

US. PAT. NO. 9,095,736

### ECS In-Line Corrosion Detector (ILD-X)

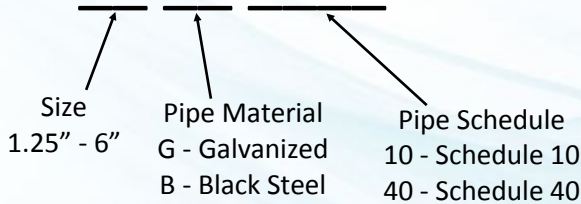


#### Specifications

<b>Stock Number:</b>	ILD-X
<b>Service Pressure:</b>	175 psi
<b>Temp. Rating:</b>	-40°F to 120°F (-40°C to 49°C)
<b>Elec. Connection:</b>	dry contact
<b>Pipe Size:</b>	1.25" - 6"
<b>Pipe Schedule:</b>	Sch. 10 or Sch. 40
<b>Pipe Material:</b>	Black Steel or Galvanized

#### How to Order

## ILD-

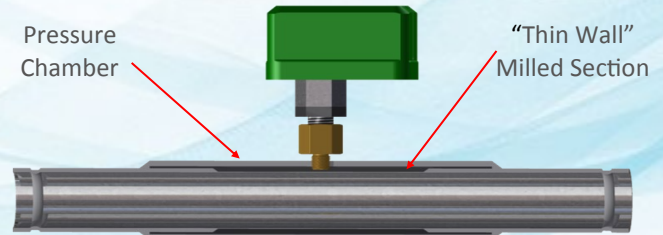


**Example:** ILD-1.5B40  
→ 1.5" Schedule 40 Black Steel Chamber

#### General Description

The ECS In-Line Corrosion Detector is designed to provide an early warning indication of internal corrosion activity in water-based fire protection systems. A cross-section of the device shows the two key attributes that allow for early detection of corrosion: an externally milled section of the pipe that creates a "thin wall" section and a pressure chamber created by an external sleeve welded over the pipe.

The device is designed to be installed where corrosion is most likely to occur: the air/water interface. In wet pipe fire sprinkler systems this area is generally found on high branch lines where trapped air is present. In dry pipe fire sprinkler systems this area is generally found on low mains where trapped water is present. The thin



wall section of the device will fail before other system piping to provide an early warning indication. The pressure switch will detect the pressure change caused by the failure in the thin wall section.

The ECS In-Line Corrosion Detector is equipped with a pressure switch to monitor the pressure chamber. The ECS In-Line Detector can be remotely monitored through a building monitoring system, or locally through the ECS Detector Remote Test Station. The ECS Detector Remote Test Station can be located adjacent to the In-Line Detector in an accessible location and includes a self-contained power supply eliminating the costly wiring of the unit for monitoring or power.



The ECS In-Line Corrosion Detector easily installs in-line as an integral spool piece within the fire sprinkler system piping to monitor real time corrosion activity. By placing the ECS In-Line Corrosion Detector within the system piping all of the environmental factors that directly affect the corrosion rate within the fire sprinkler system can be monitored. This approach is much more accurate and representative than other methods which utilize a corrosion coupons installed on the fire sprinkler system riser or other dead-end locations within the system that are not representative of worst case conditions.

### **Match System Piping**

In order to accurately monitor the corrosion rates within the fire sprinkler system piping several factors must be considered before an ECS In-Line Corrosion detector is ordered:

- Location within the fire sprinkler system piping for installation of the ECS In-Line Corrosion Detector (to be specified by design engineer or ECS)
- Pipe size diameter to match the fire sprinkler piping that will be monitored
- Type of fire sprinkler system (wet or dry)
- Pipe material for construction (Galvanized Steel or Black Steel)
- Pipe schedule for construction (schedule 10 or 40)

### **Installation Location**

#### *Wet Pipe Systems*

On wet pipe systems install ILD on a branch line near the highest elevation of the system, or adjacent to area where trapped air is likely to collect. On existing systems separate branch line at fitting and inspect pipe interior for signs of air/water interface. If pipe section is fully water packed move to higher system elevation. If pipe is fully gas packed move to lower system elevation.

#### *Dry Pipe/Preaction Systems*

On dry pipe systems install ILD on feed main at low elevation near riser where water is likely to collect. On existing systems separate main at fitting and inspect pipe for small pools of trapped water. If no trapped water is present move to lower system elevation.

### **Installation Instructions**

The ECS In-Line Corrosion Detector is manufactured as a spool of piping with roll grooved ends for easy insertion into the fire sprinkler piping using standard mechanical couplings (supplied by others). All models of the ECS In-Line Corrosion Detectors are eighteen (18) inches in length. The variety of pipe schedules and metal are listed in the table under ordering information.

