



## Refrigeration Gas Detection

Refrigeration gas sensors play a crucial role in protecting both people and the environment by detecting leaks of refrigerant gases. These sensors work by sensing the presence of specific gases in the air. When the gas concentration reaches a certain level, the detector triggers an alarm, alerting users to the potential leak.

Sensors are essential for ensuring safety in environments where refrigerant gases are used, as they help detect leaks early, preventing potential hazards and ensuring compliance with safety regulations.

# Refrigerant Detectors for Occupied Spaces

**GAS SENSE**

## Why install a fixed refrigerant detection system?



### Risk Management

The prime reason to install a refrigeration leak detection system is to manage the risk of ignition, fire, explosion and asphyxiation due to leakage of refrigeration gases. The designer, installing contractor through to the building owner all have a legal responsibility to minimise and elimination these risks.

### Reduction of Refrigerant Loss

A refrigeration gas sensor will detect small gas leaks that will allow the building manager to initiate a repair procedure before a significant portion of the system charge is lost, so the system efficiently maintained, energy costs are minimized, and downtime is reduced.

### Maintaining Cooling Capacity & Efficiency

To maintain the system's design capacity and efficiency it is essential that the optimal quantity of refrigerant charge is contained within the circuit. An early indication of a leak and its subsequent repair may prevent the refrigerant level failing below this minimum amount to maintain the system cooling capacity and efficiency.

### Proactive Maintenance

A refrigerant detection system should be considered as an asset protection system; by utilising different alarm strategies for large and small leaks, the system can alert maintenance personnel of any minor leaks and provide escalation alarms in the event of a major release.

### What Gases are a Safety Risk

While all types of refrigeration gases have some safety risk, the biggest concern is the low GWP gases.

Low Global Warming Potential (GWP) gases have been legislated to replace existing high GWP gases.

The new low GWP gases are classed as A2, A2L, A3 all of which have safety issues in occupied spaces. A2 and A2L gases are mildly flammable and A3 gases such as R290 are highly flammable. Extreme caution should be taken when installing and servicing this equipment.

The possibility of these gases leaking into occupied spaces causing asphyxiation or being ignited causing fire/ explosions must be addressed when using these environmental reducing gases.

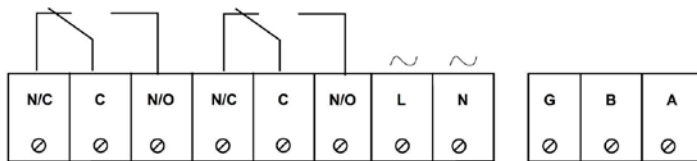


# Key Features

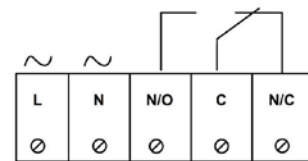
- Uses refrigerant specific gas sensor to avoid false alarms
- Low profile enclosure for aesthetic appeal
- Simple onsite installation
- LED status indication normal green, alarm red, fault yellow
- Sound signalisation >85dB
- NC, NO Relay volt free contacts
- Galvanically isolated RS485 output for connection to BMS (H-300 only)



Technical Specifications	SE-H300.REF	SE-H400.REF
Working Voltage	240v or 24Vdc	240v or 24Vdc
Power Consumption	3 watts	3 watts
Output Relays	2 relays NO, NC	1 relay NO, NC
Digital Output Signal	RS 485 Modbus	None
Detected Refrigerant Gases	HFC, HFCF, A2, A2L, A3	HFC, HFCF, A2, A2L, A3
Detection Range (gas specific)	300 to 10,000ppm	300 to 10,000ppm
Operating Temperature	0-50c	0 -50c
Humidity Range	0-90%rh	0-90%rh
Alarm Sound Level	85dbA	85dbA
IP Rating	IP42	IP42
Sensor Type	Semi-Conductor	Semi-Conductor
Sensor Lifetime	5 years +	5 years +
Dimensions (w x h x d)	145 x 90 x 35mm	115 x 90 x 38mm
Weight	250gms	300gms
Enclosure Material	ABS	ABS
Enclosure Colour	White	White



