InjectorSentry Lite

Installation and Operation Manual

Ratings

Standard Flow: 5 to 200 GPM, 19 to 750 LPM

Low Flow: 2.0 to 85 Oz./min or .9 to 40 GPH, 60 to 2500 mL/M

Pressure: 145 PSI Maximum

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Description

The Injector Sentry Lite is used with fertigation and chemigation injection pumps for flow rate monitoring. It features a local display showing fertilizer flow rate in real time along with a pulse output for interfacing to other equipment. The IS Lite also features flow monitoring with an ARM feature that will activate a relay in the event that the flow rate goes off target.

Installation

1. Flow line connections

Connect hoses or fittings of your choice to the two ½ NPT (standard flow) or ¼" NPT (low flow) female fittings, being sure to observe the flow direction as indicated on the front of the stainless steel upright. Flow direction is from right to left when viewing the LCD screen.

It is recommended that the injection quill on the irrigation system be installed with a bleed valve. Bleeding relieves pressure on the injection line to simplify connecting and disconnecting fittings and hoses. It also helps in priming the injection pump.

2. Electrical connections

The IS Lite comes with an interface that is installed in the irrigation or pump control panel. The interface requires a 120 VAC power source. The interface components are DIN rail mounted and include a DC power supply, relay, and terminal blocks for the pulse output signal.

Mounting the Interface

Mount the interface inside an electrical control panel. If there is open DIN rail space available in the panel, the components may be removed from the supplied DIN rail and installed on the existing rail. Be sure to mount the interface close enough to the outside wall of the enclosure for

the cable to reach. Drill a 9/16” hole in the SIDE (not bottom) of the electrical control panel. Secure the bulkhead connector and dust cap in the hole with the supplied nut.

***** Make sure to install the dust cap on the connector anytime the cable is not connected.**

Power Supply Connections

Connect 120 VAC to the L screw terminal on the bottom of the interface power supply. Connect a neutral wire to the N screw terminal and connect a grounding wire to the ground screw terminal.

Relay Terminal Connections

There are two sets of contacts on the supplied interface relay that may be connected to other equipment. To enable the IS Lite to shutdown a pivot when the flow rate goes off target, connect the pivot safety circuit in series with a common and normally closed contact. For example, remove the pivot span cable safety return wire from where it is connected in the pivot control panel and connect it to terminal 6 of the relay. Then run a jumper wire from terminal 7 of the relay to the point in the pivot panel where the safety return wire was originally connected.

The IS Lite will only activate the relay when it is ARMED and flow rate goes off target.

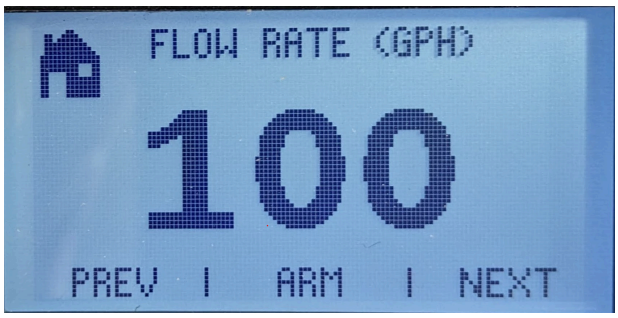
Pulse Output Connection

To utilize the pulse output, connect cabling from the white (-) and brown (+) terminal blocks of the IS Lite interface to a NPN or open collector pulse input. There is no voltage supplied on the terminal blocks. A pullup resistor may be needed on the equipment that is reading the pulses. The maximum voltage that can be used on the pulse output terminals is 24 VDC.

The default K-Factor for the pulse output is 1200 pulses per gallon. This can be changed in the setup menu. See instructions under Operation below.

