

Signet 2551 Magmeter

4 to 20mA, DIGITAL
OR FREQUENCY OUTPUT



Description

The Signet 2551 Magmeter is an insertion style magnetic flow sensor that features no moving parts. All versions are constructed of corrosion-resistant materials to provide long-term reliability with minimal maintenance costs. Utilizing the comprehensive line of Signet installation fittings, sensor alignment and insertion depth are automatic.

These versatile, simple-to-install sensors deliver accurate flow measurement over a wide dynamic range

in pipe sizes ranging from DN15 to DN200 (0.5 to 8 inches), satisfying the requirements of many diverse applications. Signet 2551 Magmeters offer a variety of output options for use with Signet flow instrumentation using a frequency or digital (S³L) output. The blind transmitter (4 to 20 mA output) or digital sensor interface is available for long distance signal transmission. Flow velocity measurement is compensated for temperature via an integrated temperature sensor.

System Overview

Panel Mount Signet Flow Instrument (sold separately)	Pipe, Tank, Wall Mount Signet Flow Instrument (sold separately) Signet Universal Adapter Kit (3-8050) (sold separately)	4 to 20 mA Input Signet 5091 (sold separately) OR Programmable Logic Controller (or similar)
Signet 2551 Magmeter	Signet 2551 Magmeter	Signet 2551 Magmeter
Signet Fittings (sold separately)		

Features

- No moving parts
- For DN 15 to DN 200 (0.5 to 8 in.) pipes
- Flow rate range 0.05 to 10 m/s (0.15 to 33 ft/s)
- Accurate measurement even in dirty liquids
- Blind 4 to 20 mA, digital or frequency output
- No pressure drop
- Corrosion resistant materials; PP or PVDF

Applications

- Chemical processing
- Water purification
- Water and wastewater monitoring
- Metal recovery
- Landfill leachate
- Commercial pools, spas, and aquariums
- HVAC
- Scrubber control
- Neutralization
- Industrial water distribution

Compatible Instruments

Below is a list of instruments compatible with each of the three output version of the 2551:

- Frequency output compatibility:
8550 5500 8900
5600 5075
- 4 to 20mA output compatibility:
5091 PLC (or similar)
- Digital output compatibility:
8900

Specifications

Wetted Materials:

Sensor body/Electrodes and Grounding ring:

- -P0, -P1: Polypropylene/316LSS
- -W0, -W1: PVDF/316LSS

O-rings: FPM standard; optional materials: EPDM, Kalrez

Other Materials:

Case: PBT

Protection rating: NEMA 4X/IP65

Power Requirements

- 4 to 20 mA: 21.6 to 26.4 VDC, 22.1 mA max.
 - Frequency: 4.5 to 26.4 VDC, 15 mA max.
 - Digital (S³L): 4.5 to 6.5 VDC, 15 mA max.
- Reverse polarity and short circuit protected

Performance

- Pipe size range: DN15 to DN 200 (0.5 in. to 8 in.)
- Flow Range
 - Minimum: 0.05 m/s (0.15 ft/s)
 - Maximum: 10 m/s (33 ft/s)
- Linearity: ±1% reading, ±0.01m/s (0.033 ft/s)
- Repeatability: ±0.5% of reading @ 25°C (77°F)
- Minimum Conductivity: 20 µS/cm

Output Specifications

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: 3000
- Compatible with Signet Model 5091 or can be used with a PLC, PC or similar equipment

Output Specifications (continued)

Frequency output:

- Max. Pull-up Voltage: 30 VDC
- Max. Current Sink: 50 mA, current limited
- Maximum cable: 300 m (1000 ft.)
- Compatible with Model Signet 5075, 5500, 5600, 8550, 8900

Digital (S³L) Output:

- Serial ASCII, TTL level 9600 bps
- Compatible with Model Signet 8900 instrument

Environmental Requirements

Storage Temperature:

-20° to 70°C (-4° to 158°F)

Relative Humidity : 0 to 95% (non-condensing)

Operating Temperature

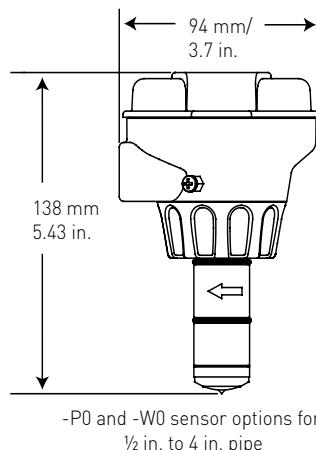
- Ambient: -10° to 70°C (14° to 158°F)
- Media: 0° to 85°C (32° to 185°F)

