

AMERITROL, INC.

INSTALLATION
OPERATION MANUAL
AND
WIRING DIAGRAM

IX SERIES
FLOW SWITCH

Manual Number: IX2105-2

1185LPark Center Dr. Vista CA 92081
1-760-727-7273
1-800-910-6689
1-760-727-7151 Fax
www.ameritrol.com

OVERVIEW

The IX Series is an electronic flow switch designed to detect increasing or decreasing flow with two separately adjustable switch points in virtually all liquids, gases, or slurries. Please refer to attached wiring diagram for DIP switches and relay energization switch settings (S1 and S2).

- The flow switch factory default settings are configured for liquid flow and relays energized at flow.
- To change from factory default to air flow applications: Change DIP switch positions 1 to OFF and 2 to ON for both application settings switches (switch points #1 and #2).
- To change from factory default relay energization of Switch Point #1 to relay energized at no flow: Reverse red slide switch (S1).
- To change from factory default relay energization of Switch Point #2 to relay energized at no flow: Reverse red slide switch (S2).
- Power input and relay rating are written on the board.

INSTALLATION

Conduit Recommendation: Do not place flow switch at low point of conduit, because moisture can collect at the low point. A conduit seal may be beneficial in preventing moisture from entering the enclosure and damaging the electronics.

The IX series Flow Switch is an inline device and is available with two distinct inlet configurations. Horizontal installation is preferred.

The IX-7575 has ¾" FNPT inlet and outlet connections. The device is bi-directional and either connection can be configured as the inlet or outlet.

The IX-1875 and IX-2575 have a ¼" FNPT inlet and ¾" FNPT outlet. The ¼" inlet must be the upstream connection in order to perform as shown in the literature.

For liquid service, fill the process line so that the probe is surrounded by liquid.

See attached drawing for wiring details.

CALIBRATION

Power the instrument and allow 1 minute for the sensor head to reach equilibrium.

Remove the housing cover observing the safety precautions associated with the area in which the unit is mounted.

Dual switch point units have two separately adjustable switch points, each with a corresponding relay that can be set to be energized at flow or no flow. **Follow the instructions below to set each switch point.**

TO DETECT A DECREASE IN FLOW (FACTORY DEFAULT):

It is assumed that the user will have the relay energized at flow and will alarm (relay de-energize) on loss or decrease of flow. Please refer to attached wiring diagram for relay energization switch setting.

Flow product in the process line to the normal /expected rate for 1 minute.

Adjust the potentiometer (R22 for switch point #1 and/or R8 for switch point #2 on the wiring diagram) on the circuit board until the LED (Red for switch point #1 and YELLOW for switch point #2) changes state, as follows:

If the LED is on: Turn the potentiometer clockwise.
If the LED is off: Turn the potentiometer counterclockwise.

Typical backlash for the potentiometer is 1/8 turn.

Once the red LED on/off location is determined, turn the potentiometer in the LED “on” direction (counterclockwise), as follows:

- Air Flow Switch: 4 turns
- Organics/hydrocarbons Flow Switch: 2 turns
- Water Flow Switch: 1 turn

These turn numbers are typical and can be “fine tuned” as required.

TO DETECT INCREASE IN FLOW:

It is assumed that the user will have the relay energized at no flow and will alarm (relay de-energize) on increase of flow. Please refer to attached wiring diagram for relay energization setting. The relay energization switch (red slide switch: S1) will need to be changed from the factory default setting.

Flow product in the process line to the normal condition for 1 minute. If zero flow rate is normal/expected, set with line full at zero flow.

Adjust the potentiometer (R22 for switch point #1 and/or R8 for switch point #2 on the wiring diagram) on the circuit board until the LED (Red for switch point #1 and YELLOW for switch point #2) changes state, as follows:

