WR Series

Refrigeration Leak Detector

Description & Features:

- The WR Series refrigerant leak detector is a high-performance monitoring device designed for the safety of modern refrigeration and air conditioning systems
- The product provides standard 4-20mA or RS485 signal outputs and can be integrated into various gas alarm systems or PLC/DCS control systems
- Each unit is equipped with a high quality LED display and audible/visual alarm
- The WR Series with a semiconductor metal oxide sensor monitors gas leakages
  - Once the refrigerant gas comes into contact with the sensor surface, it reacts with adsorbed oxygen, causing a change in semiconductor resistance which triggers a signal proportional to the gas concentration
  - The WR Series with the semiconductor sensor is an economical option for the detection of a variety of flammable and volatile organic gases, including refrigerants
- The WR Series with the NDIR Infrared sensor uses the non-dispersive infrared absorption principle
  - The infrared light source inside the sensor emits a specific wavelength which is absorbed by the gas concentration and then calculated by measuring the intensity of light after the absorption
  - The Infrared sensor is highly responsive for specific molecular structures and offers excellent selectivity and high accuracy and is extremely suitable for monitoring critical areas
- Customization available for dedicated installations and private labelling
- 5 year warranty

Applications:

- Large refrigeration systems in food processing, cold storage logistics, large central air conditioning mechanical rooms
- Shopping malls and grocery stores with reach-in refrigerators and glass door
- merchandisers
- Critical infrastructure monitoring such as air conditioning systems in data centers, hospitals, and telecommunications rooms
- Industrial & transportation detection for process cooling environments and refrigerated transport vehicles

Technical Parameters	
Detection	Semiconductor: R134a, R22, R32, R507 (refrigerant variants) Infrared: CFC (legacy) and Hydrocarbon type refrigerants
Gas Detected	Semiconductor: Broad-spectrum Infrared: Specific gas detection
Range	Semiconductor: 0–500 PPM Infrared: 0–1000 PPM
Accuracy	Semiconductor: ±5% alarm, ±10% FS Infrared: ±3% alarm, ±5% FS
Output	4-20mA (3-wire); RS485 (Modbus-RTU)
Power	DC24V ±15% / <2W
Display	LED; Resolution 1 PPM
Alarm	Audible & visual (≥85dB buzzer)
Alarm Points	25%FS and 50%FS (two-level)
Response	T90 ≤30s; Warm-up <100s
Environment	-10–50°C (14° to 122°F), 15–90%RH, non-condensing
Installation	Wall-mounted; IP65; Die-cast aluminum

Dimensions (mm)

WALL MOUNTED

15 mm = 0.59”
25 mm = 0.98”
29 mm = 1.14”
48 mm = 1.9”
60 mm = 2.4”
85 mm = 3.3”
88 mm = 3.5”
115 mm = 4.5”
120 mm = 4.7”
140 mm = 5.5”

Installation Information

1. Installation Location

- Install close to the leak source, such as below or above compressors, valves, fittings, flanges and pipe connections
- The installation height guidelines are determined by the density of the refrigerant
- If the refrigerant density is greater than air e.g. R134a, then install the WR Series 0.3–0.6 metres (0.98’ to 3.28’) above floor level
- If the refrigerant density is less than air e.g. R32, then install the WR Series 0.3–0.6 metres (0.98’ to 3.28’) below the ceiling above the leak source

2. Installation

- Avoid installing the WR Series near ventilation outlets, corners or vibrating equipment to ensure detection effectiveness and extend sensor life
- The WR Series can be installed on a wall, ensure the device is securely fastened before operation

3. Wiring Instructions

- Power source: Connect to 24VDC power supply and observe the correct polarity (positive+/negative-)
- 4-20mA output cable: 3-wire configuration - power positive, signal positive, common ground
- RS485 communication cable: Observe bus polarity. Use shielded twisted-pair cable and connect a 120Ω termination resistor at the furthest device on the bus

Accessories

Mounting Bracket, WRM42

Remote Control, WRPJRC

Selection Table

WR Series - Wall Mountable - Refrigerant Leak Detection Sensor

Description	Technical parameters			
Measurement, Output signal & Display	0-500 ppm, 4-20mA output and LED display		EFA	
	0-500 ppm, RS485 output and LED display		EFD	
	0-1,000 ppm, 4-20mA output and LED display *		###A	
	0-1,000 ppm, RS485 output and LED display *		###D	
	* ### = specify refrigerant R134A, R22, R32 or R507 (specify refrigerant)			
	Other		D	
Customization	Special types, labelling etc			Z###