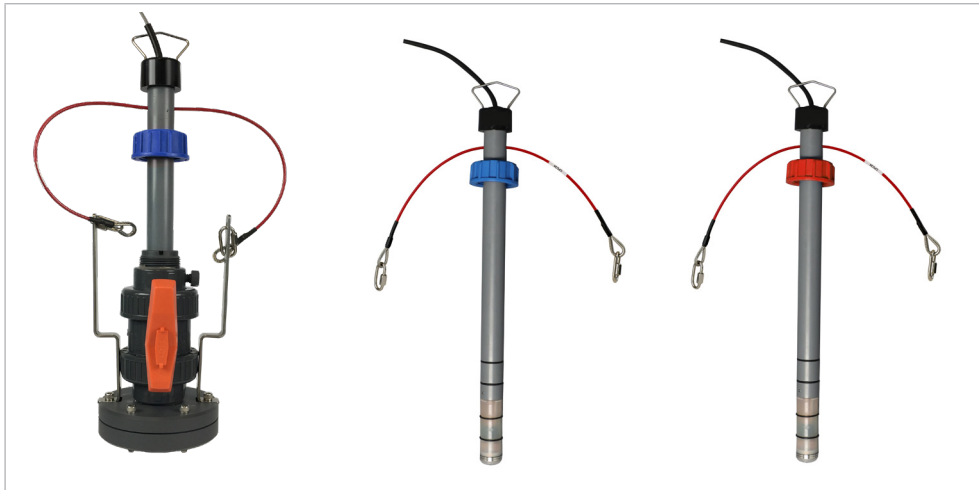


Type 2551 Wet-Tap Magmeter Flow Sensor



Note: Image for illustration only. Red cap indicates Frequency/Digital (S³L) output; blue cap indicates 4–20 mA output.

Product description

The Type 2551 Wet-Tap Magmeter is an insertion-style magnetic flow sensor with no moving parts. The ball valve enables safe and controlled pressure relief when the sensor is retracted during operation, without interrupting the process flow. The patented* sensor design is available in the corrosion resistant material combination PVDF/Hastelloy-C to provide long-term reliability with minimal maintenance costs.

Utilizing the comprehensive line of GF installation fittings, sensor alignment and immersion depth are already predefined. These versatile, simple-to-install sensors deliver accurate flow measurement over a wide dynamic range in pipe sizes ranging from DN15 to DN900 (½ to 36 in.), satisfying the requirements of many diverse applications.

Type 2551 Magmeters offer the output options of frequency/digital (S³L) or 4 to 20 mA. The frequency or digital (S³L) sensor output can be used with GF's line of transmitters (9900 and 9950-XX), while the 4 to 20 mA output can be used for a direct input to PLCs, chart recorders, etc. An additional benefit is the empty pipe detection which features a zero flow output when the sensors are not completely wetted.

Features

- Test certificate included
- Patented Magmeter technology*
- No moving parts
- Bi-directional flow
- Empty pipe detection
- Installs into pipe sizes DN15 to DN900 (0.5 to 36 in.)
- Operating range 0.05 to 10 m/s (0.15 to 33 ft/s)
- Reliable measurement even in dirty liquids
- Frequency/digital (S³L) output (with red cap), or 4 to 20 mA output (with blue cap)
- No pressure drop
- Corrosion resistant materials PVDF with Hastelloy-C

Applications

- Aquariums, Life Support
- Commercial Pools, Spas
- Ship Building (Marine)
- Chemical Processing
- Water and Wastewater Monitoring
- Metal Recovery and Landfill Leachate
- Commercial Pools, Spas, and Aquariums
- Irrigation
- Scrubber Control
- Neutralization Systems
- Industrial Water Distribution



* U.S. Patent No: 7,055,396 B1

Technical Details

General

Operating Range	0.05 to 10 m/s	0.15 to 33 ft/s
Pipe Size Range	DN15 to DN900	½ in. to 36 in.
Linearity	± 1% reading plus 0.1% of full scale	
Repeatability	±0.5% of reading @ 25 °C (77 °F)	
Minimum Conductivity	20 µS/cm	

Wetted Materials

Sensor Body/Electrodes and Grounding Ring	-V3, -V4, -V5: PVDF/Hastelloy-C	
O-rings	FKM (standard) EPR (EPDM), FFKM (optional)	

