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.

Dimensions and Specifications
U.S. Standard Models – General Specifications

<table>
<thead>
<tr>
<th>Meter Model</th>
<th>Dimensions (Inches)</th>
<th>Approximate Weight (Lbs.)</th>
<th>Capacity – SCFH</th>
<th>Maximum W.P</th>
<th>Number of Rev. per Ft³</th>
<th>Stuff Box Shaft Ft/Rev</th>
<th>Meter Connections Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-275*</td>
<td>13¾ 10¾ 8½</td>
<td>14 275 150 175 215 5</td>
<td>8.0 2</td>
<td>10 Lt, 20 Lt, 30 Lt, 1¼”, 1A SPG, #2 SPG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>415**</td>
<td>14¾ 11¾ 9½</td>
<td>21 415 225 260 320 10</td>
<td>6.5 2</td>
<td>20 Lt, 30 Lt, 45 Lt, 1¼”, 1A SPG, #2 SPG</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Metric Models – General Specifications

<table>
<thead>
<tr>
<th>Meter Model</th>
<th>Dimensions (Centimeters)</th>
<th>Approximate Weight (Kg.)</th>
<th>Capacity - Nm³/h</th>
<th>Maximum W.P</th>
<th>Number of Rev. per M³</th>
<th>Stuff Box Shaft M³/Rev</th>
<th>Meter Connections Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR-8</td>
<td>33.8 25.7 21.6</td>
<td>6.4 8 4 5 6</td>
<td>34.47 8.0</td>
<td>0.05</td>
<td>10 Lt, 20 Lt, 30 Lt, 1¼”, 1A SPG, #2 SPG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MR-12</td>
<td>37.0 28.3 23.8</td>
<td>9.5 12 6 7 9</td>
<td>68.95 6.5</td>
<td>0.05</td>
<td>20 Lt, 30 Lt, 45 Lt, 1¼”, 1A SPG, #2 SPG</td>
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<td></td>
</tr>
</tbody>
</table>

* 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

Additional Information
Visit sensus.com/gasproducts
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
• 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

<table>
<thead>
<tr>
<th>Sonix Model</th>
<th>Dimensions (Inches)</th>
<th>Approximate Meter Shipping Weight (Lbs)</th>
<th>Maximum Working Pressure (PSIG)</th>
<th>Low-Flow Cut-Off (CFH)</th>
<th>Minimum Flow ± 2% Accuracy (CFH)</th>
<th>Minimum Flow ± 1% Accuracy (CFH)</th>
<th>Capacity ΔP=0.5” w.c. ± 1% Accuracy (CFH)</th>
<th>Capacity ΔP=2” w.c. ± 1% Accuracy (CFH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 10.25</td>
<td>9.5</td>
<td>6.8</td>
<td>12.0</td>
<td>20</td>
<td>.021</td>
<td>6</td>
<td>25</td>
<td>600</td>
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<tr>
<td>800 11.4</td>
<td>12.6</td>
<td>8.9</td>
<td>28.6</td>
<td>60</td>
<td>.021</td>
<td>8</td>
<td>40</td>
<td>880</td>
</tr>
<tr>
<td>2000 11.4</td>
<td>12.6</td>
<td>8.9</td>
<td>28.6</td>
<td>60</td>
<td>.021</td>
<td>8</td>
<td>40</td>
<td>880</td>
</tr>
<tr>
<td>IQ 250 7.89</td>
<td>9.9</td>
<td>4.39</td>
<td>6.3</td>
<td>10</td>
<td>0.17</td>
<td>10</td>
<td>50</td>
<td>2,000</td>
</tr>
<tr>
<td>IQ 400 7.89</td>
<td>9.9</td>
<td>4.39</td>
<td>6.3</td>
<td>10</td>
<td>0.17</td>
<td>10</td>
<td>50</td>
<td>2,000</td>
</tr>
</tbody>
</table>

