

Signet 4-3000-5 Remote AgRotor Flow Sensor Assembly



4-3000.090 Rev. J 05/17 English

Product Manual



Description

The Signet 4-3000-5 AgRotor Flow Sensor Assembly offers a reliable, accurate means for measuring water flow in irrigation piping systems. An electromagnetic signal is transmitted from the rotor tip directly to the pick-up within the sensor.

- No recalibration required after routine maintenance
- Can be mounted at any angle for versatile installation
- Innovative rotor design, one moving part, snap-on rotor replacement (no special tools required)

Warranty Information

Refer to your local Georg Fischer Sales office for the most current warranty statement.

All warranty and non-warranty repairs being returned must include a fully completed Service Form and goods must be returned to your local GF Sales office or distributor. Product returned without a Service Form may not be warranty replaced or repaired.

Signet products with limited shelf-life (e.g. pH, ORP, chlorine electrodes, calibration solutions; e.g. pH buffers, turbidity standards or other solutions) are warranted out of box but not warranted against any damage, due to process or application failures (e.g. high temperature, chemical poisoning, dry-out) or mishandling (e.g. broken glass, damaged membrane, freezing and/or extreme temperatures).

Product Registration

Thank you for purchasing the Signet line of Georg Fischer measurement products. If you would like to register your product(s), you can now register online in one of the following ways:

- Visit our website **www.gfsignet.com**. Under **Service and Support** click on **Product Registration Form**
- If this is a pdf manual (digital copy), [click here](#)

Safety Information

1. Depressurize and vent system prior to installation/removal.
2. Confirm chemical compatibility before use.
3. Do not exceed maximum temperature/pressure specifications.
4. Wear safety goggles or faceshield during installation/service.
5. Do not alter product construction.



• [English](#)



	Caution / Warning / Danger Indicates a potential hazard. Failure to follow all warnings may lead to equipment damage, injury, or death
	Electrostatic Discharge (ESD) / Electrocutation Danger Alerts user to risk of potential damage to product by ESD, and/or risk of potential of injury or death via electrocution.
	Personal Protective Equipment (PPE) Always utilize the most appropriate PPE during installation and service of Signet products.
	Pressurized System Warning Sensor may be under pressure, take caution to vent system prior to installation or removal. Failure to do so may result in equipment damage and/or serious injury.

Specifications

General

Typical Pipe Size and Flow Rates

6 in. pipe	88 to 1,761 gpm
8 in. pipe	157 to 3,132 gpm
10 in. pipe	245 to 4,893 gpm
12 in. pipe	352 to 7,046 gpm
Repeatability	±0.5% of maximum range
Accuracy	±2% of reading (under reference conditions)
Cable Length	25 ft supplied, can be increased to 100 ft by customer
Cable Type	2-conductor shielded twisted pair, 14-22 AWG
Rotor Diameter	5 in.

Wetted Materials

Sensor Body	PC/PBT Alloy
Rotor (propeller) Assembly	PC/PBT Alloy and Acetal
Sensor Flange	A-36 Cold Roll Steel with Galvanized Coating
Sensor Gasket	Neoprene Rubber
Rotor Bearing and Shaft	Ceramic
Rotor Face Seal	316 SS

Fluid Conditions

Agriculture Sensor Max. Pressure/Temperature Ratings	150 psi max @ 68°F 32 psi max @ 140°F
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Electrical

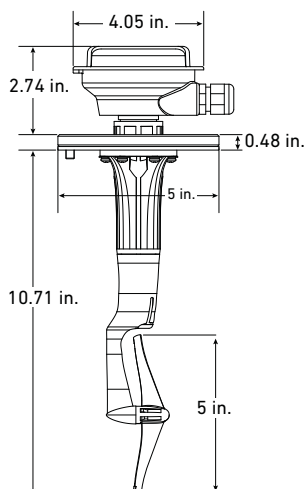
Supply Voltage	3.5 to 27 VDC
Supply Current <20 µA with sensor powered with 3.5-5 VDC <3mA with sensor powered with 5-27 VDC	
Signal Output	Open collector transistor, sink, max. pullup voltage 27 VDC (transistor normally off)

Max. Open-Collector Current Out	20 mA
Output Pulse Width	3 msec. nominal

Standards and Approvals

CE
Manufactured under ISO 9001 for Quality and ISO 14001
for Environmental Management and OHSAS 18001 for
Occupational Health and Safety

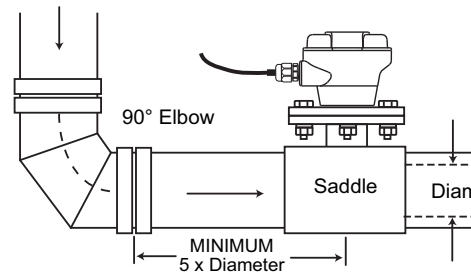
Dimensions



Installation

Location

- Select a location where the pipe will always be full.
- The pipe must be straight and uninterrupted for at least ten pipe diameters before the sensor. Five diameters are acceptable after a simple 90 degree elbow.