Electrical

Power Requirements	4 to 20 mA	24 VDC ±10%, regulated, 22.1 mA max.
	Frequency	5 to 24 VDC ±10%, regulated, 15 mA max.
	Digital (S ³ L)	5 to 6.5 VDC, 15 mA max.
Reverse Polarity and Short Circuit Protected		
Cable Length	7.6 m (25 ft), can be extended up to 300 m (1,000 ft)	
Current Output 4 to 20 mA	Loop Accuracy	32 µA max. error (25 °C @ 24 VDC)
	Isolation	Low Voltage < 48 VAC/DC from electrodes and auxiliary power
	Maximum Cable	300 m (1,000 ft)
	Error Condition	22.1 mA
	Max. Loop Resistance	300 Ω
	Compatible with PLC, PC or similar equipment	
	4 to 20 mA load needed	
Frequency Output	Output Modes	Frequency
	Max. Pull-up Voltage	30 VDC
	Max. Current Sink	50 mA, current limited
	Maximum Cable	300 m (1,000 ft)
	Compatible with type type 9900, 9950	
Digital S ³ L Output	Serial ASCII, TTL level 9600 bps	
	Compatible with type type 9900, 9950, 0486 Profibus Concentrator	

Max. Temperature/Pressure Rating

Storage Temperature	-20 °C to 70 °C	-4 °F to 158 °F
Relative Humidity	0 to 95% (non-condensing)	
Operating Temperature (with Wet-Tap Valve)	Ambient	-10 °C to 70 °C 14 °F to 158 °F
	Media	0 °C to 65 °C 32 °F to 149 °F
Maximum Operating Pressure	-V3, -V4, -V5	6.9 bar (100 psi) @ 0 °C (32 °F)
		1.4 bar (20 psi) @ 65 °C (149 °F)
Max. Wet-Tap Sensor Removal Rating	1.7 bar (25 psi) @ 22 °C (72 °F)	

See Temperature and Pressure graphs for more information.

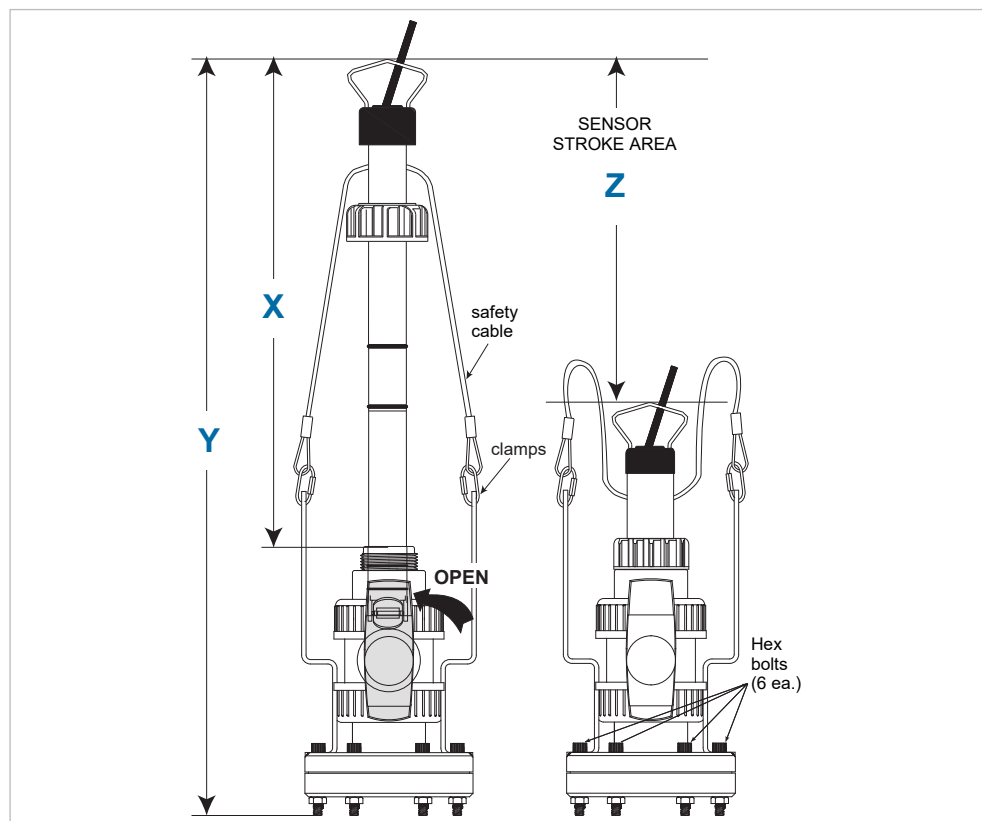
Shipping Weight

	0.680 kg	1.50 lb
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Standards and Approvals

