						45-47	
					Min.	Max.	Min.	Max.	
441-VPC		2"	600	3,309,000	22	35	18 ½	18 ¾	200-350
		3"		5,392,000	22	35	18 ½	18 ¾	250-350
		4"		5,449,000	38 ¼	38 ¼	18 ¾	21 ⅞	375-675
		6"		10,137,000	42	42	18 ¾	21 ⅞	575-900
		8"		19,353,000	46 ¾	47	18 ¾	21 ⅞	700-1,200

\*Varies with assembly and pilot selected, as well as type of connection.

## Dimensions, Specifications and Connections

Model 441-VPC	Pipe Size (Inches)	Connections	Body Material	Diaphragm Size Nominal (Inches)	Diaphragm Housing Material*
Assembly A	2†	Screwed	Cast Iron	12	Ductile Iron (Ribbed)
	2†	Flanged ASME 125 FF			
	3†				
	4				
	6				
	8				
Assembly B	2 & 3†	Flanged ASME 250 RF	Ductile Iron	16	Cast Iron
Assembly C	2 thru 8	Flanged ASME 250 RF			
Assembly E	2 thru 8	Flanged ASME 300 RF	Cast Steel	12	Ductile Iron (Ribbed)
Assembly F		Flanged ASME 300 RF			
Assembly G		2 & 3			

\*The following specifications apply to the materials listed: Cast Iron – ASTM A126 Class B. Ductile Iron – ASTM A395 Gr60–40–18. Cast Steel – ASTM A216 GrWCB. <sup>†</sup>2" and 3" Assemblies A & B use a non-adjusting closing spring.

## Variations

### Model 1100

- Cast iron body (screwed end and ASME 125 FF flanged only)
- Ductile iron body (ASME 250 RF flanged only)
- Cast steel body (ASME 300 RF flanged and 600 RF flanged only)
- Remote control line with restriction
- Double or single seat balanced valves
- Valve materials: Buna-N, Viton, Polyurethane Red, Polyurethane Tan, or Nylon
- Six separate pilot springs are available to provide outlet pressure ranges from 3" w.c. to 100 psig
- 1" valves available with V-Port wings for greater rangeability

### Model 1200

- Ductile iron body (ASME 250 RF flanged only)
- Cast steel body (ASME 300 RF flanged and 600 RF flanged only)
- Outlet pressures from 20 psig to 600 psig
- Control line to body or remote control line with restriction
- Double or single seat balanced valves
- Valve materials: Buna-N, Viton, Polyurethane Red, Polyurethane Tan, or Nylon
- Type 53, 511, or 521 pilots
- 1" valves available with V-Port wing for greater rangeability

### Model 243-PL

- Orifice sizes: 1/4", 3/8", 1/2" (150 psig inlet pressure); 3/4" (125 psig inlet pressure); 1" (60 psig inlet pressure); and 1-1/4" (30 psig inlet pressure)
- Nine separate pilot springs are available to provide outlet pressure ranges from 3-1/2" w.c. to 35 psig
- Valve materials: Buna-N or Viton

### Model 243-RPC

- External control (243-RPC and 243-RPC-A)
- Internal control (243-RPC-B)
- Orifice sizes: 1/4", 3/8", 1/2" (150 psig inlet pressure); 3/4" (125 psig inlet pressure); 1" (60 psig inlet pressure); and 1-1/4" (30 psig inlet pressure)
- Nine separate pilot springs are available to provide outlet pressure ranges from 3-1/2" w.c. to 35 psig
- Valve materials: Buna-N or Viton

### Model 121-PL & 121-RPC

- Separate pilot springs to provide outlet pressure range from 1-1/2" w.c. to 35 psig
- Valve materials: Buna-N or Viton
- V-Port wing for greater rangeability
- Adjustable maximum and minimum travel stops
- Optional travel indicator

# Safety Relief Valves

**Models 1100, 1200, 121-PL,  
121-RPC, 243-PL, 243-RPC, 441-VPC**

## Model 441-VPC

- Available with Type 511, 521, or 53 pilot assemblies
- Remote control line with restriction
- Cast iron, ductile iron, or cast steel bodies
- Valve materials: Buna-N, Viton, Polyurethane Red, or Polyurethane Tan
- 2" screwed or 2", 3", 4", 6", or 8" flanged connection
- Orifice sizes: 1-1/2", 1-3/4", 2-1/8", 3", 4-1/4", 5-3/4", & 7-1/8" double-ported
- Orifices are available with V-Ports valves for greater rangeability

## Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select  
**"Regulators – Pilot-Operated"**

## Overview

Sensus safety relief valves are compact and easy to install. They 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 model 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.

## Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select  
**"Safety Relief Valves"**



## 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 CO<sub>2</sub>, nitrogen, and other inert gases.

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

## 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	16 ¾	6 ½	30-40
	3"			50,200	18 ¼	10	65
	4"			102,000	20	12	110
250-S	2"	3.0	30	69,000	19 ½	6 ½	30-40
	3"			182,000	20 ¾	10	65
	4"			189,300	22 ¼	12	110
257S	2"	2.0	100	320,000	24 ¼	10	95
	3"			578,000	24 ¾	11 ¾	105
	4"			978,000	26 ½	12 ½	125

\* Shipping weight and dimensions vary for flanged models.

† Width does not include bug vent.

## Variations

### 250-DW

- Available with 2" NPT, or 2", 3", or 4" ASME 125 FF flanged connections
- 2-1/2" or 3" valve lift diameter (3" model only)
- Relief ranges from 8 oz. to 55 oz.

### 250-S

- Available with 2" NPT, or 2", 3", or 4" ASME 125 FF flanged connections
- Five separate springs are available to provide a variety of relief pressure adjustment ranges from 1 psig to 80 psig

### 257S

- 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

## Additional Information

Visit [www.sensus.com/gas](http://www.sensus.com/gas) and select **Safety Relief Valves**



## About Sensus

Sensus is a leading utility infrastructure company offering smart meters, communication systems, software and services for the electric, gas, and water industries. Sensus technology helps utilities drive operational efficiency and customer engagement with applications that include advanced meter reading, data acquisition, demand response, distribution automation, home area networking and outdoor lighting control. Customers worldwide trust the innovation, quality and reliability of Sensus solutions for the intelligent use and conservation of energy and water.

Learn more at [www.sensus.com](http://www.sensus.com).

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