In-Line Flow Sensors are averaging Pitot tubes that provide accurate and convenient flow rate sensing for schedule 40 pipe. When purchased with a Dwyer® Capsuhelic® differential pressure gage of appropriate range, the result is a flow indicating system delivered off the shelf at an economical price.

Pitot tubes have been used in flow measurement for years. Conventional pitot tubes sense velocity pressure at only one point in the flowing stream. Therefore, a series of measurements must be taken across the stream to obtain a meaningful average flow rate. The Dwyer® flow sensor eliminates the need for “traversing” the flowing stream because of its multiple sensing points and built-in averaging capability.

The Series DS-300 flow sensors are designed to be inserted in the pipeline through a compression fitting. They are furnished with instrument shut-off valves on both pressure connections. Valves are fitted with 1/8” female NPT connections. Accessories include adapters with 1/4” SAE 45° flared ends compatible with hoses supplied with the Model A-471 Portable Capsuhelic® gage kit. Standard valves are rated at 200 psig (13.7 bar) and 200°F (93.3°C). Where valves are not required, they can be omitted at reduced cost. Series DS-300 flow sensors are available for pipe sizes from 1” to 10”.

DS-400 Averaging Flow Sensors are quality constructed from extra strong 3/4” dia. stainless steel to resist increased forces encountered at higher flow rates with both air and water. This extra strength also allows them to be made in longer insertion lengths up to 24 inches (61 cm). All models include convenient and quick-acting quarter-turn ball valves to isolate the sensor for zeroing. Process connections to the valve assembly are 1/8” female NPT. A pair of 1/8” NPT X 1/4” SAE 45° flared adapters are included, compatible with hoses used in the Model A-471 Portable Capsuhelic® Gage Kit. Supplied solid brass mounting adapter has a 3/4” dia. compression fitting to lock in required insertion length and a 3/4” male NPT thread for mounting in a Threaded Branch Connection.

Prices — Select model with suffix which matches pipe size
Model DS-300-1” .......................................................... $147.00
Model DS-300-1-1/4” ..................................................... 147.00
Model DS-300-1-1/2” .................................................... 147.00
Model DS-300-2” ........................................................... 147.00
Model DS-300-2-1/2” .................................................... 147.00
Model DS-300-3” ........................................................... 170.00
Model DS-300-4” ........................................................... 201.00
Model DS-300-6” ............................................................ 255.00
Model DS-300-8” ............................................................ 323.00
Model DS-300-10” ......................................................... 380.00
Model DS-400-6” ............................................................ 300.00
Model DS-400-8” ............................................................ 368.00
Model DS-400-10” .......................................................... 430.00
Model DS-400-12” .......................................................... 452.00
Model DS-400-14” .......................................................... 532.00
Model DS-400-16” .......................................................... 582.00
Model DS-400-18” .......................................................... 625.00
Model DS-400-20” .......................................................... 671.00
Model DS-400-24” .......................................................... 762.00

OPTIONS & ACCESSORIES
DS-300 or DS-400 Less Valves. To order, add suffix -LV ........ -13.50
A-160, Threaded Branch Connection, 3/8” NPT, forged steel, 3000 psi .................. $15.50
A-161, Brass Bushing, 1/4” x 3/8” ..................................... 3.90
How To Order

First determine the pipe size into which the flow sensor will be mounted and designate the size as a suffix to Model DS-300. For example, a flow sensor to be mounted in a 2” pipe would be a Model No. DS-300-2”.

For non-critical water and air flow monitoring applications, the chart below can be utilized for ordering a stock Capsuhelic® differential pressure gage for use with the DS-300 flow sensor. Simply locate the maximum flow rate for the media being measured under the appropriate pipe size and read the Capsuhelic® gage range in inches of water column to the left. The DS-300 sensor is supplied with installation and operating instructions, Bulletin F-50. It also includes complete flow conversion information for the three media conditions shown in the chart below. This information enables the user to create a complete differential pressure to flow rate conversion table for use with the DS-300 flowsensor. Simply locate the maximum flow rate for the media being measured under the appropriate pipesize and read the desired flow rate in inches of water column from the chart. The exact range gage required can easily be determined. You may wish to order the adjustable signal flag option for the Capsuhelic® gage to provide an easily identified reference point for the proper flow rate.

Capsuhelic® gages with special ranges and/or direct reading scales in appropriate flow units are available on special order for more critical applications. Customer supplied data for the full scale flow (quantity and units) is required along with the differential pressure reading at that full flow figure. Prior to ordering a special Capsuhelic® differential pressure gage for flow read-out, we recommend you request Bulletin F-50 to obtain complete data on converting flow rates of various media to the sensor differential pressure output. With this bulletin and after making a few simple calculations, the exact range gage required can easily be determined.

### Model A-471 Portable Kit

The Dwyer® Series 4000 Capsuhelic® differential pressure gage is ideally suited for use as a read-out device with the DS-300 Flow Sensors. The gage may be used on system pressures of up to 500 psig even when the flow sensor differential pressure to be read is less than 0.5” w.c. With accuracy of ±3% of full scale, the Capsuhelic® gage can be used in ambient temperatures from 32 to 200°F (0 to 93.3°C). Zero and range adjustments are made from outside the gage. The standard gage with a die cast aluminum housing can be used with the flow sensor for air or oil applications. For water flow measurements, the optional forged brass housing should be specified. The Capsuhelic® gage may be panel or surface mounted and permanently plumbed to the flow sensor if desired. The optional A-610 pipe mounting bracket allows the gage to be easily attached to any 1-1/4” - 2” horizontal or vertical pipe.

For portable operation, the A-471 Capsuhelic® Portable Gage Kit is available complete with tough polypropylene carrying case, mounting bracket, 3-way manifold valve, two 10’ high pressure hoses, and all necessary fittings. See pages 10 and 11 for complete information on the Capsuhelic® gage. For order information, please call your nearest office.

### Call To Order:

U.S. Phone 219-879-8000 • U.K. Phone (+44) (0)1494-461707 • Australia Phone (+61) (0) 2 4272 2055