Metric Models – General Specifications

<table>
<thead>
<tr>
<th>Sonix Model</th>
<th>Dimensions (Millimeters)</th>
<th>Approximate Meter Shipping Weight (Kg)</th>
<th>Maximum Working Pressure (Bar)</th>
<th>Law-Flow Cut-Off (l/h)</th>
<th>Minimum Flow ± 2% Accuracy (m³/h)</th>
<th>Minimum Flow ± 1% Accuracy (m³/h)</th>
<th>Capacity ΔP=1.25 mbar ± 1% Accuracy (m³/h)</th>
<th>Capacity ΔP=5.0 mbar ± 1% Accuracy (m³/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 260</td>
<td>241</td>
<td>173</td>
<td>5.4</td>
<td>1.4</td>
<td>6</td>
<td>0.16</td>
<td>.70</td>
<td>16</td>
</tr>
<tr>
<td>25 290</td>
<td>320</td>
<td>226</td>
<td>13.0</td>
<td>4.1</td>
<td>57</td>
<td>0.28</td>
<td>1.4</td>
<td>57</td>
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<tr>
<td>57 290</td>
<td>320</td>
<td>226</td>
<td>13.0</td>
<td>4.1</td>
<td>57</td>
<td>0.28</td>
<td>1.4</td>
<td>57</td>
</tr>
<tr>
<td>IQ 250 200.4</td>
<td>253.24</td>
<td>11.39</td>
<td>2.86</td>
<td>10</td>
<td>5</td>
<td>7</td>
<td>N/A</td>
<td>7</td>
</tr>
<tr>
<td>IQ 400 200.4</td>
<td>253.24</td>
<td>11.39</td>
<td>2.86</td>
<td>10</td>
<td>5</td>
<td>7</td>
<td>N/A</td>
<td>7</td>
</tr>
</tbody>
</table>

*At 1.3” w.c.
**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 Dimensions, Specifications and Connections

<table>
<thead>
<tr>
<th>Meter Model</th>
<th>Meter Size</th>
<th>Body Material</th>
<th>Dimensions (Inches)</th>
<th>Approx. Meter Shipping (Lbs.)</th>
<th>Maximum Working Pressure (PSIG)</th>
<th>Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPL-9</td>
<td>2”</td>
<td>ASME 150 Steel</td>
<td>13⅛ 8⅞ 6</td>
<td>35</td>
<td>275</td>
<td>900</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ASME 300 Steel</td>
<td>13⅛ 8⅞ 6½</td>
<td>39</td>
<td>720</td>
<td>1,170,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ASME 600 Steel</td>
<td>14⅞ 8⅜ 6½</td>
<td>43</td>
<td>1,440</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3”</td>
<td>ASME 150 Steel</td>
<td>14⅛ 9⅜ 7⅛</td>
<td>45</td>
<td>275</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ASME 300 Steel</td>
<td>14⅛ 10⅜ 8⅛</td>
<td>58</td>
<td>720</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ASME 600 Steel</td>
<td>15⅛ 11⅛ 8¾</td>
<td>58</td>
<td>1,440</td>
<td></td>
</tr>
</tbody>
</table>

*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 Dimensions, Specifications and Connections

<table>
<thead>
<tr>
<th>Meter Model</th>
<th>Meter Size</th>
<th>Body Material</th>
<th>Dimensions (Inches)</th>
<th>Approx. Meter Shipping (Lbs.)</th>
<th>Working Pressure (PSIG) with ASME</th>
<th>Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-10</td>
<td>2”</td>
<td>ASME 600 Steel</td>
<td>Height Length Depth</td>
<td>11¼ 7⅞ 6¼ 21 275 1,500 2,050 1,300,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3”</td>
<td>ASME 600 Steel</td>
<td>Height Length Depth</td>
<td>10¾ 7¾ 6¼ 19 275 1,500 2,050 1,300,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*With ASME 600 steel construction

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

Additional Information
Visit sensus.com/gasproducts
**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.

<table>
<thead>
<tr>
<th>Meter</th>
<th>Rotor Blade Angle</th>
<th>Maximum Capacity ACFH at 0.25 psig</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-18</td>
<td>45°</td>
<td>18,000</td>
</tr>
<tr>
<td>T-27</td>
<td>30°</td>
<td>35,000</td>
</tr>
<tr>
<td>T-35</td>
<td>45°</td>
<td>60,000</td>
</tr>
<tr>
<td>T-57</td>
<td>30°</td>
<td>14,000</td>
</tr>
<tr>
<td>T-60</td>
<td>45°</td>
<td>27,000</td>
</tr>
<tr>
<td>T-90</td>
<td>30°</td>
<td>57,000</td>
</tr>
<tr>
<td>T-140</td>
<td>45°</td>
<td>90,000</td>
</tr>
<tr>
<td>T-230</td>
<td>30°</td>
<td>230,000</td>
</tr>
</tbody>
</table>

