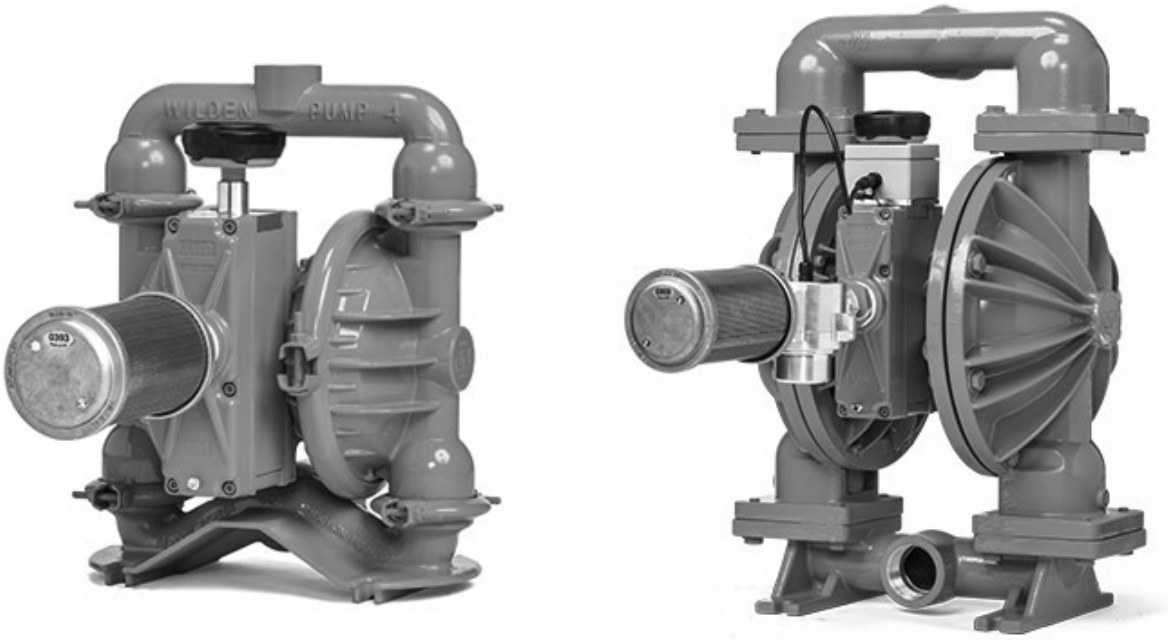


# EOM

ENGINEERING OPERATION  
& MAINTENANCE

# Wilden SafeGuard™

## Remote Monitoring and Alert System



Where Innovation Flows



WIL-19230-E-01

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## Warranty

Wilden warrants to the original purchaser that your Wilden SafeGuard Remote Monitoring and Alert System Edge Device and Gateway Node shall be free from defects in material and workmanship under normal use for a period of one (1) year from date of shipment. Due to the varied ways that product(s) can be accessed and/or configured during use, battery life is excluded from warranty. If you have an active contract and damage product during use, please contact Wilden as there are opportunities to replace the equipment at a reduced rate.

Wilden warrants to the original purchaser that your Wilden SafeGuard Remote Monitoring and Alert System Leak Detection Sensor shall be free from defects in material and workmanship under normal use for a period of five (5) years from the date of installation or six (6) years from date of manufacture, whichever comes first.

To register your Wilden SafeGuard Remote Monitoring and Alert System for warranty, please visit <https://www.psgdover.com/wilden/support/warranty-registration>.

## Data Security and Privacy Policy

The use of Wilden SafeGuard Remote Monitoring and Alert System requires agreement to Wilden's Privacy Policy, End User License Agreement, and Master SaaS Agreement. For copies of these policies, please visit [www.psgdover.com/wilden/products/performance-monitoring-and-alert-system/wilden-safeguard](http://www.psgdover.com/wilden/products/performance-monitoring-and-alert-system/wilden-safeguard)

## Certifications

### IP66 Certified



The following outlined Precautions are for the Wilden SafeGuard equipment only. For specific Precautions on your pump, please refer to your pump model manual.



