



TECHNICAL SPECIFICATIONS Doppler Flow Switch

SCOPE:

This specification covers a non-intrusive, ultrasonic Doppler-type flow switch as manufactured by Greyline Instruments Inc., Largo, Florida / Long Sault, Ontario. The instrument shall provide for flow control at adjustable flow velocities.

A. PERFORMANCE SPECIFICATIONS

1. The flow switch shall operate with a clamp-on ultrasonic sensor mounted externally on any contiguous pipe material that conducts sound including: carbon steel, stainless steel, ductile iron, copper, FRP, PVC, ABS, or cement lined pipe from ½" to 180" (12.5 mm to 4.5 m) diameter.
2. Shall operate on liquids with entrained particles or gases of 100 microns or larger and minimum concentrations of 75 ppm.
3. The control ON and OFF set-points shall be independently adjustable for flow rates between 0.25 ft/sec (0.076 m/sec) and 10 ft/sec (3 m/sec).

B. TRANSDUCER (SENSING ELEMENT)

1. The flow sensor shall be single-head, ultrasonic in a stainless steel housing. It shall be installed on the outside of a pipe without interrupting flow. The sensor shall be capable of continuous operation at temperatures from -40°F to 300°F (-40°C to 150°C), and to withstand accidental submersion pressures to 10 psi.
2. Manufacturer's recommended coupling compound and stainless steel pipe clamp shall be included.
3. Shall connect to separate electronics housing with 20 ft (6m) shielded coaxial cable pair with waterproof, potted bond to the Sensor head.
4. Shall be capable of extending sensor cable up to 500 ft (152m) without adjustment and with no reduction in performance or signal strength.

C. ELECTRONICS/CONTROLLER

1. Shall be housed in a wall-mount watertight, dust tight NEMA4X (IP 66) polycarbonate enclosure with a gasketed shatter proof window.

2. Have a power input of 100–240VAC 50-60Hz (2.0 W Max.)
3. Shall include one 5 ampere DPDT control relay.
4. Shall operate in Hi or Lo alarm mode, or with separate ON/OFF set points individually adjustable between 0.25 and 10 ft/sec (0.076 to 3 m/sec).
5. The controller shall include an indicator LED to display relay status and a LED bargraph to display flow rate.
6. The controller shall include relay time delay adjustment from 0 to 80 seconds.
7. The flow switch electronics/controller shall operate at temperatures from -10° to 140°F (-23° to 60°C).
8. Shall be designed for maximum RFI rejection.

D. OPTIONAL FEATURES FOR INSERTION IN SPECIFICATION AS REQUIRED

1. Have a power input of 12-24VDC (3.0 W Max.).
2. Have 50 ft (15 m) continuous length shielded coaxial pair sensor cable.
3. Have 100 ft (30 m) continuous length shielded coaxial pair sensor cable.
4. Have a Cable Junction Box and up to 500 ft (152 m) total length cable that shall be shielded coaxial pair and installed in conduit for mechanical protection.

E. MANUFACTURER

The flow switch shall be a Model DFS 5.1 Doppler Flow Switch as manufactured by Greyline Instruments Inc., and warranted against defects in materials and workmanship for one year.