

# Signet 7000/7001 Vortex Flow Sensors



## Description

Signet Vortex Flow Sensors provide extremely accurate and reliable flow measurement with no moving parts. Constructed of durable PVC, these sensors can accommodate applications such as chemical delivery.

Each unit is injection-molded to achieve a smooth surface finish for cleanliness and better chemical compatibility. This drastically reduces manufacturing inconsistencies and in-service particulation associated with machined surfaces. End connectors simplify installation and allow unparallelled configuration versatility.

The sensors feature either frequency output or fixed 4 to 20 mA current output, and can be used with the comprehensive offering of Signet flow instruments to achieve enhanced system functionality. Integral transmitters with local displays and many additional features are available as accessories, or select from a wider variety of panel-mount flow instruments.

## Features


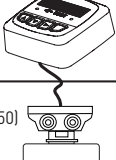

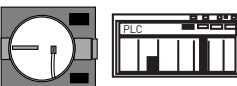





- No moving parts
- Injection-molded construction for excellent surface-finish quality
- Piezo Detection
- Six sizes in the range DN 15 to DN 50 (0.5 to 2 in.)
- Vibration-noise and reverse polarity protected
- PVC construction

## Application

- Process Flow
- Reverse Osmosis
- Process Cooling Water
- Neutralization Systems
- Waste Water Effluent
- Scrubber Control
- Chemical Delivery
- Accurate Batching
- Plating rinse
- Not suitable for gases



## System Overview

<p><b>Panel Mount</b> Signet Flow Instrument (sold separately) 8550 5075 8900 5500 5600</p> 	<p><b>Pipe, Tank, Wall Mount</b> Signet Flow Instrument (sold separately) 8550 Signet Universal Adapter Kit (3-8050) (sold separately)</p> 	<p><b>Integral Mount</b> Signet Flow Instrument (sold separately) 8550</p> 	<p><b>4 to 20 mA Input</b> Chart Recorder OR Programmable Logic Controller</p> 
<p><b>Signet 7000 Vortex Flow Sensor</b></p> 	<p><b>Signet 7000 Vortex Flow Sensor</b></p> 	<p><b>Signet 7000 Vortex Flow Sensor</b></p> 	<p><b>Signet 7001 Vortex Flow Sensor with 4 to 20 mA Output</b></p> 
<p>Signet End Connectors (sold separately)</p> <p style="text-align: center;">Solvent Socket</p> 			

## Specifications

### General

Linear Flow range:

- DN 15 to DN 20 (0.5 to 0.75 in.) sensors: 0.5 to 4 m/s (1.6 to 13 ft/s)
- DN 25 to DN 32 (1.0 to 1.25 in.) sensors: 0.4 to 4 m/s (1.3 to 13 ft/s)
- DN 40 to DN 50 (1.5 to 2.0 in.) sensors: 0.3 to 4 m/s (1.0 to 13 ft/s)

NOTE: Below these velocity ranges, Vortex output is non-linear.

Pipe size range: 1/2 to 2 in.

Linearity:  $\pm 1\%$  of reading @ 25 °C

Repeatability:  $\pm 0.5\%$  of reading @ 25 °C

Reynolds Number: 7500

Enclosure

- Rating: NEMA 4X/IP65
- Material: PC/PBT blend of resins
- Seals (2): Buna-N (NBR)

Maximum vibration:

1mm or 1g double amplitude @ 500 Hz

### Wetted materials

- Sensor: PVC
- Union O-Rings: FPM or EPDM

### Electrical

Reverse polarity protection.

Frequency Output Model

- Power: 3.5 to 24 VDC, regulated, 1.5 mA max.
- Output: Open-collector NPN transistor, 10 mA max sink, 24 VDC max pull-up voltage, 0 to 300 Hz (normal), 50% duty cycle, non-isolated

Current Output Model

- Power: 7 to 30 VDC, regulated, 20 mA max

Current loop (2-wire)

- Loop impedance: 300 $\Omega$  maximum at 12 VDC  
800 $\Omega$  maximum at 24 VDC

### Max. Pressure/Temperature Ratings

16 bar @ 0 °C, 3.7 bar @ 60 °C  
(232 psi @ 32 °F, 54 psi @ 140 °F)

Operating temperature:

0 to 65°C (32 to 149°F)

Storage temperature:

-15 to 80 °C (5 to 176 °F)

Relative humidity:

0 to 95%, non-condensing

See Temperature and Pressure graphs for more information.

