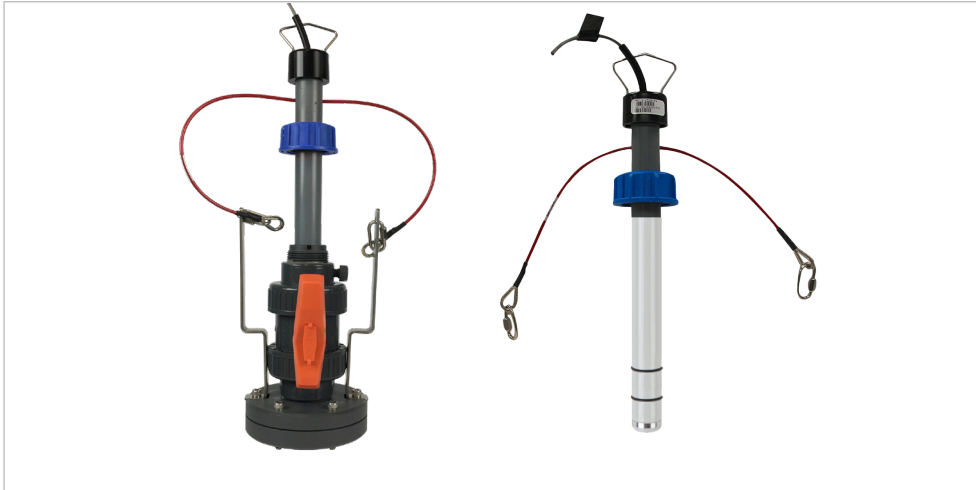


Type 2551 Wet Tap Magmeter Flow Sensor



Product description

The Type 2551 Wet Tap Magmeter is an insertion-style magnetic flow sensor with no moving parts. It is equipped with a ball valve that allows safe and controlled pressure release while retracting the sensor during operation, ensuring uninterrupted 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)
- Accurate measurement even in dirty liquids
- 4 to 20 mA, digital (S³L), frequency
- 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) | |
| Protection Rating | NEMA 4X/IP65 | |

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. |
| Auxiliary (only required for units with relays) | 9 to 24 VDC, 0.4 A max. | |
| Reverse Polarity and Short Circuit Protected | | |
| 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 (1000 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 | Ambient | -10 °C to 70 °C 14 °F to 158 °F |
| | Media | 0 °C to 85 °C 32 °F to 185 °F |
| Maximum Operating Pressure | -V3, -V4, -V5 | 1.7 bar (25 psi) max. @ 100°C (212 °F) 14 bar (200 psi) max. @ 20 °C (68 °F) |

See Temperature and Pressure graphs for more information.

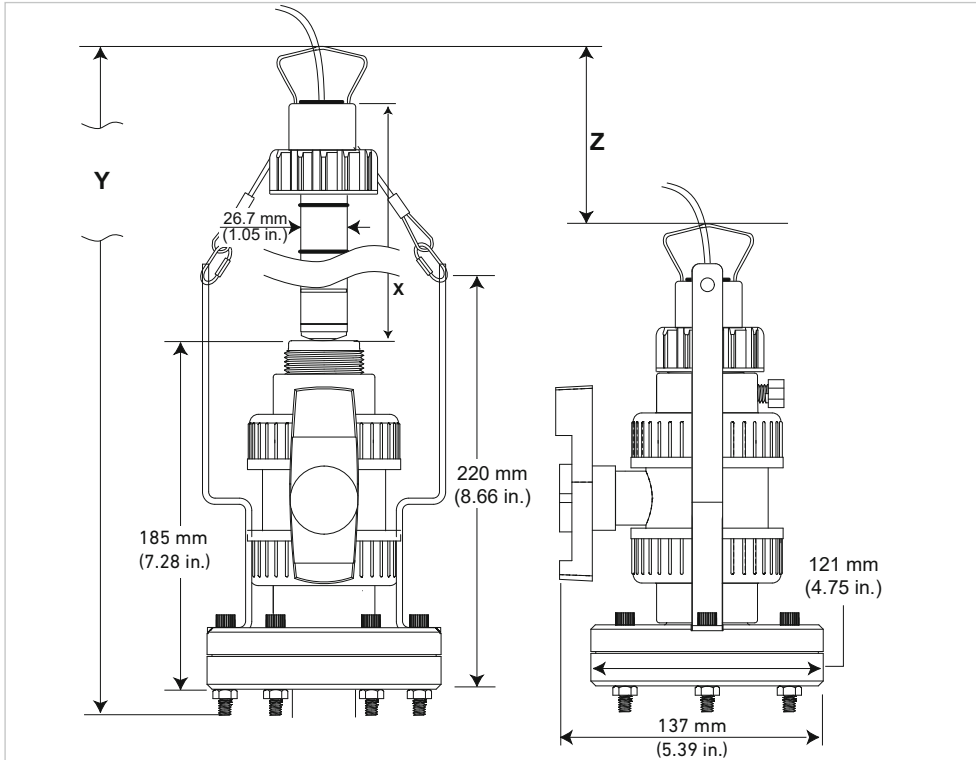
Shipping Weight

| | | |
|--|----------|---------|
| | 0.680 kg | 1.50 lb |
|--|----------|---------|

Standards and Approvals

| |
|--|
| CE, UKCA, FCC |
| RoHS compliant, China RoHS |
| NEMA 4X / IP65 |
| Manufactured under ISO 9001, ISO 14001 and ISO 45001 |

Dimensions

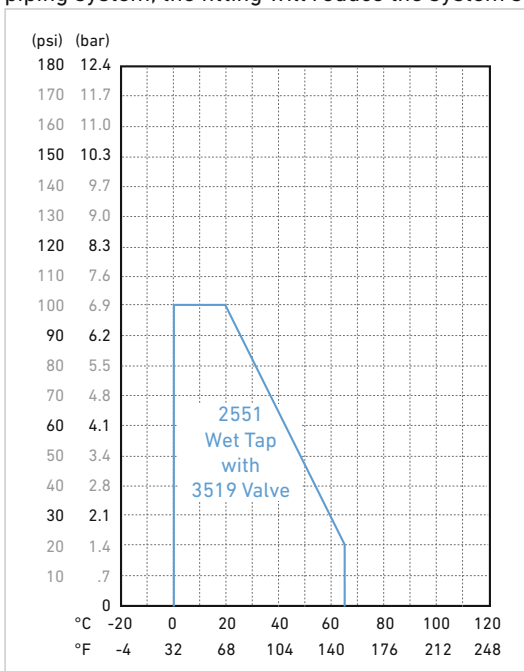


| Sensor type | X | Y | Z |
|--------------|-------------------|-----------------|-------------------|
| 3-2551-V3-1x | 297 mm (11.7 in.) | 737 mm (29 in.) | 197 mm (7.75 in.) |
| 3-2551-V4-1x | 332 mm (13.1 in.) | 762 mm (30 in.) | 229 mm (9 in.) |
| 3-2551-V5-1x | 408 mm (16.1 in.) | 813 mm (32 in.)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



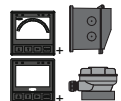

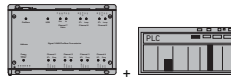


Pressure-temperature diagram

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  | | | |
| GF Fittings | |  | | All Sold Separately |

Ordering information

Frequency or Digital (S³L) output

| 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

| 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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