

RDS-290-M

Refrigerant Detection Sensor

RefriScout



- Fast response time
- Excellent accuracy
- LED indicator built-in
- Zero cross-sensitivity
- Wide temperature range
- Low power consumption
- Easy attachment magnet
- 15 plus years long lifetime
- Sensor faulty status output
- No field calibration required
- Maintenance free operation

OVERVIEW

RefriScout is a family of A2L and A3 Refrigerant Detection Sensors designed for HVAC&R equipment manufacturers to meet the demanding safety requirements from regulatory bodies. By utilizing an advanced Solid-State optoelectronic based NDIR (Non-Dispersive Infrared) gas sensing technology, every RefriScout RDS is capable of providing fast response and reliable detection to the refrigerant leakage with exceptionally long operation lifetime.

R290 is high energy efficiency, low-GWP refrigerant and rated as A3 flammable agent; any leakage could result in risk of fire or explosion. The RefriScout RDS is designed to help HVAC&R manufacturers meet the requirements of IEC 60335-2-40 and UL 60335-2-40, 4th edition Annex LL for A2L & A3 refrigerant applications. Compact design allows sensor to be easily mounted within Heat Pumps, Air-Conditioning units and Refrigeration equipment, or close to where refrigerant leakage could potentially occur.

The RDS-290-M is capable of detecting the leakage of flammable R290 refrigerant of HVAC&R equipment and providing measured data with Modbus RTU (RS485) protocol for mitigation control and/or BA/BMS system integration. A rigid housing enclosed conformal-coated electronics provides excellent

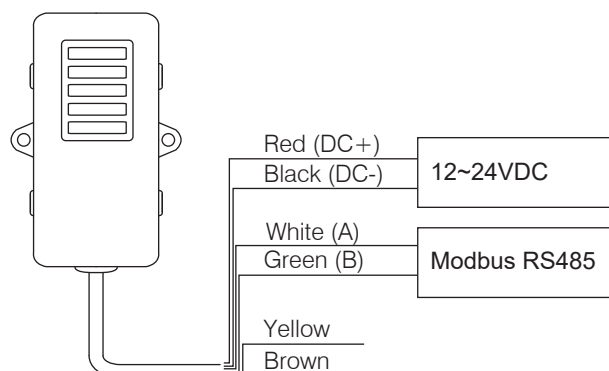
ingress protection from dust, oil, moisture and condensed water. Each sensor is individually calibrated at factory to ensure fast response with accurate detection. Automatic Baseline Calibration (ABC) helps deliver 15 plus years of maintenance-free operation lifetime even in the harshest environment.

APPLICATION NOTES

1. Because R290 is heavier than air, the sensor **MUST** be mounted in low-lying areas (typically within 30-45cm from floor/bottom) at places where refrigerant leak could potentially occur, like evaporation coils, valve joints, and pumps.
2. Sensors should be mounted **VERTICALLY** on the wall of equipment enclosures or machinery rooms.
3. Do **NOT** mount the sensor on horizontal surface with window face **UPWARD** to prevent dust accumulation on sensor membrane.
4. Avoid placing sensors directly in front of ventilation openings or in “dead zones” like stagnant corners where air does not flow.
5. Avoid poking white membrane while installing the sensor.

PRELIMINARY

WIRING DESCRIPTION



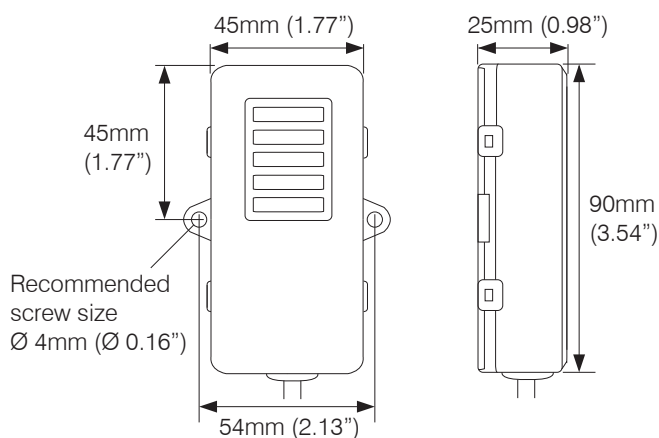
Wire	Description
Red (DC+)	12~24VDC power supply
Black (DC-)	0V, ground
White (A)	Modbus RS485A
Green (B)	Modbus RS485B
Yellow	Reserved
Brown	Reserved

SPECIFICATIONS

Power supply	12~24 VDC
Power consumption	<20 mA
Measured gas	R290 (Propane)
Alarm output	Modbus RTU (RS485)
Alarm threshold	Programmable
Fault status	Error code
Measured range	0-100% LFL
Accuracy	±2.5% LFL within 0-25%
Response time	< 15 seconds
ABC period	720 hours, factory default enabled
Life expectancy	> 15 years
Ingress protection	IP 54
Cable*	60cm AWG24 6C
Op. humidity	Max. 95% RH
Op. temperature	-40°C~70°C (-40°F~158°F)
Dimensions	90 x 45 x 25 mm (3.54" x 1.77" x 0.98")

* OEM-specified cable length and connector available.

DIMENSIONS



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