



Refrigerant Detection Systems

Refrigerant Detection Systems help safeguard against refrigerant levels exceeding permitted concentration levels and react effectively in the event of a leak.

Key Features:

- Enables compliance with EN378 Safety of Building Occupants, critical in hotel applications.
- Can help achieve recognition within BREEAM Pollution Prevention Assessment, ideal for assisting in the design of modern, sustainable buildings.
- Robust and tested leak detection with refrigerant pump down option.
- Flexible refrigerant gas detection systems semiconductor or infra-red, in standalone orcost effective aspirated panel options.
- Pump down panel incorporating all elements required for safety and environmental protection along with ease of installation.
- Actuated ball valves to isolate refrigerant on pump down.
- Alarm system to alert occupants and staff of any refrigerant leakages.





The need for Refrigerant Detection Systems

Mitsubishi Electric air conditioning systems use refrigerant, which if installed and maintained correctly are designed to never leak into the atmosphere.

To protect against a worst case scenario, EN378, is in place as safety guidance for calculating the critical concentration of refrigerant if it were all to leak into an occupied space, which for R410A refrigerant is 0.44kg/m3.

Focusing specifically on sustainable buildings, BREEAM Pol 01 aims to minimise pollution under the unlikely event of leakage of refrigerant from the air conditioning system. Designed to reduce such pollution, the system provides an option which can help achieve recognition within BREEAM, subject to evaluation by an accredited BREEAM assessor.

Safety of Building Occupants

Mitsubishi Electric's systems are designed to provide an audible and visual alarm if refrigerant leaks from an air conditioning system, which is a common requirement for hotel rooms and small occupied spaces as required by EN378. The Refrigerant Detection Systems range from simple standalone sensors to advanced multi point aspirated systems covering multiple rooms.

Available in a range of specifications using different technologies covering all applications including R410A and R32 refrigerant, Mitsubishi Electric can provide the solution for refrigerant detection to ensure the safety of building occupants.

Aspirated panel

Standalone/Infra-red

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These systems have one sensor per space which includes refrigerant sensor and visual /audible alarm.The KSIR-SP0I can be used as a standalone refrigerant leak detection sensor (24v power supply required) for EN-378 the KSIR-SP0I can be connected to a KSSP-RDU panel, up to 30 KSIR-SP0I can be connected.

Standalone/Semi conductor

KSGD-01 can be used as a standalone refrigerant leak detection sensor (12/24 vdc power supply required) for EN-378 the KSGD-01 can be connected to either a KS8-32 RAD-A or 62 RAD-A remote display panel.



KSIR-SP01 refrigerant leak detection sensor



KSGD-01semi conductor sensors (available in a range of finishes)







Aspirated Systems

Calibration point

These systems have one master panel sensing from multiple spaces through tubing and termination room face plates. The panels include a refrigerant sensor but require additional local visual and audible alarm for EN378 compliance. These systems can also sample 2 rooms per channel, enabling up to 64 rooms to be monitored. These are ideal to install with City Multi R2 heat recovery VRF systems, as the tubing and alarm wiring can be run with the refrigerant pipes.

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Pollution Prevention within BREEAM Assessment

Designed to reduce pollution under the unlikely event of refrigerant leaking from the air conditioning, the system provides an option to pump down and isolate the refrigerant within City Multi R2 heat recovery VRF systems.

Components are available to work alongside any of the leak detection systems including standalone and aspirated, to provide full safety and environmental protection from refrigerant leakage.

These systems can help achieve recognition within the Pollution section of BREEAM, subject to evaluation by an accredited BREEAM assessor.

City Multi Pump Down Control System KS8-OC1~8

The controls panel is required to pump the refrigerant down in the system, providing the link between the leak detection system and the Mitsubishi Electric City Multi R2 heat recovery VRF system.

Panels are available to control from 1 to 8 outdoor units.

Automatic pump down is only currently available on City Multi R2 heat recovery VRF (PURY,YHM,YJM,YKM models).

Actuated Isolation Ball Valves KS8-5/8~1.5/8ABV

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The actuated ball valves enable the system to isolate refrigerant during and after pump down to minimise the effect of any refrigerant leakage should this occur, with one on the high and one on the low pressure refrigerant pipework of each system, situated between the outdoor unit and branch controller.

> Refrigerant Gas Detection with City Multi VRF Automatic





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Environmental Solutions - Refrigerant Detection Systems

| Technology | Sensor | How It Works | Application |
|----------------|---|--|---|
| Semi-conductor | Metal oxide sensor | High resistance with oxygen (air). Resistance drop occurs when the oxygen is replaced with another gas | Open, clean environments (i.e. office) |
| Infra-red | A gas sample tube with infra-red light emitter and sensor at opposite ends | Different gases absorb different wavelengths of infra-red light, so accurate detection is possible | Ideal for an array of applications including hotels as active detection of refrigerant sets off the alarm |

| Refrigerant Detector | KSGD-01W | KSGD-01S | KSIR-SP | KS8-IR8C / 16C / 32C |
|----------------------|---------------------------|----------------------------|--|--|
| | Available in Bra | ass or Chrome | Contraction of the second seco | Current of the second s |
| Description | Standalone white back box | Standalone silver back box | Standalone exposed | Aspirated panel |
| Sensing Type | Semi-conductor | Semi-conductor | Infra-red | Infra-red |
| Power Supply | 12 / 24 VDC (via KSTR) | 12 / 24 VDC (via KSTR) | 24 VDC (via KSTR24) | 240VA |
| Number of rooms | 1 | I | 1 | 8 (16 max) / 16 (32 max) / 32 (64 max) |
| Audible alarm | v | v | v | V |
| Visual alarm | v | V | ¥ | × |

| Additional Items For Detection Systems | Model Ref. | Code | | Remote Display Panels | |
|---|-------------|----------|-----------------------------|--------------------------|--|
| Transformer 0.8A, 12VDC | KSTR12-JI | 10100487 | Description | Function KS # Rents Duty | |
| Transformer 0.5A, 24VDC | KSTR24-JI | 10100488 | KS9 IP Pomoto | | |
| Sampling tube 100m black | KS8-BST100 | 10100218 | display unit | KS8-IR aspirated panels | |
| Sampling tube 250m black | KS8-BST250 | 10100219 | | 1 MDDas | |
| Filter for aspirated detectors | KS8-IF | 10100221 | KS8-RAD32 | Can connect up to 32 | |
| End of line filter | KS8-EF | 10100223 | Remote display | KSGD1 sensors | |
| Stainless faceplate C/W alarm | KS8-SSFPA | 10100226 | | | |
| Sampling tube straight conn | KS8-STSC | 10100224 | KS8-RAD64 Romoto display | Can connect up to 64 | |
| Sampling tube 2 way manifold | KS8-ST2M | 10100225 | | K3GD1 3613013 | |
| Brass faceplate c/w alarm | KS8-KSRA BP | 10100325 | | Can connect direct to | |
| Satin stainless steel faceplate c/w alarm | KS8-KSRA SS | 10100337 | KSRA1 Remote | KS8-IR aspirated | |
| White steel faceplate c/w alarm | KS8-KSRA WS | 10100338 | | 32/64 and KSIR-SP01 | |

Let's start a new project together...

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