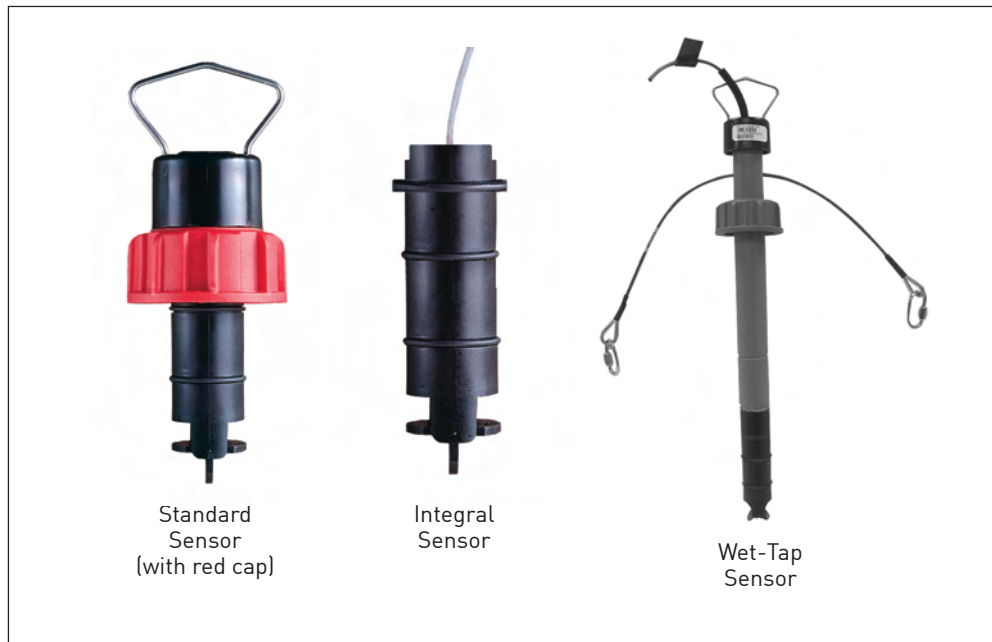


515 Rotor-X Paddle wheel Flow Sensors



Features

- Flow rate range 0.3 to 6 m/s (1 to 20 ft/s)
- Wide Turndown Ratio of 20:1
- Highly repeatable output
- Simple, economical design
- Installs into pipe sizes DN 15 to DN 900 (0.5 to 36 in.)
- Self-powered/no external power required
- 7.6m (25 ft.) cable for Standard and Wet-Tap Sensors
- Chemically resistant materials
- Easy to replace rotor

Description

Simple to install with time-honored reliable performance, Rotor-X Paddlewheel Flow Sensors are highly repeatable, rugged sensors that offer exceptional value with little or no maintenance. The output signal of the Model 515 is a sinusoidal frequency capable of driving a self-powered flowmeter (Model 3-5090). The wide dynamic flow range of 0.3 to 6 m/s (1 to 20 ft/s) allows the sensor to measure liquid flow rates in full pipes and can be used in low pressure systems.




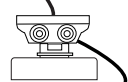





of pipe sizes and insertion configurations. The many material choices, including PP and PVDF, make this sensor highly versatile and chemically compatible to many liquid process solutions. Sensors can be installed in up to DN900 (36 in.) pipes using Signet's comprehensive line of custom fittings. These custom fittings, which include tees, saddles, and weldolets, seat the sensor to the proper insertion depth into the process flow. The sensors are also offered in configurations for wet-tap and intrinsically safe installation requirements.

The Model 515 sensors are offered in a variety of materials for a wide range

Applications

- Pure Water Production
- Filtration Systems
- Chemical Production
- Liquid Delivery Systems
- Pump Protection
- Scrubber Systems
- Water Monitoring
- Not suitable for gases

System Overview (For overview of Wet-Tap System, see 3519 product page)