**WARNING:** Always wear safety glasses when operating a pump to avoid eye injury. If diaphragm rupture occurs, material being pumped may be forced out of the air exhaust.



**CAUTION:** Before attempting any maintenance or repair, disconnect the compressed air line to the pump and allow all air pressure to bleed from the pump. Disconnect all intake, discharge, and air lines. Drain the pump by turning it upside down and allowing any fluid to flow into a suitable container. Be aware of any hazardous effects of contact with your process fluid.



**WARNING:** For more details on Cautions and Warnings for the pump that the SafeGuard system is to be installed, or is installed on, please see the associated pump model manual. All pump manuals are available on [www.wildenpump.com](http://www.wildenpump.com) Download Library.



**CAUTION:** When removing the end cap using compressed air, the air valve end cap may come out with considerable force. Hand protection such as padded glove or rag should be used to capture the end cap.



**CAUTION:** The SafeGuard Gateway Node must be mounted within 150 feet of the installed SafeGuard Edge Devices to ensure proper operation. Impediments between the pump, Edge Device and Gateway Node can cause this range to vary. The SafeGuard Gateway Node can handle up to 10 SafeGuard Edge Devices.



**WARNING:** Changes or modifications which are not expressly approved by Wilden could void the authority to operate the equipment.



**NOTE:** SafeGuard complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.



**NOTE:** The SafeGuard Gateway Node contains licensee-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licensee-exempt RSS(s). Operation is subject to the following two conditions: (1) this device may not cause interference and (2) this device must accept any interference, including that may cause undesired operation of the device.



**NOTE:** SafeGuard has been evaluated for RF Exposure per RSS-102 and is in compliance with the limits specified by Health Canada Safety Code 6. The system must be installed at a minimum separation distance from the antenna to a general bystander of 8 inches (20 cm) to maintain compliance with the General Population limits.



**NOTE:** SafeGuard is not an ATEX Certified product and using the equipment on an ATEX compliant pump, voids the ATEX Certification.

