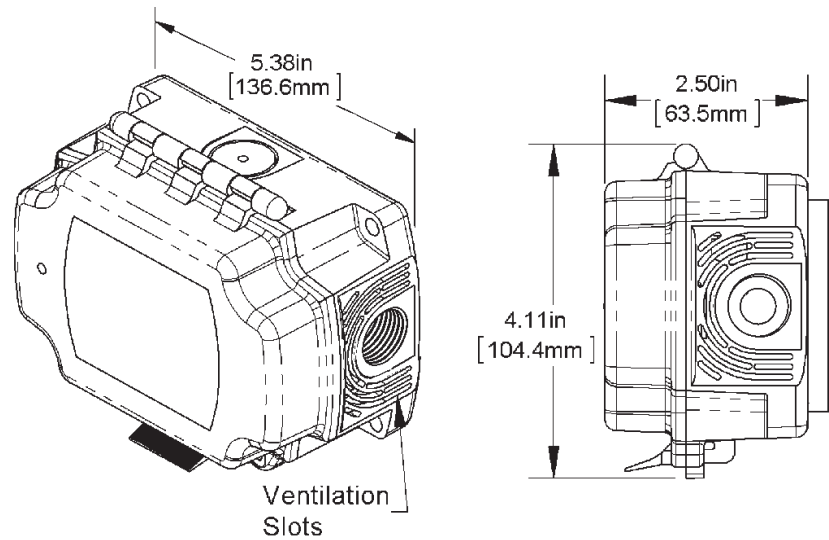


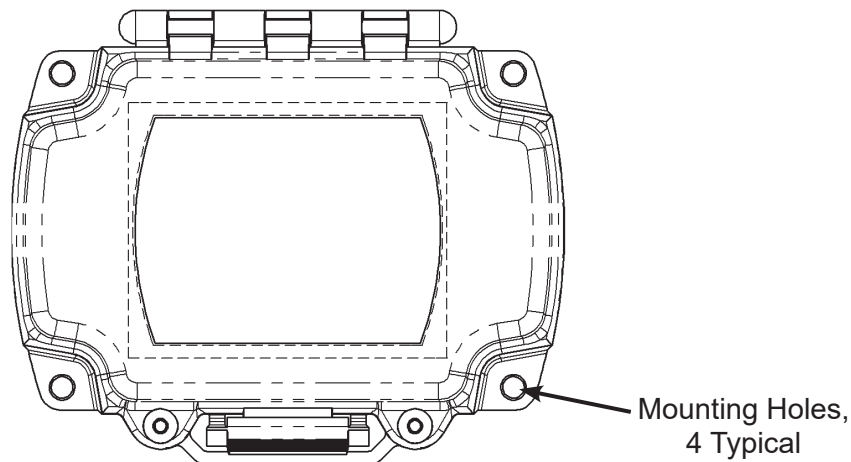
## Identification and Overview

The BAPI Refrigerant Leak Detector is an area monitor that detects a wide range of refrigerants. It is not intended for critical ppm measurements nor life safety applications. The sensor is temperature compensated for improved detection of leaks and spills. The output voltage increases as the concentration of the refrigerant increases in the space.



**Fig. 1:** BAPI Refrigerant Leak Detector

## Mounting



**Fig. 2:** Unit Mounting.

Air must be allowed to flow freely through the enclosure for proper operation.

Mount the unit horizontally as shown in Fig 2 on a solid, non-vibrating surface.

The mounting location depends on many factors. The type of refrigerant and where the refrigerant will likely collect are two factors that must be considered. The refrigerants this unit will detect are heavier than air and will settle in the lowest level in the space. Generally, the unit should be mounted 18 inches (450 mm) above the floor. Make sure that there is an unobstructed path for a minimum of 12 inches (300 mm) above and below the unit.

As a general rule, a single detector will have a coverage area of approximately a 50 ft (15 m) radius.

Hold the unit against the mounting surface to mark the mounting holes and drill for #10 screws (1/8" or 3 mm drill). Screw the unit to the mounting surface.