### Shipping Weights:

- 3-7000-5X: 1.87 lbs.
- 3-7000-6X: 0.88 lbs.
- 3-7001-5X: 1.65 lbs.
- 3-7001-6X: 0.88 lbs.

### Standards and Approvals:

- CE
- Manufactured under ISO 9001:2000 for Quality and ISO 14001:2004 for Environmental Management

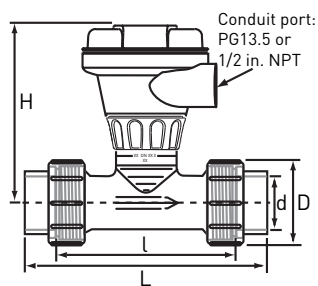
**Please refer to Wiring, Installation and Accessories sections for more information.**

### Application Tips:

- Sensor can be mounted at any angle
- A minimum back pressure is required to prevent cavitation within the sensor. See Installation section for more information.
- Power supplies are available and sold separately. See individual product page.
- Be sure to select the correct output signal, frequency or current.

# Dimensions

## PVC Sch 80 Solvent Socket PVC Metric Solvent Socket



Dimension L ± 3 mm (±0.1 in.)

PVC Sch 80 Solvent Socket								
Inch size	D		L		l		H	
	mm	inch	mm	inch	mm	inch	mm	inch
1/2	43	1.69	128	5.04	90	3.54	117	4.61
3/4	53	2.09	144	5.67	100	3.94	120	4.72
1	60	2.36	160	6.30	110	4.33	123	4.84
1-1/4	74	2.91	168	6.61	110	4.33	127	5.00
1-1/2	83	3.27	188	7.40	120	4.72	132	5.20
2	103	4.06	212	8.35	130	5.12	139	5.47

PVC Metric Solvent Socket										
d mm	Closest Inch size	DN mm	D		L		l		H	
			mm	inch	mm	inch	mm	inch	mm	inch
20	1/2	15	43	1.69	136	5.35	90	3.54	117	4.61
25	3/4	20	53	2.09	150	5.91	100	3.94	120	4.72
32	1	25	60	2.36	166	6.54	110	4.33	123	4.84
40	1-1/4	32	74	2.91	166	6.54	110	4.33	127	5.00
50	1-1/2	40	83	3.27	186	7.32	120	4.72	132	5.20
63	2	50	103	4.06	196	7.72	130	5.12	139	5.47

# Ordering Information

Sensor Part Number			
<b>3-700</b>	Vortex Flow sensor		
	Output - Choose one		
	<b>0</b>	Open collector output for use with the 8550, 5500, 5600, 5075, and 8900 instruments	
	<b>1</b>	Current output [4 to 20 mA] for connection to external devices or Model 5091	
		Wetted material and end fitting options - choose one	
	<b>-5</b>	PVC Sch 80, Solvent socket; purchase end connectors separately*	
	<b>-6</b>	PVC Metric, Solvent socket; purchase end connectors separately	
		Size of flow chamber d/DN/inches (see Dimensions section for d/DN/inches) - Choose one	
	<b>1</b>	20 mm/15 mm/0.5 inches	
	<b>2</b>	25 mm/20 mm/ 0.75 inches	
	<b>3</b>	32 mm/25 mm/1.0 inch	
	<b>4</b>	40 mm/32 mm/1.25 inch	
	<b>5</b>	50 mm/40 mm/1.5 inch	
	<b>6</b>	63 mm/50 mm/2 inch	
<b>3-700</b>	<b>0</b>	<b>-2</b>	<b>3</b> Example Part Number

See ordering information below for available connector kits

### \*Model 7000/7001

#### Ordering Notes:

- 1) Signet Vortex Flow Sensors and End Connector Kits are ordered separately
- 2) Vortex Flow Sensors are shipped with EPDM O-rings.
- 3) O-ring kits of 2 each are available in both materials.

