

# Application Note

Application Note: 101405

## Fail Safe

**Application:** Wiring and configuring the Classic 800 Series Flow, Level, Interface & Temperature Switch & Transmitter for “Fail-Safe” operation.

**Product:** Kayden Classic 800 Series Thermal Dispersion Flow, Level, Interface & Temperature Switch & Transmitter

### Description:

The term “Fail-safe” refers to a method of wiring and programming control instrumentation commonly used in hazardous locations / applications such as a chemical plant, gas plant or refinery.

### Problem:

In a “Fail-safe” application the instrument is wired and configured to be “ON” (closed contacts, output(s) supplied by the instrument to the system) during normal system operations, but “OFF” (contact(s) open or de-energized, output(s) discontinued) in the event of a power failure, cable break, self-test failure, or other loss of electrical power.

### Solution:

A common “fail-safe” set up for No Flow Condition, Pump Protection:

- Connect the relay contact wires to Normally Open (R1NO, R1CM)1
- Program the relay(s) to energize above set point.2
- Depending on application and set-up of the switch transmitter, the relay contact(s) will OPEN (deenergize):
  - a. When the thermal signal decreases due to a decrease or loss of flow/level
  - b. When power is lost to the switch as described above.

- Notes:**
1. The Kayden CLASSIC provides wiring terminals for Normally Open and Normally Closed outputs, as well as the ability to set (locally via the Display Panel or remotely via the RCM Software) the relay contact(s) to energize above or below set point(s).
  2. The RELAY LEDs are illuminated when the corresponding relay is energized.



Display Panel

### Display Panel Indicators:

Relay 1	On steady when Relay 1 is energized
Relay 2	On steady when Relay 2 is energized
Fault	Indicates a self-test error or fault condition
Set Point 1	On steady when viewing set point 1
Set Point 2	On steady when viewing set point 2
Run Mode	Flashing when Switch is operating
Bypass	Flashing when the Start-up Bypass Timer is active
Thermal Signal	Displays Thermal Signal

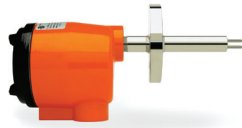
### The Thermal Signal increases as:

Flow	The flow rate increases
Level	The sensor is submerged
Interface	The sensor is submerged by the second distinctly different process

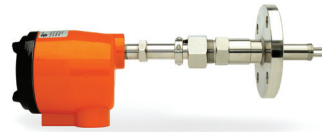
Applicable CLASSIC™ 800 Models



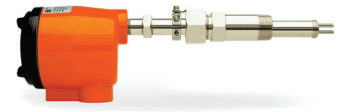
CLASSIC™ 810



CLASSIC™ 812



CLASSIC™ 814



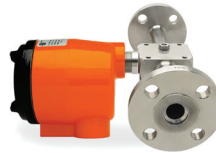
CLASSIC™ 814



CLASSIC™ 828



CLASSIC™ 830



CLASSIC™ 832

**Ordering & Contact Information**

Contact us with any inquiries you may have.

**Telephone**

1 (403) 253-1423  
001 403 253-1423

**Fax**

1 (403) 253-1460 North America  
001 403 253-1460 International

**E-Mail**

sales@kayden.com

**Web**

kayden.com

**Hours** Monday – Friday 8:00 a.m. – 5:00 p.m. MST

**Mailing Address** 3368 – 114th Avenue S.E., Calgary, Alberta, Canada T2Z 3V6

**Contact a Local Distributor**

**Distributors**

Visit [kayden.com](http://kayden.com) to find a local Distributor near you. Kayden Distributors provide local inventory, technical support and service.



For more information about the CLASSIC 800 Series or any of Kayden's other products, or to learn more about Kayden, please visit [kayden.com](http://kayden.com)