Specifications subject to change without notice.

### Termination

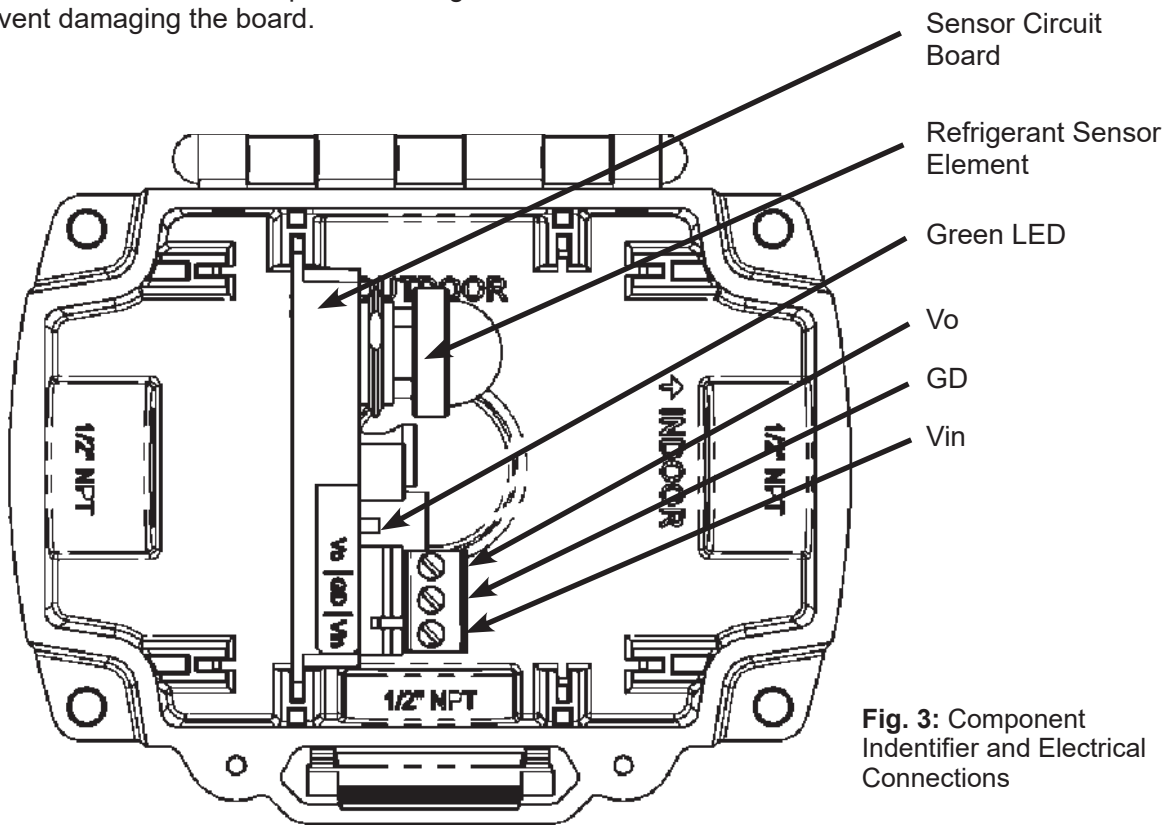
BAPI recommends using twisted pair of at least 22AWG for all wire connections. Larger gauge wire may be required for long runs. All wiring must comply with the National Electric Code (NEC) and local codes.

Do NOT run this device's wiring in the same conduit as AC power wiring of NEC class 1, NEC class 2, NEC class 3 or with wiring used to supply highly inductive loads such as motors, contactors and relays. BAPI's tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same conduit as the signal lines. If you are experiencing any of these difficulties, please contact your BAPI representative.



BAPI recommends wiring the product with power disconnected. Proper supply voltage, polarity and wiring connections are important to a successful installation. Not observing these recommendations may damage the product and void the warranty.