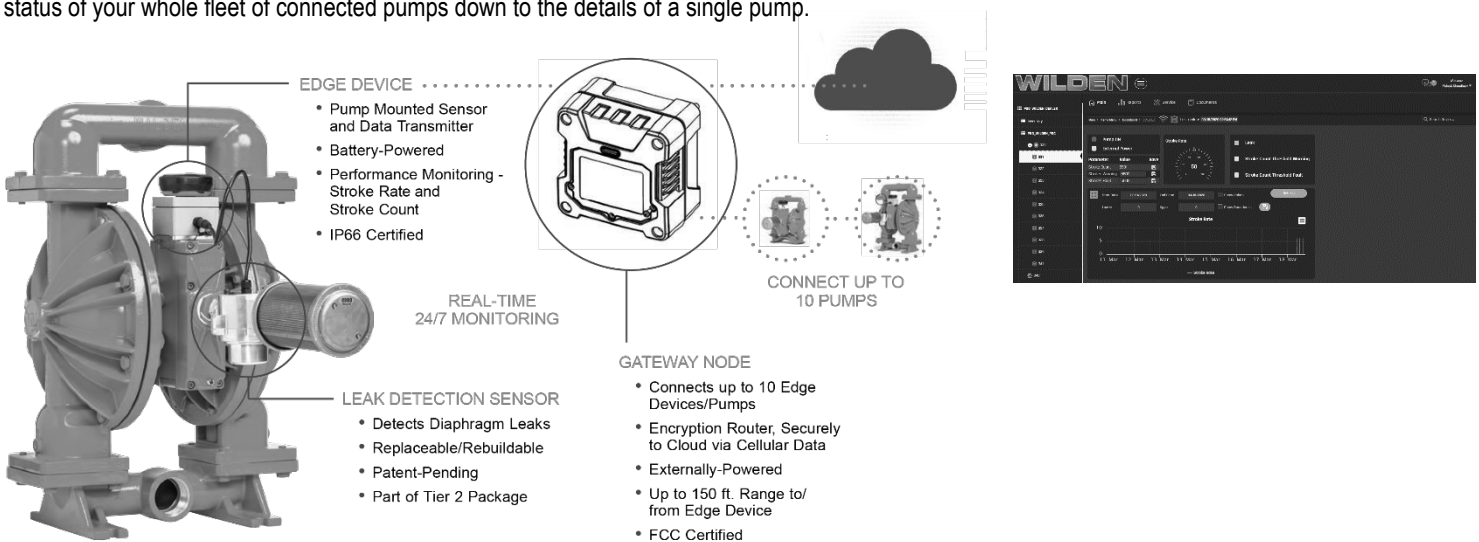
**Wilden SafeGuard System Options**

Feature	Tier 1 <i>Basic package to monitor pump performance</i>	Tier 2 <i>Advanced package combining pump performance monitoring and real-time leak detection</i>
Edge Device	X	X
Gateway Node	X	X
Web UI and Phone Application	X	X
Stroke Count	X	X
Stroke Rate	X	X
Leak Detection		X
24/7 Real-Time Alerts	X	X
Abnormal Operation Alert	X	X
Pump Mounting Kit	End Cap	End Cap and Junction Box (J-Box)

**How it Works**

Wilden SafeGuard is designed to monitor Wilden AODD pumps' health and performance. It is composed of a single battery-powered sensor (Edge Device) mounted directly onto the pump which communicates to a sensor reader (Gateway Node). The Gateway Node, which can connect up to 10 Edge Devices/Pumps, operates as an encryption router, securely transmitting the data from all pumps to the Cloud. The Tier 2 system option includes an additional real-time leak detection sensor. The Leak Detection Sensor indicates a leak when fluid fills the sensor housing.

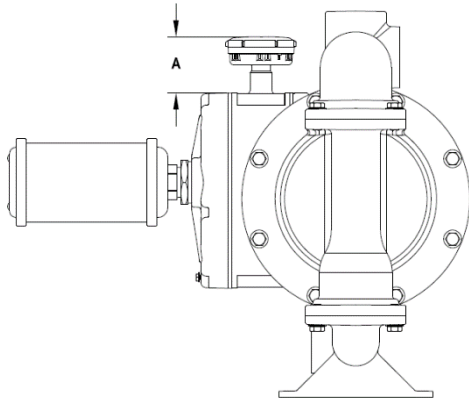
The data (stroke count, stroke rate, leak detection) are collected into the Gateway Node and transferred to the Cloud (via cellular data service) to be analyzed. The data is displayed and summarized on Wilden's SafeGuard Software user interface where you can view the status of your whole fleet of connected pumps down to the details of a single pump.



**Section 3**

**DIMENSIONAL DRAWING**

**Tier 1**

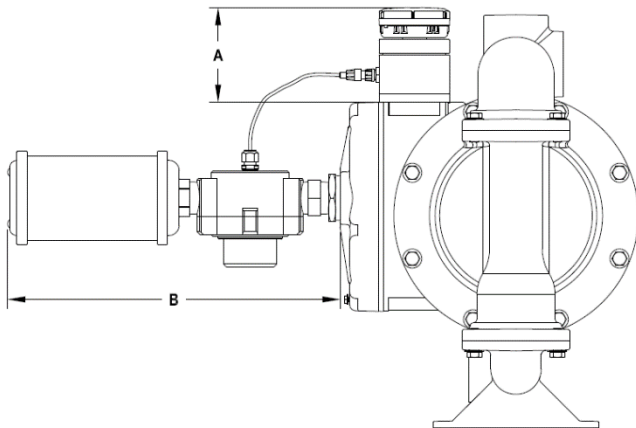


**DIMENSIONS**

ITEM	1" PUMP	1-1/2" PUMP	2" PUMP	3" PUMP
A	86.4 mm (3.4")	63.5 mm (2.5")	63.5 mm (2.5")	63.5 mm (2.5")

Note: Dimensional Drawing of Tier 1 represented on a PS420 Metal Pump Model.  
For full dimensions of your specific pump model, refer to the pump manual.

**Tier 2**



**DIMENSION**

ITEM	1" PUMP	1-1/2" PUMP	2" PUMP	3" PUMP
A	109.2 mm (4.3")	101.6 mm (4.0")	101.6 mm (4.0")	101.6 mm (4.0")
B	315 mm (12.4")	358.1 mm (14.1")	515.6 mm (20.3")	515.6 mm (20.3")

Note: Dimensional Drawing of Tier 2 represented on a PS420 Metal Pump Model.  
For full dimensions of your specific pump model, refer to the pump manual.

