

# Датчики потока RFO-PW

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# Flow Rate Monitoring for Potable Water – RFO-PW Type

## ► 4.5 to 24 VDC Pulsed Output

FDA-compliant rotor and bodies for compatibility with potable water applications. Gems Sensors popularized the RotorFlow® sensor's paddlewheel design by combining high visibility rotors with solid-state electronics that are packaged into compact, panel mounting housings. They provide accurate flow rate output with integral visual confirmation...all with an unprecedented price/performance ratio. The RFO-PW Potable Water RotorFlow® sensor features a VDC pulsed output for potable water applications where a flow rate monitoring sensor is needed.

## Typical Applications

- Water Purification/Dispensing Systems • Chemical Injection Systems

## Specifications

|                                    |                                                                                                                    |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Wetted Materials</b>            |                                                                                                                    |
| <b>Body</b>                        | 316 Stainless Steel or Polypropylene (Hydrolytically Stable, Glass Reinforced)                                     |
| <b>Rotor Pin</b>                   | Ceramic                                                                                                            |
| <b>Rotor</b>                       | Molded Nylon/FDA Epoxy                                                                                             |
| <b>Lens</b>                        | Polysulfone <sup>1</sup>                                                                                           |
| <b>O-Ring</b>                      | EPDM                                                                                                               |
| <b>Low Flow Adaptor</b>            | Glass Reinforced Polypropylene                                                                                     |
| <b>Operating Pressure, Maximum</b> | <b>Optional SS Face Plate</b> 500 PSI                                                                              |
|                                    | <b>Stainless Steel Body</b> 200 PSIG (13.8 bar) @ 70°F (21°C), 100 PSI (6.9 bar) Max. @ 212°F (100°C) <sup>1</sup> |
|                                    | <b>Polypropylene Body</b> 100 PSIG (6.9 bar) @ 70°F (21°C), 40 PSI (2.8 bar) Max. @ 180°F (82°C)                   |
| <b>Operating Temperature,</b>      | <b>Stainless Steel Body</b> -20°F to 212°F (-29°C to 100°C)                                                        |
|                                    | <b>Polypropylene Body</b> -20°F to 180°F (-29°C to 82°C)                                                           |
| <b>Electronics</b>                 | 150°F (65°C) Ambient                                                                                               |
| <b>Input Power</b>                 | 4.5 VDC to 24 VDC                                                                                                  |
| <b>Output Signal</b>               | 4.5 VDC to 24 VDC Pulse. (Sourcing)<br>Pulse Rate Dependent on Flow Rate, Port Size and Range.                     |
| <b>Current Consumption</b>         | 8 mA, No Load                                                                                                      |
| <b>Current Source Output, Max.</b> | 20 mA                                                                                                              |
| <b>Frequency Output Range</b>      | 15 Hz (Low Flow) to 225 Hz (High Flow)                                                                             |
| <b>Accuracy</b>                    | See Table Below                                                                                                    |
| <b>Electrical Termination</b>      | 22 AWG PVC-Jacketed, 24" Cable. Color Coded:<br>Red = +VDC; Black = Ground; White = Signal Output                  |

Notes:

1. For higher pressure/temperature ratings, stainless face plates are available. Consult factory.

## How To Order

Specify Part Number based on desired body material and port size.

| Body Material   | Port Size NPT | Flow Ranges – GPM |             | Flow Ranges – LPM |               | Part Number   |
|-----------------|---------------|-------------------|-------------|-------------------|---------------|---------------|
|                 |               | Low*              | Standard    | Low*              | Standard      |               |
| Polypropylene   | .25"          | 0.1 to 1.0        | 0.5 to 5.0  | 0.1 to 1.0        | 1.9 to 18.9   | <b>247436</b> |
|                 | .50"          | 1.5 to 12.0       | 4.0 to 20.0 | 5.7 to 45.4       | 15.1 to 75.7  | <b>155483</b> |
| Stainless Steel | .50"          | 1.5 to 12.0       | 4.0 to 20.0 | 5.7 to 45.4       | 15.1 to 75.7  | <b>261017</b> |
|                 | .75"          | —                 | 5.0 to 30.0 | —                 | 18.9 to 113.6 | <b>261018</b> |
|                 | 1.00"         | —                 | 8.0 to 60.0 | —                 | 30.2 to 227.1 | <b>261019</b> |