H-400.REF



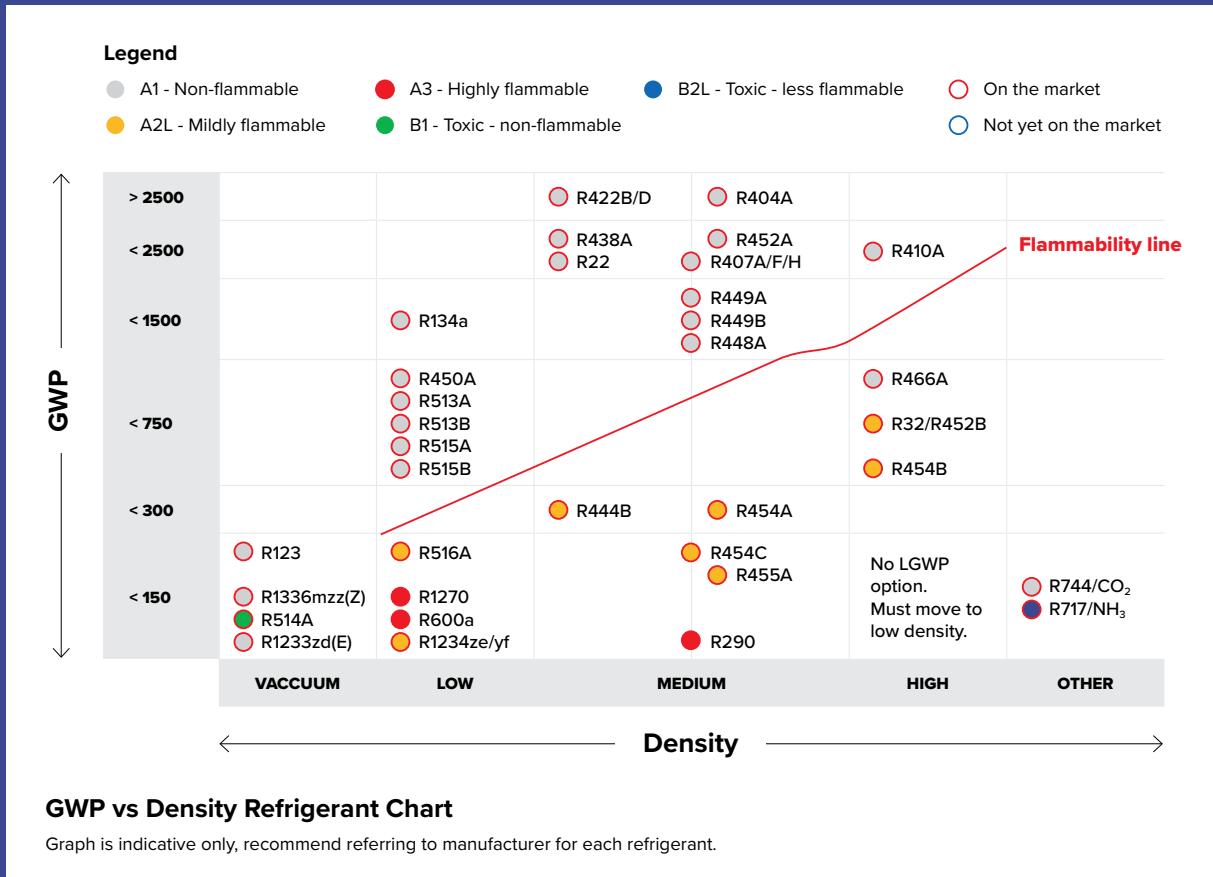
H-300.REF

Model	Voltage	Output	MODBUS	Mounting
SE-H300.REF-w	240V	2 Relays	Included	Wall Mount
SE-H300.REF-w	24V DC	2 Relays	Included	Wall Mount
SE-H400.REF-w	240V	1 Relay	Not Included	Wall Mount
SE-H400.REF-w	24V DC	1 Relay	Not Included	Wall Mount
SE-H300.REF-d	240V & 24V DC	1 Relay	Included	Duct Mount
SE-H400.REF-d	240V & 24V DC	2 Relays	Not Included	Duct Mount

Duct mount units supplied with weatherproof enclosure and 250mm duct probe



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The Australian Institute of Refrigeration, Airconditioning and Heating (AIRAH) have published the industry guide [Flammable Refrigerant Safety Guide 2013](#) about managing the health and safety risks associated with the safe design, manufacture, supply, installation, conversion, commissioning, operation, maintenance, decommissioning, dismantling and disposal of refrigeration and airconditioning equipment and systems that use a flammable refrigerant.

The Heads of Workplace Safety Authority (HWSA) have developed a Flammable Refrigerant Gases Position Paper which provides information on the obligations of work health and safety duty holders with respect to the use of flammable refrigerant gases at workplaces.

Technical guidance for refrigeration systems is available in various Australian Standards including:

**AS 5149, Part 1-4**  
**AS ISO 817-2016**  
**AS 60079.10.1.2009**  
**AS 60079.14.2009**

Heat pumps, Safety and Environmental Designation and Safety Classification  
 Explosive Atmospheres, Classifications of Area  
 Explosive Atmospheres, Electrical Installations Design and selection

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