

Peace of mind. Guaranteed.

Continuous monitoring of refrigerants in mechanical rooms with two chillers.

Early detection of a refrigerant leak in a mechanical equipment room can prevent dangerous health implications to occupants, minimize significant loss of refrigerant and reduce additional energy costs.

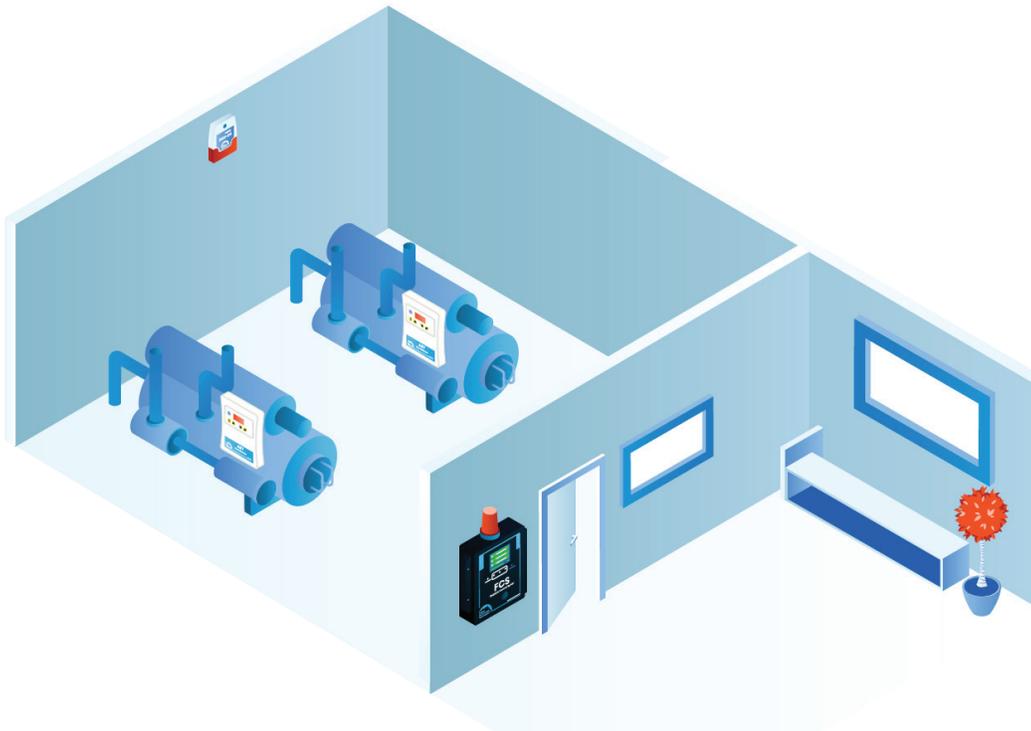
Using Critical Environment Technologies' **FCS 4** channel Flexible Control System Controller and two **ART** Infrared Refrigerant Transmitters is the solution. Infrared gas sensors are low maintenance, have a long life span and provide the highest degree of sensor accuracy at low gas concentrations. The gas detectors should be permanently installed near the chiller equipment in an area where a leak is most likely to concentrate.

The **FCS** Controller should be installed outside the door of the mechanical room, and be equipped with a top mounted strobe and a manual shut off switch which meets B-52 Mechanical Refrigeration Code requirements.

When gas level readings reach a predetermined level, the **ART** will trigger its own alarm and send a signal to the **FCS** which in turn will trigger audible alarms and activate the mechanical ventilation system and call emergency response as configured.



Inside the mechanical room, two ART transmitters, each with an internal infrared refrigerant sensor should be placed in the areas where a refrigerant leak is most likely to concentrate and where pooled refrigerant is likely to accumulate. Refrigerant gases are heavier than air and will concentrate closer to the floor and in areas with less air current. Each ART transmitter should be mounted 10" to 18" off the floor so it is at an appropriate height for detection and accessible for routine calibration and maintenance. Gas measurement readings will be transmitted to the FCS Flexible Control System Controller and will be viewable on its display. The ART transmitter is field configurable for either an analog signal or Modbus® communication.



The FCS Controller with a top mounted strobe and manual shut off switch (meets B52 requirements) should be mounted outside the mechanical room entry door. It will interface to the ART refrigerant transmitter(s) inside the room and will display the target gas levels for viewing prior to entering the room. The FCS is pre-programmed and field adjustable, offering 4 dry contact relays, priority settings, logic control, including time of day, data logging, audible alarm and a full colour, resistive touch screen. The FCS should be configured to set off alarms and activate the exhaust ventilation system, shut down the equipment or other alarm procedures as appropriate. The ART transmitters can be configured to connect to the

FCS using Modbus® RS-485 digital communication or analog (4 - 20 mA) signal (must add Option -AI). Up to a maximum of four transmitters can be connected to the FCS-4. If more than 4 channels are required, other models of the FCS are available that offer 8, 32 or up to 128 channels.

Remote visual and audible alarm devices such as the Remote Strobe & Horn (RSH-24V-R) should be set up inside the room and if there is another entrance to the room, an RDM Remote Display Module should be mounted outside the door of the additional entrances, to provide visual confirmation of gas level readings prior to entering the room.

Using infrared sensor technology will ensure the highest degree of sensor accuracy especially when the monitoring area may have other contamination gases or multiple refrigerants in the same area. Infrared refrigerant sensors should not be used in locations that have corrosive chemicals such as chlorine, ammonia and other oxidizers that are present, especially if there is a higher humidity level.