Max. operating pressure:

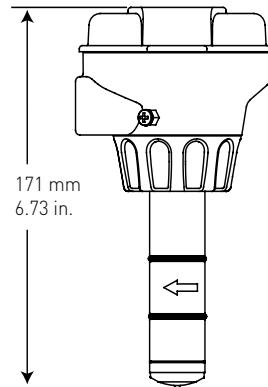
10.3 bar @ 25°C (150 psi @ 77°F)

1.4 bar @ 85°C (20 psi @ 185°F)

Dimensions



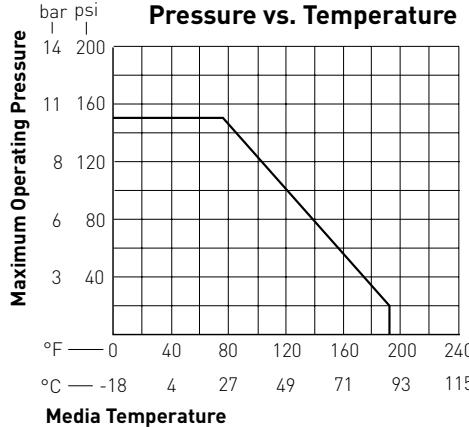
-P0 and -W0 sensor options for 1/2 in. to 4 in. pipe



-P1 and -W1 sensor options for 5 to 8 in. pipe

Standards and Approvals

- CE
- NEMA 4X / IP65



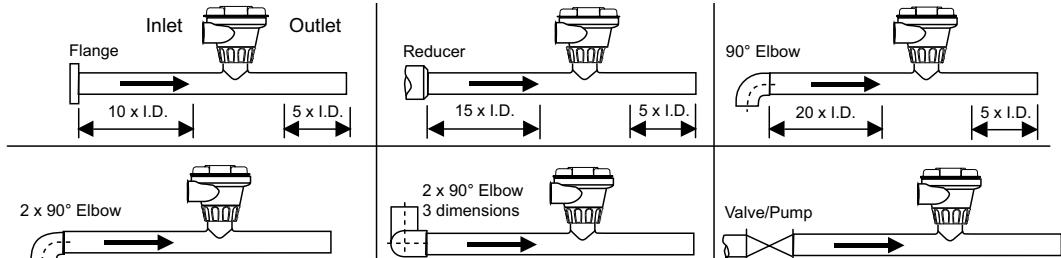
Installation: Pipe Fittings

George Fischer Signet offers a wide selection of installation fittings that control the position of the Magmeter electrodes in relation to the dimensions of the pipe. Use the proper fitting for your system to obtain the best results from the Signet 2551 Magmeter.

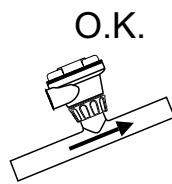
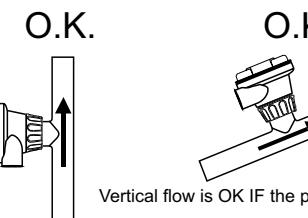
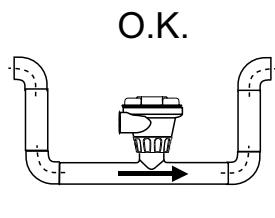
Type	Description	Type	Description
Plastic tees	<ul style="list-style-type: none"> • 0.5 to 4 inch versions • PVC or CPVC 	Iron, Carbon Steel, 316 SS Threaded tees	<ul style="list-style-type: none"> • 0.5 to 2 in. versions • Mounts on threaded pipe ends
Metric Union Fitting	<ul style="list-style-type: none"> • For pipes from DN 15 to 50 mm • PP or PVDF 	Carbon steel & stainless steel Weld-on Weldolets	<ul style="list-style-type: none"> • 2 to 4 inch, cut 1-7/16 inch hole in pipe • Over 4 inch, cut 2-1/8 inch hole in pipe
PVC Saddles	<ul style="list-style-type: none"> • 2 to 4 inch, cut 1-7/16 inch hole in pipe • 6 to 8 inch, cut 2-1/8 inch hole in pipe 	Fiberglass tees & saddles: FPT FPS	<ul style="list-style-type: none"> • 1.5 in. to 8 in. PVDF insert • > 8 in. PVC insert
Iron Strap-on saddles	<ul style="list-style-type: none"> • 2 to 4 inch, cut 1-7/16 inch hole in pipe • Over 4 inch, cut 2-1/8 inch hole in pipe 	Metric Wafer Fitting	<ul style="list-style-type: none"> • For pipes DN 65 to DN 200 • PP or PVDF

Location of Fitting

The 2551 requires a full pipe and a fully developed turbulent flow profile for optimum performance. If the piping system has entrained air pockets, take steps to locate the sensor so the air pockets will not contact the electrodes.