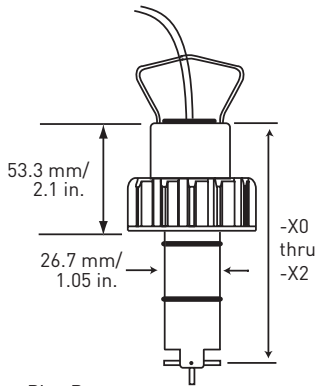
<p>Panel Mount</p> <p>Flow Instrument (sold separately)</p> <p>8150 5075 8550 5090 8900 5500 5600</p> 	<p>Pipe, Tank, Wall Mount</p> <p>Flow Instrument (sold separately)</p> <p>8150 8550</p> 	<p>Integral Mount</p> <p>Flow Instrument (sold separately)</p> <p>8150 8550</p> 
	<p>Universal Adapter Kit (3-8050) (sold separately)</p> 	<p>Integral Adapter Kit (3-8051) (sold separately)</p> 
<p>Model 515 Standard or Wet-Tap (not shown) Flow Sensor</p> 	<p>Model 515 Standard or Wet-Tap (not shown) Flow Sensor</p> 	<p>Model 515 Integral Mount Flow Sensor</p> 
<p>Fittings* (sold separately)</p> 		



* See Fittings section for more information.

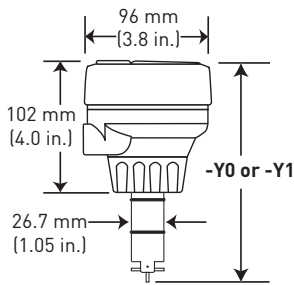
Dimensions

515 Standard Mount Sensor



Pipe Range
 0.5 to 4 in.: -X0 = 104 mm/4.1 ir
 5 to 8 in.: -X1 = 137 mm/5.4 ir
 10 in. and up: -X2 = 213 mm/8.4 ir

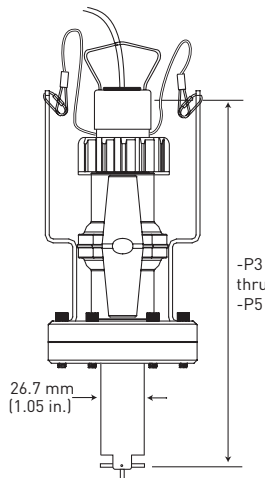
515 Integral Mount Sensor shown with Transmitter (sold separately)



Pipe Range
 0.5 to 4 in. -Y0 = 152mm (6.0 in.)
 5 to 8 in. -Y1 = 185mm (7.3 in.)

515 Wet-Tap Mount Sensor with 3519 Wet-Tap Valve

For more information on the 3519 Wet-Tap Valve see product page.



Pipe Range
 0.5 to 4 in. -P3 = 297 mm/11.7 in.
 5 to 8 in. -P4 = 333 mm/13.1 in.
 10 in. and up -P5 = 409 mm/16.1 in.

Specifications

General

Flow Rate Range:
 0.3 to 6 m/s (1 to 20 ft./s)
 Pipe Size Range:
 DN 15 to DN 900 (0.5 to 36 in.)
 Linearity: $\pm 1\%$ of full range
 Repeatability: $\pm 0.5\%$ of full range
 Min. Reynolds Number Required: 4500

Wetted Materials

- Sensor Body: Glass-filled PP (black) or PVDF (natural)
- O-rings: FPM-Viton® (std) optional EPDM or FFPM-Kalrez®
- Rotor Pin: Titanium, Hastelloy-C or PVDF; optional ceramic, Tantalum, or stainless steel
- Rotor: Black PVDF or Natural PVDF; optional Tefzel® with or w/o Fluoroloy B® sleeve

Electrical

Frequency:
 19.7 Hz per m/s nominal
 (6 Hz per ft/s); sinusoidal
 Amplitude:
 3.3 V p/p per m/s nominal
 (1 V p/p per ft/s)

Source Impedance: 8K Ω

Cable Type:

2-conductor twisted pair with shield
 (22 AWG)

Cable Length:

7.6m (25 ft) standard/60m (200 ft) maximum

Max. Pressure /Temperature Ratings Standard and Integral Sensor:

- PP: 12.5 bar @ 20°C,
 1.7 bar @ 90°C
 (180 psi @ 68°F, 25 psi @ 194°F)
 - PVDF: 14 bar @ 20°C,
 1.4 bar @ 100°C
 (200 psi @ 68°F, 25 psi @ 212°F)
- Operating Temperature:
- PP: -18°C to 90°C (0°F to 194°F)
 - PVDF: -18°C to 100°C (0°F to 212°F)

Wet-Tap sensor

- PP: 7 bar @ 20°C, 1.4 bar @ 66°C
 (100 psi @ 68°F, 20 psi @ 150°F)

Operating temperature:

-18°C to 66°C (0°F to 150°F)

Max. wet-tap sensor removal rating:

1.7 bar @ 22°C (25 psi @ 72°F)

See Temperature & Pressure Graphs for more information.

