

+GF+ SIGNET 2100 Turbine Sensor



Features

- End connector kits for rigid or flexible tubing (1/4", 3/8", 1/2") or 1/2 in. pipe
- Unaffected by mounting angles
- PVDF & ceramic wetted parts provide superior chemical compatibility
- Low and High Flow rate capability
- Both clear and opaque fluids
- Compatible with most +GF+ SIGNET flow instrumentation

Application

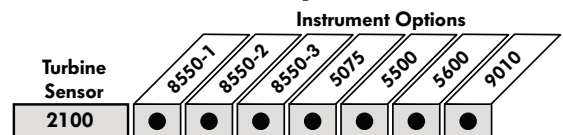
- Chemical Addition
- Textiles
- High-purity Chemical Dispensing
- Water Addition
- Fertigation
- Dosing
- Pump Protection

Description

Engineered specifically for small diameter applications, the +GF+ SIGNET 2100 Turbine Flow Sensor provides accurate readings in two flow ranges: 0.1 to 1 gpm and 0.8 to 10 gpm (metric conversion: 0.3 to 3.8 lpm and 3 to 38 lpm). The injection-molded PVDF body and ceramic bearings provide excellent chemical compatibility and long service in dosing and batching applications.

Union piping and tubing connections along with removable NEMA 4X electronics allow for easy assembly and field replaceability. The 2100 can be used with 1/4", 3/8" or 1/2" tubing, or 1/2" piping for simple installation. End connections are available in PVDF for hose barsbs, flare ends, fusion socket or IR/butt fusion, and in PVC for socket or NPT thread.

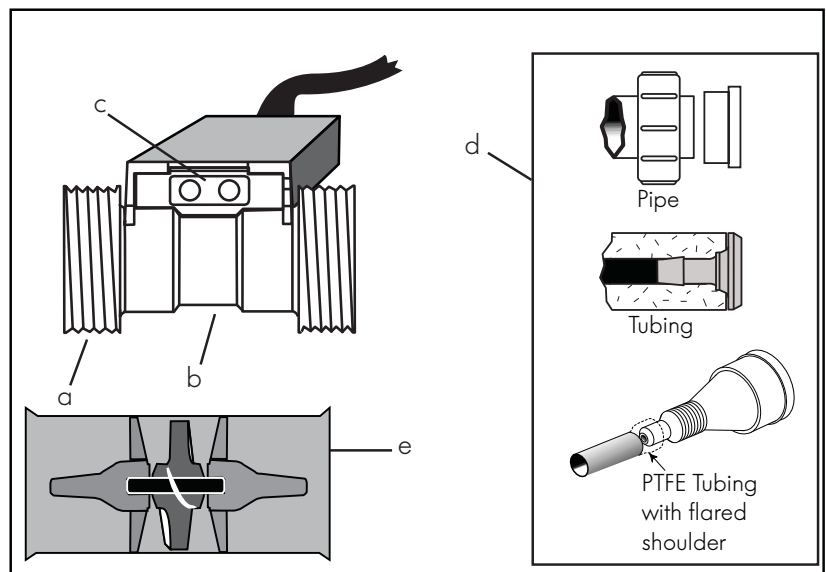
Options



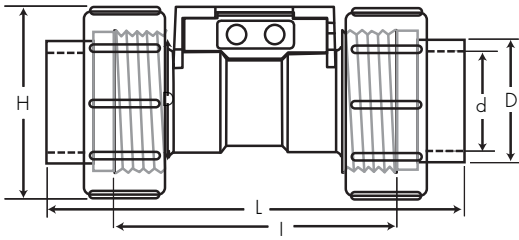
Technical Features

- Union end connections with multiple material/mechanical options
- PVDF body with integrated flow conditioners
- Removable/sealed electronics module
- End connections for rigid pipe, flexible tubing, or PTFE tubing
- Tangential shaft/pivot bearing design reduces wear and ensures accurate readings

Note: Use hose barbs for flexible tubing. Use flare ends for rigid tubing.