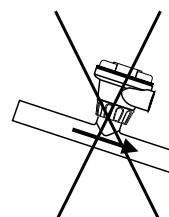
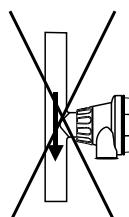
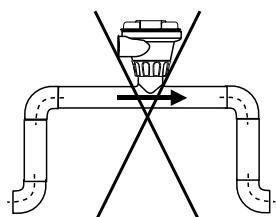


Select a location with sufficient distance of straight pipe immediately upstream of the sensor.

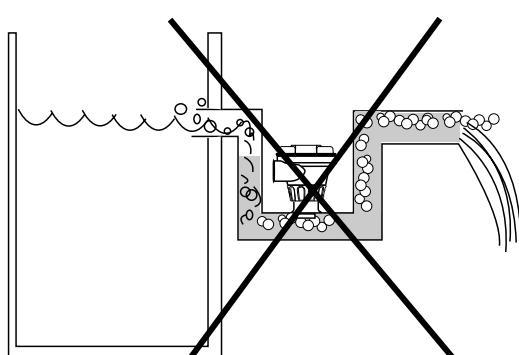


Vertical flow is OK IF the pipe remains full at all times.

These configurations ensure that the pipe is always filled. The sensor cannot be exposed to air bubbles at any time.



Avoid these situations unless you are certain that the sensor will not be exposed to air bubbles.



In a gravity-flow system, the tank must be designed so the level does not drop below the outlet. This causes the pipe to draw air in from the tank, which will be carried directly across the Magmeter electrodes, resulting in a very erratic output.



Ordering Information

Model 2551 Insertion MagMeter Ordering Matrix				
3-2551				
Sensor Body (Transducer) and electrodes/grounding ring materials - Choose one				
-P Polypropylene and 316L SST				
-W PVDF and 316L SST				
Pipe size - Choose one				
0 DN15 to DN100 (1/2 to 4 in.)				
1 DN125 to DN200 (5 to 8 in.)				
Display Options - Choose One				
-1 No Display				
Output options - Choose One				
1 Frequency or Digital (S ³ L)				
2 4 to 20 mA output				
3-2551	-P	0	-1	2
Example Part Number				

Application Notes

- Note minimum process liquid conductivity is 20 μ s/cm.
- Install sensor using standard Signet installation fittings.
- Sensor is capable of retrofitting into existing 515 and 2536 fittings.

Part Number	Code	Part Number	Code
3-2551-P0-11	159 001 105	3-2551-P1-11	159 001 106
3-2551-P0-12	159 001 110	3-2551-P1-12	159 001 111
3-2551-W0-11	159 001 230	3-2551-W1-11	159 001 232
3-2551-W0-12	159 001 231	3-2551-W1-12	159 001 233

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
0-Rings		
1220-0021	198 801 186	O-ring, FPM (Viton [®])
1224-0021	198 820 006	O-ring, EPDM
1228-0021	198 820 007	O-ring, FFPM (Kalrez [®])
Replacement Transducers		
3-2551-P0	159 001 211	PP/316LSS, DN15 to DN100 (0.5 to 4 in.) pipe
3-2551-P1	159 001 212	PP/316LSS, DN125 to DN200 (5 to 8 in.) pipe
3-2551-W0	159 001 234	PVDF/316LSS, DN15 to DN100 (0.5 to 4 in.) pipe
3-2551-W1	159 001 235	PVDF/316LSS, DN125 to DN200 (5 to 8 in.) pipe
Replacement Electronics Modules		
3-2551-11	159 001 215	Magmeter Electronics, frequency or digital (S3L) output
3-2551-12	159 001 216	Magmeter Electronics, 4 to 20mA output
Other		
3-0232	159 000 865	RS232 Converter with set-up software
7300-7524	159 000 687	24VDC Power Supply 7.5W, 300mA
7300-1524	159 000 688	24VDC Power Supply 15W, 600mA
7300-3024	159 000 689	24VDC Power Supply 30W, 1.3A
7300-5024	159 000 690	24VDC Power Supply 50W, 2.1A
7300-1024	159 000 691	24VDC Power Supply 100W, 4.2A

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