

# Signet 2540 Stainless Steel High Performance Paddlewheel Flow Sensor



Standard Sensor



Hot-Tap Sensor

## Features

- Operating range 0.1 to 6 m/s (0.3 to 20 ft/s)
- Field replaceable electronics
- Non-magnetic RF detection
- Standard NPT or ISO process connections
- Hot-tap versions for installation/service without system shutdown
- For pipe sizes up to DN900 (36 in.)
- Adjustable sensor - one size for entire pipe range
- 7.6 m (25 ft) cable

## Description

The Signet 2540 Paddlewheel Flow Sensor offers the strength and corrosion resistance of stainless steel for liquid applications with low velocity measurements. Unique internal circuitry eliminates the need for magnets in the process fluid, enabling flow measurement of 0.1 to 6 m/s (0.3 to 20 ft/s) while maintaining the advantages of insertion sensor design. Rulon® B (Fluoroloy B/PTFE) bearings and Tungsten Carbide pin provide exceptional wear resistance. The Signet 2540 offers field replaceable electronics and transient

voltage suppression (TVS) to provide greater immunity to large voltage disturbances (i.e. lightning) sometimes encountered in field wiring. Sensors can be installed in DN40 to DN600 (1½ to 24 inch) pipes using the 1½ inch or ISO 7/1-R 1.5 threaded process connection. The sensors are also offered in a hot-tap configuration with a bleed valve service without process shutdown in pipes up to DN900 (36 in.). Both styles of sensors must be used in full pipes and can be used in low pressure systems.

## System Overview

<b>Panel Mount</b>	<b>Pipe, Tank, Wall Mount</b>
Signet Flow Instrument (sold separately) 5075 8550 5500 8900 5600	Signet Flow Instrument (sold separately) 8550
<b>Signet 2540 Standard or Hot-tap (not shown) Flow Sensor</b>	Signet Universal Adapter Kit (3-8050) (sold separately)
Customer Supplied Fittings	

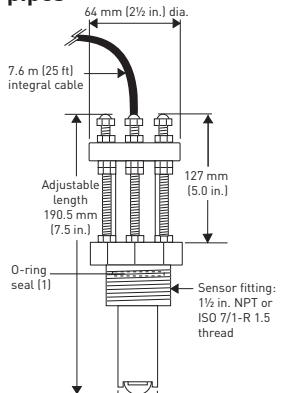


## Applications

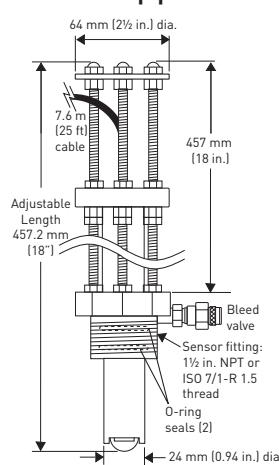
- HVAC
- Turf Irrigation
- Cooling Systems
- Filtration Systems
- Water Distribution
- Leak Detection
- Pump Protection
- Clarified Effluent Totalization
- Ground Water Remediation
- Gravity Feed Line

## Dimensions

### 2540 High Performance Flow Sensor for 1½ to 24 in. pipes



### 2540 Hot-Tap for 1½ to 36 in. pipes



### Model 2540

#### Ordering Notes

Installation fittings and Hot-Tap valves are customer supplied.

#### Application Tips

- For systems with components of more than one material, the maximum temperature/pressure specification must always be referenced to the component with the lowest rating.
- Use the Conduit Adapter Kit to protect the cable-to-sensor connection when used in outdoor environments.
- Sensor electronics can be easily replaced by 3-2541.260-1 or 3-2541.260-2.

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

3-2540.099 Rev B (01/10)

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3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com

## Specifications

### General

Operating Range:  
0.1 to 6 m/s (0.3 to 20 ft/s)

Pipe size range:

- Standard Version: DN40 to DN600 (1½ to 24 in.)
- Hot-Tap Version: DN40 to DN900 (1½ to 36 in.)

