



UltraSonic IS-5

Ultrasonic Gas Leak Detector

For high-pressure gas applications and installations restricted to low power

Description

The UltraSonic IS-5 is a non-concentration based gas detector used to detect leaks from high-pressure systems. Like other ultrasonic monitors, the UltraSonic IS-5 responds to the airborne ultrasound generated from gas releases in open, well ventilated areas, where traditional methods of detection may be unsuitable or dependent on ventilation. Because the UltraSonic IS-5 responds to the source of a gas release rather than the dispersed gas, it is unaffected by changing wind directions, gas dilution, and the direction of the gas leak. Further, with its maximum coverage radius of 20 meters, it can supervise a relatively large area with a single device.

The UltraSonic IS-5 is immune to many false signals and can be configured to filter short timescale ultrasonic noise that can produce nuisance alarms. Frequencies below 25 kHz are removed by a high pass filter, effectively eliminating interference from audible and low frequency ultrasonic noise. At the same time, setting the alarm trigger level above the ultrasonic background noise ensures immunity to other noise sources. The result is a reliable method of detection, able to monitor environments with high levels of ultrasound such as turbine rooms and compressor stations.

Besides high-pressure gas applications, the UltraSonic IS-5 is suited for installations restricted to low power (< 1 W).



Features and Benefits

Advanced stainless steel microphone permits instant detection of high-pressure gas leaks with coverage up to 20 meters in radius

Interface outputs include 4–20 mA analogue and alarm/fault relays according to industry standards

Full AISI 316L stainless steel intrinsically safe housing enclosure provides corrosion resistance in harsh environments

Minimal maintenance and calibration requirements with portable test unit

Local LED indicator displays detector status

Wide dynamic range (44–104 dB)

Applications

- Offshore and Onshore Oil and Gas Installations
- Floating Production Storage and Offloading Vessels (FPSOs)
- Gas Compressor and Metering Stations
- Underground Gas Storage Facilities
- Petrochemical Processing Plants
- Hydrogen Storage Facilities
- LNG/GTL Trains
- LNG Re-gasification Plants
- Gas Turbine Power Plants
- Refineries

System Specifications	
Detector Type	Ultrasonic (acoustic) gas leak detector
Detector Frequency Range	25 kHz – 70 kHz
Dynamic Range	44 – 104 dB SPL
Detector Coverage*	<i>Very low noise areas</i> (< 64 dB) 20 m radius at leak rate = 0.1 kg/s 12 m radius at leak rate = 0.03 kg/s <i>Low noise areas</i> (< 74 dB) 12 m radius at leak rate = 0.1 kg/s 8 m radius at leak rate = 0.03 kg/s <i>High noise areas</i> (< 84 dB) 8 m radius at leak rate = 0.1 kg/s 4 m radius at leak rate = 0.03 kg/s
Typical Response Time	Instant
Classification	ATEX: II 2G Ex ia IIC T4 IECEX: Ex ia IIC T4
Warranty	Two years
Approvals	ATEX, IECEX, IEC 61508 certified to SIL 1 and 2**

* Reference gas is methane: All dB levels are in the ultrasonic frequency range.

** It has a SIL 1 rating in simplex applications and SIL 2 in voted applications with "m+1" redundancy.

Environmental Specifications	
Operating Temperature Range	–40 °C to +75 °C
Operating Humidity Range	0% to 100% RH
Ingress Protection	IP 66
Mechanical Specifications	
Housing	Stainless steel AISI 316L
Dimensions	182 x 145 mm
Weight	2.24 kg
Mounting	Stainless steel mounting bracket
Conduct Entries	M20 x 1.5
Electrical Specifications	
Input Power Supply	13 – 28 VDC
Min. Power Consumption	744 mW
Analog Signal	0 mA: No power/Low supply voltage 3 mA: Unit inhibit 4 – 20 mA: 44 dB – 104 dB
Relays (option 1 or 2 operator selectable)	Option 1: Alarm relay Option 2: Error relay
Cable Requirements	Max. cable lenght between UltraSonic IS-5 and power source @ 24 VDC (40 Ohm) 14 AWG – 2,408 m

Ordering Information		
UltraSonic IS-5	4 – 20 mA, ATEX/IECX, 2 x M20	UIS5-11
Accessories	Portable test and calibration unit Gassonic 1701	80510-1
	Screw and sealing washer kit	80614-1
	Mounting bracket, 45°	80613-1



UltraSonic EX-5

Ultrasonic Gas Leak Detector

Long and failsafe operation in extreme environmental conditions

Description

The UltraSonic EX-5 is a non-concentration based gas detector used to detect leaks from high-pressure systems. Like other ultrasonic monitors, the UltraSonic EX-5 responds to the airborne ultrasound generated from gas releases in open, well ventilated areas, where traditional methods of detection may be unsuitable or dependent on ventilation. Because the UltraSonic EX-5 responds to the source of a gas release rather than the dispersed gas, it is unaffected by changing wind directions, gas dilution, and the direction of the gas leak. Further, with its maximum coverage radius of 20 meters, it can supervise a relatively large area with a single device.

