

Hunter Product Written Specification - WFS

Part 1 – General

1.1 WFS is a wireless flow sensor for landscape irrigation use. It allows flow-capable controllers, such as the Hunter ACC and I-Core, to monitor actual flow in irrigation systems wirelessly. The Wireless Flow Sensor is an add-on to existing Hunter controllers, and designed to enhance current capabilities. The Wireless Flow Sensor (WFS) measures water flow speeds through a set of rotating magnets in a paddle wheel arrangement that are propelled by the flow of water. The WFS consists of three distinct parts- a sensor, a transmitter, and a receiver. The sensor and transmitter are connected by means of a wire harness and can also be considered to be one unit. The WFS is installed in a T junction in-line with the water flow. This specification applies to the development of the WFS system with a focus on compatibility with Hunter commercial controllers.

Part 2 – Parts and Material

2.1 Wireless Flow Sensor shall be available in the following options: WFS (Domestic), WFSINT (International)

A. Antenna/Transmitter

1. ASA 797 (Thread Body), ASA 757 (Cover)
2. The materials used for the exterior of the device shall be suitable for an outdoor environment. This includes the housings, lens, keypad, and any other parts that will be exposed to the elements.
 - a. The unit must withstand UV exposure designed to pass (HTM0011)

B. Insert Tee

1. PVC

C. Flow Sensor Paddle

1. Acetal
2. 4 conductor 18 AWG

D. Receiver

1. ASA 757/ASA797
2. [25] The unit must withstand UV exposure designed to pass (HTM0011)

2.2. Wireless Flow Sensor Dimensions

- A. Transmitter: 4.25" Diameter x 5.5" Height
- B. Sensor: 2.25" Diameter x 4" Height
- C. Receiver: 2.5" Width x 1.5" Depth x 5" Height

2.3 Warranty

- A. The sensor shall be installed in accordance with the manufacturer's published instructions. The sensor shall carry a conditional five-year exchange warranty. The sensor shall be the WFS series sensor as manufactured for Hunter Industries Incorporated, San Marcos, California.

Part 3 – Function and Operation

3.1 WFS sensors operate with an impeller positioned in the flow through the pipes. As the impeller turns, pulses are generated to the controller, which converts them to gallons or liters, depending on the units of measurement selection in the controller.

- A. When flow is occurring the sensor/transmitter will transmit sensor information at a maximum rate (depending on flow) of once every 5 seconds. The receiver LED will flash green at the same rate to indicate that flow is occurring.
- B. The WFS is typically installed near the point of connection, in an appropriately-sized FCT tee.
 - 1. WFS requires a section of straight pipe on either side of the tee fitting to provide accurate measurement of flow. Tees, ells, and other fittings cause turbulence, which affects accuracy. There must be a length of straight pipe at least 10 times the diameter of the pipe in the upstream direction (towards the water supply). There must be a length of straight pipe at least 5 times the diameter of the pipe in the downstream direction (towards the sprinklers).

3.2 Antenna/ Transmitter

- A. The transmitter is installed in a valve box lid using a 3 ¼" hole saw.
- B. The WFS transmitter can connect to a host controller up to 500 ft/150 m away.

3.3 Receiver

- A. The receiver will use a Hunter offset wall mount in the case of the ACC. For the I-Core the receiver will mount to the controller through the lower knockout in the enclosure.
 - 1. The receiver will wire into the terminals labelled "Flow" on the ACC. For the I-Core the receiver will use the corresponding S1 terminals, red wire to red terminal and black wire to black terminal.

3.4 Maintenance

A. Flow sensors can potentially be damaged by winterization blow-out techniques, and should be removed prior to injecting compressed air into the pipes. WFS sensors are installed in FCT tee fittings. The flow sensor itself includes an impeller, which rotates in the flow on a metal spindle. When compressed air is used to blow standing water out of pipes, the impeller spins much more rapidly than usual, and can be damaged. The FCT fittings are supplied with a blank plug (P/N 536100) installed inside the adaptor. This is removed when the actual flow sensor is installed. Save this blank plug and use it to temporarily replace the flow sensor during winterization blow out, to prevent damage to the sensor from high velocity air.

STEP-BY-STEP

1. Shut off the water supply
2. Unscrew the threaded cap
3. Remove the flow sensor assembly
4. Insert the blank plug, and replace the threaded cap
5. Proceed with the compressed air blow out
6. Reinstall the flow sensor and tighten threaded cap. The flow sensor will then be ready for the next irrigation season. Replacement plugs are available from Hunter Industries as P/N 536100.