

Signet 2552 Metal Magmeter Flow Sensors



Description

The Signet 2552 Metal Magmeter from Georg Fischer features all-stainless steel construction. The PVDF nosepiece and FPM O-rings are the only other wetted materials. The 2552 installs quickly into standard 1/4 in. or 1/2 in. pipe outlets, and is adjustable to fit pipes from DN50 to DN2550 (2 to 102 inches). Three sensor lengths allow maximum flexibility to accommodate a variety of hardware configurations, including ball valves for hot-tap installations.

When equipped with the frequency output, the 2552 is compatible with any externally powered Signet flow

instrument, while the S³L Digital output enables multi-channel compatibility with the Signet 8900 Multi-Parameter Controller. Select the blind 4 to 20 mA current output to interface directly with dataloggers, PLCs or telemetry systems. Key features include Empty Pipe Detection, LED-assisted troubleshooting, and bi-directional span capability (in 4 to 20 mA models).

The Signet 3-0250 USB to Digital (S³L) Configuration/Diagnostic Tool is available to customize every performance feature in the 2552 so it can be adapted to the user's application requirements.

Features












- Test certificate included for -X0, -X1
- Award winning hot-tap magnetic flow sensor up to DN2550 (102 in.)
- Patented Magmeter technology*
- Operating range 0.05 to 10 m/s (0.15 to 33 ft/s)
- Reliable operation in harsh environments
- Repeatable: $\pm 0.5\%$ of reading @ 25°C
- Three output options: 4 to 20 mA, Frequency, Digital (S³L)
- ISO or NPT Threads

Applications

- Municipal Water Distribution
- Process and Coolant Flow
- Chemical Processing
- Waste Water
- Mining Applications
- Water Process Flow

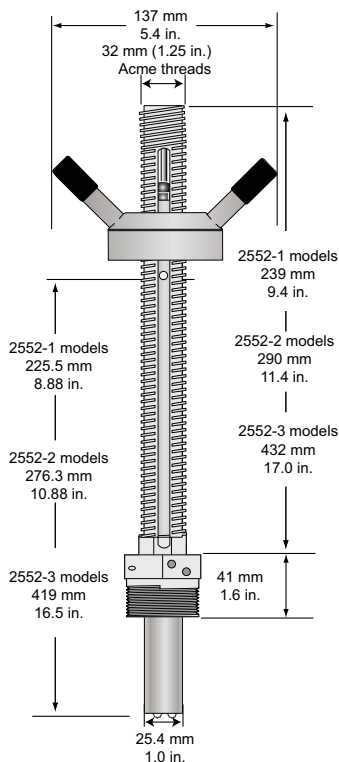


System Overview

In-line Installation		
Panel Mount Signet Flow Instrument (sold separately) 5075 5500 5600 8550 8900 	Pipe, Tank, Wall Mount Signet 8550 Flow Instrument (sold separately)  Signet Universal Adapter Kit (3-8050) (sold separately) 	4 to 20 mA Input Chart Recorder OR Programmable Logic Controller  OR 
Signet 2552 Magmeter (standard or Hot-Tap) 		
ball or gate valve 1/4" or 1/2"  	nipple 1/4" or 1/2" 	
Weld-on weldolet 1/4" or 1/2" outlet 	Iron strap-on saddle 1/4" or 1/2" outlet 	

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

Dimensions



Specifications

General

Operating Range:

- Minimum: 0.05 m/s (0.15 ft/s)
- Maximum: 10 m/s (33 ft/s) for pipes to DN1200 (48 in.)
3 m/s (10 ft./s) for pipes over DN1200 (48 in.)

Pipe Size Range:

DN50 to DN2550 (2 in. to 102 in.)