Shipping Weight

P51530-X0	0.454 kg	1 lb.
P51530-X1	0.476 kg	1.04 lbs.
P51530-X2	0.680 kg	1.50 lbs.
P51530-X3	0.794 kg	1.75 lbs.
P51530-X4	0.850 kg	1.87 lbs.
P51530-X5	1 kg	2.20 lbs.
3-8510-X0	0.23 kg	.50 lbs.
3-8510-X1	0.23 kg	.50 lbs.

Standards and Approvals

- CE
- FM Class I, II, III/Div. 1/groups A-G
- Manufactured under ISO 9001:2000 for Quality and ISO 14001:2004 for Environmental Management

Application Tips:

- Use PVDF Rotor Pin for use in Deionized Water.
- Use the Conduit Adapter Kit to protect the cable-to-sensor connection when used in outdoor environments. See Accessories section for more information.
- Use a sleeved rotor in abrasive liquids to reduce wear.
- Sensor plugs can be used to plug installation fitting after extraction of sensor from pipe.
- For liquids containing particles use only Signet Magmeters
- 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.

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

Ordering Information

Model 515 Standard Mount Paddlewheel

When choosing this style of sensor, the instrument can be mounted nearby on a pipe or wall or in a remote location up to 60 m/200 ft (standard cable length is 7.6 m/25 ft) by connecting the sensor through a standard junction box. Use Signet fittings for proper seating of the sensor into the process flow.

Sensor Part Number	
P51530	Flow Sensor for use with remote mount instrument
↓	Body/Rotor/Pin material-Choose one*
	- H Polypropylene/Black PVDF/Hastelloy-C
	- P Polypropylene/Black PVDF/Titanium
	- S Polypropylene/Black PVDF/Natural PVDF
	- T Natural PVDF/Natural PVDF/Natural PVDF
	- V Natural PVDF/Natural PVDF/Hastelloy C
	Pipe size - Choose one
0 0.5 to 4 in.	
1 5 to 8 in.	
2 10 to 36 in.	
↓	
P51530	- P 0 Example Part Number

Mfr. Part No.*	Code	Mfr. Part No.*	Code
P51530-H0	198 801 659	P51530-T0	198 801 663
P51530-P0	198 801 620	P51530-T1	198 801 664
P51530-P1	198 801 621	P51530-V0	198 801 623
P51530-P2	198 801 622	P51530-V1	198 801 624
P51530-S0	198 801 661	P51530-V2	198 801 625

Model 515 Integral Mount Paddlewheel

When choosing this style of sensor, the instrument is mounted directly onto the sensor for a local display. See Guideline below for instructions.

Sensor Part Number	
3-8510	Flow Sensor for integral mounting on the 8150 or 8550 instrument using the 3-8051 adapter (instrument and adapter sold separately)
↓	Body/Rotor/Pin material-Choose one*
	- P Polypropylene/Black PVDF/Titanium
	- T Natural PVDF/Natural PVDF/Natural PVDF
	- V Natural PVDF/Natural PVDF/Hastelloy C
	Pipe size - Choose one
	0 0.5 to 4 in.
	1 5 to 8 in.
↓	
3-8510	- P 0 Example Part Number

Mfr. Part No.*	Code	Mfr. Part No.*	Code
3-8510-P0	198 864 504	3-8510-T0	159 000 622
3-8510-P1	198 864 505	3-8510-V0	198 864 506

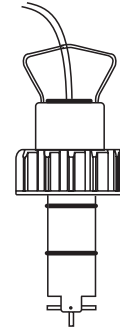
Guideline: Combining a 515 Integral mount flow sensor with an integrally mounted instrument

Once an integral mount sensor is chosen, it can be mounted directly to an instrument by following these guidelines:

- Order the integral adapter kit 3-8051 (sold separately) to connect the sensor to an instrument.
- Order an instrument (sold separately). The following instrument part numbers are compatible: 3-8550-1, 3-8550-2, 3-8550-3, 3-8150-1.

- Assembling the sensor with the integral adapter and instrument is quick and simple. These parts can also be ordered as an assembled part. See "Integral Mount" data sheet for more information.

