

The Gems Sensors & Controls (Gems) story began over 50 years ago in 1955 when the company founder, Edward H. Moore, developed a level indicator in his basement. It was patented in 1959. Along with an associate, Gordon Seigle, he established the Gems Company (GS for Gordon Seigle, EM for Ed Moore). Gems' first commercial success was a bilge switch for the small boating industry. Rapid acceptance of Gems' products for marine and industrial applications led to continual expansion of facilities and staff - from a 6,500 sq. ft. building to a facility of 60,000 sq. ft. in Plainville, Connecticut, USA. Today, Gems designs and manufactures a broad portfolio of liquid level, flow and pressure sensors, miniature solenoid valves, and pre-assembled fluidic systems. Gems is a division of Danaher Corporation, a



Gems FS-600 No-Moving-Parts Flow Switch



FS-600 - No-Moving-Parts Flow Switch

The FS-600 series uses proven thermal dispersion technology to provide a robust no moving parts flow switch even without filtration. The solid state sensor is compatible with both conductive and non-conductive fluids. Suitable for fluids with particulates or slurries, and is immune to changes in media viscosity. The straight through switch is designed for a long life and can be mounted in any orientation and can handle a wide range of flow rates. No moving parts means years of reliable service.

The operating principle of the FS-600 flow switch is based on the calorimetric principle. The FS-600 uses the cooling effect of a flowing fluid or gas to monitor the flow rate. The amount of thermal energy that is removed from the tip determines the local flow rate. This temperature-based operating principle can reliably sense the flow of virtually any liquid or gas.

The sensor tip of the FS-600 flow sensor houses two transistors and a heater element. One transistor is located in the sensor tip, closest to the flowing fluid. This transistor is used to detect changes in the flow velocity of the liquid. The second transistor is bonded to the cylindrical wall and is a reference for ambient fluid conditions.

fortune 500 company with a presence around the globe. Gems Sensors & Controls has manufacturing facilities in North America, Europe, and Asia and supports sales, engineering and service offices around the world.



In order to make the sensor sense flow, it is necessary to heat one of the transistors in the probe. When power is applied, the tip of the probe is heated. As the fluid starts to flow, heat will be carried away from the sensor tip. Cooling of the first transistor is a function of how fast heat is conducted away by the flowing liquid. The difference in temperature between the two transistors provides a measurement of fluid velocity past the sensor probe. When fluid velocity is high, the temperature differential is small. As fluid velocity decreases, there is an increase in the temperature differential.

Specifications

Flow Rate Settings: 0.1 GPM to 11 GPM (0.5 LPM to 41 LPM)

Port Size: 1/2" to 1-1/2" (NPT or G thread)

Setting Type: Fixed

Wetted Materials:

Probe - 303 Stainless Steel

Flow Body - 316 Stainless Steel

Operating Pressure: (Max.) - 363 PSIG (25 bar)

Operating Temperature: -14° F to 140°F (-10°C to 60°C)

Power on Delay Time: 15 Seconds Max (Output On)

Response Time: 10 Seconds Max.

Operating Voltage: 24 Vdc or 24Vac +/- 15%

Current Consumption: Less than 50mA

Switch Contact Rating: 30Vac@45mA, 42Vdc @65mA

Switch Logic: Normally Open

Ingress Protection: IP65

Set point Accuracy: 15%

Set point Differential: 20% (Max.)

Electrical Termination: M12 x 1 (4-Pin) (1 meter cable included)

Approvals: CE



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