**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.

**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

Visit sensus.com/gasproducts

Additional Information
### Mark II Turbo Meter – 45° Rotor Blade

#### Dimensions, Specifications and Connections Approximate

<table>
<thead>
<tr>
<th>Meter Model</th>
<th>Body Material</th>
<th>Dimensions (Inches)</th>
<th>Approximate Meter Shipping Weight (lbs.)</th>
<th>Minimum Acceptable Spin Time (Sec.)</th>
<th>Maximum Working Pressure (PSIG)</th>
<th>Flow Rate</th>
<th>Ft^2 per Rev of Mech. Output Shaft</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; T-18</td>
<td>Aluminum</td>
<td>11⅜&quot; 14 9</td>
<td>36</td>
<td>70*</td>
<td>1,200</td>
<td>2,339,000</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>ASME 150 Steel</td>
<td>11Ⅲ⁄₄ 15½ 9</td>
<td>105</td>
<td>70*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ASME 300 Steel</td>
<td>12Ⅰ⁄₄ 15½ 10</td>
<td>140</td>
<td>70*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ASME 600 Steel</td>
<td>12Ⅲ⁄₄ 15½ 10⅔</td>
<td>175</td>
<td>70*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6&quot; T-35</td>
<td>Aluminum</td>
<td>14Ⅲ⁄₄ 16 11</td>
<td>75</td>
<td>140</td>
<td>1,750</td>
<td>4,549,000</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>ASME 150 Steel</td>
<td>15Ⅰ⁄₄ 22½ 11</td>
<td>174</td>
<td>140</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ASME 300 Steel</td>
<td>15Ⅲ⁄₄ 22½ 12½</td>
<td>280</td>
<td>140</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
<td>ASME 600 Steel</td>
<td>15½ 22½ 14</td>
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<td>140</td>
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<td></td>
<td></td>
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<tr>
<td>8&quot; T-60</td>
<td>Aluminum</td>
<td>16Ⅲ⁄₄ 21 13½</td>
<td>134</td>
<td>170</td>
<td>3,000</td>
<td>7,798,000</td>
<td>1,000</td>
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<tr>
<td></td>
<td>ASME 150 Steel</td>
<td>17½ 27⅓ 13½</td>
<td>284</td>
<td>180</td>
<td></td>
<td></td>
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<td>ASME 300 Steel</td>
<td>17⅓ 27⅓ 15</td>
<td>430</td>
<td>180</td>
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<td></td>
<td>ASME 600 Steel</td>
<td>18⅓ 27⅓ 16½</td>
<td>596</td>
<td>180</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12&quot; T-140</td>
<td>Ductile Iron</td>
<td>22⅝ 30 19</td>
<td>510</td>
<td>300</td>
<td>5,600</td>
<td>18,196,000</td>
<td>1,000</td>
</tr>
<tr>
<td></td>
<td>ASME 300 Steel</td>
<td>23⅔ 32⅔ 20⅔</td>
<td>790</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td>23½ 32⅔ 22</td>
<td>1,030</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Plastic rotors: T-18 = 50 seconds, T-30 = 90 seconds, T-40 = 170 seconds

### 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)
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.

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.

<table>
<thead>
<tr>
<th>Meter</th>
<th>Rotor Blade Angle</th>
<th>Maximum Capacity ACFH at 0.25 psig</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAT-18</td>
<td>45°</td>
<td>18,000</td>
</tr>
<tr>
<td>AAT-35</td>
<td>45°</td>
<td>27,000</td>
</tr>
<tr>
<td>AAT-60</td>
<td>45°</td>
<td>35,000</td>
</tr>
<tr>
<td>AAT-140</td>
<td>45°</td>
<td>57,000</td>
</tr>
<tr>
<td>AAT-27</td>
<td>30°</td>
<td>60,000</td>
</tr>
<tr>
<td>AAT-57</td>
<td>30°</td>
<td>90,000</td>
</tr>
<tr>
<td>AAT-90</td>
<td>30°</td>
<td>140,000</td>
</tr>
<tr>
<td>AAT-230</td>
<td>30°</td>
<td>230,000</td>
</tr>
</tbody>
</table>
## Auto-Adjust* II Turbo Meter – 45° Rotor Blade Angle Dimensions, Specifications and Connections Approximate