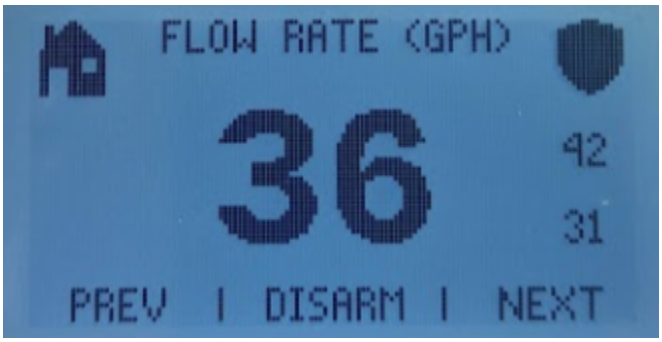
Operation

Upon power up, the IS Lite will immediately display the fertilizer flow rate on the home screen.

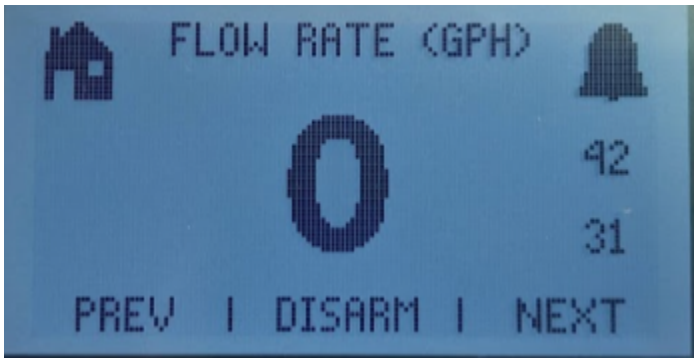


1. Arming and Basic Operation

Pressing the center ARM button from the home screen will establish a flow window based on 85% to 115% of the current flow rate. The window values will then be shown on the right side of the screen along with a shield icon in the top right corner.

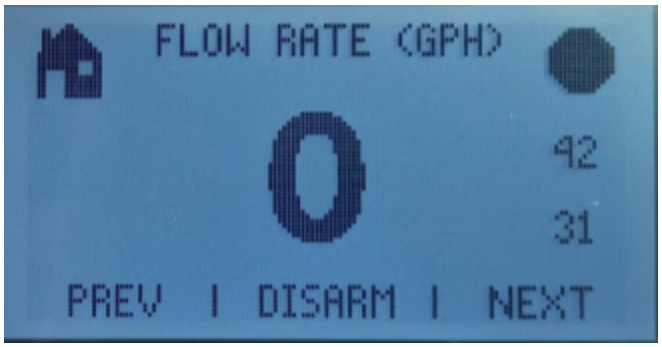


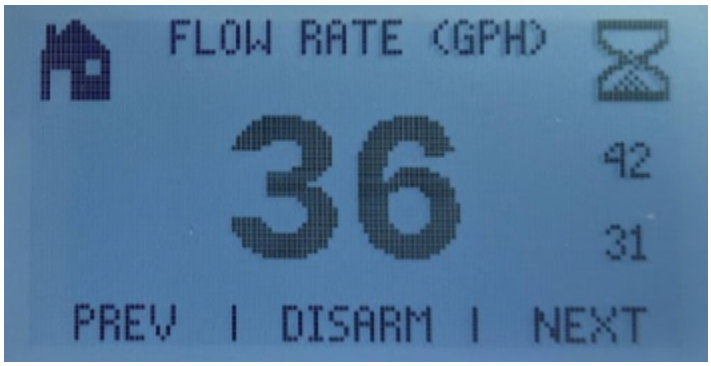
Flow needs to be above minimum flow rating shown on page 1 of this manual in order to arm.



If flow goes outside of the flow window a flashing alarm bell icon will show in the top right corner of the screen.

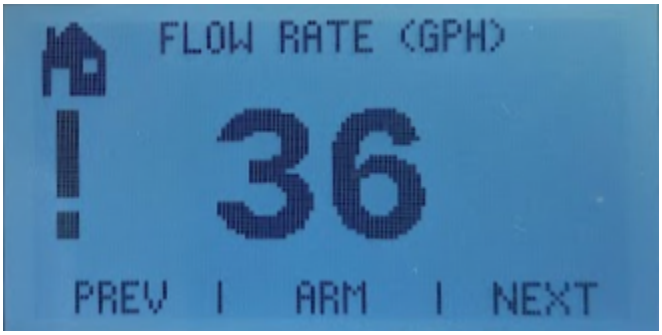
Once the alarm Detection Time has elapsed, the alarm relay will energize and a flashing stop icon will show in the top right corner of the screen.