The UltraSonic EX-5 is immune to many false signals and can be configured to filter short timescale ultrasonic noise that can produce nuisance alarms. Frequencies below 25 kHz are removed by a high pass filter, effectively eliminating interference from audible and low frequency ultrasonic noise. At the same time, setting the alarm trigger level above the ultrasonic background noise ensures immunity to other noise sources. The result is a reliable method of detection, able to monitor environments with high levels of ultrasound such as turbine rooms and compressor stations.

The UltraSonic EX-5 also features the Senssonic™ patented self-test for full failsafe operation. This self-test checks the electrical integrity of the device and microphone every 15 minutes and ensures the device is operational at all times.



Features and Benefits

Senssonic™- integrated acoustic self-test provides full failsafe operation

Advanced stainless steel microphone permits instant detection of high-pressure gas leaks with coverage up to 20 meters in radius

4 – 20 mA analog output, HART and Modbus digital communication enable flexible output methods for remote control and status according to industry standards

Stainless steel AISI 316L explosion proof housing provides corrosion resistance in harsh environments

One-person sound check and calibration with traceable portable test unit results in high reliability and trouble free maintenance

Three digit LED display shows actual sound pressure level and alarm indication

Applications

- Offshore and Onshore Oil and Gas Installations
- Floating Production Storage and Offloading Vessels (FPSOs)
- Gas Compressor and Metering Stations
- Underground Gas Storage Facilities
- Petrochemical Processing Plants
- Hydrogen Storage Facilities
- LNG / GTL Trains
- LNG Re-gasification Plants
- Gas Turbine Power Plants
- Gas Storage Facilities
- Refineries

System Specifications	
Detector Type	Ultrasonic (acoustic) gas leak detector
Detector Frequency Range	25 kHz – 70 kHz
Dynamic Range	58 – 104 dB
Test Sound Frequency	40 ± 3 kHz
Test Sound Pressure	100 ± 7 dB, 60 mm from sound source
Detector Coverage*	<i>Very low noise areas</i> (<58 dB) 13-20 m radius at leak rate = 0.1 kg/s <i>Low noise areas</i> (< 68 dB) 9-12 m radius at leak rate = 0.1 kg/s <i>High noise areas</i> (< 78 dB) 5-8 m radius at leak rate = 0.1 kg/s
Typical Response Time	< 1 s (speed of sound)
Classification	ATEX / IEC Ex Ex d ia IIB+H ₂ T6 Gb Ex tb IIIC T85°C Db (T _{amb} = –40°C to +60°C) IP66 CSA / FM Class I, Div. 1, 2, Groups B, C, D Class II/III, Div. 1, 2, Groups E, F, G (T _{amb} = –40°C to +60°C) Type 4X
Warranty	Two years
Approvals	ATEX, IEC Ex CSA, FM SIL 2 and 3

* Reference gas is methane: All dB levels are in the ultrasonic frequency range.

Environmental Specifications	
Operating Temperature Range	–40 °C to +60 °C
Operating Humidity Range	0–95% RH non condensing
Ingress Protection	IP66
Mechanical Specifications	
Housing	Stainless steel AISI 316L
Dimensions	203 x 203 x 201 mm
Weight	7.5 kg
Mounting	Stainless steel mounting bracket
Conduct Entries	M20 x 1.5 (optional 3/4" NPT adapter available)
Electrical Specifications	
Input Power	15–36 VDC
Max. Current Consumption	250 mA
Analog Signal	0 mA: Start up / Other error 1 mA: Pulsed acoustic error 3 mA: Unit inhibit 4–20 mA: 58 dB – 104 dB
Relays	8 A @ 250 VAC / 8 A @ 30 VDC Relay 1: Error / fault indication Relay 2: Indication of trigger level
RFI/EMI Protection	Complies with EN 61000-6-2 and EN 61000-6-4
RS-485 Output	Modbus RTU, suitable for linking up to 247 units with repeaters
Baud Rate	2400, 4800, 9600, or 19200 BPS
HART (optional)	HART 6, HART Device Description Language available
Cable Requirements	Max. cable length between UltraSonic EX-5 and power source @ 24 VDC (20 Ohm) – 14 AWG (2.08 mm ²) – 1,809 m

Ordering Information

UltraSonic EX-5 Gas Leak Detector	4 – 20 mA, Dual Modbus, Alarm De-Energized, 3/4" NPT	UEX5-1111
	4 – 20 mA, HART, Modbus, Alarm De-Energized, 3/4" NPT	UEX5-5111
	4 – 20 mA, Dual Modbus, Alarm De-Energized, M20	UEX5-1131
	4 – 20 mA, HART, Modbus, Alarm De-Energized, M20	UEX5-5131
Accessories	Portable test and calibration unit	80510-1
	Windscreen microphone	80333-1
	Sunshade	80612-1
	Mounting bracket and hardware	80601-1
	Magnet stick	80499-1

Distributed by:



Contact Details:

12 Johnstone Drive
Rutherglen
Glasgow
G73 2PT
Scotland, UK

www.amsequipment.com / sales@amsequipment.com / 0141 587 8296