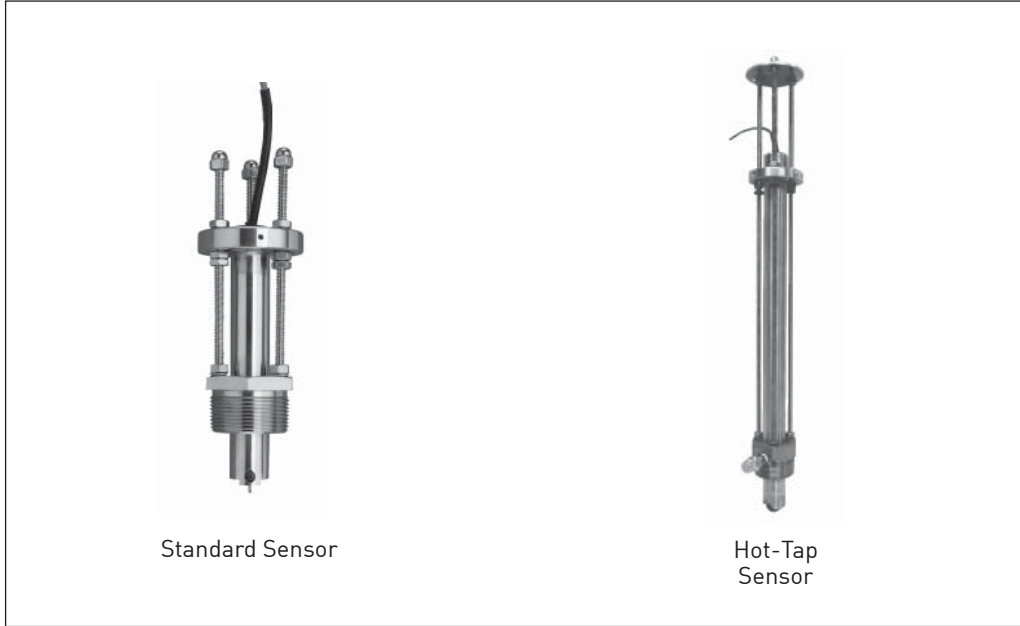


# Signet 2540 Stainless Steel High Performance Paddlewheel Flow Sensor

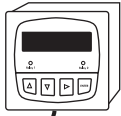
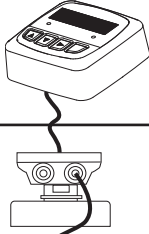


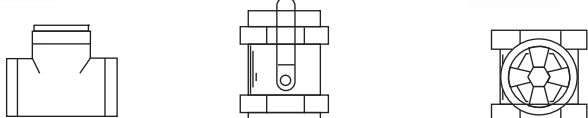


## Description

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. Fluoroloy B®/PTFE bearings and Tungsten Carbide pin provide exceptional wear resistance. The model 2540 offers field replaceable electronics and transient voltage suppression (TVS) to provide

greater immunity to large voltage disturbances (ie. lightning) sometimes encountered in field wiring. Sensors can be installed in DN40 to DN600 (1.5 to 24 inch) pipes using the 1.5 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

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

## Features

- Flow rate 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 DN 900 (36 in.)
- Adjustable sensor - one size for entire pipe range
- 7.6 m (25 ft.) cable

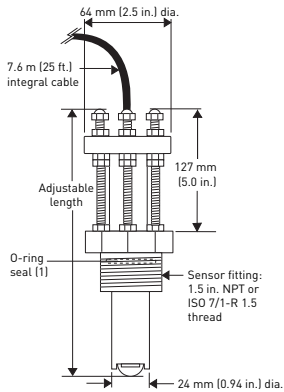
## Application

- HVAC
- Turf Irrigation
- Cooling Systems
- Filtration Systems
- Water Distribution
- Leak Detection
- Pump Protection
- Clarified Effluent Totalization
- Ground Water Remediation
- Gravity Feed Line
- Not suitable for gases

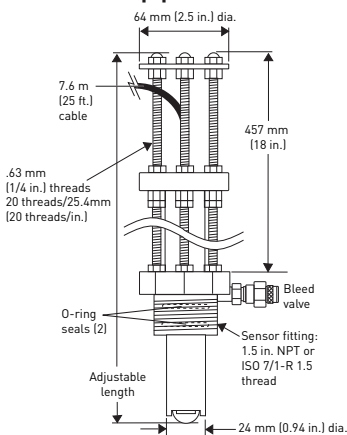


## Dimensions

### 2540 High Performance Flow Sensor for 1.5 to 24 in. pipes



### 2540 Hot-Tap for 1.5 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 302541.260-2.

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

## Specifications

### General

Flow Rate Range: 0.1 to 6 m/s (0.3 to 20 ft/s)  
 Linearity:  $\pm 1\%$  of full range  
 Repeatability:  $\pm 0.5\%$  of full range  
 Min. Reynolds Number Required: 4500

Pipe size range:

- Standard version: DN40 to DN600 (1.5 to 24 in.)
- Hot-Tap version: DN40 to DN900 (1.5 to 36 in.)

Sensor fitting options:

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

### Wetted Materials

- Body: 316 Stainless Steel (1.4401)
- Fitting: 316 Stainless Steel (1.4401)
- Fitting O-rings: FPM, optional EPDM
- Rotor: CD4MCu stainless steel (1.4517)
- Rotor pin: Tungsten Carbide GRP 1 (standard) Stainless Steel (optional)
- Retainers (2): 316 stainless steel (1.4401)
- Rotor bearings (2): Fluoroloy B<sup>®</sup>/PTFE

### Electrical:

Frequency: 15 Hz per ft/s nominal  
 Supply voltage: 5 to 24 VDC  
 Supply current: 1.5 mA max.  
 Output type: Open collector, sinking  
 Output current: 10.0 mA max.  
 Cable length: 7.6 m (25 ft.), can splice up to 300 m (1,000 ft.)  
 Cable type: 2-conductor twisted-pair with shield, 22AWG

### Max. Pressure/Temperature Ratings:

- Sensor with standard FPM sensor fitting O-rings: 17 bar @ 82°C (250 psi @ 180°F)
  - Sensor with optional EPDM sensor fitting O-rings: 17 bar @ 100°C (250 psi @ 212°F)
- See Temperature and Pressure graphs for more information.

### Shipping Weight:

3-2540-1, -2: 1.79 kg 3.9 lbs.  
 3-2540-3, -4: 2.15 kg 4.7 lbs.

### Standards and Approvals

- CE
- Manufactured under ISO 9001:2000 for Quality and ISO 14001:2004 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	1.5 inch NPT thread
-2	1.5 inch ISO thread
-3	1.5 inch NPT thread, hot tap design*
-4	1.5 inch ISO thread, hot tap design*
	Rotor Pin Material
-	Tungsten Carbide
-S	Stainless Steel
<b>3-2540</b>	<b>-1</b> Example Part Number

\*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 page 158 for more info)
1220-0021	<b>198 801 186</b>	O-ring, FPM
1224-0021	<b>198 820 006</b>	O-ring, EPDM
1228-0021	<b>198 820 007</b>	O-ring, Kalrez <sup>®</sup>
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 SST
3-2540.520	<b>159 000 648</b>	Bearing, Fluoroloy B <sup>®</sup> /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 ft.
P51589	<b>159 000 476</b>	Conduit Adapter Kit
P31934	<b>159 000 466</b>	Conduit Cap