Sensor Fitting Options:

- 1½ in. NPT threads
- ISO 7/1-R 1.5 threads

Linearity: ±1% of full range

Repeatability: ±0.5% of full range

Min. Reynolds Number Required: 4500

### Wetted Materials

- Body: 316 stainless steel (1.4401)
- Fitting: 316 stainless steel (1.4401)
- Fitting O-rings: FPM, optional EPR (EPDM)
- Rotor: 17-4 SS Alloy
- Rotor Pin:  
Tungsten Carbide GRP 1 (standard)  
stainless steel (optional)
- Retainers (2): 316 stainless steel (1.4401)
- Rotor Bearings (2): Rulon® B  
(Fluoroloy B/PTFE)

### Electrical

Frequency: 15 Hz per ft/s nominal

Power: 5 to 24 VDC ±10%,  
regulated, 1.5 mA max.

### Electrical continued

Output Type: Open collector, sinking,  
max 10.0 mA

Cable Length: 7.6 m (25 ft), can be  
extended up to 300 m  
(1,000 ft)

Cable Type: 2-conductor twisted-pair  
with shield, 22AWG

### Max. Temperature/Pressure Rating

Sensor with standard FPM sensor  
fitting O-rings:  
17 bar @ 82 °C (250 psi @ 180 °F)

Sensor with optional EPR (EPDM)  
sensor fitting O-rings:  
17 bar @ 100 °C (250 psi @ 212 °F)

See Temperature and Pressure graphs  
for more information.

### Operating Temperature:

-18 °C to 100 °C (0 °F to 212 °F)

### Shipping Weight

3-2540-1/-2/-1S/-2S: 1.79 kg 3.9 lb

3-2540-3/-4/-3S/-4S: 2.15 kg 4.7 lb

### Standards and Approvals

- CE
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

## Ordering Information

### Sensor Part Number

<b>3-2540</b>	Stainless Steel High Performance flow sensor with removable electronics	
	Mounting Option - Choose One	
-1	1½ inch NPT thread	
-2	1½ inch ISO thread	
-3	1½ inch NPT thread, Hot-Tap design*	
-4	1½ inch ISO thread, Hot-Tap design*	
	Rotor Pin Material	
-	Tungsten Carbide	
-S	Stainless Steel	
<b>3-2540</b>	<b>-1</b>	<b>Example Part Number</b>

\*Must use 3-1500.663 Hot-Tap installation tool (ordered separately)

Mfr. Part No.	Code	Mfr. Part No.	Code
3-2540-1	<b>198 840 035</b>	3-2540-1S	<b>159 001 501</b>
3-2540-2	<b>198 840 036</b>	3-2540-2S	<b>159 001 502</b>
3-2540-3	<b>198 840 037</b>	3-2540-3S	<b>159 001 503</b>
3-2540-4	<b>198 840 038</b>	3-2540-4S	<b>159 001 504</b>

## Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-1500.663	<b>198 820 008</b>	Hot-Tap Installation Tool (see Installation for more info)
1220-0021	<b>198 801 186</b>	O-ring, FPM (2 required per sensor)
1224-0021	<b>198 820 006</b>	O-ring, EPR (EPDM) (2 required per sensor)
1228-0021	<b>198 820 007</b>	O-ring, FFFPM (2 required per sensor)
3-2540.320	<b>198 820 040</b>	Rotor kit, 2540 Peek Bearing (old version)
3-2540.321	<b>159 000 623</b>	Rotor kit, 2540 Tungsten Carbide Pin (new version since January 1, 2000)
3-2540.322	<b>159 000 864</b>	Rotor kit, stainless steel pin and rotor
P52504-3	<b>159 000 866</b>	Rotor pin, Tungsten Carbide
P52504-4	<b>159 000 867</b>	Rotor pin, 316 SS
P52503	<b>198 820 013</b>	Bearing, Rulon® B (Fluoroloy B/PTFE)
P52527	<b>159 000 481</b>	Retainers, SS (1.4401)
3-2541.260-1	<b>159 000 849</b>	Standard replacement electronics module
3-2541.260-2	<b>159 000 850</b>	Hot-Tap replacement electronics module
5523-0222	<b>159 000 392</b>	Cable (per foot), 2 cond. w/shield, 22 AWG
P51589	<b>159 000 476</b>	Conduit adapter kit
P31934	<b>159 000 466</b>	Conduit cap