<table>
<thead>
<tr>
<th>Meter Model</th>
<th>Body Material</th>
<th>Dimensions (Inches)</th>
<th>Meter Shipping (Lbs.)</th>
<th>Approx. Min. Accept. Spin Time (Sec.)</th>
<th>Working Pressure (PSIG)</th>
<th>Flow Rate</th>
<th>Ft² per Rev. of Mech. Output Shaft</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; AAT-18</td>
<td>Aluminum</td>
<td>11&quot;½, 14, 9</td>
<td>36</td>
<td>110, 200</td>
<td>175</td>
<td>1,800</td>
<td>2,339,000</td>
</tr>
<tr>
<td></td>
<td>ASME 150 Steel</td>
<td>11½, 15½, 9</td>
<td>105</td>
<td>110, 200</td>
<td>270</td>
<td>3,500</td>
<td>4,549,000</td>
</tr>
<tr>
<td></td>
<td>ASME 300 Steel</td>
<td>12½, 15½, 10</td>
<td>140</td>
<td>110, 200</td>
<td>750</td>
<td>5,400</td>
<td>7,798,000</td>
</tr>
<tr>
<td></td>
<td>ASME 600 Steel</td>
<td>12½, 15½, 10½</td>
<td>175</td>
<td>110, 200</td>
<td>1,500</td>
<td>14,000</td>
<td>18,196,000</td>
</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th>Meter Model</th>
<th>Body Material</th>
<th>Dimensions (Inches)</th>
<th>Meter Shipping (Lbs.)</th>
<th>Approx. Min. Accept. Spin Time (Sec.)</th>
<th>Working Pressure (PSIG)</th>
<th>Flow Rate</th>
<th>Ft² per Rev. of Mech. Output Shaft</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; AAT-27</td>
<td>Aluminum</td>
<td>11½, 14, 9</td>
<td>36</td>
<td>110, 200</td>
<td>175</td>
<td>2,700</td>
<td>3,509,000</td>
</tr>
<tr>
<td></td>
<td>ASME 150 Steel</td>
<td>11½, 15½, 9</td>
<td>105</td>
<td>110, 200</td>
<td>270</td>
<td>5,700</td>
<td>7,408,000</td>
</tr>
<tr>
<td></td>
<td>ASME 300 Steel</td>
<td>12½, 15½, 10</td>
<td>140</td>
<td>110, 200</td>
<td>750</td>
<td>9,000</td>
<td>11,697,000</td>
</tr>
<tr>
<td></td>
<td>ASME 600 Steel</td>
<td>12½, 15½, 10½</td>
<td>175</td>
<td>110, 200</td>
<td>1,500</td>
<td>14,000</td>
<td>29,893,000</td>
</tr>
</tbody>
</table>

*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

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.

Specifications

<table>
<thead>
<tr>
<th>Market Served</th>
<th>Residential</th>
<th>Commercial</th>
<th>Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Environment</td>
<td>Class 1/Div 2</td>
<td>Class 1/Div 1</td>
<td>Class 1/Div 1</td>
</tr>
<tr>
<td>Broadcast Power</td>
<td>2 Watts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency Range</td>
<td>896-960 MHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channels</td>
<td>8000 x 6.25 kHz steps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modulation</td>
<td>Proprietary narrow band</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory</td>
<td>Non-volatile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40° to +150°F (-40° to +65°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>Lithium thionyl chloride (LiSOCl2) batteries in conjunction with a hybrid layer capacitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warranty</td>
<td>20 years, pro-rated</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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

Specifications

<table>
<thead>
<tr>
<th></th>
<th>Dimensions</th>
<th>6.4&quot;W x 4.0&quot;H x 2.8&quot;D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(16.26 cm x 10.16 cm x 7.11 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td>1.5 lbs (.68 kg)</td>
</tr>
<tr>
<td>Color</td>
<td></td>
<td>Grey</td>
</tr>
<tr>
<td>Frequency Range</td>
<td></td>
<td>900-950 MHz</td>
</tr>
<tr>
<td>Channels</td>
<td></td>
<td>8000 x 6.25 kHz steps</td>
</tr>
<tr>
<td>Modulation</td>
<td></td>
<td>Proprietary frequency band</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td></td>
<td>-22° to +185°F (-30° to +85°C)</td>
</tr>
<tr>
<td>Installation Environment</td>
<td></td>
<td>The Smart Gateway is designed for installation on a wall or pipe where it is not subject to water submergence</td>
</tr>
<tr>
<td>Installation Kits</td>
<td></td>
<td>Pipe/wall-mount Wall-mount only Optional multi-cable</td>
</tr>
<tr>
<td>Wiring Requirements</td>
<td></td>
<td>See Installation Guide</td>
</tr>
<tr>
<td>Battery</td>
<td></td>
<td>Single “D” cell lithium thionyl chloride</td>
</tr>
</tbody>
</table>

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.