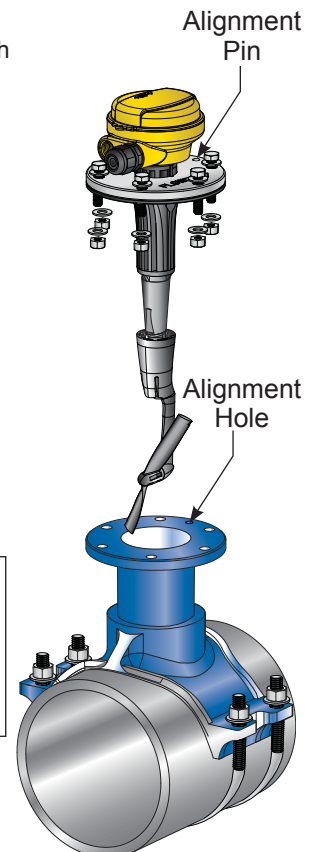
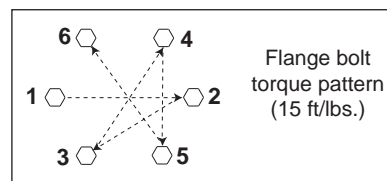
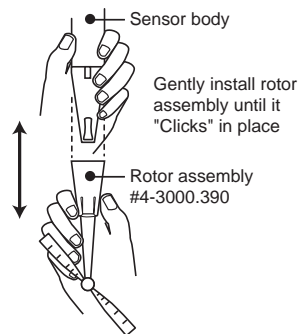


Sensor Saddle Installation

1. Drill a 2.5 inch hole in the pipe. Deburr the cut edges to prevent damage to the saddle gasket.
2. Place the flanged fitting half of the strap-on saddle over the hole. Ensure that the alignment hole on the upper saddle flange is pointing **downstream**.
3. Place the lower half of saddle onto pipe and tighten the bolts to no more than 65 foot-pounds.

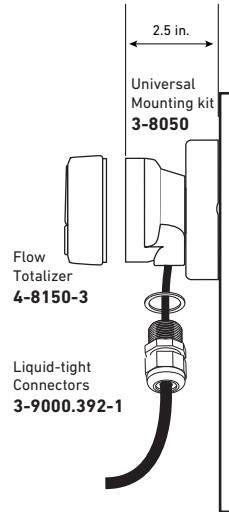
Sensor Installation

1. Install 4-3000.390 rotor assembly onto the Sensor body.
1. Install sensor into the saddle with alignment pin downstream.
2. Bolt the assembly securely with the hardware provided.



Wiring

1. Secure the 3-8050 Junction box to the panel or piping system.
2. Feed the cable of the 4-3000-5 flow sensors through the cable gland of the 3-8050.
3. Refer to the 4-8150-3 manual for wiring information.
4. Secure the irrigation flow totalizer to the 3-8050 Junction box



Maintenance and Repair

At least once a season, remove the flow sensor to check for wear. High flow rates, debris and dirty water increase wear and require more frequent inspection.

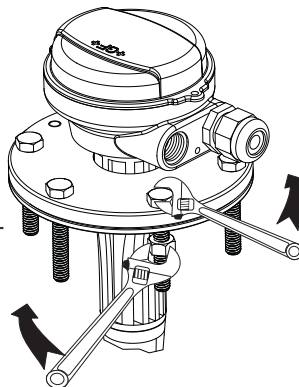
WARNING!



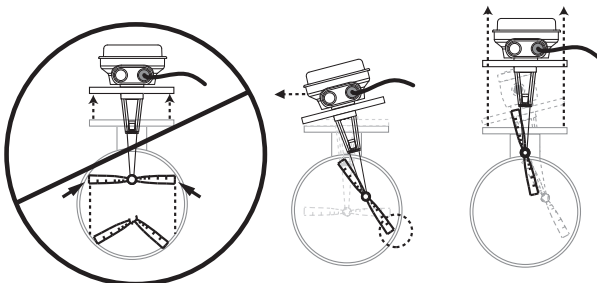
Depressurize and vent system prior to performing the following procedure.

Sensor Removal

1. Turn off pump.
2. Turn off relief valve and drain the pipe.
3. Loosen and remove bolts, nuts and washers securing sensor to the installation fitting.
4. Lift and tilt the sensor slightly until you feel the rotor blade contact the inner pipe wall.
5. Gently lift and tilt sensor to align rotor blade for removal.



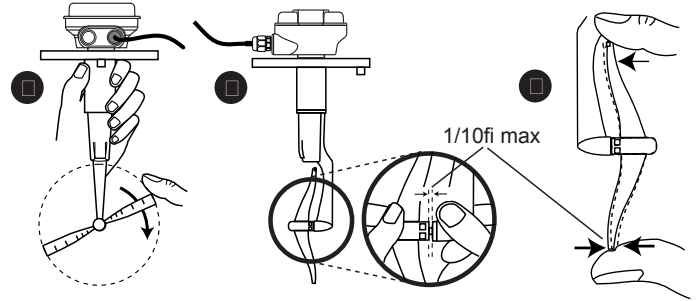
CAUTION: DO NOT FORCE! If resistance is felt while lifting sensor, repeat sequence until sensor can be removed without damaging it.



