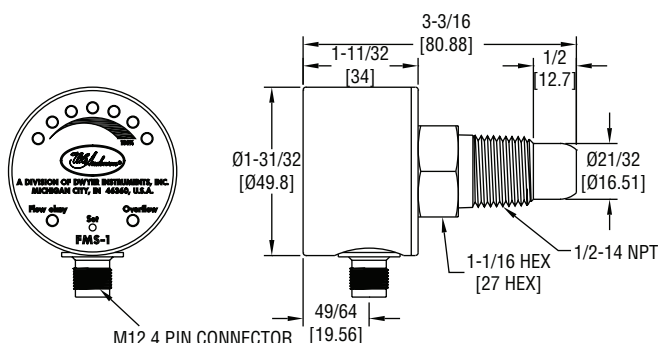




## Series FMS Flow Sensor

### Specifications - Installation and Operating Instructions



**Series FMS Flow Sensor FMS-1** is for applications requiring RELATIVE measurement and set-point of flow rate. This means that the actual velocity of the flow or the quantitative measurement in GPM is not known and is not important. What is important is that the set-point can be set as a "percentage of" or "relative to" the full flow rate. No other flow sensor could do it this simply or effectively.

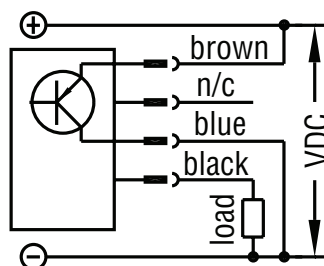
#### HOW IT OPERATES

The model FMS uses a set of flashing LED's to indicate flow. All 7 of the LED's will remain lit to show 100% flow rate. The flow OK light will also be lit showing that the established full flow rate is what is flowing in the pipe. When you initially set the flow rate, it will mark that as your 100% mark. If your flow reduces below the 50% mark, you will get an alarm from the sensor.

If flow increases beyond the initially established flow rate, the "Overflow" LED light will come on. It is then the operator's decisions as to whether to ignore it if too much flow is not a problem and may actually choose this flow rate to be the new "normal" flow rate. This can be done by just depressing the "set" button until all LED's flash. The FMS has now recalibrated itself to the new flow rate. The "flow ok" LED will again light and the set-point will automatically be re-set at the 50% of flow point.

#### INSTALLATION

1. Install the flow sensor by inserting the 1/2 MNPT threaded sensor tip into a tapped pipe or T fitting. Use Pipe Tape or Plumbers Putty on NPT threads to aid in sealing. Tighten firmly.
2. Apply power to the flow sensor by connecting the Brown wire to +24VDC supply and the Blue wire to common. The Black wire is now connected to the + side of your load. The white wire is not used.



**NOTE:** Be sure that the common (ground) of the flow sensor and the LOAD are the same.

3. Turn on your flow and allow the flow to reach full normal flow rate. Then depress the set button on the face of the flow sensor and hold while the flow sensor ranges itself to the full flow rate or 5 ft/second whichever is less. All of the 7 LED's will flash when auto scaling is complete.

#### SPECIFICATIONS

- Service:** Water and water based liquids/oil and oil-based liquids.
- Wetted Materials:** Sensor Head: 303 SS
- Low Flow Set Point:** Auto set @ 50% / Adjustable via "set" push button.
- Set Point Range:** 5.0 ft/sec (0-150 cm/sec).
- Repeatability:** < 0.5%.
- Hysteresis:** 10% of set-point value typical.
- Medium Temperature Limits:** -4 to 176°F (-20 to 80°C.)
- Pressure:** 450 psi (30 bar).
- Response Time:** 25 seconds (typical).
- Supply Voltage:** 20-30 VDC (short circuit protected).
- Switching Current:** < 200mA.
- Power Consumption:** 6 W max.
- Electical Connection:** M12 male socket 4pin +2m cable with M12 connector and pigtail.
- Process Connection:** 1/2" Male NPT Thread.
- Enclosure Rating:** IP 65 (NEMA 4).
- Initial Operation:** After 15 seconds.
- Switch Type:** PNP N.O. (switch closed with flow), PNP N.C. (switch open with flow).
- Weight:** .55 lb (.25 kg.)

4. Now release the set button and the flow sensor will set a set point at 50% of the full value set above. Should you wish to set the set point at a different LED setting (or "relative" rate of flow) simply depress the set button repeatedly in short intervals, and the set-point will change clockwise to any LED you wish to choose. When the correct LED is flashing your new set point is established.
5. The Over range light (Green LED) will come on if your already established full flow rate were to increase. If you wish to rescale to the new flow rate, simply depress the set button again as you did in Step 3.0 and re set your set-point if desired, using the same procedure as in item 4.0 above.

**NOTE:** Use caution while installing the flow sensor so as not to damage the tip of the sensor. The electronics are embedded just behind the tip of the flow sensor and denting or bottoming out of the tip could cause damage.

Maintenance is not required as the flow sensor has no moving parts. However, should the sensor become coated after a period of time in operation due to water or media conditions, simply wipe the probe tip with a soft cloth and alcohol.

#### MAINTENANCE

The Series FMS Flow Sensor is not field serviceable and should be returned if repair is needed (field repair should not be attempted and may void warranty). Be sure to include a brief description of the problem plus any relevant application notes. Contact customer service to receive a return goods authorization number before shipping.