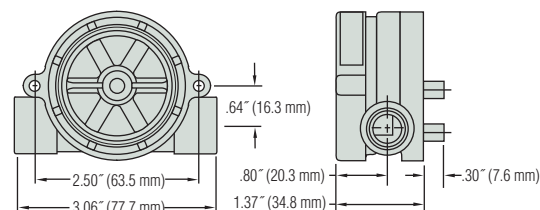


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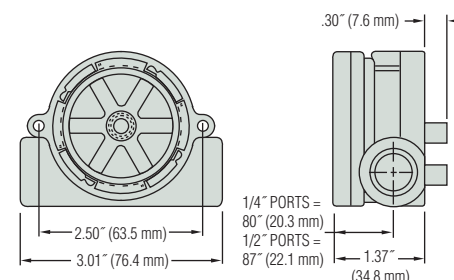


## Dimensions

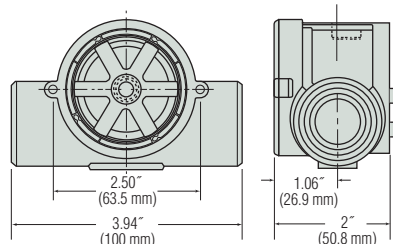
### Polypropylene Bodies



### Stainless Steel Bodies - .50" Ports



### Stainless Steel Bodies – .75" and 1.00" NPT Ports



## High Visibility Blue Rotor

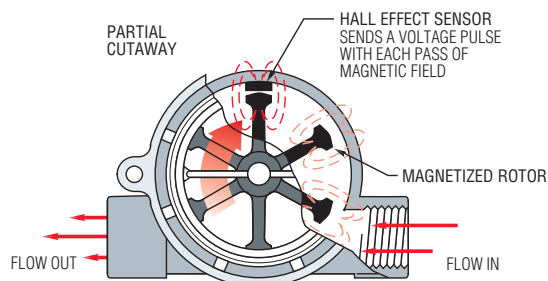
FDA-compliant molded nylon and epoxy RotorFlow® indicator for compatibility with potable water applications.



Note: Improved accuracy can be achieved by calibrating the individual RFO unit.

\*With use of Low Flow Adapter supplied.  
See Page F-8 for more information.

## Operating Principle



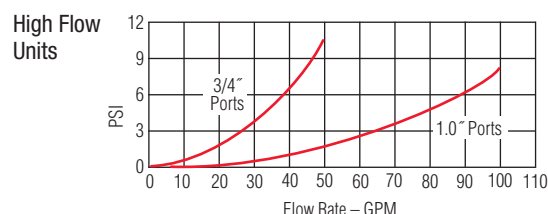
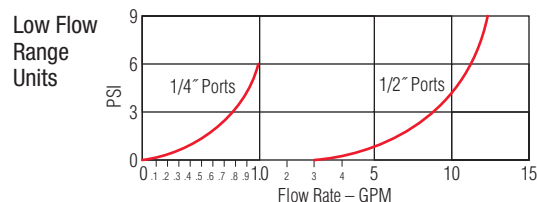
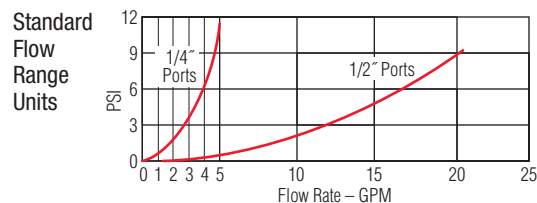
1. As liquid passes through the RotorFlow® body, the magnetic rotor spins at a rate proportional to flow. This causes a series of magnetic fields (the rotor vanes) to excite the Hall Effect sensor, producing a series of voltage pulses.
2. The output pulses (RFO) are at the same voltage level as the input (4.5 - 24 VDC) with a frequency proportional to the flow rate. The output signal can be utilized by digital rate meters totalizers or other electronic controllers. RFA Type analog sensors condition the output signal to 0-10 VDC.
3. RotorFlow® Indicators may be mounted with flow entering either port. Performance is optimized by positioning ports at the top of the unit, in a horizontal plane.

