

Product Engineering Sheet

Engineering Specification for a Point Infrared Gas Smart Sensing and Transmitting Unit

GENERAL DESCRIPTION

The Smart Sensing and Transmitting Unit shall contain microcomputer-based electronics, field connection terminations, the sensing element, and the transmitter in a single explosion proof housing. The detection method shall be a dual source, single detector infrared type. The detector will have a simple straight gas path (no mirrors). This unit shall be capable of one-time factory calibration with only occasional field calibration necessary. The detector will have a minimum of 8 gas curves programmed into the microprocessor which can be easily accessed in the field via MODBUS. The transmitter shall be capable of interfacing with industrial equipment that can receive a 4 to 20 mA signal or MODBUS. The complete unit must be approved by the Canadian Standards Association (CSA), CENELEC and have CE Marking. This unit shall be approved for operating in Class I, Division 1, Groups B, C & D, and EExd IIB+H₂, T5 hazardous classified locations.

MALFUNCTION INDICATIONS

The malfunction indications shall be a remote analog signal or via MODBUS. The malfunction conditions that are monitored shall be:

- Low DC supply voltage
- Optical path obstruction
- Excessive infrared energy present
- Excessive change in infrared energy
- EPROM/EEPROM verification failure
- Open analog output

ELECTRICAL SPECIFICATIONS

The input power shall be a nominal 24 VDC at 0.4A with a maximum range from 20 to 36 VDC. Three conductor shielded cable (14 to 22 AWG) shall be used for cable runs from the power supply and readout/relay module to the unit. The output signal shall be an analog signal with a range of 0 to 22 mA and a maximum load of 600 ohms, a MODBUS interface and a solenoid driver. The unit shall be capable of receiving power through cable running up to 1800 feet from the power supply. The unit shall be capable of transmitting the output signal through the cable up to 4500 feet to a readout/relay module or up to 1000 feet from the MODBUS bus master to the slave device.

WARRANTY

This unit shall have a two year warranty on the sensing element and on the electronics. The manufacturer shall warrant this unit to be free from defects in workmanship and material under normal use and service within the warranty period from the date of shipment.

ENVIRONMENTAL SPECIFICATIONS

This unit shall be capable of operating within a temperature range of -40°F to $+167^{\circ}\text{F}$ (-40°C to $+75^{\circ}\text{C}$) and a humidity range of 5% to 100% relative humidity, non-condensing.