

Ultrasonic EX-5 Gas Leak Detector Engineering Specification

1.0 GENERAL DESCRIPTION

- 1.1 The Gas Leak Detector shall detect leaks of pressurized gases via Ultrasonic gas leak technology.
- 1.2 The detector shall contain microprocessor-based electronics, field connection terminations, Modbus or HART and two 8-A relays in a single explosion-proof housing.
- 1.3 The detector shall be available with a 4-digit digital display window in the cover.
- 1.4 The unit shall be equipped with the 4-20 mA analog output signal and be available on configurations suited for HART and Modbus

2.0 CALIBRATION

- 2.1 This unit shall be capable of calibration without having to de-classify an area and without any adjustments by the operator.
- 2.2 Calibration shall be initiated by the application of a test and calibration unit.

3.0 SENSOR SPECIFICATIONS

- 3.1 The ultrasonic gas leak detector shall be suitable for measuring sound pressure level (SPL) in the dynamic range of 58 – 104 dB within a frequency range of 25 – 70 kHz.
- 3.2 It shall be accurate to ± 3 dB.
- 3.3 The sensing element shall be a stainless steel microphone with a high pass filter to block frequencies below 25 kHz.
- 3.4 The response time of the sensor shall be less than or equal to 1 second.

4.0 INTEGRAL DISPLAY

- 4.1 The unit shall contain a Digital Display which indicates sound pressure level, calibration prompts, and fault codes.

5.0 ANALOG OUTPUTS

- 5.1 The unit shall contain a standard analog output with output correlating to signal conditions as defined below

0 mA	Start up, other errors
1 mA	Pulsed acoustic error
3 mA	Unit inhibit
4 – 20 mA:	58 – 104 dB

6.0 ELECTRICAL SPECIFICATIONS

- 6.1 The input power shall be 15 – 36 VDC, 250 mA maximum.
- 6.2 Three-wire shielded cable (14 to 20 AWG) shall be used for cable runs from the power supply to the unit.
- 6.3 The output signal shall be an analog signal with a range of 0 to 22 mA.
- 6.4 The unit shall be capable of receiving power through cable running up to 3,952 feet (1,205 m) from the power supply using 14 AWG wire.
- 6.5 The alarm and malfunction relays shall be SPDT contacts with electrical ratings of 8 A @ 250 VAC, 8A @ 30 VDC resistive maximum.
- 6.6 The unit shall be equipped with Modbus and HART options.

7.0 MALFUNCTION INDICATIONS

- 7.1 The malfunction indications shall be a remote analog signal indication uniquely different than the operational signal and a visible signal to the operator.
- 7.2 The malfunction conditions that are monitored shall be:
 - Pulsed acoustic error

-Other errors (low supply, acoustic error, remote alarm switch stuck, remote relay reset switch stuck, magnetic sensor stuck, internal voltage error, critical memory error, user memory error, HART memory error, event memory error)

8.0 ENVIRONMENTAL SPECIFICATIONS

8.1 This unit shall be capable of operating within a temperature range of -40°F to +140°F (-40°C to +60°C)

8.2 This unit shall be capable of operating in a humidity range of 5% to 95% relative humidity, non-condensing.

9.0 WARRANTY

9.1 This unit shall have a two-year warranty.

9.2 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.

10.0 APPROVALS

10.1. The detector must further be certified to CSA, FM, ATEX, IECEx standards and have the CE mark.

10.2. This unit shall be capable of operating in Class I, Division 1, Groups B, C or D, Ex II 2G EEx d e ib IIB+H₂, T6, hazardous classified locations

10.3 The detector shall be suitable for SIL 3 environments.

11.0 MANUFACTURER

11.1 The manufacturer must be capable of supplying all equipment used to check or calibrate the sensor/transmitter units.

11.2 The manufacturer must be capable of providing on-site training for owner/operator.