If the IS Lite is power cycled while armed or with an active alarm, a flashing hour glass icon will show in the top right corner of the display for the length of the Power On Delay Time.

A flashing exclamation point on the left side of the screen indicates a flow meter error. This can mean that the flow meter does not have fluid in it or that the flow is too high.



2. Operating screens

There are five operating screens. They are:

1. Home Screen
2. Tank Volume
3. Total Volume 1
4. Total Volume 2
5. Lifetime Total

Use the PREV and NEXT buttons to cycle between these screens.The tank volume is editable by pressing and holding the EDIT button. This can be used to track the fertilizer tank level. Tank volume can go negative.

Totals 1 and 2 are resettable by pressing and holding the CLEAR button.

Lifetime total is not resettable and shows the amount of product that has flowed through the IS Lite over its life.

3. Setup menu

The setup menu is accessed by pressing and holding the SETUP button on the lifetime total screen. The options available in the setup menu are as follows:

1. Units
    a. Oz/M or GPH (on low flow units set to Imperial only)
2. Filter Time
3. Detection Time
4. Power On Delay
5. Alarm Reset Method
6. Output K-Factor
7. Flow Pulses
8. Flow Scale
9. Relay Test
10. Digital Input Test
11. Output Test
12. Reset
13. Exit

Use the PREV and NEXT buttons to cycle between these screens. Press and hold the center key to edit and then press and hold again to select. A description of each item is given below.

Units

Use this menu item to select between Imperial and Standard units.

Filter Time

Use this setting if the displayed flow rate is not stable. Increasing the filter time will make the IS Lite respond slower to flow rate changes but smooth out the reading. The default setting is 20 seconds.

Detection Time

This is the amount of time that the flow rate is allowed to be out of the flow window before an alarm is triggered. The default time is 60 seconds.

Power On Delay

If the IS Lite has power interrupted while armed, it will not alarm for this amount of time when powered up. This is to allow for start delay times of the pivot. The default time is 600 seconds. If the IS Lite is power cycled while the alarm is active, this amount of time will be allowed to elapse before action is taken. See alarm reset method for more details.

Alarm Reset Method

There are two options for the alarm reset method. Manual (default) and Automatic.

With Manual reset enabled and the IS Lite armed, if the flow rate goes outside of the target window for the alarm detection time, the IS Lite will alarm and energize the alarm relay. The only way to de-energize the relay is to press the center disarm key. If power is lost while in the alarmed state, once power is restored, the relay will not activate for the Power On Delay Time. After the Power On Delay Time has expired, it will reactivate regardless of the flow rate.

If Automatic reset is enabled, the IS Lite operates the same as Manual except for the following condition: When power is cycled with an active alarm, the relay is not energized after the Power On Delay Time if the flow rate is within the flow window. Under this condition the IS Lite resumes the armed state with the prior flow window values.

Output K-Factor

The IS Lite provides a pulse output that can be used with a pulse input on an irrigation control panel or other equipment. The default K-Factor of the pulse output for standard flow is 1,200 for gallons (imperial) and 6,000 for liters (metric). For low flow it is 25,600 for imperial and 6,763 for

metric. This value can be changed to match what the connected device needs for correct flow rate reading.

Flow Pulses

This is a counter showing the pulses received from the flow meter.

Flow Scale

This setting is for adjusting the calibration of the flow meter. The IS Lite comes pre calibrated. If adjustment is necessary, raise or lower this value to achieve the correct flow rate. The flow scale adjusts the flow rate on the display and also the pulse output.

Example: IS Lite displays 74 GPH and actual is 72 GPH.

72 ÷ 74 = 97.3% Change the flow scale to 97%

Relay Test

This provides functionality to test the alarm output relay operation. The relay can be manually turned on and off in this screen.

Digital Input

This is for future use.

Output Test

This can be used to test the pulse output in order to make sure that the connected device reads correctly. No liquid flow is needed. Enter the desired test flow rate and the pulse output will immediately output the correct pulse frequency for the entered flow rate.

Reset

Selecting this option will reset the IS Lite to factory default settings.