

GDU-01

Ultrasonic Gas Leak Detector

Early warning of pressurised leaks
No field calibration
High detection range

Ultrasonic gas leak detectors complement traditional gas detection methods by listening to the ultrasound emitted from a pressurised release. Detection is not affected by wind direction or gas dilution hence the ability to detect leaks at an early stage can be achieved.

3-D Gas Detection

The Simtronics GDU listens to the ultrasound generated from escaping gas in all directions. A release does not need to cross an optical path nor does it need to physically reach the unit for detection.

The GDU does not detect specific values of LEL or ppm, rather it listens for changes in background sound level.

PRESSURISED LEAKS

Detection requires a driving pressure of at least 2 bar, hence detection of gas accumulations or vapours is not possible.

In basic terms the detected sound is proportional to the leak rate (mass flow rate).

BACKGROUND NOISE REJECTION

Background noise is ignored by a threshold set in the control room and employing time delays. The GDU is delivered factory calibrated and needs no field adjustment or re-calibration.

PERFORMANCE TARGET VERIFICATION

Unlike other gas detection methods the GDU performance can be demonstrated at commissioning to comply with the site safety case. This is achieved using a pressure regulated inert test gas to simulate the required performance target.

Features

Instant On-line airborne leak detection

Encapsulated resonant sensor

ATEX proved, intrinsically safe

Direct connection to DCS / PLC / F&G

Continuous Active Measurement

>60 dB range, no field set-up required

Fully sealed and glanded construction

>30m (100 ft) detection range

Flexible mounting arrangement

Performance target verification

Benefits

Fast response

Robust packaging for all climates

Suitable for hazardous area use

Standard integration

Fail safe monitoring via control system

Wide dynamic detection range

No replaceable parts

Minimises number of devices required

Maximises detection coverage

True coverage can be demonstrated

Applications

- Offshore Gas / Oil Platforms
- FPSO's
- Onshore Gas Receiving Terminals
- Underground Gas Storage Facilities
- Gas Transmission Networks
- Aftercoolers / Fin Fans
- LNG regassification plants
- Gas fired power stations
- Compressor Halls



Technical Data

GENERAL

Detection method	Airborne ultrasound
ASL Dynamic Range	>60dB
Frequency Range	30 kHz to 80 kHz (Ultrasonic only)

OUTPUT SIGNAL

Output Current	Two wire 4-20mA (Sink)
----------------	------------------------

ELECTRICAL

Power supply	24 Vdc (Range 18 to 30 Vdc at GDU)
Power consumption	0.6W (Max)
Electrical connection	2 wire, M20 Cable gland

TEMPERATURE RANGE

Storage	-40° C to 85° C (-40° F to 185° F)
Operating, standard	-30° C to 75° C (-22° F to 167° F)
Operating, option	-40° C to 75° C (-40° F to 167° F)
Humidity (operation)	0 to 100% RH

ENCLOSURE

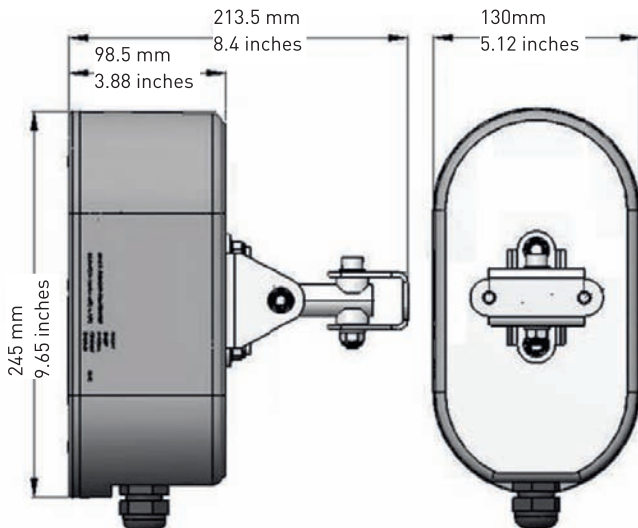
Housing material	Semi-crystalline modified PPS
Mounting bracket	AISI 316 Stainless Steel
Ingress protection	IP66
Shipping weight	2.5kg (5.5 lbs)

APPROVALS

ATEX	II 1 G D EEx ia II C T4
Certificate number	DNV-2005-OSL-ATEX-0327X
Barrier	Any certified barrier is acceptable provided it meets the following electrical parameters Ui: 30V; li: 100mA; Pi=0.9W; Ci: 0.05uF; Li: 100mH

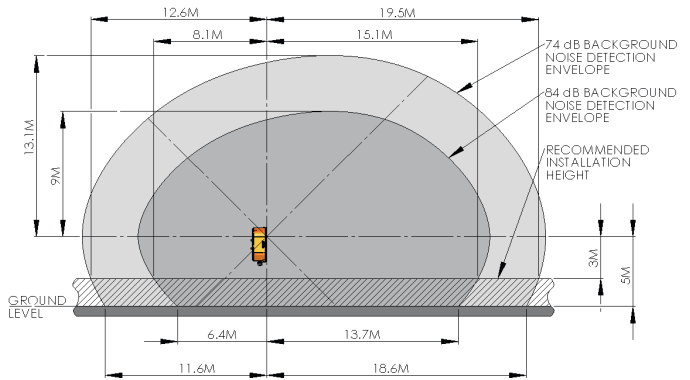
DIMENSIONS

245mm x 130mm 98.5mm
 (9.65 x 5.12 x 3.88 inches)



AREA COVERAGE

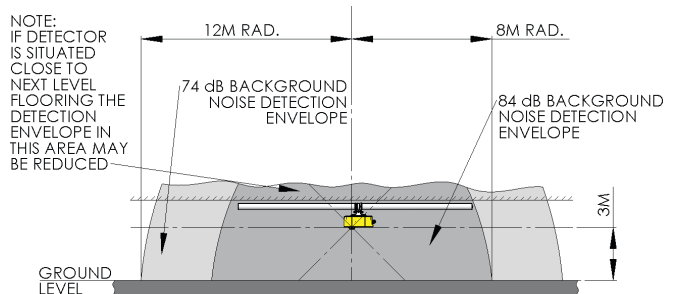
Coverage, for a given release, is determined by the background sound level and physical installation. The image below shows the range for an uncluttered installation using the horizontal mount (through plane of resonant sensor) at different sound levels. The figures relate to a 0.1 Kg/s methane release.



Horizontal installation, 3m off grade

Offshore installations tend to install detectors pointing vertically downwards, for the same 0.1Kg/s Methane release, coverage is:

Sensitivity radius: 12m (0.1 Kg/s) <74dB ambient
 8m (0.1 Kg/s) <84 dB ambient



Vertical installation, 3m off grade

ACCESSORIES

- Mapping Tool
- Test Unit
- Galvanic Isolator
- Wall Mounting Bracket