

GAS DETECTION SYSTEM

A. General

1. The refrigerant gas detection system shall consist of a UL listed panel containing the necessary controller, logic, power supply and terminal strips capable of communicating digitally through two RS-485 communication busses with the networked transmitters. The system shall be capable of starting fans, stopping equipment, ramping ventilation, sounding alarms, dial up notification, incorporate battery backup or other functions as shown on the drawings.
2. CO, combustibles and toxics detection systems shall be ETL listed and consist of a controller, fully addressable transmitters and relay panel as required.

B. Acceptable Manufacturers

1. The gas detection system shall be field proven with at least four (4) years of successful operation in gas monitoring / alarm or control applications.
2. The Gas Detection System shall be the VA-201 Series manufactured by VULCAIN GAS DETECTION SYSTEMS and distributed by Toro-Aire; 1708 Mahalo Place, Dominguez Hills, CA 90220, Telephone (310) 632-6000, Fax (310) 632-8919.

C. Performance Requirements

1. The gas detection system shall be gas specific using the appropriate gas sensing technology:
 - Infrared
 - Electrochemical
 - Catalytic
 - Diffusion cell
2. The gas detection system shall conform to the panel configuration and sequence of operation as shown on the drawings. The system shall be a complete, stand-alone system from a single manufacturer.
3. Explosion proof toxic and explosive gas detection sensor / transmitter must meet Class 1, Div.1, Groups A, B, C and D specifications. Housing must meet Class I, Div. 1, Groups B, C and D specifications and have FM Label. Magnetic controls on the face of the unit along with calibration circuitry will permit the unit to be calibrated without the need to declassify the space being monitored.
4. The networked sensors shall use the "daisy-chain" arrangement to communicate with the gas detection system controller through a fully addressable RS-485 communication port. Wiring shall require no more than a 3/4" conduit. Sensors requiring "home-run" wiring are not acceptable.
5. Where required by the system design as shown on the drawings, the gas detection system shall be capable of sending an analog 4-20mA signal to a variable frequency drive (VFD) to control the ventilation fan.
6. Optional battery backup to continue monitoring operation in the event of a power outage shall be available. The system shall have the ability to notify designated personnel in the event of a power outage through a BMS interface, dry contacts or telephone dialer as specified on the drawings.

D. Installation

1. The gas detection system shall be installed where shown on the drawings.
2. Sensors shall be installed in the location and at the elevation shown on the drawings. Wiring between sensors and to the controller shall conform to the manufacturer's recommendations for wire gauge vs. length of wire.
3. A factory representative shall commission the gas detection system and a written report shall be sent to the mechanical engineer.