

# Accurate Measurement and Control Solutions for the Propane Industry



Technology for an intelligent world

## Accurate Measurement and Control Solutions for Propane from Invensys Energy Metering, a Leader in the Global Energy Industry

### We help you gain a competitive advantage.

- **Individual measurement points**

- ...allow you to manage deliveries and inventory, and reduce your number of delivery vehicles

- Schedule your deliveries ahead of time
    - No more emergency dispatches to will-call customers

- ...help your customers overcome fears of large bulk delivery billing

- Offer actual usage billing by the month
    - Provide the flexibility of estimated or actual billing
    - Provides you and your customers confidence with a means to track usage through actual meter reading

- **Meters are built and calibrated to accurately measure propane**

- ...requiring no complicated formulas or correction factors (at 11" w.c. delivery)

- ...offering reliable measurement and many years of trouble-free service

- ...allowing flexible installation options with 3/4" NPT or top connections (in all industry standard ferrule sizes)

- **Meters compatible with most automatic meter reading (AMR) devices**

- ...eliminate high meter reading costs

- ...take the place of unreliable customer reading responses

- **Invensys Energy Metering propane meters are easy to install and replace**

- ...with new universal mounting brackets

- Factory-installed, saving you installation time
    - Easily mount to wall or post with flexible mounting arrangements and extra room to access bolts
    - Heavy-duty – stronger construction ensures a secure meter installation
    - Can replace existing mounting brackets (requires pressure leak testing of meter)

- ...saving you time and money

- With our single-joint modular design, you add new life to worn meters with a one-step module replacement, reducing your repair inventory and standardizing repairs

- **Regulator options offer flexibility and convenience**

- ...available in angle or straight bodies

- ...inlet and outlet pressure taps with easy frontal access put an end to difficult, hard-to-connect taps

- ...143-6 models available for applications requiring increased flow capacity

- **Regulators are built to strict safety and quality requirements, with the user in mind**

- ...providing you peace of mind with overpressure protection

- ...offering convenient access to new inlet and outlet pressure taps on the front of the regulator

- ...submitted to Underwriters Laboratories for approval

- **Reliable meters and regulators**

- ...provide you peace-of-mind – they're built by a proven leader that has been in the energy industry since 1886

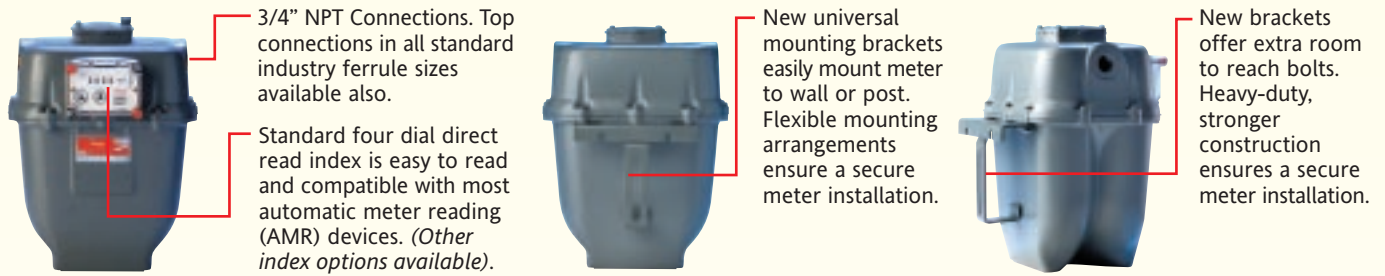
- ...are maintenance-free\*

- ...packaged together, affording you a single source solution

\*Inspection of regulators must be conducted with frequency determined by severity of service and applicable laws and regulations.



## The S-275 Meter



### • Meter Pressure Multiplier

- If the delivery pressure to the meter is 11" w.c., no correction to the meter index volume readings are necessary.
- If the delivery pressure to the meter is 2 psig, index readings must be multiplied by 1.1075 to convert the volumes to equivalent 11" w.c. pressure values. That is,  
 $Q (@ 11" \text{ w.c., pressure}) = 1.1075 \times Q (@ 2 \text{ psig pressure})$

### • Meter Capacity Ratings

- @ 11" w.c. - The propane service capacity rating for the S-275 Meter at 1/2 w.c. differential and ANSI B109.1 base conditions (base pressure of 14.73 psia) is 155 scfh. This capacity rating converted to 11" w.c. base pressure is the same, rounded to the nearest 5 cfh. Therefore, the meter capacity rating to the 11" w.c. base pressure conditions above is,

**$C (@ 11" \text{ w.c. base pressure}) = 155 \text{ scfh}$**

Using an energy conversion factor of 2500 BTU/ft<sup>3</sup>, this capacity can be expressed as,

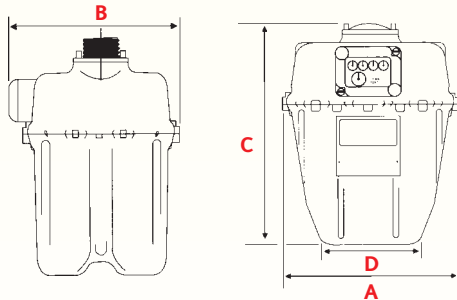
**$C (@ 11" \text{ w.c. base pressure}) = 387,500 \text{ BTU/hr}$**