Part Number			
<b>3-7000.391</b>	Connector kit for the 3-7000 and 3-7001 sensors, -3, -4, -5, and -6 options		
	Wetted material and end fitting configuration - choose one		
	<b>-5</b>	PVC Sch 80, solvent socket	
	<b>-6</b>	PVC Metric, solvent socket	
		Size of connector - Choose one	
	<b>1</b>	20 mm/15 mm/0.5 inches	
	<b>2</b>	25 mm/20 mm/ 0.75 inches	
	<b>3</b>	32 mm/25 mm/1.0 inch	
	<b>4</b>	40 mm/32 mm/1.25 inch	
	<b>5</b>	50 mm/40 mm/1.5 inch	
	<b>6</b>	63 mm/50 mm/2 inch	
<b>3-7000.391</b>	<b>-2</b>	<b>3</b>	Example Part Number

**Ordering Information (continued)**

Mfr. Part No.	Code	Mfr. Part No.	Code
3-7000-51	<b>159 000 130</b>	3-7001-51	<b>159 000 172</b>
3-7000-52	<b>159 000 131</b>	3-7001-52	<b>159 000 173</b>
3-7000-53	<b>159 000 132</b>	3-7001-53	<b>159 000 174</b>
3-7000-54	<b>159 000 133</b>	3-7001-54	<b>159 000 175</b>
3-7000-55	<b>159 000 134</b>	3-7001-55	<b>159 000 176</b>
3-7000-56	<b>159 000 135</b>	3-7001-56	<b>159 000 177</b>
3-7000-61	<b>159 000 136</b>	3-7001-61	<b>159 000 178</b>
3-7000-62	<b>159 000 137</b>	3-7001-62	<b>159 000 179</b>
3-7000-63	<b>159 000 138</b>	3-7001-63	<b>159 000 180</b>
3-7000-64	<b>159 000 139</b>	3-7001-64	<b>159 000 181</b>
3-7000-65	<b>159 000 140</b>	3-7001-65	<b>159 000 182</b>
3-7000-66	<b>159 000 141</b>	3-7001-66	<b>159 000 183</b>

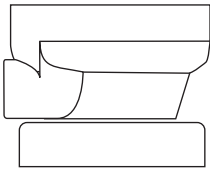
**End Connector Kits**

Mfr. Part No.	Code	Mfr. Part No.	Code
3-7000.391-51	<b>159 000 581</b>	3-7000.391-61	<b>159 000 587</b>
3-7000.391-52	<b>159 000 582</b>	3-7000.391-62	<b>159 000 588</b>
3-7000.391-53	<b>159 000 583</b>	3-7000.391-63	<b>159 000 589</b>
3-7000.391-54	<b>159 000 584</b>	3-7000.391-64	<b>159 000 590</b>
3-7000.391-55	<b>159 000 585</b>	3-7000.391-65	<b>159 000 591</b>
3-7000.391-56	<b>159 000 586</b>	3-7000.391-66	<b>159 000 592</b>

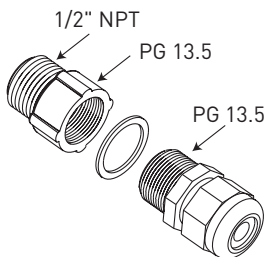
**O-Ring Kits (2 o-rings included in each kit)**

Mfr. Part No.	Code	Description
3-7000.390-01	<b>159 000 563</b>	O-ring, DN15, 0.5", EPDM
3-7000.390-02	<b>159 000 564</b>	O-ring, DN20, 0.75", EPDM
3-7000.390-03	<b>159 000 565</b>	O-ring, DN25, 1.0", EPDM
3-7000.390-04	<b>159 000 566</b>	O-ring, DN32, 1.25", EPDM
3-7000.390-05	<b>159 000 567</b>	O-ring, DN40, 1.5", EPDM
3-7000.390-06	<b>159 000 568</b>	O-ring, DN50, 2.0", EPDM
3-7000.390-07	<b>159 000 569</b>	O-ring, DN15, 0.5", FPM
3-7000.390-08	<b>159 000 570</b>	O-ring, DN20, 0.75", FPM
3-7000.390-09	<b>159 000 571</b>	O-ring, DN25, 1.0", FPM
3-7000.390-10	<b>159 000 572</b>	O-ring, DN32, 1.25", FPM
3-7000.390-11	<b>159 000 573</b>	O-ring, DN40, 1.5", FPM
3-7000.390-12	<b>159 000 574</b>	O-ring, DN50, 2.0", FPM

Universal Adapter Kit



Liquid Tight Connector Kit



**Accessories and Replacement Parts**

Mfr. Part No.	Code	Description
3-8050	<b>159 000 184</b>	Universal Adapter Kit
3-0000.393	<b>159 000 618</b>	Liquid Tight Connector Kit with PG 13.5 to NPT Adapter
1203-1121	<b>198 864 920</b>	Base Seal
1223-0151	<b>159 000 236</b>	Cap O-ring