Linearity:

$\pm(1\% \text{ reading} + 0.01 \text{ m/s})$
 $\pm(1\% \text{ reading} + 0.033 \text{ ft/s})$

Repeatability:

$\pm 0.5\%$ of reading @ 25°C

Accuracy: $\pm 2\%$ of measured value*

*[in reference conditions where the fluid is water at ambient temperature, the sensor is inserted at the correct depth and there is a fully developed flow profile which is in compliance with ISO 7145-1982 (BS 1042 section 2.2)]

Minimum Conductivity: 20 $\mu\text{S/cm}$

Wetted Materials

- 316L stainless steel body and electrodes
- PVDF Insulator
- O-rings: FPM (standard)
- Cable: 4-cond + shield, PVC jacket (Fixed cable models) or Water-resistant rubber cable assembly with Turck® NEMA 6P connector

Power Requirements

- 4 to 20 mA:
24 VDC $\pm 10\%$, regulated,
22.1 mA maximum
- Frequency:
5 to 24 VDC $\pm 10\%$, regulated,
15 mA maximum
- Digital (S³L):
5 to 6.5 VDC 15 mA maximum
- Reverse polarity and short circuit protected

Cable Options

- Fixed 7.6 m (25 ft) cable
- Detachable water tight sensor cable with Turck® connector sold separately, two lengths: 4 m (13 ft) or 6 m (19.5 ft)

Electrical

Current Output (4 to 20 mA)

- Programmable and reversible
- Loop Accuracy:
32 μA max. error (@ 25°C @ 24 VDC)
- Temp. Drift: $\pm 1 \mu\text{A}$ per °C max.
- Power Supply Rejection: $\pm 1 \mu\text{A}$ per V
- Isolation: Low voltage < 48 VAC/DC from electrodes and auxiliary power
- Maximum Cable: 300 m (1000 ft)
- Max. Loop Resistance: 300 Ω
- Error Condition: 22.1 mA

Electrical (continued)

Frequency Output:

- Compatible with Signet 5075, 5500, 5600, 8550 and 8900
- Max. Pull-up Voltage: 30 VDC
- Short Circuit Protected:
 $\leq 30 \text{ V @ } 0 \Omega$ pull-up for one hour
- Reverse Polarity Protected to -40 V for 1 hour
- Overvoltage Protected to +40 V for 1 hour
- Max. Current Sink:
50 mA, current limited
- Maximum cable: 300 m (1000 ft)

Digital (S³L) Output:

- Compatible with Signet 8900
- Serial ASCII, TTL level 9600 bps
- Maximum Cable: Application dependent (See 8900 manual)

Max. Temperature/Pressure Rating

Storage Temperature:

-15 °C to 70 °C (5 °F to 158 °F)
in non-icing conditions

Operating Temperature

- Ambient:
-15 °C to 70 °C (5 °F to 158 °F)
in non-icing conditions
- Media:
-15 °C to 85 °C (5 °F to 185 °F)

Maximum Operating Pressure

20.7 bar @ 25 °C (300 psi @ 77 °F)

Hot-Tap Installation Requirements

- Maximum Installation Pressure:
20.7 bar (300 psi)
- Maximum Installation Temp (Insertion/Removal):
40 °C (104 °F)

Do not use hot-tap installation where temperatures will exceed 40 °C or if hazardous liquids are present.

Standards and Approvals

- CE
- U.S. Patent No.: 7,055,396 B1
- NEMA 4 (IP65) (fixed cable models)
- NEMA 6P (IP68) (Submersible cable models only)
Signet recommends maximum 3 m (10 ft) submersion depth for maximum 10 days continuous submersion.
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Model 2552

Ordering Notes

- 1) Sensor insertion depth is the distance from the bottom of the sensor housing to the tip of the sensor.
- 2) Hot-Tap installations require a 1¼ in. or 1½ in. ball valve.
- 3) See Sensor Selection Guide on previous page to determine the sensor length required.

Application Tips

- Minimum process liquid conductivity requirement is 20 µS/cm.
- 1½ x 1¼ inch and 2 x 1¼ inch (2552-1 and 2552-2 only) retrofit adapters are available for replacement installations of Signet 2550 and 2540 sensors.