Note: If necessary, use a wire or stick to help reposition the rotor for removal.

Rotor Inspection

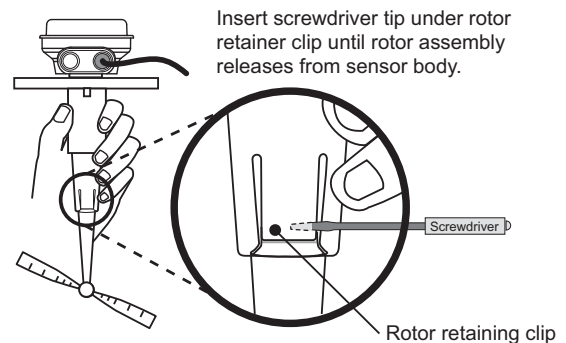
1. **Rotor Rotation:** Flick the rotor to check that it is "free spinning" and not bound or slow in rotating. If bearing binds, replace rotor assembly (P/N 4-3000.390)



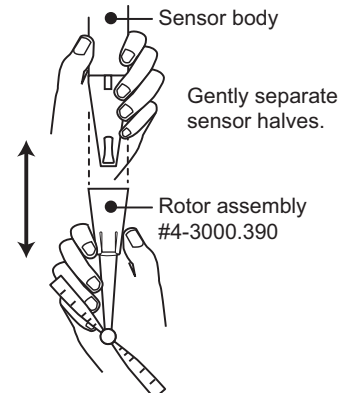
2. **Bearing Gap:** Grasp rotor and shaft and gently try to pull them apart. If there is a gap of more than 0.10-inch, replace rotor kit (P/N 4-3000.390).
3. **Wobble:** Wobble rotor blade from side-to-side. If blade wobbles more than 0.10-inch, replace rotor kit (P/N 4-3000.090).

Rotor Replacement

1. Insert a small screwdriver or coin under **rotor retaining clip** to release the rotor assembly from sensor body.



2. Gently separate halves. DO NOT overextend the rotor assembly retaining clip or it will break.
3. Reinstall sensor rotor assembly in reverse order. Assembly is keyed for proper orientation. When properly seated on the sensor body the retainer clip will "click" into position.



Ordering Information

Mfr. Part No.	Code	Description
4-3000-5	159 050 000	AgRotor Flow Sensor w/25 ft cable
4-8150-3*	159 050 434	Irrigation Flow Totalizer, Field Mount
4-8150-3P*	Special Order	Irrigation Flow Totalizer, Panel Mount
3-8050	159 000 184	Universal Junction Box
4-3000.390	159 310 085	Replacement Rotor Assembly, AgRotor

*Can be programmed for any totalizer units - AC/in., AC/Ft, Gallon x1000

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Totalizer Parts and Accessories		
3-9000.392-1	159 000 839	Liquid Tight Connector
7400-0011**	159 000 935	3.6V Lithium Battery for 8150 (2 required)
5523-2222	159 000 392	Cable 2 cond. w/shield 22 AWG (per ft)

****NOTE:** Use Saft LS14500 Lithium Batteries or equivalent ONLY.

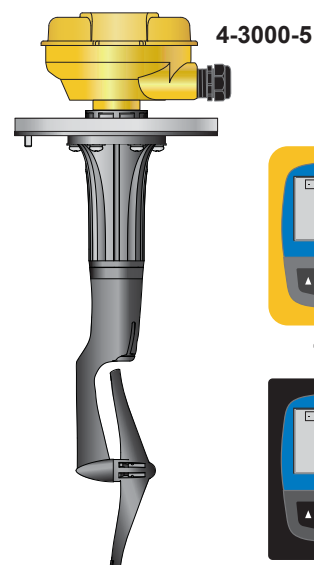
Saddles and Weldolets

Epoxy-coated Saddles with Flange

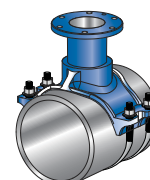
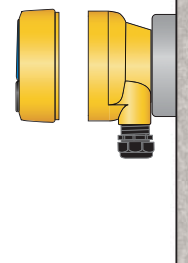
4-3000.566	159 500 544	Saddle, irrigation, 6 inch OD (6.5" - 6.63")
4-3000.568	159 500 545	Saddle, irrigation, 8 inch OD (8.5" - 8.63")
4-3000.570	159 500 546	Saddle, irrigation, 10 inch OD (10.60" - 10.75")
4-3000.572	159 500 547	Saddle, irrigation, 12 inch OD (12.75" - 13.50")

Steel Weldolets with Flange

4-3000.666	159 500 548	Weldolet, steel, irrigation, 6 inch
4-3000.668	159 500 549	Weldolet, steel, irrigation, 8 inch
4-3000.670	159 500 550	Weldolet, steel, irrigation, 10 inch
4-3000.672	159 500 551	Weldolet, steel, irrigation, 12 inch



4-8150-3
with 3-8050
Universal
Junction Box



Georg Fischer Signet LLC, 3401 Aero Jet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057
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