**Section 4**

**INSTALLATION**

**Edge Device and Leak Detection**

**Tools Required:**

- 3/16" Hex Wrench
- PTFE Tape
- Wilden Air System Grease

**⚠ CAUTION:** Before attempting any maintenance or repair, disconnect the compressed air line to the pump and allow all air pressure to bleed from the pump. Disconnect all intake, discharge, and air lines. Drain the pump by turning it upside down and allowing any fluid to flow into a suitable container. Be aware of any hazardous effects of contact with your process fluid.

**⚠ NOTE:** The model pictured in this section is an aluminum PS420 38 mm (1-1/2") pump. Your specific pump model may vary from the configuration shown. However, the pump disassembly procedure will be the same.

**⚠ NOTE:** Replace worn parts with genuine Wilden parts for reliable performance.



**Step 1**

Using a 3/16" Hex Wrench, remove the top two air valve bolts.



**Step 2**

Once the top two air bolts are removed, remove the top air valve end cap by simply lifting up on the end cap.



**Step 3**

**For Tier 1 Only** – Take the Edge Device and mounting end cap, add grease to the O-Ring and install it on the top of the air valve as the end cap replacement.

**For Tier 2 Only** – Take the Edge Device and J-Box, add grease to the O-Ring and install it in the top of the air valve as the end cap replacement.

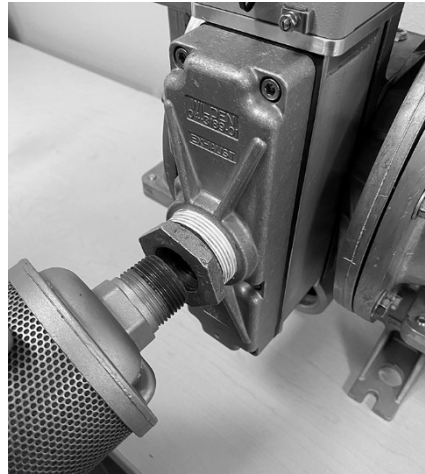
**⚠ NOTE For Tier 2 Only:** Make sure the single J-Box port is aligned with the exhaust of the air valve, which contains the Wilden name and part number.

**INSTALLATION**



**Step 4**

Using the 3/16" Hex Wrench, re-install the top two air valve bolts, securing the Edge Device to the pump. Be sure to not tighten the bolts beyond the maximum torque specifications outlined in your pump's manual. For Pro-Flo SHIFT it's 13.6 N•m (120 in-lb).



**Step 5**

**For Tier 2 Only** – Remove the muffer from the muffer plate.



**Step 6**

**For Tier 2 Only** – Install the leak detection unit into the muffer plate with the appropriate adaptors for the size of your pump. Refer to the parts list on page 14 for the adaptor appropriate for your pump. Hand tighten until the last full turn ends with the leak detection cable facing up.



**Step 7**

**For Tier 2 Only** – Install the muffer into the leak detection unit with the appropriate adaptor based on your pump size, tightening by hand. Identify the appropriate adaptors for your pump size in the parts listing on page 14.



**Step 8**

**For Tier 2 Only** – Install the leak detection cable into the front of the J-Box.



**Step 9**

Remove the rubber seal from the Edge Device.



**INSTALLATION****Step 10**

Unscrew the top of the Edge Device by hand to remove the cap.

**Step 11**

Take the battery pack and connect the battery cable to the power port in the Edge Device.



A light will flash blue when powered. Secure the battery pack and reinstall the Edge Device cap and rubber seal.



The Wilden SafeGuard Installation is Complete.