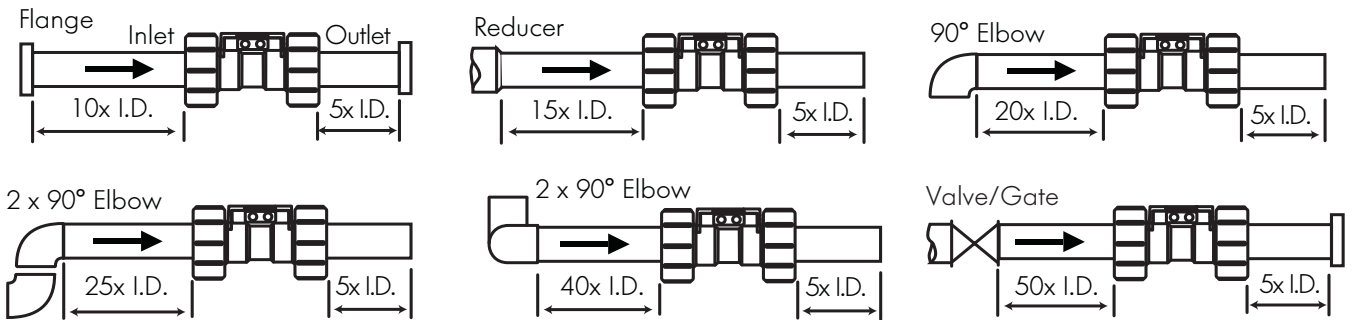
Dimensions



	Inch	D		L		I		H	
	Size	mm	inch	mm	inch	mm	inch	mm	inch
All Sockets	1/2	43	1.69	102	4.0	64	2.5	47	1.85
Butt Fusion/IR	1/2	43	1.69	170	6.7	64	2.5	47	1.85
1/4" Barb	n/a			124	4.9	64	2.5	47	1.85
3/8" Barb				127	5	64	2.5	47	1.85
1/2" Barb				132	5.2	64	2.5	47	1.85
1/4" Flare				191	7.5	64	2.5	47	1.85
3/8" Flare				191	7.5	64	2.5	47	1.85
1/2" Flare				191	7.5	64	2.5	47	1.85

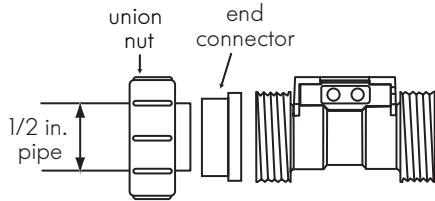
Installation

Six common installation configurations are shown here as guidelines to help you select the best location in your piping system for a turbine flow sensor. Always maximize distance between sensors and pump sources. Sensor may be mounted in any orientation.

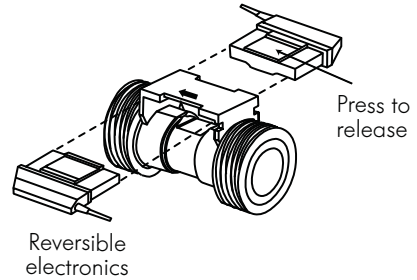


For 1/2 in. pipe installation using:

- Fusion Socket (PVDF)
- Butt Fusion/IR (PVDF)
- Solvent Socket (PVC) - Metric & SCH 80

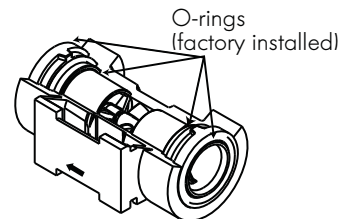
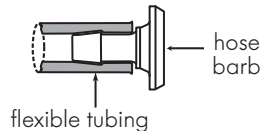


Reversible electronics allow right or left wiring orientation



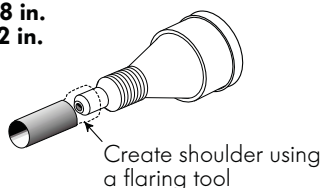
Hose Barb connector for flexible tubing:

- 1/4 in.
- 3/8 in.
- 1/2 in.



Flare end connector for rigid tubing:

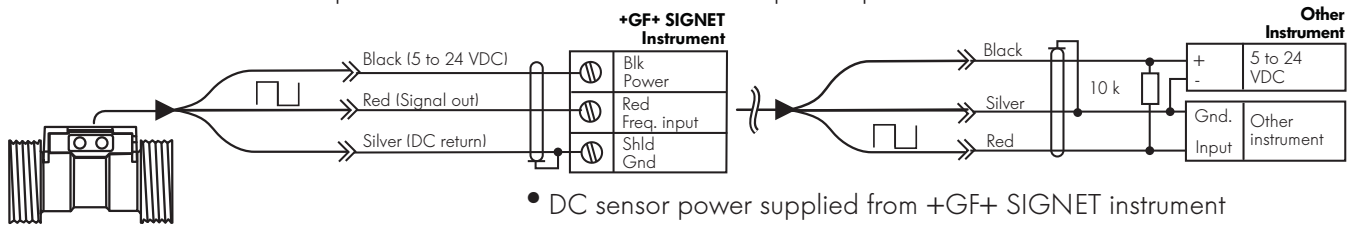
- 1/4 in.
- 3/8 in.
- 1/2 in.



