



Creative Sensor Technology

Frequently Asked Questions

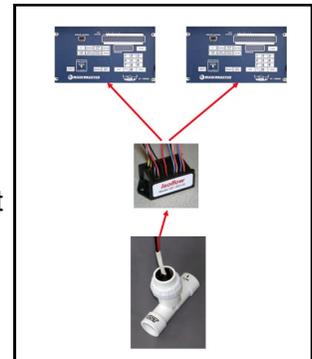
Isoflow *Model ISF-302-00* *also applies to ISF-306-00*



The following questions have been asked about the Isoflow product. Before calling for technical support, please review to see if your question may be answered here.

1. What does the Isoflow do?

The Isoflow is a solid state device that has one flow sensor input and two flow outputs that are optically isolated from each other. This allows a flow sensor signal to be shared by more than one irrigation controller, pump control or other device, without causing voltage feedback, change in signal strength or other signal distortions. In fact all of the circuits; incoming power supply, flow sensor input, flow outputs and control circuits are isolated from each other.



2. Why do I need an Isoflow?

Flow sensor input circuits for irrigation controllers are very different from valve control circuits. They supply power to the flow sensor and at the same time, read the digital output of the flow sensor and convert it into a flow rate. If you attempt to connect one flow sensor to more than one controller, the power supplied by each is cross-connected and will back feed into the other controllers flow circuit. If this problem isn't enough, the signal strength changes and the controller circuitry interprets this as incorrect flow.

3. Can I use it to connect a flow sensor to an irrigation controller and a pump station control?

Yes, or you can share connections to a fertigation control, a SCADA system, a data logger or any other device that needs a flow sensor input. Many of these other control products do not use the raw flow sensor signal but convert it to an analog signal. Because this type of input is either a change in voltage or current proportional to flow, it is even more critical that the flow sensor signal be isolated before it gets to the analog converter. The Isoflow may be used in retrofit applications to allow an additional system to share a flow sensor without affecting the settings of an existing analog transmitter.

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4. Does it need power?

Yes, the Isoflow is a powered device. Connect the two yellow leads to 12-24 volt AC or DC power. Remember to connect the Yellow with White Stripe wire the DC + source. Some controllers have power output connections. Always check with the controller manufacturer for their recommendations. You may also use an accessory plug-in type power supply purchased locally. As good practice, install an inline 250 volt, 125 mA slow blow fuse in series with the power lead.

5. Does it also isolate master valves?

No, an Isoflow device only isolates the flow sensor. Check with the controller manufacturer for their recommendations for sharing a single master valve between two controllers.

6. What are the blue and orange wires for?

In addition to providing two isolated flow outputs, the Isoflow contains circuitry that allows these outputs to be switched on or off by an external signal. Several “smart” irrigation controllers have the capability of sensing flow even when no irrigation program is running. If flow is detected with no programmed irrigation cycle running, the flow is considered “unscheduled” and will cause an alarm condition. If two controllers are sharing a single flow sensor, one may operate while the other is not. Let’s say Controller “A” is running a program and Controller “B” is not. Flow going through the sensor will be received by both controllers. “A” will read flow normally but “B” will see this flow as unscheduled and go into the alarmed state. To prevent this from happening, the orange and blue leads are connected to terminals of the “A” controller that will supply 24 VAC whenever the controller is running. This is usually a “normally closed master valve circuit” or a “pump start circuit”. When this pair of wires is energized, the flow signal to the “B” controller is blocked. Similarly, the other pair of orange and blue leads with white stripes are connected to the NC master valve or pump start circuit of the “B” controller and block the flow signal to “A” whenever the “B” controller is operating. In cases where both controllers are operating at the same time- both sets of orange and blue wires are energized, the flow signal is conducted to both controllers so they both read flow. If neither controller is operating an active program nor either pair of orange and blue wires is energized, then the flow signal is also transmitted to both controllers so they can both detect “unscheduled flow”. In applications where two isolated flow signals are required continuously, do not use the orange and blue leads.

7. Can I use an Isoflow with other sensors?

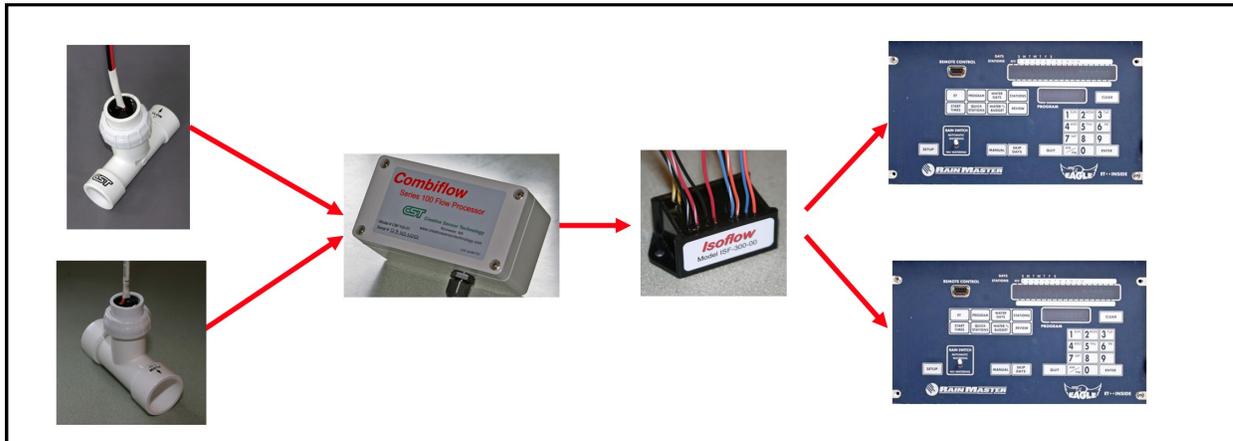
Yes, in addition to using the Isoflow with Creative Sensor Technology sensors, it may be used with any two-wire impeller type flow sensor manufactured by Data Industrial/Badger Meter. Please call technical support to verify other devices. **It cannot be used with Hunter HFS sensors.**