Ordering Information

Model 2552 Metal Magmeter Ordering Matrix					
3-2552	Mounting Depth Options - Choose One*				
	-1	Sensor insertion depth = 7.3 inches*			
	-2	Sensor insertion depth = 9.3 inches*			
	-3	Sensor insertion depth = 14.8 inches*			
	Process Connection Options - Choose One				
	1	1¼ inch NPT process connection threads**			
	2	1¼ inch ISO process connection threads**			
	3	1½ inch (2552-3 only) NPT process connection threads**			
	4	1½ inch (2552-3 only) ISO process connection threads**			
	Cable and Connector Options - Choose One				
	-A	Fixed Cable, 7.6 m (25 ft); no connector			
	-B	Watertight sensor connector; cable sold separately			
	Output Options - Choose One				
	-11	Frequency or Digital (S ³ L); for use with any Signet Flow Instrument or the 8900 Multi-Parameter Controller			
	-12	4 to 20 mA output			
3-2552	-1	1	-A	-12	Example Part Number

* Customer must determine stack height (ball valve, nipple, weldolet, etc.). Refer to Sensor Selection on previous page to determine "A" dimension. Sensor tip must be positioned at 10% of pipe ID.

** 1¼ inch process connection is the standard thread size on the 2552-1 and -2: For the 2552-3 the 1½ inch process connection is standard and the 1¼ inch is available as a special order.

Mfr. Part No.	Code
3-2552-11-A-11	159 001 505
3-2552-11-A-12	159 001 506
3-2552-11-B-11	159 001 507
3-2552-11-B-12	159 001 508
3-2552-12-A-11	159 001 509
3-2552-12-A-12	159 001 510
3-2552-12-B-11	159 001 511
3-2552-12-B-12	159 001 512

Mfr. Part No.	Code
3-2552-21-A-11	159 001 513
3-2552-21-A-12	159 001 514
3-2552-21-B-11	159 001 515
3-2552-21-B-12	159 001 516
3-2552-22-A-11	159 001 517
3-2552-22-A-12	159 001 518
3-2552-22-B-11	159 001 519
3-2552-22-B-12	159 001 520

Mfr. Part No.	Code
3-2552-33-A-11	159 001 521
3-2552-33-A-12	159 001 525
3-2552-33-B-11	159 001 523
3-2552-33-B-12	159 001 527
3-2552-34-A-11	159 001 522
3-2552-34-A-12	159 001 526
3-2552-34-B-11	159 001 524
3-2552-34-B-12	159 001 528

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
2120-1512	159 001 425	1½ x 1¼ inch NPT adapter for retrofitting 2540 installation to 2552 - 316 SS
2120-2012	159 001 426	2 x 1¼ inch NPT adapter for retrofitting 2550 installation to 2552 - 316 SS
3-2552.392	159 001 530	1¼ inch NPT full port stainless steel ball valve and nipple kit
3-2552.393	159 001 531	1¼ inch NPT full port brass ball valve & nipple kit
3-2552.394	159 001 532	1½ inch NPT conduit adapter, aluminum for -1 and -2 units
4301-2125	159 001 533	1¼ inch NPT full port ball valve - brass
4301-3125	159 001 387	1¼ inch NPT full port ball valve - stainless steel
5541-4184	159 001 388	4-conductor, 22 AWG, water-tight connector, 4 m (13 ft)
5541-4186	159 001 389	4-conductor, 22 AWG, water-tight connector, 6 m (19.5 ft)
special order	special order	4-conductor, 22 AWG, water-tight connector, cable length in 25 ft increments
special order	special order	1¼ in. NPT or ISO process connection threads to replace 1½ in. NPT or ISO threads
3-0250	159 001 538	USB to Digital (S ³ L) Configuration/Diagnostic tool

Rev A (3/09)