# INSTALLATION

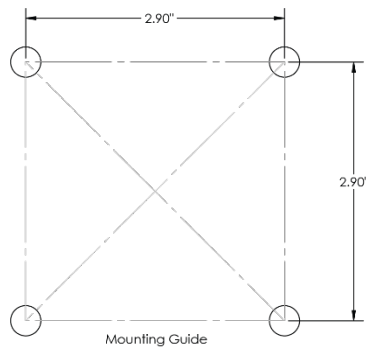
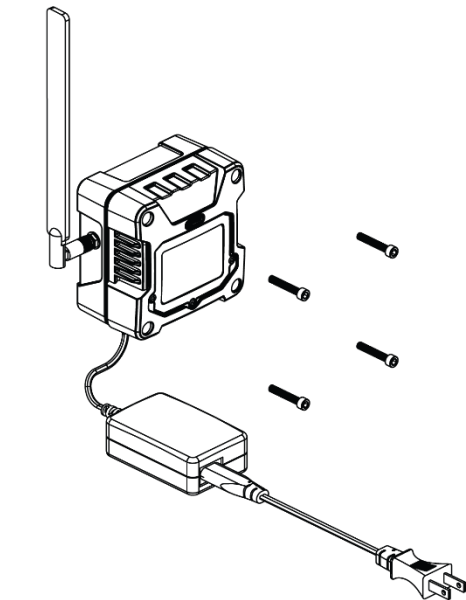
## Gateway Node

### Tools Required:

- 9/64" Allen Wrench
- (4) #8-32 x 1" Screws

### Installation

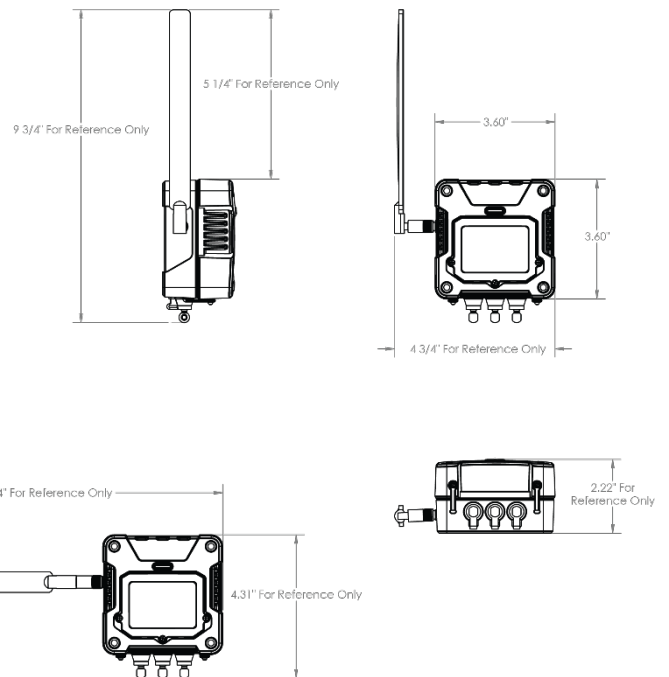
1. It is recommended to mount the Gateway Node at least 3 ft. or more from the ground. Additionally, minimize obstruction between the Gateway Node and Edge Device.
2. Use the (4) #8-32 x 1" Screws and 9/16" Allen Wrench to secure the Gateway Node to the monitored equipment. Use the mounting guide for measurement reference.
3. There is no importance to the orientation. Once secured, installation is complete.
4. Plug in the power adapter, set the antenna facing up (vertically) and your Gateway Node should now be installed.



### Technical Specifications

The following outlines the technical specifications of the Gateway Node:

- Maximum Number of Paired Edge Devices: 10
- Range: Up to 150 ft.
- Power Source: 9-24 VDC Powered by External DC Supply
- Communication:
  - 4G LTE Cellular Cloud Connectivity
  - 900MHz RF Star-Network Configuration for Multiple Pumps Connectivity
  - BLE
  - GPS
- Build
  - IP66 EPDM Rubber Sleeve Protected 20% Glass Reinforced Polypropylene Enclosure
- Standards
  - FCC Part 15
  - RoHS Comply
- Environmental Conditions
  - Temperature: -30°C – 70°C (-22°F – 158°F)



### Edge Device

The batteries within the Edge Device are expected to last up to 1 year. The Edge Device requires (2) AA Ultimate Lithium Batteries only. When the batteries need to be replaced, follow Steps 9 through 11 of the installation process:

1. Remove the rubber seal from the Edge Device
2. Unscrew the top of the Edge Device by hand to remove the cap
3. Take the old battery pack out, insert the new battery pack, and connect the battery cable to the power port in the Edge Device
4. A light will flash blue when powered. Secure the battery pack back and reinstall the Edge Device cap and rubber seal



### Edge Device LED Light Indicators

The Edge Device has two LED Light indicators. One to indicate its on/off and paired/not paired status and one to indicate a warning or fault.