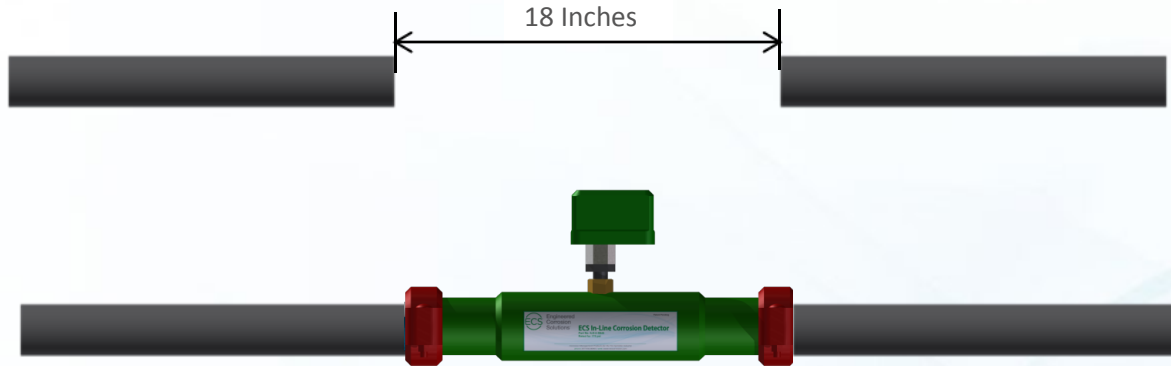
1. Contact design engineer or ECS to determine a location within the sprinkler system where corrosion is likely to occur.
2. At the chosen location in the fire sprinkler piping remove an eighteen (18) inch pipe section from the fire sprinkler system.
3. Roll groove the remaining ends of the fire sprinkler system piping to receive a standard mechanical coupling.
4. Install the ECS In-Line Corrosion Detector of matching pipe material, diameter and schedule into the section space that has been created with the removal of the eighteen (18) inch pipe section. Orient the ECS In-Line Corrosion Detector so that the pressure switch is accessible for maintenance. Tighten the mechanical couplings as per the manufacturer's specifications.

### **Note**

The ECS In-Line Corrosion Detector has been specifically designed for use in fire sprinkler systems and does not present any obstruction risk or have any negative impact on hydraulic calculations.

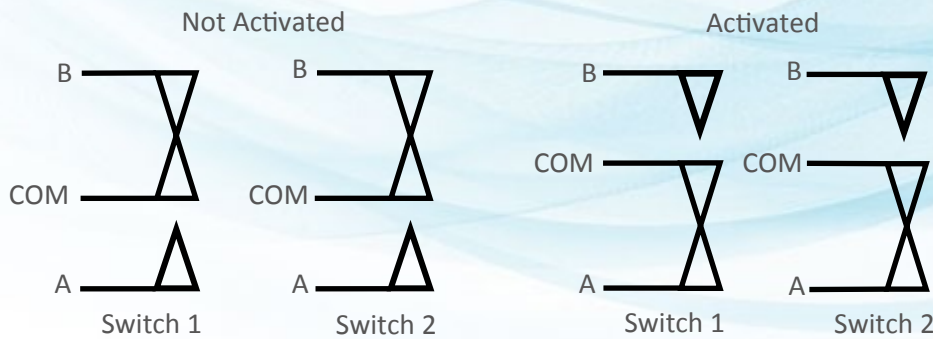


Figure 1 - ECS In-Line Detector Installation Schematic



**RECOMMENDED:** Connect the wiring from the monitoring system to the pressure switch (dry contact) in accordance with the manufacturer's wiring instructions. Activation of the ECS In-Line Corrosion Detector should be identified as a supervisory signal.

Figure 2 - Model EPS10-2 Pressure Switch Electrical Connections



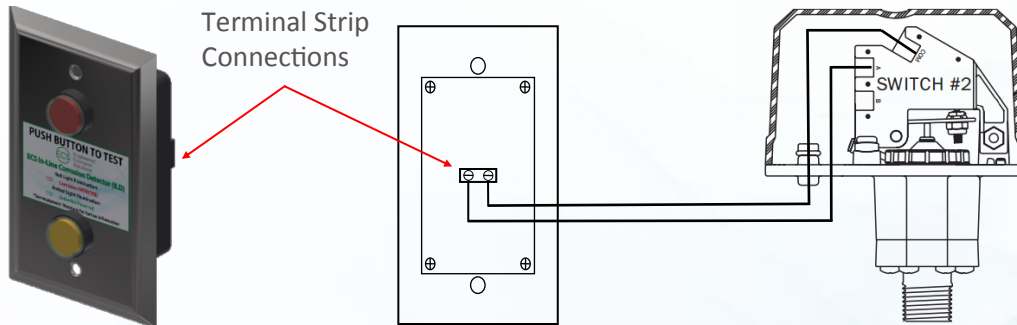
**Detector Remote Test Station Installation Instructions**