Wiring

Use the 2535/2536 input card setting for +GF+ SIGNET Inteltek-Pro controllers.

- Use 2-conductor twisted pair shielded cable for sensor cable splices up to 1000 ft. max.



Technical Data

General

Flow range:	-L = 0.38 to 3.8 lpm (0.10 to 1 gpm) -H = 3 to 38 lpm (0.8 to 10 gpm) -H (with Flare) = 3 to 27 lpm (0.8 to 7 gpm)
Pipe size:	DN 15 (1/2 in.)
Hose size:	1/2 Zoll, 3/8 Zoll, 1/4 Zoll (1/2 in., 3/8 in., 1/4 in.)
Linearity:	±3% of reading
Repeatability:	±0.5% of reading
Shipping Weight:	151 g (0.33 lbs)

Materials

Sensor body/rotor:	PVDF
Shaft/bearings:	Ceramic
O-rings:	-1 = FPM, -2 = EPDM
Electronics box:	PBT (polybutylene terephthlate) overmolded EVA (ethylene vinyl acetate)

Cable type:	PVC jacketed, 2 conductor twisted pair with shield (22 AWG)
Cable length:	4.6 m (15 ft.)

Electrical

Power:	5 to 24 VDC @ 1.5 mA max. Reverse polarity protected
Output:	Open collector, sinking, max 30 mA

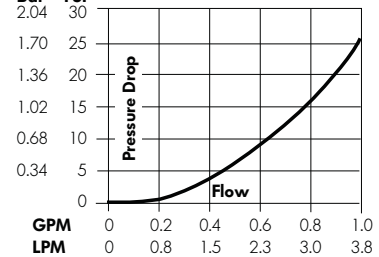
Environmental

Maximum media press./temp.:	PVDF: 16 bar @ 20°C, 9.3 bar @ 70 °C (232 psi @68°F, 130 psi @ 158°F)
Operating temp.:	-20° to 70°C (-4° to 158°F)
Storage temp.:	-15° to 80°C (5° to 176°F)
Relative humidity:	0 to 95%, non-condensing

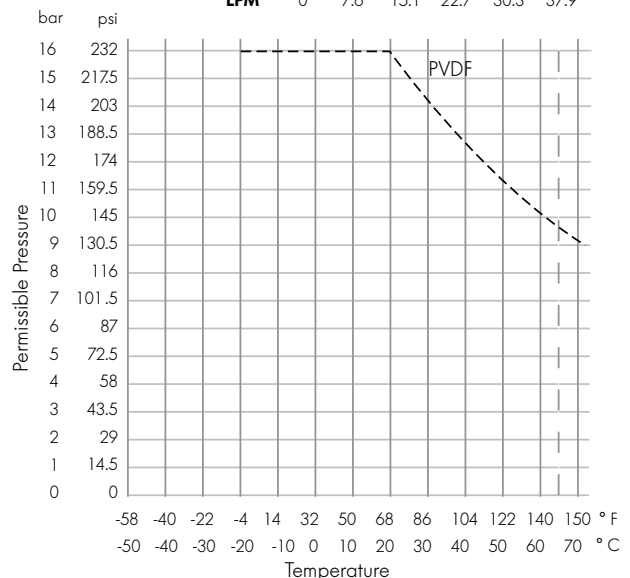
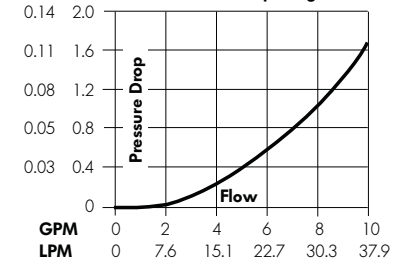
Standards and Approvals

- CE
- Manufactured under ISO 9001 and ISO 14001

Pressure Drop - Low Flow



Pressure Drop - High Flow



Sensor Model

High Flow Sensors 3-2100-1H, 2H

Connection Option

d20/DN15 1/2 in. Pipe
1/2 in. Tubing
Flare 1/2 in.

