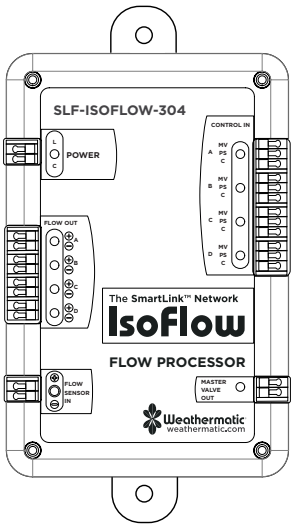
SmartLink® Commercial Wireless

SLF-ISOFLOW-304
Installation Instructions

SLF-ISOFLOW-304 Operation

The SLF-ISOFLOW-304 signal control device allows up to four irrigation controllers or other control devices to share one flow sensor by electrically isolating its flow outputs. The SLF-ISOFLOW-304 is compatible with all Weathermatic flow sensors and most flow sensors producing a square wave output proportional to flow rate. It is not compatible with Hunter HFS devices. In addition, four control inputs are provided allowing the device to selectively block flow outputs to non-active channels during operating cycles.



Example:

Weathermatic SmartLink connected controllers can read and react to unscheduled flow events. The control inputs allow the operating controller to switch off the flow signal to the inactive controllers preventing false alarms.

Control Logic

If no 24 VAC control signal is applied to any of the four control inputs then all four flow output channels are active. If 24 VAC is applied to Control Input A then Flow Output A is active and flow signals are blocked to Flow Outputs B, C and D . If 24 VAC is applied to Control Input B , then Flow Output B is active but flow signals are blocked to Flow Outputs A , C a n d D . The same logic condition repeats for the remaining two Control Inputs. If more than one controller is active at the same time and 24 VAC is applied to more than one Control Input, then the corresponding Flow Outputs are active and blocked to the remaining inactive Control Outputs. If all four Control Inputs receive 24 VAC, then all four Flow Outputs are active.

Simultaneously, the CONTROL IN terminals also operate the master valve. The 24 VAC Normally Closed (NC) Master Valve output from each controller is used as the control input to allow or block FLOW OUT signals. If a NC master valve is used, this also controls the operation of the master valve. When a NO master valve is used, an additional wire connection is made from a Pump Start terminal on the controller to the PS terminal on the appropriate control input.

Control Inputs are also electrically isolated from each other, the flow input and outputs and the power supply.

Mounting Instructions

The SLF-ISOFLOW-304 is mounted in a NEMA 1 enclosure rated for indoor use or protected locations. The preferred location is inside a controller pedestal or wall mounted electrical enclosure. The enclosure may be attached to any flat surface, vertical or horizontal, using mechanical hardware or double sided adhesive tape. Consideration should be given to wiring the device and viewing the LEDs for operating status.

Wire Connections

In most applications, the SLF-ISOFLOW-304 is mounted in the pedestal or wall enclosure of one irrigation controller. Often, the other controllers are installed in the same location and can be easily wired to the I/O terminals through connecting conduits or wire troughs. If the other connected devices are not at the same location as the SLF-ISOFLOW-304, be sure to install the correct number of conductors, type and size of wire from each device to the SLF-ISOFLOW-304.

- Flow sensor connection: a twisted pair of wires in a water-proof shielded cable rated for direct burial
- NC master valve connection: two wires with different color direct burial insulation sized to operate the valve solenoid at the distance from the controller
- NO master valve connection: three separate wires with different color direct burial insulation sized as above.

  Caution: Make sure power is OFF to all components before wiring. In addition to the hazard of electrical shock, mis-wiring the SLF-ISOFLOW-304 with power ON may damage any or all of the connected devices.
- This device will work on either AC or DC power with nominal voltage between 12 and 24 volts. Some Weathermatic controllers are equipped with 24 VAC auxiliary output terminals. This may be used to power the SLF-ISOFLOW-304 but check the manufacturers specifications to make sure it can supply enough current to operate the SLF-ISOFLOW-304 plus the master valve solenoid.
- As an alternative, install a separate 24 VAC Power Supply with a sufficient current rating.
- If using in a control panel application where DC power is supplied, observe circuit polarity.
- The SLF-ISOFLOW-304 uses screwless, spring type terminal connections. Use solid or stranded wire gauge size #14 to #20.

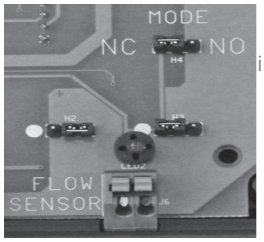
Power Supply

- Supply power the POWER terminals on the upper left side of the SLFISOFLOW-304. Observe polarity by connecting the Hot or Load (+) wire from the supply to the L terminal and the Neutral or Common (-) wire to the C terminal.

Flow Sensor

1. Connect field wiring from the flow sensor to FLOW SENSOR IN terminals on the lower left side of the unit. Observe electrical polarity.
2. The four pair terminal strip labeled FLOW OUT contains the isolated terminal pairs labeled A, B, C, and D to connect to each respective controller's SmartLink Aircard flow sensor leads. Connect sensor pair A to the first controller, sensor pair B to the second controller and so on, observing polarity.