Specifications

<table>
<thead>
<tr>
<th>Service</th>
<th>Radio-based mobile utility meter reading system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Characteristics</td>
<td>EasyLink Reader in case</td>
</tr>
<tr>
<td></td>
<td>8”W x 12”D x 4”H</td>
</tr>
<tr>
<td></td>
<td>(20.32 cm x 30.48 cm x 10.16 cm)</td>
</tr>
<tr>
<td></td>
<td>(includes magnetic-mount antennas and hard shell carrying case)</td>
</tr>
<tr>
<td>Weight</td>
<td>18 lbs (8.16 kg)</td>
</tr>
<tr>
<td>Temperature</td>
<td>Operating: -4° to +122°F (-20° to +50°C)</td>
</tr>
<tr>
<td></td>
<td>Storage: -40° to +185°F (-40° to +85°C)</td>
</tr>
<tr>
<td>Power</td>
<td>12-volt DC adapter through EasyLink Reader</td>
</tr>
<tr>
<td></td>
<td>7 watts</td>
</tr>
<tr>
<td>Frequency Range</td>
<td>FlexNet RX: 901-932Mhz</td>
</tr>
<tr>
<td></td>
<td>FlexNet TX: 940-960Mhz</td>
</tr>
<tr>
<td></td>
<td>ERT RX: 908-924MHz</td>
</tr>
<tr>
<td></td>
<td>ERT TX: 952-956MHz</td>
</tr>
<tr>
<td>Receiver Sensitivity</td>
<td>Sensitivity depends on modulation and channel BW. For 7FSK in a 25KHz channel, sensitivity spec is -120dBm</td>
</tr>
<tr>
<td>Memory</td>
<td>Non-volatile</td>
</tr>
<tr>
<td>Approvals</td>
<td>Licensed operation</td>
</tr>
<tr>
<td>Software</td>
<td>EasyLink WorkBook Application and EasyLink WorkSpace Application</td>
</tr>
</tbody>
</table>

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.

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

Detailed specifications
Available on product data sheets
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: ¼”, ½”, ¾” or 1”
• Five springs available to provide five different outlet pressure ranges from 4” w.c. to 2 psig

* Straight body only

Dimensions, Specifications and Connections

<table>
<thead>
<tr>
<th>Regulator</th>
<th>Model</th>
<th>Working Pressure (PSIG)</th>
<th>Capacity (SCFH)</th>
<th>Height</th>
<th>Dimensions (Inches)</th>
<th>Depth</th>
<th>Shipping Weight (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>496</td>
<td>10, 20</td>
<td>1.0</td>
<td>125</td>
<td>2,250</td>
<td>7.2</td>
<td>7.2</td>
<td>8.3</td>
</tr>
<tr>
<td>143-80</td>
<td>1, 2, 2HP</td>
<td>0.5</td>
<td>125</td>
<td>2,400</td>
<td>7.7</td>
<td>8.4</td>
<td>10.43</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>0.5</td>
<td>60</td>
<td>2,300</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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°F 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: 1 1/4", 1 1/2", 2" NPT or 2" flanged and 2" flanged 10" long body construction
• Twelve springs available to provide a variety of outlet pressure ranges

Dimensions, Specifications and Connections

<table>
<thead>
<tr>
<th>Regulator Model</th>
<th>Maximum Pressure (PSIG)</th>
<th>Maximum Capacity (SCFH)</th>
<th>Height</th>
<th>Dimensions (Inches)</th>
<th>Shipping Weight† (Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>243-12-1</td>
<td>125</td>
<td>27,000</td>
<td>16 3/4&quot;</td>
<td>15 1/4&quot;</td>
<td>14</td>
</tr>
<tr>
<td>243-12-2</td>
<td>75</td>
<td>13,150</td>
<td>10 3/16&quot;</td>
<td>14 1/2&quot;</td>
<td>*</td>
</tr>
<tr>
<td>243-12-6</td>
<td>60</td>
<td>7,900</td>
<td>10 3/16&quot;</td>
<td>14</td>
<td>*</td>
</tr>
<tr>
<td>243-8-1</td>
<td>125</td>
<td>24,000</td>
<td>16 3/4&quot;</td>
<td>15 1/4&quot;</td>
<td>14</td>
</tr>
</tbody>
</table>

*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°F to +150°F. Sensus 121 and 122 regulators are not recommended for buried service.

