**ENGINEERING SPECIFICATION**

**DT5-3300 Combustible Gas Transmitter & DGC5 Gas Control Panel**

**COMBUSTIBLE GAS SENSOR/TRANSMITTER**

1. Combustible gas sensor/transmitter shall provide monitoring of the appropriate combustible levels in the space and control the ventilation system via the Digital Gas Controller (DGC5) and BAS in accordance with all applicable codes and standards.
2. The sensors shall be catalytic type. The sensor/transmitter shall have plug-in technology for ease of troubleshooting and replacement of both the element and the printed circuit board.

1. The sensor range shall be 0-100% LEL. A microprocessor-based transmitter shall communicate over serial bus. The wiring between the transmitter and the controller (DGC5) shall be a 4-wire, polarity protected daisy-chained networked configuration. Communication circuitry shall be protected from accidental application to maximum of 30V power and also short circuit and surge protection to the serial bus. Each sensor/transmitter be applied strategically and appropriately per floor plan requirements.
2. The sensor shall have an accuracy of ± 1% of reading and a response time of 10 seconds. The long-term output drift shall not exceed more than 0.4% LEL of signal loss per month. The permissible ambient working temperature shall be 14°F to 122°F and permissible ambient humidity shall be 5 to 95% RH, non-condensing. The sensor shall require no routine maintenance other than periodic calibration. Its life expectancy shall be minimum 3 years of normal service. The manufacturer shall provide a two 2-year warranty for materials and workmanship, and a 12-month warranty on the sensing element under normal exposure.
3. Each digital sensor/transmitter printed circuit board shall have the capability of adding one (1) 4-20 mA transmitter input to monitor temperature, humidity or any other gas.
4. The sensor/transmitter shall be RFI/EMI protected and contained in a NEMA1 metal enclosure to prevent vandalism. The enclosure for the sensor /transmitter shall be installed at the appropriate height for the particular combustible gas.
5. The sensor/transmitter shall be NRTL performance tested and certified to ANSI/UL 2075.
6. The sensor shall be able to be addressed and calibrated with a digital programming tool (DPT). The DPT shall be capable of determining if the sensing element ever needs replacement. Potentiometer calibration is not acceptable.
7. If the level of combustible gas reaches 20% LEL in the area of detection, the low alarm shall activate. If the level of combustible gas increases to 40% LEL, the high alarm shall activate.
8. The contractor shall supply the PolyGard® Series DT5-3300 combustible gas sensor/transmitter, by INTEC Controls; phone (858) 578-7887; fax (858) 578-4633.

**DIGITAL GAS CONTROL PANEL**

1. The control panel shall provide continuous monitoring of the designated gas levels in the assigned area and control the ventilation system via digital and analog outputs in accordance with all applicable codes and standards.
2. The control panel shall provide optional upward communication via BACnet, LON or MODBUS communication protocol to any compatible electronic control, DDC/PLC control or automation system. Connection shall be capable at any point on the trunk.
3. The control panel shall be capable of having 1 to 8 communication trunks, each with full trunk protection for the RS-485 and DC power. The trunks shall be capable of any distance with the appropriate number of REP5-PS1.5 repeaters/power boosters.

1. The control panel shall have the capability to accept up to 98 RS-485 digital gas transmitters of the DT5-3300 series or 48 pairs of digital/analog combinations. Each digital transmitter can connect to one 4-20 mA transmitter of any type gas or temperature or humidity transmitter to control the ventilation fans.
2. The Digital Control Panel shall provide for (5) stage threshold. Any of the five stages can be assigned to any one of up to (30) local or remote relay outputs. Each remote relay module shall be able to control VFDs via analog outputs. The outputs shall be programmable in the field. Each of the sensing points is freely addressable to any of the analog outputs.
3. The controller shall have (4) digital inputs that can be assigned for override or remote reset of the relays.
4. The control panel shall have a supply output of 24VDC available for remote horn/strobes.
5. The operator shall be able to connect to any digital sensor on the system via laptop to enable programming of all controller parameters and also allow display of all sensor values including alarm levels. This data can also be saved in historical csv files with time and date.
6. The control panel shall have a 90db audible alarm assignable to stage level S1, S2, S3, S4, or S5. An external manual reset switch via the digital input or through the control panel menu shall acknowledge the alarm.
7. The control panel shall have status indicator LEDs located on the front; Green = Power On, Flashing Red = Alarm, Flashing Yellow = Fault/Sensor Failure.
8. The control panel shall include a two line, backlit LCD display of 16 characters per line, at 1 digit resolution.
9. The controller shall be NRTL performance tested and certified to ANSI/UL 2017.
10. The contractor shall supply the PolyGard® Series DGC5 digital controller, by INTEC Controls; phone (858) 578-7887; fax (858) 578-4633.