CE, UKCA, FCC
RoHS compliant, China RoHS
Manufactured under ISO 9001, ISO 14001 and ISO 45001

Dimensions

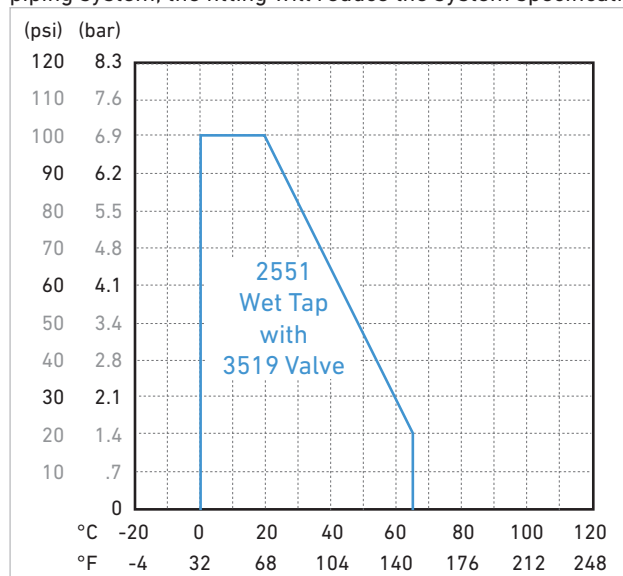


Sensor type	Sensor length X	Total length Y	Sensor stroke area Z
3-2551-V3-1x	297 mm (11.7 in.)	737 mm (29 in.)	197 mm (7.75 in.)
3-2551-V4-1x	332 mm (13.1 in.)	762 mm (30 in.)	229 mm (9 in.)
3-2551-V5-1x	408 mm (16.1 in.)	813 mm (32 in.)	305 mm (12 in.)



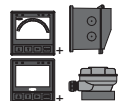

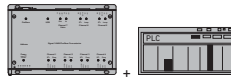


Pressure-temperature diagram

Note

The pressure-temperature diagrams are specifically for the GF sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification. When using a PVDF sensor in a PVC piping system, the fitting will reduce the system specification.



System Overview

Stand-Alone	Panel Mount	Pipe, Tank, Wall	4 to 20 mA Output	Automation System
GF 2551 Wet-Tap Magmeter 	GF Instruments - 9900-1P - 9950-1/-2 - 9950-10/-12 	GF Instruments - 9900-1 with 3-8050-1 Universal Mount Kit 	- Customer Supplied Chart Recorder, Programmable Logic Controller or - Programmable Automation Controller 	- 0486 Profibus Concentrator and Customer Supplied - Programmable Logic Controller or Programmable Automation Controller 
	GF 3519 Wet-Tap Valve (required) 			
GF Fittings				All Sold Separately

Ordering information

Frequency or Digital (S³L) output, with red cap

Mfr. Part No.	Code	Description
3-2551-V3-11	159 002 208	Wet-Tap Magmeter, Frequency/S ³ L output, PVDF/Hastelloy-C, 0.5 to 4" pipe
3-2551-V4-11	159 002 214	Wet-Tap Magmeter, Frequency/S ³ L output, PVDF/Hastelloy-C, 5 to 8" pipe
3-2551-V5-11	159 002 220	Wet-Tap Magmeter, Frequency/S ³ L output, PVDF/Hastelloy-C, 10 to 36" pipe

4 to 20 mA output, with blue cap

Mfr. Part No.	Code	Description
3-2551-V3-12	159 002 209	Wet-Tap Magmeter, 4-20 mA output, PVDF/Hastelloy-C, 0.5 to 4" pipe
3-2551-V4-12	159 002 215	Wet-Tap Magmeter, 4-20 mA output, PVDF/Hastelloy-C, 5 to 8" pipe
3-2551-V5-12	159 002 221	Wet-Tap Magmeter, 4-20 mA output, PVDF/Hastelloy-C, 10 to 36" pipe

Accessories and Replacement Parts

Please refer to Wiring, Installation, Accessories and Fitting section for more information.

Mfr. Part No.	Code	Description
3-3519	159 000 757	Wet-Tap Valve for Wet-Tap flow sensors
1220-0021	198 801 000	O-ring, FKM (4 required per sensor)
1224-0021	198 820 006	O-ring, EEPR (EPDM) (4 required per sensor)
1228-0021	198 820 007	O-ring, FFKM (4 required per sensor)

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