## Frequency vs. Flow Rate-Typical

| Flow Rate (GPM) | Output Frequency – Hz          |                    |      |                    |      |     |
|-----------------|--------------------------------|--------------------|------|--------------------|------|-----|
|                 | RFO Model – Based on Port Size |                    |      |                    |      |     |
|                 | .25"                           | .25" with Adapter* | .50" | .50" with Adapter* | .75" | 1"  |
| 0.10            |                                | 13                 |      |                    |      |     |
| 0.25            |                                | 41                 |      |                    |      |     |
| 0.50            | 15                             | 90                 |      |                    |      |     |
| 0.75            |                                | 137                |      |                    |      |     |
| 1.0             | 34                             | 186                |      |                    |      |     |
| 1.5             | 54                             |                    |      | 17                 |      |     |
| 2.0             | 73                             |                    |      | 25.9               |      |     |
| 2.5             | 90                             |                    |      | 34                 |      |     |
| 3.0             | 110                            |                    |      | 43                 |      |     |
| 3.5             | 128                            |                    |      |                    |      |     |
| 4.0             | 148                            |                    | 34   | 60                 |      |     |
| 4.5             | 168                            |                    |      |                    |      |     |
| 5.0             | 185                            |                    | 44.8 | 76.7               | 24   |     |
| 6.0             |                                |                    | 55   | 94                 |      |     |
| 7.0             |                                |                    | 65.9 | 111                |      |     |
| 8.0             |                                |                    | 76   | 129                |      | 22  |
| 9.0             |                                |                    | 87.5 | 147                |      |     |
| 10              |                                |                    | 99   | 165                | 61   | 30  |
| 11              |                                |                    | 110  | 185                |      |     |
| 12              |                                |                    | 122  | 204                |      |     |
| 13              |                                |                    | 135  |                    |      |     |
| 14              |                                |                    | 147  |                    |      |     |
| 15              |                                |                    | 158  |                    | 93   | 43  |
| 16              |                                |                    | 170  |                    |      |     |
| 17              |                                |                    | 183  |                    |      |     |
| 18              |                                |                    | 195  |                    |      |     |
| 19              |                                |                    | 207  |                    |      |     |
| 20              |                                |                    | 220  |                    | 128  | 60  |
| 25              |                                |                    |      |                    | 163  | 74  |
| 30              |                                |                    |      |                    | 196  | 91  |
| 35              |                                |                    |      |                    |      | 107 |
| 40              |                                |                    |      |                    |      | 123 |
| 45              |                                |                    |      |                    |      | 137 |
| 50              |                                |                    |      |                    |      | 153 |
| 55              |                                |                    |      |                    |      | 170 |
| 60              |                                |                    |      |                    |      | 185 |

\*Low Flow Adapter

## Pressure Drop-Typical

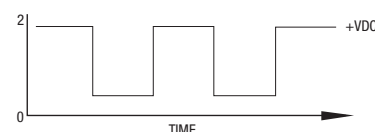


## Signal Output

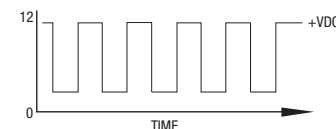
Output signal for RFO Types is an on/off pulse of the DC voltage supplied to the unit, it is compatible with all digital logic families. Input voltage range is 4.5 to 24 VDC. Frequency of the output pulse is proportional to the flow rate and ranges from approximately 15 Hz at low flow to 225 Hz at high flow.

Example:

**Low Flow**



**High Flow**



Note: Consult factory for flow rate/frequency curves.

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