

# A2L refrigerant leak detection for refrigeration

## Reliable A2L refrigerant detection for modern refrigeration solutions from the market leader

The SGD43S-M3-S7 is a robust refrigerant detection system for HVACR applications. Using Sensirion's thermal conductivity sensing, it ensures accurate detection of A2L refrigerants such as R-454A, R-454C, and R-455A. Fully life-time calibrated, it offers seamless integration, high repeatability, and stability in harsh conditions, meeting UL 60335-2-40 and UL 60335-2-89 standards for HVAC safety and >15 yrs design life.

### Target customers:

- Refrigeration engineers designing refrigeration systems particularly those transitioning to A2L refrigerants



### Application challenges

- 1 A2L refrigerant leaks need reliable detection
- 2 Harsh conditions affect sensor accuracy and lifetime
- 3 Complex integration raises costs
- 4 Unreliable sensors risk system failure, downtime



### Sensirion's solutions

- 1 15-year lifespan, maintenance-free, meets UL safety standards
- 2 Calibrated for -40°C–85°C, 0–100% RH, robust sensing tech
- 3 Plug-and-play, dual relay output, RS-485
- 4 Proven Sensirion tech, OEM-trusted, proven market standard

# Sensirion sensor solution:



**SGD43S-M3-S7:**  
Flexible and complete refrigerant leakage detection system for modern refrigeration systems

Size (LxWxH): 90 x 55 x 24 mm<sup>3</sup>

## Additional sensor features

- **24V AC/DC input:** Flexible power options for diverse HVAC setups.
- **Self-monitoring:** Detects faults and end-of-life per UL 60335-2-40 ed. 4.1.
- **Dual relay output:** Enables versatile alarm and control integration.
- **RS-485 interface:** Supports digital communication and multi-sensor daisy-chaining.
- **Status indication LED:** Green for normal, red for alarm/fault.
- **Multi-refrigerant calibration:** Detects R-454A, R-454C, and R-455A with single calibration.
- **Trusted thermal conductivity technology:** Leverages Sensirion's CMOSens platform, widely adopted by HVAC OEMs, providing a reliable, market-defining solution.

## FAQs

- **How does it handle extreme environmental conditions?**  
Calibrated for -40°C to 85°C, 0-100% RH, 80-110 kPa.
- **What is the sensor's lifespan?**  
Maintenance-free, exceeding 15 years.
- **How does it integrate into HVAC systems?**  
Dual relays, RS-485, and mounting bracket ease setup.
- **Can CO<sub>2</sub> trigger false alarms?**  
Calibrated threshold avoids false alarms from typical CO<sub>2</sub> levels.
- **What certifications ensure compliance?**  
UL 60335-2-40, UL 60335-2-89, RoHS compliant.
- **What are benefits provided by the self-monitoring SGD43?**  
Detects faults, signals via relay/LED, ensuring fail safe reliability.

## Getting started



SGD43S-M3-S7  
Flexible and complete refrigerant leakage detection system for modern refrigeration systems

## Related sensors

[SGD43S-M3-S5](#)

## Useful documents



Datasheet