**Specification for: Compact Single Zone CO/NO2 Gas Detection and Control System**

1. **Overview and Scope**The Ventilation Control System (VCS) shall consist of carbon monoxide / nitrogen dioxide (CO/NO2) gas sensors located throughout the garage and a central controller which continuously monitors the gas values and executes a pre-defined fan control strategy.   
     
   Recognizing that this is a life safety application, the system shall be third-party certified to UL 2075, EN 50545-1, or an equivalent performance standard, must be certified to UL safety standard 61010-1 / CSA22.2, and the manufacturer must be certified to the ISO-9001 quality standard.
2. **Gas Sensors**
   1. CO / NO2 sensors shall be placed throughout the garage such that there is at least 1 sensor for every 7,500 square feet of enclosed parking or as required for compliance with applicable codes. Additional sensors shall be placed as necessary to ensure adequate coverage in alcoves and other areas with limited air movement.
   2. Gas Sensors/Transmitters shall be Auto / Field Addressable via on-board push button.
   3. To facilitate lifecycle maintenance, all sensor elements must be integrated into smart sensor modules. The sensor modules must be field replaceable without special tools. Each sensor module must store its calibration history and next service due date.
   4. All devices must be rated NEMA4X / IP65 to insure sufficient protection from dust and moisture in the garage.
   5. Gas sensors shall meet all performance specifications including accuracy and repeatability in environments between -4 and 149 degrees Fahrenheit with relative humidity between 15 and 90% (non-condensing).
   6. CO / NO2 sensors must be electrochemical type.
3. **Gas Controller**
   1. The gas controller must be intended specifically for parking garage ventilation control applications. General purpose devices that are custom programmed for this application, including the facility’s building management system, will not be accepted unless the hardware/software combination has been third party certified to EN50271 (Electrical apparatus for the detection and measurement of combustible gases, toxic gases and oxygen – Requirements and tests for apparatus using software and/or digital technologies).
   2. The controller shall provide a continuous, scrolling display of all gas values with a visual indication of values that are in alarm.
   3. A password shall be required to change all system parameters.
   4. The controller must include an audible horn (minimum 85 dB) to annunciate alarms and system faults.
   5. To ensure the long-term performance of the system, a service due date shall be assigned to every sensor in the system. At the service due date, each sensor shall visually indicate its need for service and the gas controller shall activate the effected zone’s ventilation (fail-safe).
4. **Installation and Commissioning**
   1. The system shall be installed and commissioned according to the manufacturer’s recommendations.
   2. The commissioning contractor shall provide a riser drawing showing the layout of the system and identifying the individual identifier/address of each component in the system. The riser drawing shall also include the project-specific sequence of operation.
   3. The commissioning contractor shall provide a written report certifying that all devices are operational, and the design sequence of operation is fully functional.
5. **Approved Manufacturer**
   1. The parking garage ventilation and control system shall be the PolyGard 2 Series: CGC6 Control Panel and DT6A Sensor/Transmitters by INTEC Controls (12700 Stowe Drive, Poway, CA, 92064, 858-578-7887, www.inteccontrols.com).