Master Valve



1. The SLF-ISOFLOW-304 will isolate either a NC or NO master valve. The selection made by the position of a jumper on the circuit board. Take the top off the enclosure by removing the four black screws in the corners of the top to expose the circuit board. Locate the jumpers near the FLOW SENSOR terminals. The default selection is to operate a NC master valve (solenoid must be energized to open the valve). To select NO master valve operation, pull the black jumper straight up off the left and center pins. Then push it down onto the center and right pins.
2. Connect field wiring from the master valve to the MASTER VALVE OUT terminals on the lower right side of the SLF-ISOFLOW-304. There is no polarity to these connections.

Control Inputs

These 12 terminals labeled CONTROL IN have two functions. These terminals are the connection point for the master valve wiring from each controller. They are also used to control the input to activate or block the flow output signal from the SLF-ISOFLOW-304 depending on which controller is operating.

1. If using a NC master valve, connect the master valve power or (+) terminal of the A controller to the MV terminal at A.
2. If using a NO master valve, connect the master valve power terminal as above. Then connect the Pump Start terminal of the controller to the PS terminal at A.
3. Next, connect the MV Common terminal of the controller to the C terminal at A.
4. Repeat these connections to the CONTROL IN terminals for each controller isolated by the SLF-ISOFLOW-304

LED Operation

Using NC master valve (Diagram 1)

1. On power up:
   - The POWER LED blinks red/green three times then remains ON.
   - The FLOW SENSOR IN LED blinks three times and remains OFF.
   - All 4 FLOW OUT LEDs blink three times then remain ON
2. When flow occurs:
   - The FLOW SENSOR IN LED turns ON
   - The active FLOW OUT LEDs turn ON, blinking at lower flow becoming steady at high flow
3. When any controller turns on a schedule, the corresponding CONTROL IN LED turns ON red.
   - The FLOW OUT LED with the same letter stays ON and all other LEDs turn OFF
   - The MASTER VALVE OUT LED turns ON
4. If more than one controller is operating at the same time, the CONTROL IN LEDs and the FLOW OUT LEDs with the letter designation for operating controllers turn ON.
5. When one or more controllers detect an abnormal flow condition, it turns off the CONTROL IN signal and the LED turns OFF.
   - The MASTER VALVE OUT LED turns OFF
   - The FLOW SENSOR IN LED should turn OFF
   - The FLOW OUT LEDs turn OFF

Using NO master valve (Diagram 2)

1. On power up:
   - The POWER LED blinks red/green three times then remains ON.
   - The FLOW SENSOR IN LED blinks three times and remains OFF.
   - All 4 FLOW OUT LEDs blink three times then remain ON
2. When flow occurs:
   - The FLOW SENSOR IN LED turns ON, blinking at lower flow becoming steady at high flow
   - The active FLOW OUT LEDs turn ON
3. When any controller turns on a schedule, the corresponding CONTROL IN LED turns ON green, activated by the PS terminal connection.
   - The FLOW OUT LED with the same letter stays ON and all other LEDs turn OFF
   - The MASTER VALVE OUT LED stays OFF
4. If more than one controller is operating at the same time, the CONTROL IN LEDs and the FLOW OUT LEDs with the letter designation for operating controllers turn ON.
5. When one or more controllers detect an abnormal flow condition, it activates the CONTROL IN logic through the MV terminal connection and the LED turns to red.
   - The MASTER VALVE OUT LED turns ON.
   - The FLOW SENSOR IN LED should turn OFF
   - The FLOW OUT LEDs turn OFF
6. If more than one controller detects an abnormal flow condition, then more than one CONTROL IN would turn ON red

Diagram 1
Using NC
Master Valve

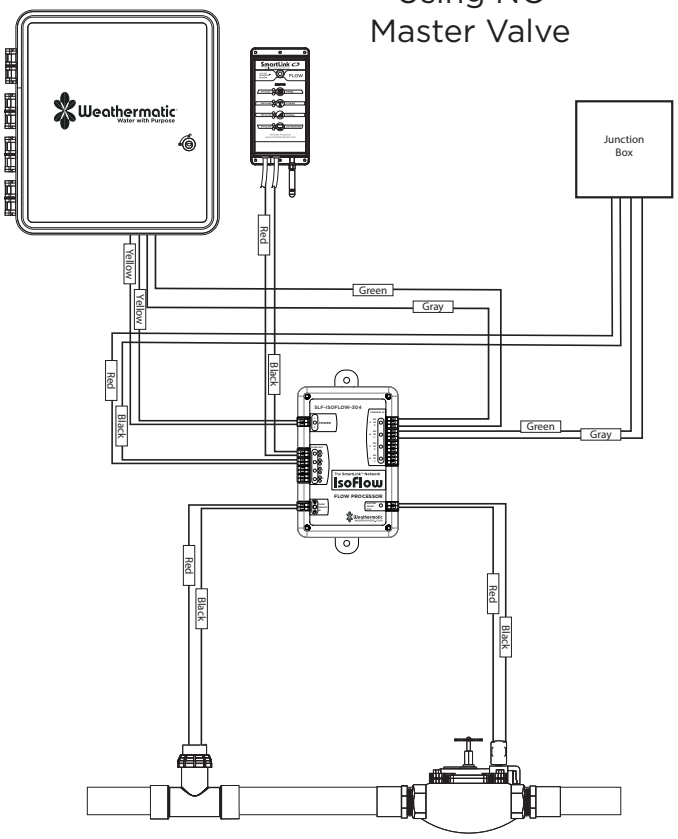


Diagram 2
Using NO
Master Valve