

# Halo - Non-Intrusive Pressure Sensor



## The simplest way to add instrumentation to a pipeline

### Benefits

#### Ready for rapid deployment

The system can provide the field pressure data to support an effective leak detection system much faster than a traditional project and without expensive installation costs.

#### No drilling, welding, or cutting required

The sensor can be installed within hours and begin transmitting pressure measurements immediately with zero operational down-time.

#### Certified for hazardous areas

The sensor and all necessary equipment conform to ATEX/IECEX directives for Zone 1, gas environments, IP68 rated, and suitable for buried installations to a depth of 2 meters.

### How it works

Combined with high resolution data logging and proprietary digital signal processing algorithms the non-intrusive sensor detects small pressure changes. Working with Atmos Wave leak detection software, the sensor tracks progressive pressure changes that occur over long periods of time.

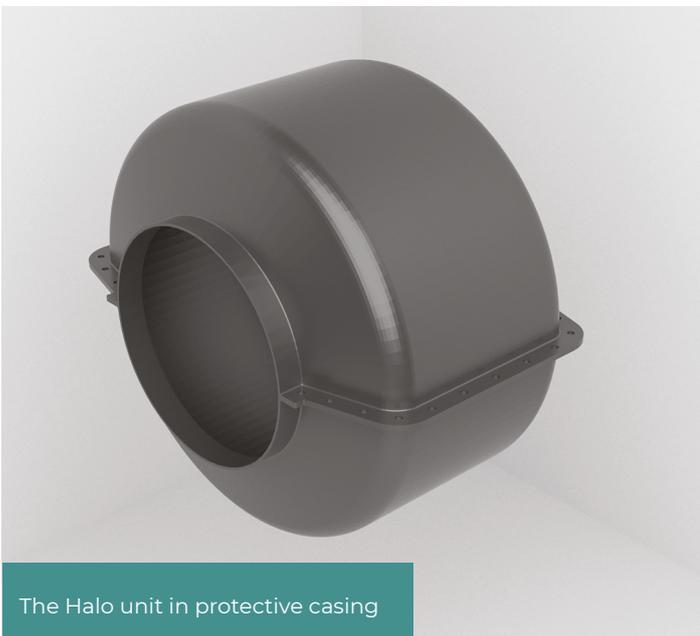
These are signatures associated with slow leaks and continuous small diameter thefts beyond the detection capabilities of most leak detection systems.

The sensor can be installed with a Pipeline Guardian unit for data logging, data transfer, and remote power supply options to support leak detection anywhere, even on pipelines with no power, instrumentation, or communications.

### Applications and methods of deployment

#### Retro fit

The non-intrusive sensor can be fitted quickly to provide pressure data for an Atmos leak detection system on older pipelines that lack pressure instrumentation, negating the need for lengthy refurbishment projects to install traditional welded sensor taps. The sensor can also be installed together with non-intrusive flow meters to provide a pressure corrected volume balance leak detection system, without cutting or replacing pipe sections for expensive turbine or mass flow meters.



The Halo unit in protective casing



### Augmentation

Pressure instrumentation is installed at inlet and outlet locations at pumping stations on many short to medium length pipelines. Installing Halo sensors at intermediate positions between existing sensors provides a more detailed model of the pipeline operating conditions, and detects product loss events quicker.

### Problem areas

Leak detection can be a challenge on pipelines with slack sections. A non-intrusive sensor installed at these locations provides additional pressure data to compensate for the uncertainties caused by slack conditions. This sensor also facilitates faster, more sensitive leak detection for high consequence areas

### Installation of the non-intrusive pressure sensor

#### Preparation

- The installation site requires 1m of straight pipeline. Servi-wrap can remain intact.
- No industrial cleaning or abrasion techniques are required.
- Thermal insulation should be removed from the pipe section.

#### Clamp-on mount

- The sensor mounts onto the pipe surface without damage or alteration to the pipeline. The sensor can then be calibrated before fitting and sealing the protective casing.

#### Telemetry

- The sensor electronics can communicate over existing or Pipeline Guardian components.
- Atmos components can be used to provide additional pressure measurement points to retrofit an LDS to a pipeline with no existing instrumentation.

### Technical specification

- ATEX certified
- IP68 rating
- Operational temperature range of -20 to 50°C
- Operates at 24V
- 3W of power
- 5 year operational lifespan

Atmos International (Atmos) provides pipeline leak detection and simulation technology to the oil, gas, water, and associated industries. The company was founded in 1995 in the UK by the inventor of the statistical pipeline leak detection system – Atmos Pipe,

now one of a suite of leak and theft detection solutions from Atmos. These technologies are implemented on hundreds of pipelines in over 50 countries, including major oil and gas companies such as Shell, BP, ExxonMobil, and Total.

With associated offices in the USA, China, Russia, Singapore and Costa Rica, and local agents in 28 countries, the multi-cultural and multilingual team can provide effective support all over the world.

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