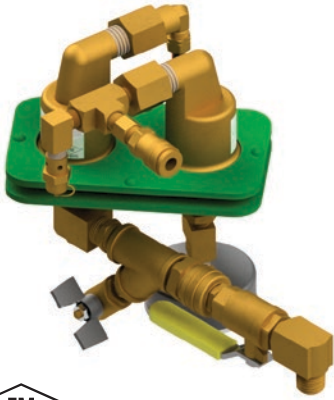


PAV-WN

ECS Protector Nitrogen Inerting Vent



For use under U.S. Patents
8,636,023, 9,526,933, 9,717,935
and 10,188,885

Specifications

Stock Number:	PAV-WN PAV-WNS (Supervised)
Service Pressure:	Up to 175 PSIG (12 Bar)
Regulator Setting:	40 PSIG (2.8 Bar)
System Connection:	½" NPT Male (vent), 1" NPT Male (port)
Temperature Range:	40°F - 270°F (4.5°C - 132°C)
Dimensions:	14.5" (W) x 9" (H) x 7.5" (D) 368mm (W) x 229mm (H) x 191mm (D)
Weight:	10 Lbs (4.5 Kg)
Clear Height:	5.5" (140mm)
Optional Equipment:	Remote Inerting Station (RIS-1)

- Patented Redundant Float Design Eliminates Piping to a Drain
- Support Hanger Not Required

Ordering information

PAV-WN	Nitrogen Inerting Vent
PNIP-1	Nitrogen Injection Port (Included with PAV-WN)
RIS-1	Remote Inerting Station (Sold Separately)



PNIP-1
(Included with Vent)



PAV-WN/NS



RIS-1
(Optional)

General Description

The ECS Protector Nitrogen Inerting Vent (PAV-WN/NS) is the only device that provides automatic controlled venting of trapped gases in wet pipe fire sprinkler systems during the **Wet Pipe Nitrogen Inerting (WPNI)** process. As a fire sprinkler system is filled with water, trapped gas migrates to the high point of the system near the vent installation location which allows for trapped gas to be vented.

Trapped gas contains oxygen which is the primary cause of corrosion in fire sprinkler systems. Corrosion in wet pipe fire sprinkler systems is directly proportional to the amount of oxygen trapped within the system piping, so a reduction in trapped gas will in turn reduce the internal corrosion activity of the fire sprinkler system. Venting the trapped gas in a wet pipe sprinkler system can also decrease water delivery time and reduce water flow alarms.

The controlled venting is achieved by integrating a pressure relief valve on the gas discharge piping assembly of the ECS Protector Nitrogen Inerting Vent. During the wet pipe nitrogen inerting process, the vent remains closed to facilitate purging of corrosion causing oxygen from the FPS piping network. Once the piping has been appropriately inerted with nitrogen gas using the ECS WPNI protocol and filled with water, the vent allows trapped gases to vent from the piping as the system returns to normal pressure. When the PAV-WN/WNS is used in conjunction with the nitrogen inerting process to provide internal corrosion control for wet pipe fire sprinkler systems by injecting nitrogen gas into the piping network to achieve a nitrogen gas concentration of at least 98%, this controlled venting achieves the following:

1. Prevents premature venting of nitrogen gas during Wet Pipe Nitrogen Inerting process.
2. Allows for gas sampling in remote areas of the FPS piping network to measure the nitrogen concentration levels within the system.
3. Allows for venting the trapped gas within the system when the FPS is filled with water and put into service.

The ECS Protector Nitrogen Inerting Vent must be installed as shown on the engineering design documents. If a location is not provided, install the vent at an accessible high point on the fire sprinkler system remote from the system riser where gas can be vented and at a location that the pressure gauge provided for visual monitoring can be viewed from directly below. The PAV-WN/WNS is also equipped with brass components that allows the device to be installed in areas subject to external corrosion. The float mechanism on the ECS Nitrogen Inerting Vent will automatically close when water reaches the float valve and the redundant design eliminates the need to plumb the PAV-WN/WNS to drain. If the primary float valve allows any significant amount of water to leak past it, the second gas vent valve will close preventing water from discharging and provide a pressure reading on the pressure gauge above 50 psig (in yellow area). This condition will be an indication that the primary float valve has failed and requires replacement. The pressure gauge is designed to be visible from the floor below the ECS Protector Nitrogen Inerting Vent from a distance of approximately 30 feet.