8. Can I use a Combiflow with the Isoflow product?

Yes, the Combiflow device may be connected in series with Isoflow. With this combination of products you can accept the signals from two flow sensors combine that total flow rate into one



output and use that as the input to an Isoflow to provide an isolated flow signal to two individual irrigation controllers. With this combination of products, either controller can receive all the flow information from both flow sensors.



9. I have my controller set up to operate a normally open master valve; can I still use the Isoflow to prevent “unscheduled flow” alarms?

Yes, in this case, you need to supply 24 VAC power whenever the controller is on. The normally open master valve circuit is just the opposite, only powering the valve when it needs to be closed. Use your controllers pump start circuit. Sometimes it's another set of terminals and sometimes its Station Output 1. Check with the controller manufacturer.

10. Where should I mount the Isoflow?

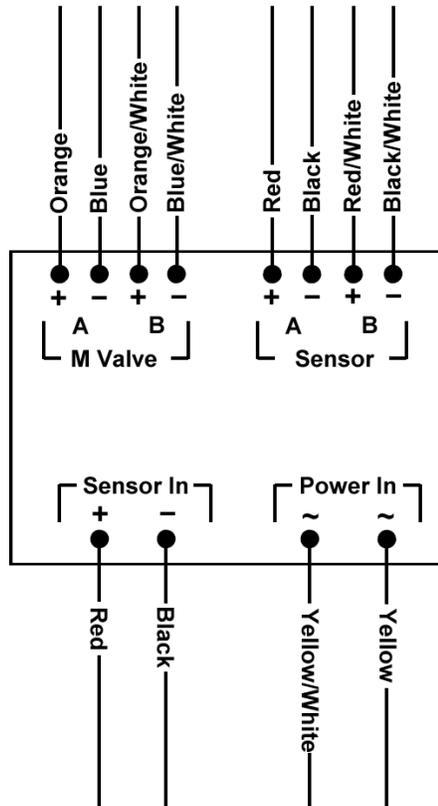
The Isoflow should be mounted in a dry location, I prefer a controller pedestal or wall mount enclosure. It should also be within the distance limits of the flow sensor, 2,000 feet for CST sensors using the recommended cable. Finally, the Isoflow should be connected between the flow sensor field wiring and any control inputs. There is one pair of leads to connect to the flow sensor and two sets of flow output leads to connect to the irrigation controller flow inputs. If any analog converter devices are required, make sure the Isoflow is installed so one flow output is attached to the analog converter flow input.

11. Will it work with all kinds of irrigation controllers?

The Isoflow will operate with any irrigation controller equipped to receive a two wire flow sensor input. In some instances, an accessory device may be required to change the signal format. Check with Creative Sensor Technology regarding the proper connection to your controller.



