

New possibilities where size and weight matters

Portable Methane Leak Search with the LGD Compact

As the number of natural gas and biogas plants increase worldwide, the detection of fugitive methane – a major component of natural gas and biogas – is becoming increasingly important. The demand for portable devices is now on the for methane leak detection application and the new LGD Compact from Axetris has proven to be the perfect solution.

Natural gas and biogas belong to the most important fuel types in today's world economy. A safe distribution of these fuels through long-range gas pipelines, as well as through city gas distribution networks, is essential. Methane emissions from gas pipelines pose a major safety hazard as well as a serious challenge for climate protection due to the greenhouse effect, which is more patent than CO. Unfortunately, many of these distribution networks are old, prone to leaks and sometimes very difficult to reach with conventional means of transport. Therefore, portable and unmanned leak detection is becoming increasingly important.

Challenges in the industry

Methane detection on pipelines and city gas distribution networks present special challenges for the measuring equipment mainly due to unstable ambient conditions: Solar radiation, temperature fluctuations and exhaust gases influence the measuring accuracy, emerging winds can very strongly dilute a methane cloud from a leak. In addition, very large areas must be checked which requires a fast response time from the measuring device.

Once the source of the leak has been found, the question of its origin often remains. If there are additional biogenic methane sources close to the leakage, further clarification is advisable in order to avoid expensive and possibly unnecessary work on a natural gas pipeline.

TDLS combined with a small footprint

Tunable Diode Laser Spectroscopy is already an established measurement method to detect methane and other hydrocarbons due to key advantages, such as: quick response time, high selectivity, low detection limits



UAV Leak Detection by drone with an integrated LGD Compact from Axetris.

Axetris Advantages in Leak Testing Applications:

- ✓ Size and Weight suitable for portable applications
- ✓ Quick response time; $T_{90} < 1$ second
- ✓ Selective measurement / no false alarm
- ✓ Robust and calibration-free

and a wide dynamic range – from sub ppm detection up to % level. With a small unmatched footprint, the new LGD Compact can fulfill all requirements for a successful integration into portable systems. Due to the low power consumption, the LGD Compact is best suited for battery-powered operation that can last an entire working day. The LGD Compact is calibration free and has an extremely low zero drift and therefore a new span and offset is recommended just once a year. With the option of measuring ethane as an additional target gas, the detected methane sources can be checked back to their origin in a matter of seconds. This eliminates the need for a second measuring device and decreases the time required for checking with other measuring methods.

Wide range of integration options

With its size and flexible integration options the LGD Compact can be integrated for almost any leak detection application from upstream to downstream. Long-term stability is a key benefit for the LGD-Compact in stationary applications and it is possible to not have any significant loss of performance even after years of use without regular recalibration.

Integration possibilities of the LGD Compact have no limits when it comes to vehicle leak detection — especially in small scooters or on a drone. There is always enough space for the LGD Compact due to its compact size and weight of only 600 g. This small footprint in combination with low power consumption enables also very difficult applications like offshore leak search and underwater research projects.



Axetris LGD Modules for OEM Integration

Axetris' Laser Gas Detection (LGD) modules are self-contained, ready-to-use devices for the measurement of gases such as NH₃, HCl, CH₄, CO₂, C₂H₆, C₂H₂, (H₂O). The modules are designed for integration by Original Equipment Manufacturers (OEMs), active in the field of gas analysis and monitoring in diverse industries.

The high sensitivity and large dynamic range of the Tunable Diode Laser Spectrometry (TDLS) detection technology enables measurement from sub-ppm level to high percentage concentration without physical adaptation of the device. The design of the LGD modules enables a tailor-made application fit for a wide range of gases and applications, including process control, environmental compliance, research and medical.



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