There are two available models of the ECS Protector Nitrogen Inerting Vent: PAV-WN and PAV-WNS. The PAV-WN and PAV-WNS operate as described previously; however, the PAV-WNS includes a single contact rated 24VAC/DC @ 2A for electronic monitoring. When connected to a building alarm system, connect the contact of the PAV-WNS using an end-of-line resistor (EOLR) in accordance with the wiring diagram in Figure 1. A notification from the PAV-WNS pressure switch on the bottom of the vent assembly indicates a system pressure reading above 50 psig due to a failure of the primary float valve which renders the ECS Protector Nitrogen Inerting Vent inoperable.

Installation Instructions

1. The ECS Protector Nitrogen Inerting Vent is equipped with an isolation ball valve and a quick connect for easy installation and servicing (see Figure 3).
2. Install the PAV-WN/WNS vent assembly at the location provided by the engineering design documents in a level position at an accessible high point on the sprinkler system where trapped gas can be vented.
3. The contractor must install a ½" outlet (welded or mechanical) to connect the vent assembly to the sprinkler system.

NOTE: Piping to the vent assembly cannot be installed in a configuration that would trap water and prevent drainage to the sprinkler system. A water trap impedes the ability of the vent assembly to vent oxygen from the fire sprinkler system.

4. Install the PAV-WN injection port at the fire sprinkler system riser on the system side of the main control valve. The contractor must install a 1" outlet (welded or mechanical) to connect the injection port to the fire sprinkler system riser.
5. When electronic supervision is used, the PAV-WNS must be utilized instead of the PAV-WN. When connected to the building alarm system, connect the PAV-WNS to an addressable monitor module with an end-of-line resistor (provided by others) in accordance with applicable national and/or local codes (i.e. NFPA-70 & NFPA 72). (see Figure 1).
6. Inspection of the vent assembly should be performed after installation and hydrostatic testing of the fire sprinkler system and periodically thereafter in accordance with the applicable national codes, NFPA codes and standards and/or the authority having jurisdiction.

NOTE: Patented redundant float design eliminates piping the PAV-WN/WNS to a drain.

FIGURE 1 - Wiring Diagram

INSTALLATION NOTES:

1. If monitored by the building fire alarm system, provide one addressable monitoring module to monitor the supervised nitrogen inerting vent.
2. Connect the supervised nitrogen inerting vent to the addressable monitoring module.
3. Supervise the circuit using an end-of-line resistor (EOLR) in accordance with applicable national and/or local codes (i.e. NFPA 72).

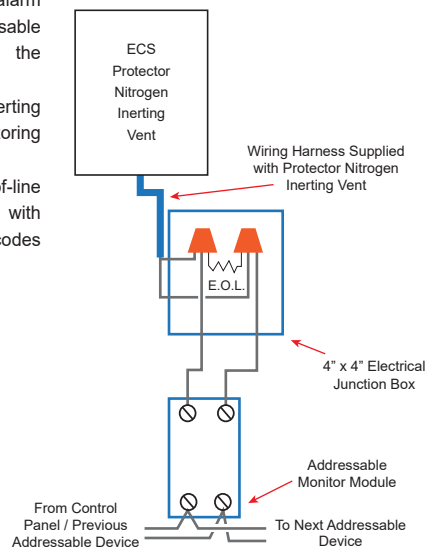
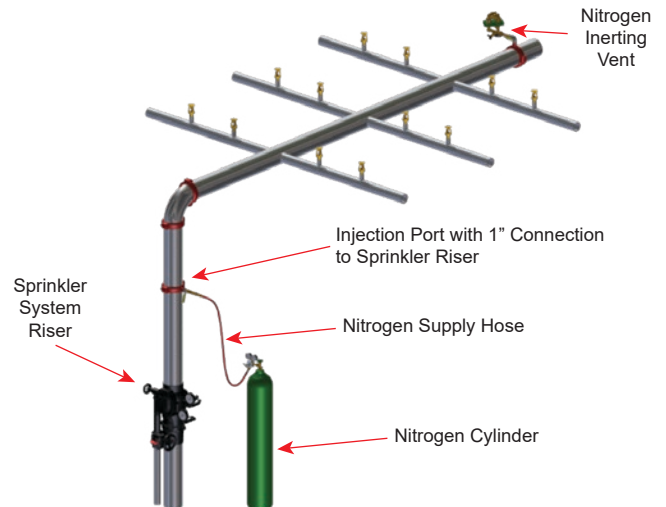