- @ 2 psig - The capacity rate at the meter (i.e. dial rate) for a meter delivery pressure of 2 psig:

**$C (@ 2 \text{ psig meter delivery pressure and } 1/2" \text{ w.c. differential}) = 147 \text{ acfh or } 407,800 \text{ BTU/hr}$**

Base (standard) Conditions for 11" w.c. Base Pressure: Temperature = 60 deg F  
 Atmospheric Pressure = 14.48 psia  
 Base Pressure = 11" w.c. (14.88 psia)

Other Definitions: Q = volume flow rate (cfh)  
 C = meter flow rate @ 1/2" w.c. differential (capacity)

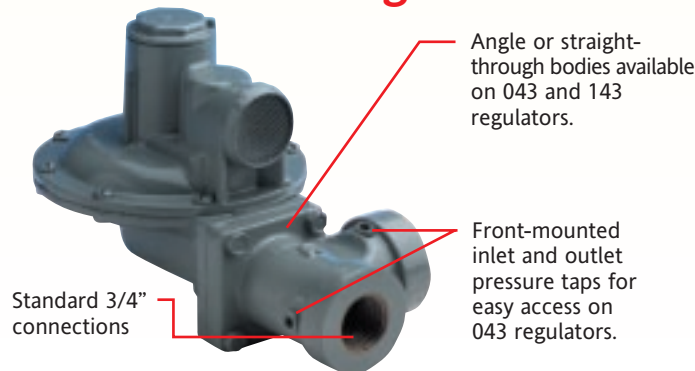


Meter Model	A	B	C	D
S-275	10 1/8"	8 1/2"	13 1/4"	5 1/4"

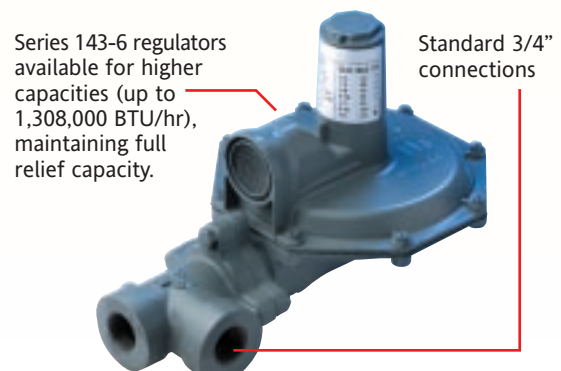
**Note:**

The S-275 has a 5 psig maximum allowable working pressure (MAOP). The meter must be handled and mounted in an upright position. A leak test using an internal pressure of 10 psig shall be performed on any meter where hanger bracket mounting bolts have been loosened or removed. See Invensys Energy Metering bulletin M-1002 for additional information on residential meters. See Invensys Energy Metering bulletin MP-1002A for part numbers, illustrations and descriptions.

## 043 and 143-6 Regulators



**Model 043 angle-body regulator**



**Model 143-6 angle-body regulator**

Regulator specifications on back cover.

## Propane Regulator Specifications

Model 043 Propane Capacity in BTU/hr		
Inlet Pressure	Outlet Pressure	
	11" w.c.	2 psig
5 psig	475,000	200,000
10 psig	710,000	315,000

Capacities are based upon a 2" w.c. droop for 11" w.c. set point at 100% capacity, and 10% droop for 2 psig set point at 100% capacity.

Model 043 Spring Ranges		
Outlet pressure	Spring	Spring Range
11" w.c.	Green	6" - 14" w.c.
2 psig	Black	1 - 2 psig

Model 043 Maximum Inlet Pressure Rating		
Body	Orifice Size	Maximum Inlet Pressure
3/4" x 3/4"	3/16"	60 psig

### Full Capacity Internal Relief

With an orifice size of 3/16", the internal relief valve-equipped model 043 regulator will provide full open capacity relief with inlet pressure up to 20 psig.

Model 143 Propane capacity in BTU/hr	
Inlet Pressure	Propane capacity BTU/hr
5 psig	882,000
7.5 psig	1,103,000
10 psig	1,308,000

Capacities provided are for both 11" w.c. and 2 psig set pressure. They are based upon a 2" w.c. droop for 11" w.c. set point at 100% capacity, and 10% droop for 2 psig set point at 100% capacity.

Model 143 Spring Ranges		
Outlet pressure	Spring	Spring Range
11" w.c.	Green	6" - 14" w.c.
2 psig	Black and White	1 - 2 psig

Model 143 Maximum Inlet Pressure Rating		
Body	Orifice Size	Maximum Inlet Pressure
3/4" x 3/4"	3/16"	125 psi

### Full Capacity Internal Relief

With an orifice size of 1/4", the internal relief valve-equipped model 143 regulator will provide full open capacity relief with inlet pressures up to 60 psig.

See Invensys Energy Metering bulletin R-1300 for additional 043 regulator specifications.

See Invensys Energy Metering bulletin RM-1300 for detailed 043 regulator installation and maintenance instructions, and part numbers, descriptions and illustrations.

See Invensys Energy Metering bulletin R-1303 for additional 143-6 regulator specifications.

See Invensys Energy Metering bulletin RM-1306 for detailed 143-6 regulator installation and maintenance instructions, and part numbers, descriptions and illustrations.

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