12. Can you provide wiring diagrams?



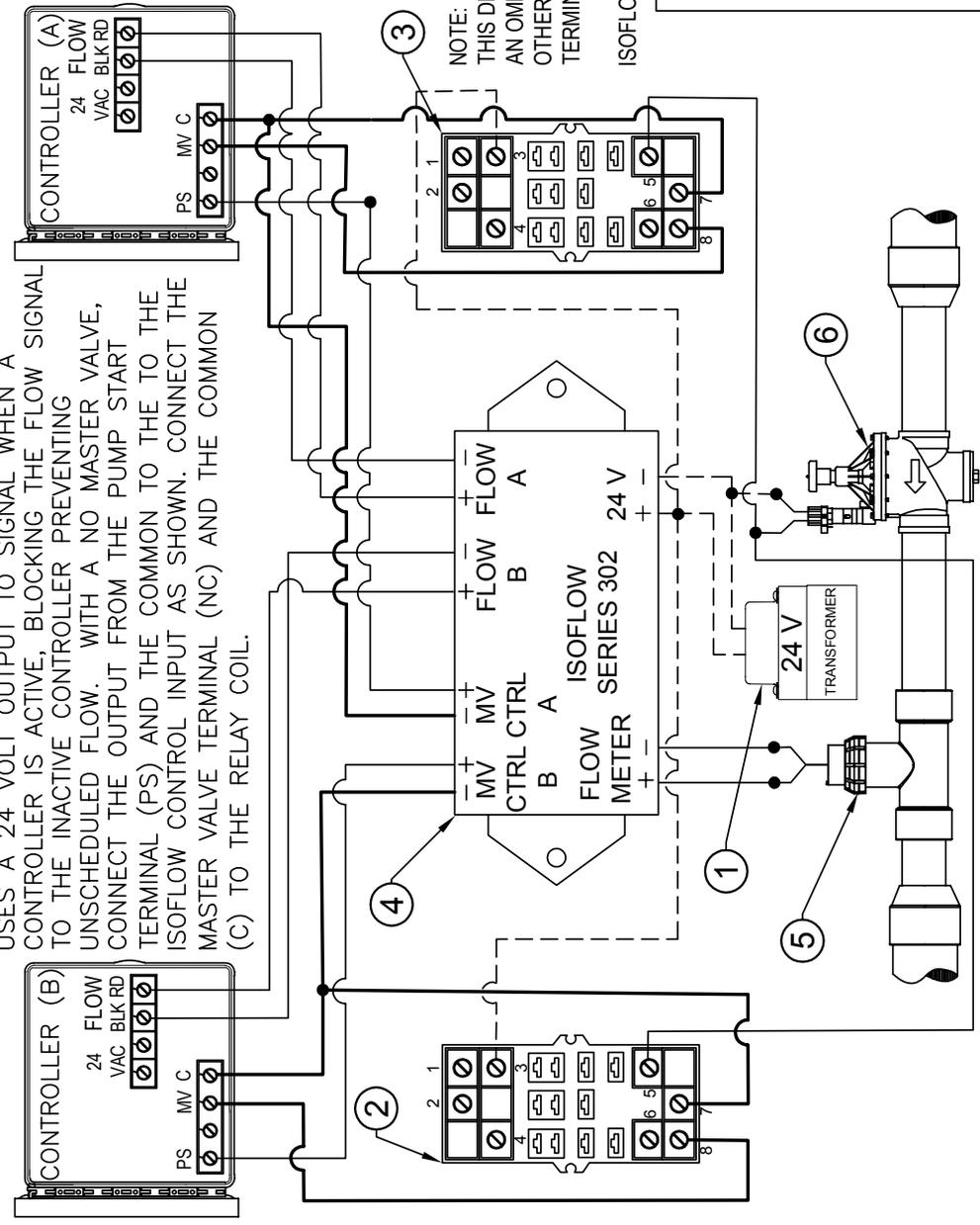
Note:

1. All wire connections are made to the flying leads as shown.
2. Power can be any 12 to 24 Volt, AC or DC supply. If you use a DC supply be sure to connect the + and - terminals correctly.
3. The wire colors are shown to match the CST flow sensors. If others are used, observe the + and - polarity.



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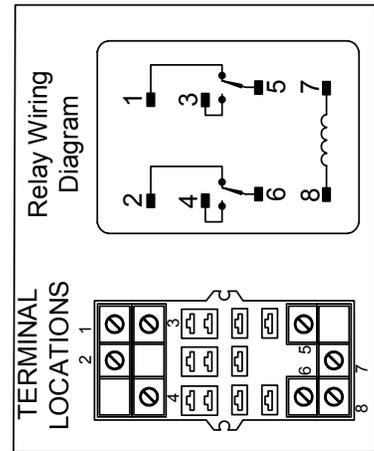
ISOFLOW DOES NOT ISOLATE MASTER VALVE, USE ISOLATION RELAY FOR EACH CONTROLLER. ISOFLOW USES A 24 VOLT OUTPUT TO SIGNAL WHEN A CONTROLLER IS ACTIVE, BLOCKING THE FLOW SIGNAL TO THE INACTIVE CONTROLLER PREVENTING UNSCHEDULED FLOW. WITH A NO MASTER VALVE, CONNECT THE OUTPUT FROM THE PUMP START TERMINAL (PS) AND THE COMMON TO THE ISOFLOW CONTROL INPUT AS SHOWN. CONNECT THE MASTER VALVE TERMINAL (NC) AND THE COMMON (C) TO THE RELAY COIL.



- 1 SECONDARY STEP DOWN TRANSFORMER 110V TO 24V POWER SUPPLY.
- 2 ISOLATION RELAY #1
- 3 ISOLATION RELAY #2
- 4 ISOFLOW MODEL ISF-302
- 5 C.S.T. FLOW SENSOR
- 6 MASTER VALVE (NORMALLY OPEN).

NOTE:
THIS DETAIL DEPICTS A RELAY SOCKET, PART NO. PTF08AE-FOR AN OMRON LY2F DPDT C FORM RELAY WITH 24 VOLT COIL. IF OTHER MANUFACTURER'S RELAYS ARE USED, CONSULT TERMINAL LAYOUT SUPPLIED WITH THE PRODUCT

ISOFLOW & MASTER VALVE CAN SHARE 24V POWER SUPPLY.



ISOFLOW (N/O)MASTER VALVE ISOLATION RELAY

2

N.T.S. NORMALLY OPEN MASTER VALVE WITH ONE FLOW SENSOR AND TWO CONTROLLERS