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

Additional Information
Visit sensus.com/gasproducts
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

---

**Dimensions, Specifications and Connections**

<table>
<thead>
<tr>
<th>Regulator Model</th>
<th>Pipe Size (Inches)</th>
<th>Inlet Pressure (PSIG)</th>
<th>Capacity (SCFH)</th>
<th>Dimensions (Inches)</th>
<th>Shipping Weight (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Max.</td>
<td>Min.</td>
<td>Max.</td>
<td>Height*</td>
</tr>
<tr>
<td>121-12</td>
<td>1½ 2 2½</td>
<td>60</td>
<td>3,000</td>
<td>95,000</td>
<td>16½</td>
</tr>
<tr>
<td>121-8 &amp; 8HP</td>
<td>¾ x 1 x 1 1¼ x 1½</td>
<td>60</td>
<td>1,000</td>
<td>44,000</td>
<td>8 15% 16% 8HP 21</td>
</tr>
<tr>
<td>121-8</td>
<td>1½ 2 2½</td>
<td>60</td>
<td>8,500</td>
<td>71,500</td>
<td>16½ 16%</td>
</tr>
<tr>
<td>121-8HP</td>
<td>1½ 2 2½</td>
<td>60</td>
<td>16,500</td>
<td>68,000</td>
<td>21% 21% 21% 10% 10% 10% 10%</td>
</tr>
<tr>
<td>121-12</td>
<td>3 4</td>
<td>40</td>
<td>35,000</td>
<td>200,000</td>
<td>19% 21</td>
</tr>
<tr>
<td>121-16</td>
<td>3 4</td>
<td>40</td>
<td>9,700</td>
<td>260,000</td>
<td>22% 21</td>
</tr>
<tr>
<td>122-8</td>
<td>1 1½ 2 2½</td>
<td>15</td>
<td>1,000</td>
<td>11,500</td>
<td>13½ 10% 10% 10% 15</td>
</tr>
<tr>
<td>122-8</td>
<td>1¼ 1½ 2 2½</td>
<td>15</td>
<td>1,500</td>
<td>15,800</td>
<td>13½ 10% 10% 10% 15</td>
</tr>
<tr>
<td>122-12</td>
<td>1½ 1½ 2 2½</td>
<td>15</td>
<td>3,000</td>
<td>20,000</td>
<td>15% 14 14</td>
</tr>
<tr>
<td>122-12</td>
<td>2 2½ 15</td>
<td>15</td>
<td>4,000</td>
<td>40,000</td>
<td>15% 14 14</td>
</tr>
<tr>
<td>122-12</td>
<td>2 2½ 15</td>
<td>15</td>
<td>4,500</td>
<td>48,000</td>
<td>15% 14 14</td>
</tr>
</tbody>
</table>

*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.

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 ¼” 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

<table>
<thead>
<tr>
<th>Regulator</th>
<th>Model</th>
<th>Maximum Working Pressure (PSIG)</th>
<th>Maximum Capacity (MSCFH)</th>
<th>Dimensions (Inches)</th>
<th>Shipping Weight † (Lbs.)</th>
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<tbody>
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</tr>
</tbody>
</table>

*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 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.

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

<table>
<thead>
<tr>
<th>Regulator Model</th>
<th>Pipe Size (Inches)</th>
<th>Maximum Working Pressure (PSIG)</th>
<th>Maximum Capacity (MSCFH)</th>
<th>Dimensions (Inches)</th>
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<td>9½</td>
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</table>

* Shipping weight varies for flanged models  
** Varies with diaphragm case size

**Additional Information**

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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°F 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: ¼", 1" and 1¼"
• 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

Additional Information
Visit sensus.com/gasproducts

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)
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 reseat, 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°F 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

<table>
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<th>Safety Relief Valve Model</th>
<th>Size</th>
<th>Relief Pressure (PSIG)</th>
<th>Maximum Discharge Capacity (SCFH)</th>
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<td>978,000</td>
<td>26½</td>
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</table>

* 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.

Regulator Compatibility

<table>
<thead>
<tr>
<th>Model</th>
<th>Variations</th>
<th>Body Style</th>
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</thead>
<tbody>
<tr>
<td>243-8</td>
<td>-1, -2</td>
<td>1 ¼&quot;, 1½&quot;, 2&quot;</td>
</tr>
<tr>
<td>243-12</td>
<td>-1, -2</td>
<td>1 ¼&quot;, 1½&quot;, 2&quot;</td>
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</tbody>
</table>

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.