Low Flow Sensors 3-2100-1L, 2L

d20/DN15 1/2 in. Pipe
1/4 in. Tubing
3/8 in. Tubing
1/2 in. Tubing
Flare 1/4 in.
Flare 3/8 in.
Flare 1/2 in.

-----K-Factors-----

Pulses/U.S. Gallon	Pulses/Liter
1725	456
1700	449
1750	462
12250	3236
12800	3382
13000	3435
12500	3303
12500	3303
12500	3303
12500	3303

Ordering Information

Mfr. Part No.	Code	Description
Turbine Body:		
3-2100-1L	159 000 001	Turbine Lo Flow PVDF/FPM
3-2100-2L	159 000 003	Turbine Lo Flow PVDF/EPDM
3-2100-1H	159 000 002	Turbine Hi Flow PVDF/FPM
3-2100-2H	159 000 004	Turbine Hi Flow PVDF/EPDM

Replacement Body:

3-2100.390-1L	159 000 015	Turbine Lo Flow with FPM O-rings
3-2100.390-1H	159 000 016	Turbine Hi Flow with FPM O-rings
3-2100.390-2L	159 000 017	Turbine Lo Flow with EPDM O-rings
3-2100.390-2H	159 000 018	Turbine Hi Flow with EPDM O-rings

Electronics:

3-2100.390	159 000 014	Electronics Module
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Connector Kits:

3-2100-31	159 000 005	Hose Barb connector kit, PVDF, 1/2" (1-hose barb + 1-ring nut)
3-2100-32	159 000 006	Hose Barb connector kit, PVDF, 3/8" (1-hose barb + 1-ring nut)
3-2100-33	159 000 007	Hose Barb connector kit, PVDF, 1/4" (1-hose barb + 1-ring nut)
3-2100-34	159 000 008	Fusion Socket connector, PVDF, DN 15 1/2" (1-Fusion socket + 1-ring nut)
3-2100-35	159 000 009	Butt Fusion/IR connector kit, PVDF, DN 15 1/2" (1-IR socket + 1-ring nut)
3-2100-36	159 000 010	Metric Socket connector kit, PVC, DN 15 1/2" (1-solvent socket + 1-ring nut)
3-2100-37	159 000 011	SCH 80 Socket connector kit, PVC, 1/2" (1-solvent socket + 1-ring nut)
3-2100-38	159 000 012	NPT Thread Socket connector kit, PVC, 1/2" (1-threaded socket + 1-ring nut)
3-2100-40	159 000 633	Flare End, 1/2" (2-flare ends + 2-flare nuts + 2-ring nuts)
3-2100-41	159 000 634	Flare End, 3/8" (2-flare ends + 2-flare nuts + 2-ring nuts)
3-2100-42	159 000 635	Flare End, 1/4" (2-flare ends + 2-flare nuts + 2-ring nuts)

Accessories

Mfr. Part No.	Code	Description
O-rings:		
1220-0018	159 000 019	O-rings FPM (2 required per sensor)
1224-0018	159 000 020	O-rings EPDM (2 required per sensor)

Engineering Specifications

- The flow sensor shall use a turbine-type flow-sensing technology.
- The flow sensor shall be manufactured under ISO 9001 and ISO 14001 certified processes.
- The sensor shall be compatible with clean process liquids regardless of fluid color.
- The sensor shall operate with a power input of 5 to 24 VDC @ 1.0 mA max.
- The sensor shall provide an output signal via an open collector NPN transistor sinking a maximum of 30 mA.
- Output shall be via a twisted pair, foil-shielded cable with drain wire. Supplied cable shall be at least 4.6 m (15 ft.) long, with a maximum allowable length of 300 m (1000 ft).
- Linearity of the output signal with respect to flow rate shall be $\pm 3\%$ of reading.
- Measurement repeatability shall be $\pm 0.5\%$ of reading.
- The sensor shall be available in versions that accommodate nominal flow rates from 0.1 to 1.0 or 0.8 to 10 gpm.
- The sensor body shall be made of PVDF that shall accommodate up to 16 bar @ 20°C (232 psi @ 68°F)
- The sensor rotor shall be made of PVDF.
- The sensor bearings and shaft shall be made of ceramic.
- The sensor shall provide 1/2" true union end connections for attachment to a rigid pipe, or 1/4", 3/8", or 1/2" hose barb connections for attachment to flexible tubing.
- The sensor shall meet appropriate CE standards.
- The flow sensor shall be +GF+ SIGNET 2100 Turbine Flow Sensor.