Any port may be used for wire entry. If the back port is used, remove the sensor board prior to drilling the hole to prevent damaging the board.



**Fig. 3:** Component Identifier and Electrical Connections

<u>Terminal</u>	<u>Description</u>
Vin .....	Power, Referenced to GD, 9 to 40 VDC, 120 mA max or 19 to 32 VAC, 5 VA
GD .....	To Controller Ground [GND or Common]
Vo .....	Voltage Output, Referenced to GD, 4.8 VDC max

Note: Lightly tug on each wire after tightening to verify proper termination.

Specifications subject to change without notice.



### Operation

The BAPI Refrigerant Leak Detector has a sensing element that changes its electrical resistance with changes in refrigerant concentrations. As the concentration increases, so does the output voltage of the unit. The sensing element has a different sensitivity to each refrigerant and therefore the rate of increase of the output voltage is different for each refrigerant.

Allow up to 5 minutes after power-up for the output voltage to settle to the ambient conditions. Extended power outages may cause the output voltage to initially spike during those first 5 minutes after power is returned. The typical output in a clean air environment is between 0.1V to 0.3V. Therefore, BAPI recommends using 0.5V as the minimum detection voltage to minimize false alarms.

The solid green LED indicates that the unit is powered. Any output voltage offsets must be applied at the controller. The temperature sensor is for internal temperature compensation only.

### Sensor Element Replacement

BAPI recommends replacing the sensor element every two years. Exposure to multiple events of high refrigerant concentrations or being exposed to refrigerants for long periods of time will shorten the life of the sensor element. If this occurs, BAPI recommends that you consider replacing the sensor element at that time.

1. Disconnect power from the unit and remove the sensor board from the enclosure.
2. Remove the old sensor element with your fingers by pulling the element out of its socket. Gently wiggle the element while pulling.
3. Install the new element by plugging it into the socket. The element is not polarity sensitive. Fully insert the element. The base of the element should be flush with the socket.
4. Reinstall the sensor board being careful not to pinch the temperature sensor wires.
5. Reconnect the unit to power.
6. Allow 5 minutes after power-up for the output voltage to settle to the ambient conditions. If the element has been in extended storage, additional time may be required.

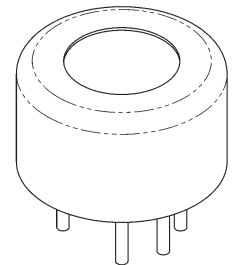


Fig. 4: Refrigerant Sensor Element

### Diagnostics

**POSSIBLE PROBLEMS:**

- Green LED is not on
- No output voltage

**POSSIBLE SOLUTIONS:**

- Check for correct power and wiring connections.
- Sensing element is either unplugged from its socket or it is not operational.

### Specifications

**Power:**

9 to 40 VDC at 120 mA max  
19 to 32 VAC at 5 VA

**Output Impedance:** 680 Ohms

**Output Voltage:** 0 to 4.8 VDC

**Ambient Temp:** 32 to 140°F (0 to 60°C)

**Sensor Element Life:** 2 Years Typical

**Warranty:** 2 Years

Note: For a more complete list of detectable refrigerants, go to Resources on BAPI's website and view the Application Note "Refrigerants detected by the BAPI Refrigerant Leak Detector".

Refrigerants Detected by the Sensor		
Single Compound	Blends	
R-22 (A1)	R-404a (A1)	R-452a (A1)
R-32 (A2L)	R-407c (A1)	R-452b (A2L)
R-125 (A1)	R-407f (A1)	R-454a (A2L)
R-134a (A1)	R-410a (A1)	R-454b (A2L)
R-1234yf (A2L)	R-424a (A1)	R-454c (A2L)
R-1234ze (A2L)	R-434a (A1)	R-455a (A2L)
	R-447a (A2L)	R-466a (A1)
	R-448a (A1)	R-507 (A1)
	R-449a (A1)	R-513a (A1)
	R-450a (A1)	

Specifications subject to change without notice.