FIGURE 2 - ECS Protector Nitrogen Inerting Injection Port Installed on Riser



Operating Instructions

1. Once the fire sprinkler system has been hydrostatically tested, open the isolation ball valve on the PAV-WN/WNS. Trapped gas should be expected to vent from the device if the system has been re-filled with water.
2. Follow the Wet Pipe Nitrogen Inerting protocol provided by Engineered Corrosion Solutions to eliminate oxygen from the fire sprinkler system.
3. The injection port provides access to fill the system with nitrogen gas, while the “Y” strainer ball valve on the vent assembly provides a purging location during the WPNI process.
4. After each fill cycle the system nitrogen concentration can be verified at the gas sampling port on the vent assembly using an ECS Protector Handheld Analyzer (not included).
5. The isolation ball valve must remain in the open position to allow for venting of any additional trapped gas remaining in the system that may migrate to the vent location.
6. Plumbing the PAV-WN/WNS to drain is not required. Occasionally during venting operations a small amount of water may leak past the primary gas vent valve and collect in the intermediate plumbing. This is considered normal and not a failure of the valve.
7. Water traps that would restrict operation of the ECS Nitrogen Inerting Vent can be cleared by closing the isolation ball valve and removing the “Y” strainer ball valve on the vent assembly can be used to clear water traps that would restrict operation of the ECS Protector Nitrogen Inerting Vent.

Maintenance Instructions

1. The ECS Protector Nitrogen Inerting Vent must be inspected annually at minimum.
 - a. Check the pressure gauge on the bottom of the vent assembly for a system pressure reading above 50 psig (in yellow area).
2. If a pressure reading is above 50 psig (in yellow area) the primary vent valve may require service or replacement.
 - a. While isolation ball valve is in the open position check for air/water leaks.
 - b. Close isolation ball valve to perform maintenance on the ECS Protector Nitrogen Inerting Vent.
 - c. While isolation ball valve is in the closed position, inspection the “Y” strainer blockage, clean as necessary.
 - d. If replacement is required, contact Engineered Corrosion Solutions for replacement parts and instructions.

FIGURE 3 - ECS Protector Nitrogen Inerting Vent Outline Drawing

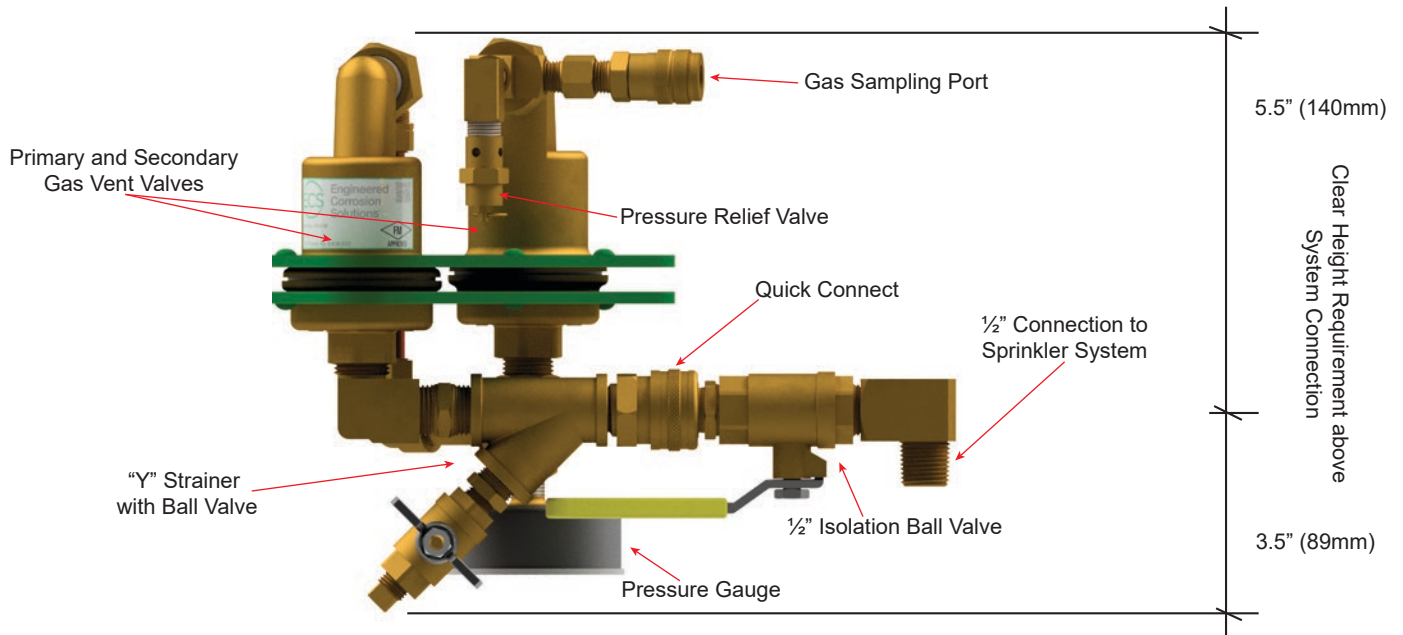


FIGURE 4 - ECS Protector Nitrogen Inerting Vent Installed on Sprinkler System