The Detector Remote Test Station mounts to a 2" x 4" x 2 1/8" minimum depth handy box (Raco model 670RAC or approved equal), in an accessible location near the In-Line Corrosion Detector.

1. Recommended mounting height 72" AFF
2. Connect 2-conductor, in accordance with NFPA 70, between the In-Line Detector and the Remote Test Station (Recommended 18 AWG cable). NOTE: The conduit/cabling must enter through the top or bottom knockout of the 2" x 4" handy box.
3. Provide any required raceway or mechanical protection, as required.
4. Connect the terminals of the Remote Station to the common (CO) and normally open (A) of the pressure switch.

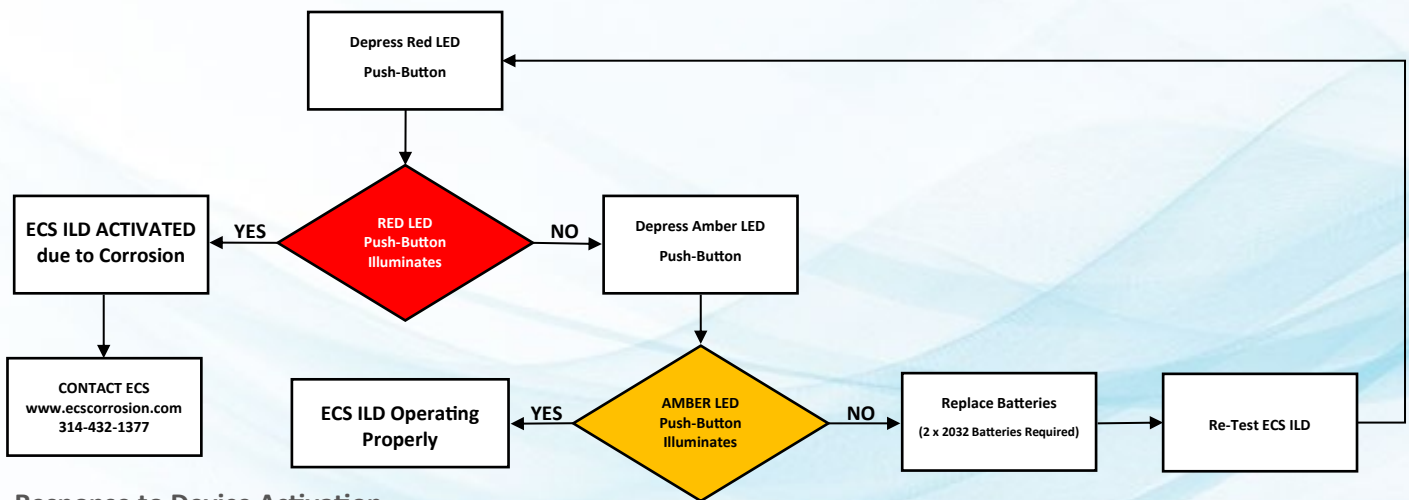


Figure 3 - ECS Detector Remote Test Station



Detector

Remote Test Station Operation Flowchart



Response to Device Activation

Activation of the pressure switch indicates that the thin wall section of the device has failed and the pressure chamber is exposed to system pressure. Contact Engineered Corrosion Solutions for instructions regarding replacement and testing of the failed In-Line Corrosion Detector.

Battery Test and Replacement

- 1. Depress Amber LED Push Button. If Amber LED does not illuminate, battery replacement is required.
2. Remove Remote Test Station from electrical mounting box, remove four (4) back cover screws, remove two (2) 2032 batteries from battery holder.
3. Replace Battery with two (2) Energizer Part No. CR2032 Only\*, re-install battery holder in backbox, reinstall back cover with four (4) screws and reinstall Remote Test Station in electrical mounting box.

\* Use Of Another Battery May Present A risk Of Fire Or Explosion.

CAUTION: Battery May Explode if Mistreated. Do Not Recharge, Disassemble Or Dispose Of In Fire

These cells are intended for use at ordinary temperatures where anticipated high temperature excursions are not expected to exceed 100° C (212° F)