#### LED Light #1

- On/Off – Edge Device has Power
- Blinks every 5 seconds
- Single Blink – Edge Device is Paired
- Double Blink – Edge Device is Not Paired

#### LED Light #2

- Mirrors Indicators on Pump Dashboard
- Single Blink – Warning
- Double Blink – Fault

### Leak Detection

In the event that a leak is detected via the Leak Detection Sensor, the product could potentially contaminate the float switch and the float switch may need to be replaced. To replace the Leak Detection Sensor float switch, take the following actions:

1. Disconnect the Leak Detection Sensor from the J-Box
2. Remove the two screws from the top of the Leak Detection Sensor and remove the cap, the float switch will be attached to the cap
3. Insert the replacement float switch and cap and secure with the screws
4. If needed, drain and clean the Leak Detection Sensor by unscrewing the screws on the ears of the Leak Detection Sensor and gently pulling down on the Detection well.

## Edge Device

### **LED LIGHT INDICATOR NOT BLINKING**

1. Remove rubber sleeve and top to confirm the battery pack is connected to the Edge Device using the appropriate terminal. (Step 9-11 in Section 4 of this manual)
2. Confirm the cable extending from the battery pack is not cut, broken, or damaged.
3. Disconnect battery pack from the terminal and reconnect. The LED should light up immediately.
4. If Step 3 above does not work, connect a new battery pack to the appropriate terminal. The LED should light up immediately.
5. If this does not fix the problem, please contact customer service.

## Leak Detection

### **FALSE ALARMS**

1. False leak detections may be caused by condensate, frozen condensate, or other debris collecting in the detection well and activating the float sensor. To fix this, remove the detection well by unscrewing the two screws on the ears of the leak detector and gently pulling down on the detection well.
2. Remove any debris that may have accumulated and replace the well.

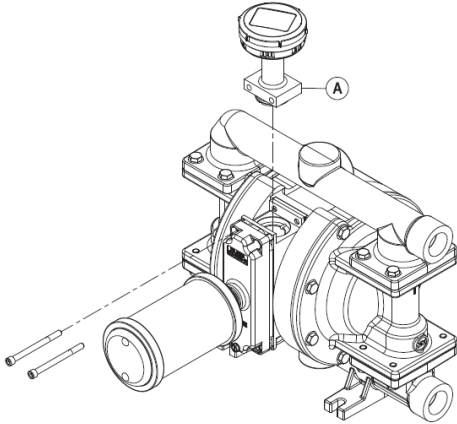
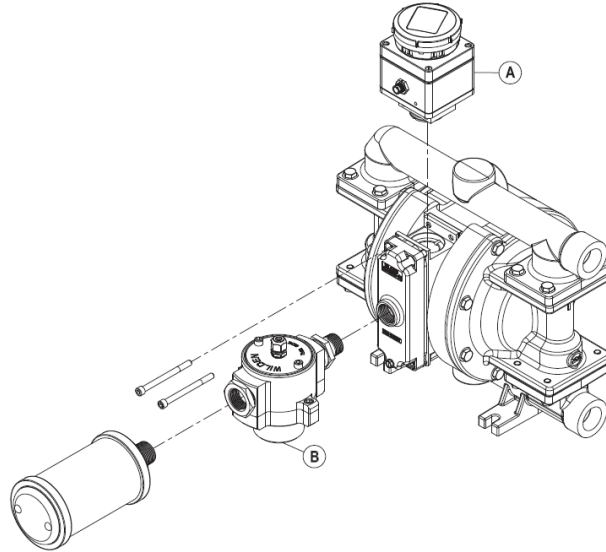
### **TESTING THE FLOAT SENSOR**

1. To test the float sensor, remove the detection well by removing the screws on the ears of the leak detector and gently pulling down on the detection well. The float sensor will stay with the main part of the leak detector.
2. Gently push up on the foam cylinder float and hold it there.
3. Check the user interface on [www.wildensafeguard.com](http://www.wildensafeguard.com) to see if the leak indicator turns on. This may take a few seconds.
4. If it does not, check the connection between the leak detector cable and the J-Box. If this does not fix the problem, please contact customer service.