Model 515 Standard Paddlewheel Flow Sensor



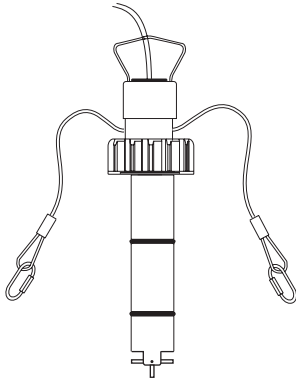
*Model 515 Ordering Notes:

- Most common part number combinations shown. For all combinations, refer to the Part Number Index.
- Other rotor and pin materials are available for purchase and can be easily replaced in the field. See Accessories section.

Model 515 Integral Mount Paddlewheel Flow Sensor



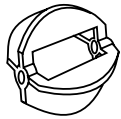
515 Wet-Tap Sensor
with the 3519 Wet-Tap Valve



***Model 515
Ordering Notes:**

- 1) Most common part number combinations shown. For all combinations, refer to the Part Number Index.
- 2) Other rotor and pin materials are available for purchase and can be easily replaced in the field. See Accessories section.

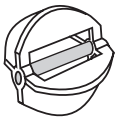
Rotor



Rotor Pin



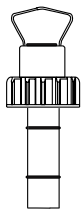
Sleeved Rotor (pin not included)



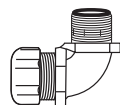
Sensor Cap



Sensor Plug



Conduit Adapter Kit



Ordering Information (continued)

Model 515 Wet-Tap Mount Paddlewheel Flow Sensor

When choosing this style of sensor, the instrument can be mounted nearby on a pipe or wall or in a remote location up to 60m (200 ft) by connecting the sensor through a standard junction box. Standard cable length is 7.6 m (25 ft). This style of sensor uses the 3519 Wet-Tap valve only (see individual product page for more information).

Sensor Part Number	
P51530	Flow Sensor for wet-tap mounting with the 3519 Wet-Tap Valve (sold separately)
	Body/Rotor/Pin material*
- P	Polypropylene/Black PVDF/Titanium
	Pipe size - Choose one
3	0.5 to 4 in.
4	5 to 8 in.
5	10 to 36 in.
P51530	- P 3 Example Part Number

Mfr. Part No.*	Code
P51530-P3	198 840 310
P51530-P4	198 840 311
P51530-P5	198 840 312

Guideline: Combining a 515 Wet-Tap Sensor with a 3519 Wet-Tap Valve

- a) Sensor can be mounted in a 3519 Wet-Tap Valve (sold separately)
- b) Assembling a sensor with a 3519 Wet-Tap valve is quick and simple. These parts can also be ordered as complete assemblies. See 3519 product page.

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Rotors		
M1538-2	198 801 181	Rotor, PVDF Black
P51547-3	159 000 474	Rotor, PVDF Natural
M1538-4	198 820 018	Rotor, Tefzel®
P51550-3	198 820 043	Rotor and Pin (matched set), PVDF Natural
3-0515.322-1	198 820 059	Sleeved Rotor, PVDF Black
3-0515.322-2	198 820 060	Sleeved Rotor, PVDF Natural
3-0515.322-3	198 820 017	Sleeved Rotor, Tefzel®
Rotor Pins		
M1546-1	198 801 182	Pin, Titanium
M1546-2	198 801 183	Pin, Hastelloy-C
M1546-3	198 820 014	Pin, Tantalum
M1546-4	198 820 015	Pin, Stainless Steel
O-Rings		
1220-0021	198 801 186	O-Ring, FPM-Viton®
1224-0021	198 820 006	O-Ring, EPR
1224-0205	159 000 836	O-Ring, EPDM
1228-0021	198 820 007	O-Ring, FFPM-Kalrez®
Miscellaneous		
P31536	198 840 201	Sensor Plug, Polypro
P31536-2	159 000 649	Sensor Plug, PVDF
P31542	198 801 630	Sensor Cap, Red
P31934	159 000 466	Conduit Cap
P51589	159 000 476	Conduit Adapter Kit
5523-0222	159 000 392	Cable (per foot), 2 cond. w/shield, 22 AWG
3-8051	159 000 187	Transmitter Integral Adapter (see system overview for graphics)
6400-9001	159 001 466	Intrinsic Safety Barriers (2 required)

Flow