

System Design Checklist:

- ✓ Pipeline size and schedule
- ✓ Fluid temperature range
- ✓ Line pressure range
- ✓ Chemical compatibility
- ✓ Fluid viscosity
- ✓ Flow rate: min., max., and nominal

Signet System Selection

There are 3 components to a Signet flow system. First, select a sensor which meets your application. Consider the material options best suited for your temperature, pressure, and chemical conditions. Next, find the installation fitting to match your piping system. Signet fittings are specially designed so

they position the sensor at the ideal spot inside the pipe to provide the proper output signal. Finally, determine the functional needs of your system with your engineering staff, or your knowledgeable Signet representative. Whether you are batching, recording, or just monitoring the flow rate, Signet has an instrument for you.

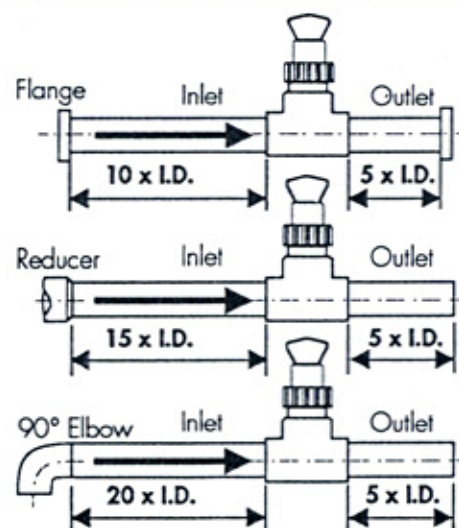
Signet Advantage

Insertion flow sensing technology has many advantages: low cost per sensing point, simple installation and maintenance, and excellent operating range and linearity characteristics. A large factor in the performance of any system is the location of the sensor in the pipe. Generally, the goal is to locate the sensor where the flow profile is fully developed turbulent. In engineering

terminology, Signet systems require a **Reynolds number of 4500** or greater. Reynolds numbers are a combination of the pipe size, the flow rate, and the fluid viscosity. The basic guidelines you should follow: Signet sensors work best in water or water-like fluids. The greater the viscosity, the faster the flow must be to reach a Reynolds number of 4500.

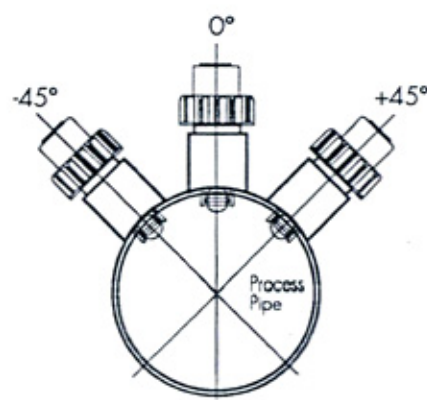
Location of Fitting

Always locate the fitting in a spot where you have the longest upstream straight run. This allows the flow profile plenty of time to settle into the fully developed, turbulent range. Industry standards usually require a minimum of 10 pipe diameters upstream and 5 pipe diameters downstream. Major obstructions that interrupt the flow such as pumps, valves, etc. require considerably longer straight runs for the flow profile to recover. Careful selection of this location will pay off in optimum system performance.



Sensor Position

The angle of the sensor in a horizontal pipe run has an effect on the rotor. If your pipe is 100% full, with no air pockets, a 12:00 (0°) position lets the rotor spin freely with almost zero friction. If you have air pockets that cannot be bled off, angle the sensor up to 45° to be sure the rotor is in the fluid. The natural trade-off may be some sacrifice at the low end of the operating range, where friction slows the rotor. Of course, the whole issue of angle is resolved if you select a vertical section of pipe where the flow is upward.



Sensor Specifications

General Data

Linearity: $\pm 1\%$ of full range
 Repeatability: $\pm 0.5\%$ of full range
 Wetted materials: See ordering information

Maximum pressure/temperature ratings

With polypropylene sensor housing:

- 180 psi/12.5 bar max. @ 68 °F/20 °C
- 25 psi/1.7 bar max. @ 194 °F/90 °C

With PVDF sensor housing:

- 200 psi/14 bar max @ 68 °F/ 20 °C
- 25 psi/1.7 bar max @ 212 °F/100 °C

Standard Sensors, 515/3-8510-XX

Flow range: 1 to 20 ft/s
 0.3 to 6 m/s

Pipe range:

- 515 sensor 0.5 to 36 in./
15 to 900 mm
- 3-8510-XX sensor 0.5 to 4 in./
15 to 100 mm

Cable length: 25 ft/7.6 m, can splice
up to 200 ft/60 m max.,

Cable type: 2-conductor twisted-pair
w/shield (Belden 8451)

Extended Flow Range Sensors, 2535/3-8511-XX

Flow range: 0.3 to 20 ft/s,
0.1 to 6 m/s

Pipe range:

- 2535 sensor 0.5 to 36 in./
15 to 900 mm
- 3-8511-XX sensor 0.5 to 4 in./
15 to 100 mm

Cable length: 25 ft/7.6 m, can splice
up to 1000 ft/300 m

Cable type: 2-conductor twisted-pair
w/shield (Belden 8451)

Electrical

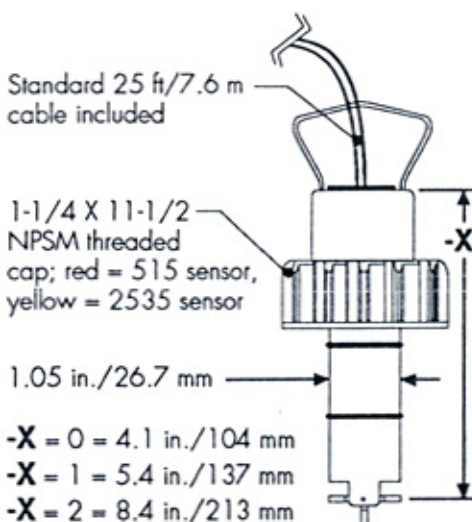
Standard Sensors, 515/3-8510-XX

Supply voltage: None - self powered
 Output type: Sine wave proportional to
flow velocity

Extended Flow Range Sensors, 2535/3-8511-XX

Supply voltage: 5 to 24 VDC
 Supply current: 10 mA max.
 Output type: Open collector transistor,
sinking
 Output current: 10 mA max.

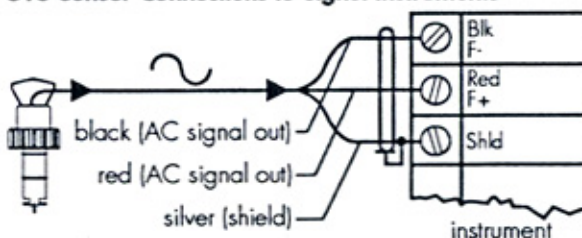
515/2535 Dimensions



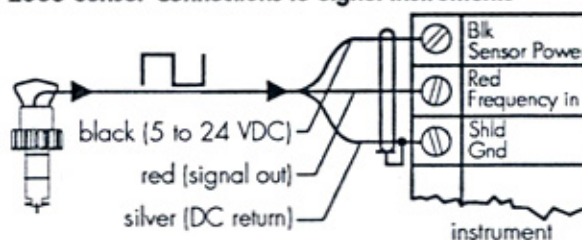
The last digit (X) in the sensor's part number represents the sensor's overall length

Wiring

515 Sensor Connections to Signet Instruments



2535 Sensor Connections to Signet Instruments



- Some Signet instruments require the 3-2507.278 input module, consult your Signet dealer for details.
- DC sensor power supplied from Signet instrument.

Specifications subject to change without notice