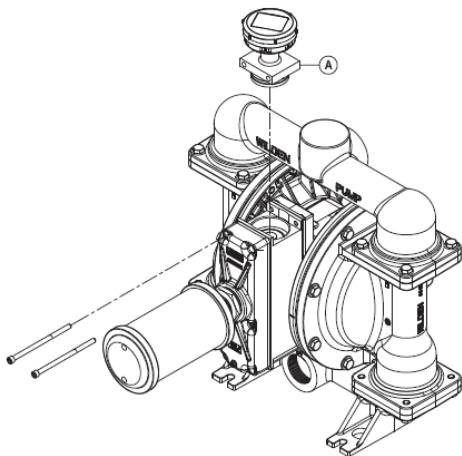
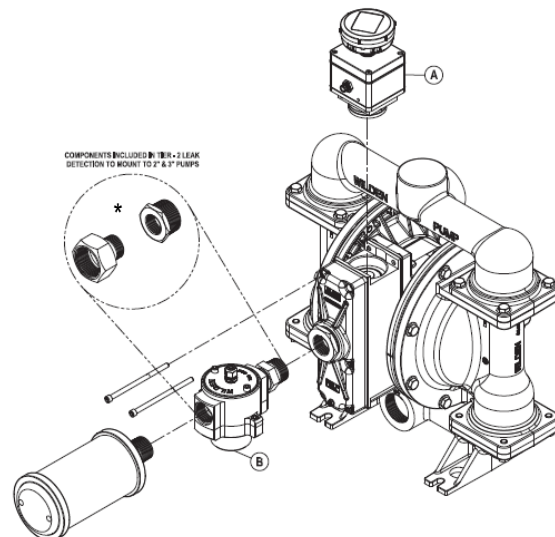
## Gateway Node

### **EXTERNAL DC POWER SUPPLY CONNECTED, BUT LED LIGHT OFF**

1. Confirm the cable extending from the Gateway Node to the power outlet is not cut, broken, or damaged.
2. Confirm the outlet being used is supplying voltage.
3. If this does not fix the problem, please contact customer service.

**Section 7****EXPLODED VIEW AND PARTS LIST****Tier 1 and 2 – 1"****EXPLODED VIEW****TIER-1 1"****TIER-2 1"**

25 mm (1") Pro-Flo SHIFT Series Bolted Metal Pump (PS220) represented in the exploded view for Tier 1 and Tier 2 (1") Option

**Tier 1 and 2 – 1-1/2" to 3"****EXPLODED VIEW****TIER-1 1 1/2" - 3"****TIER-2 1 1/2" - 3"**

38 mm (1-1/2") Pro-Flo SHIFT Series Bolted Metal Pump (PS420) represented in the exploded view for Tier 1 and Tier 2 (1-1/2" to 3") Options

## EXPLODED VIEW AND PARTS LIST

Item	Description	Qty.	Tier 1 – 1"	Tier 2 – 1"	Tier 1 – 1-1/2" to 3"	Tier 2 – 1-1/2" to 3"
<b>Wilden SafeGuard Components</b>						
A	SafeGuard Edge Device	1	02-8290-99	02-8294-99	04-8292-99	04-8296-99
B	Leak Detector	1	N/A	02-8016-01	N/A	04-8016-01
*	Pump Side Adaptor (Coupling Leak Detection)	1	N/A	04-7425-01	N/A	04-7505-01
*	Pump Side Adaptor (Bushing, Reducer)	1	N/A	N/A	N/A	04-6959-08
*	Muffler Side Adaptor	1	N/A	04-6950-01	N/A	04-7426-01
**	Gateway Node (**not shown in exploded view)	1	99-8254-99			

Note: Not all parts are available to order outside the system



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