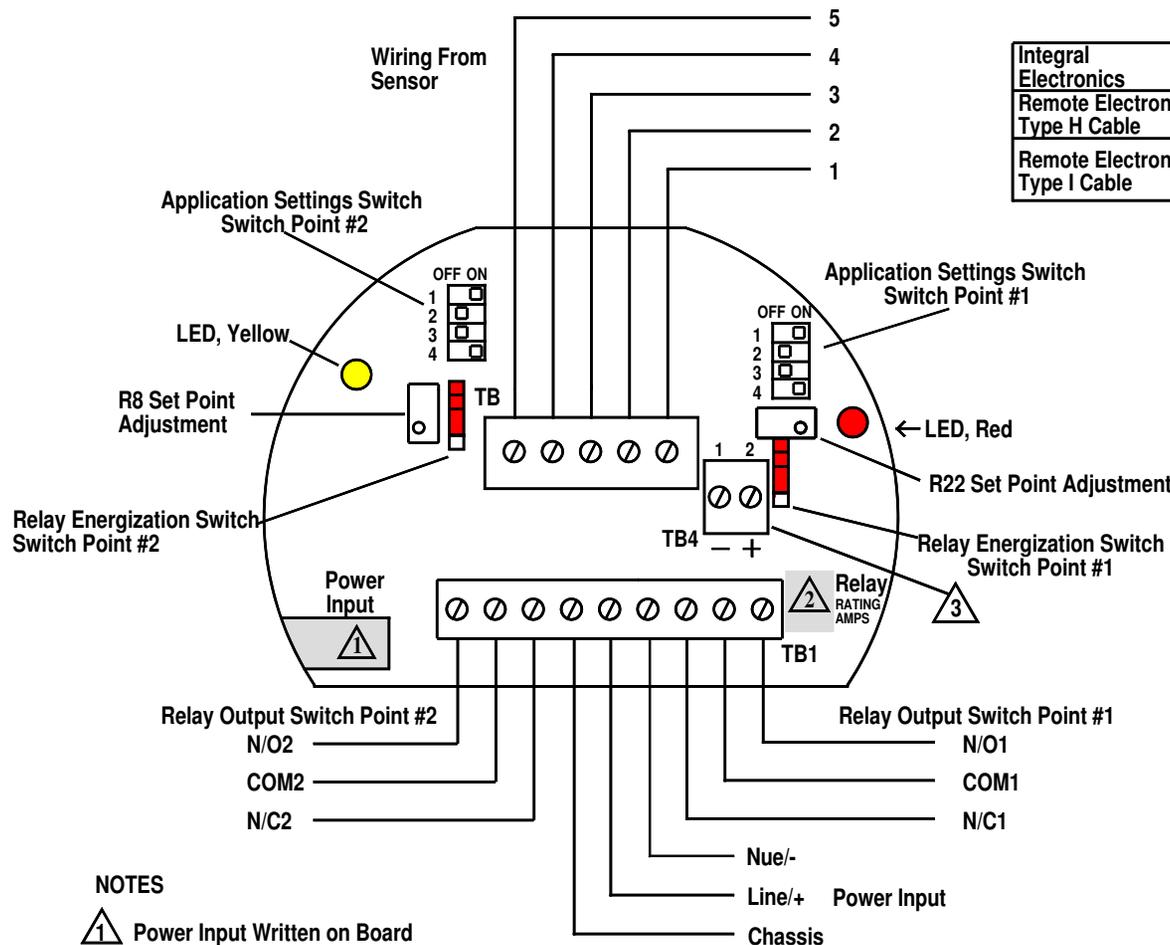
If the LED is on: Turn the potentiometer counterclockwise.
If the LED is off: Turn the potentiometer clockwise.

Typical backlash for the potentiometer is 1/8 turn.

Once the red LED on/off location is determined, turn the potentiometer in the LED “on” direction (clockwise), as follows:

- Air flow switch: 4 turns
- Organics/hydrocarbons flow switch: 2 turns
- Water flow switch: 1 turn

These turn numbers are typical and can be “fine tuned” as required.



	Terminal Number (TB)				
	1	2	3	4	5
Integral Electronics	Red or Purple	Red or Purple	Yellow or White	Black	Green
Remote Electronics Type H Cable	White	Blue + Drain	Yellow	Black	Green
Remote Electronics Type I Cable	Red of Pair #1 (Red Foil)	Black of Pair #1 + Drain of Pairs #2 and #3	White of Pair #2 (Green Foil)	Black of Pairs #2 and #3	Green of Pair #3 (Blue Foil)

Application Setting Switches 1 and 2	Switch Position				Factory Default
	1	2	3	4	
Liquid Flow Switch	ON	OFF	OFF	ON	
Air Flow Switch	OFF	ON	OFF	ON	
Liquid Level Switch	OFF	ON	OFF	ON	
Temperature Switch	OFF	OFF	ON	OFF	

Relay Energization Settings	Switch Position	Factory Default
Flow Switch		
Energized at Flow	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Factory Default
Energized at No Flow	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Level Switch		
Energized when Wet	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Factory Default
Energized when Dry	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Temperature Switch		
Energized below Set Point	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Factory Default
Energized above Set Point	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	

NOTES

1 Power Input Written on Board

"120 VAC"	90-132 VAC, 4 Watts Max.
"12 VDC"	12 VDC +30%, -10% 300 mA
"24 VAC or VDC"	24 VAC or VDC ±10%, 4 Watts or 150 mA
"240 VAC"	200-240 VAC, 4 Watts Max.

2 Relay Rating Written on Board

"3"	3 AMP Relay Rated at 120 VAC or 24 VDC Resistive and 2 AMP at 240 VAC
"10"	10 AMP Relay Rated at 120 VAC or 24 VDC Resistive and 5 AMP at 240 VAC

3 TB4 for Optional mV Output

Ameritrol, Inc
1185L Park Center Dr. Vista CA 92081 760-727-7273 800-910-6689

Title Flow Switch Wiring Diagram, Dual Switch Point and/or mV Output, X Series Board			
Size A	Drawn by RAL	Drawing No. 2105	Rev 4
Scale	Date 2/01	Sheet 1 of 1	