

**TECH OFFER**

**Open Path Gas Detection Device Using Waveform Matching Technology (MOLES)**



**KEY INFORMATION**

**TECHNOLOGY CATEGORY:**

**Electronics** - Sensors & Instrumentation  
**Environment, Clean Air & Water** - Sensor, Network,  
Monitoring & Quality Control Systems  
**Green Building** - Sensor, Network, Building Control &  
Optimisation

**TECHNOLOGY READINESS LEVEL (TRL):** **TRL7**

**COUNTRY:** **SINGAPORE**

**ID NUMBER:** **TO174966**

**OVERVIEW**

For many years, gas detection applications in industries have predominantly relied on single point detectors, which are applicable in many industries covering a wide market sector. Starting from the year 2010 and onwards, open path line detectors have gained significant recognition and popularity due to their cost-effectiveness and ability to cover larger areas, thereby enhancing safety measures. More device options are now on the market. However, all of these devices have the inherent problems of false alarms due to environmental interference, such as rain and snow.

A waveform matching technology – **multi order laser emitting spectrum (MOLES)** was invented. This cutting-edge technology ensures specific gas detection, it only detects when specific gas is detected, and eliminates all false alarms caused by environmental interference. By gathering industrial inputs and feedbacks, improvements and user-desired features are

incorporated into this invention, to enhance its overall performance, reliability and solving many user problems on site, such as no display, alignment problems, and calibration. This breakthrough innovation will provide a more efficient and reliable gas detection solution for industries, safeguarding their operations and personnel.

## TECHNOLOGY FEATURES & SPECIFICATIONS

This Open Path Gas Detection technology is Laser Gas specific with:

- Customised micro-controller based CPU
- With built-in automatic calibration capability
- With built-in visible laser for ease of installation and alignment
- With built-in display for improved ease of use at site; single man operation instead of two
- With built-in audible siren for alarm warning

Ideal collaboration:

- B2B – Gas detection manufacturers
- B2C – Gas detector users from the Chemical, Petro-Chemical, Oil & Gas industries

## POTENTIAL APPLICATIONS

This open path gas detection devices are applicable in a wide market sector, including Oil and Gas, Chemicals, Water and Wastewater, Marine, Transport, Semi-conductor, Food and beverage, and Energy.

## MARKET TRENDS & OPPORTUNITIES

According to a research report published by Spherical Insights & Consulting, the Global Gas Detection Equipment Market Size is to grow from USD 4.25 billion in 2022 to USD 13.87 billion by 2032, at a Compound Annual Growth Rate (CAGR) of 12.56% during the projected period. Additionally, increased exploration and production by several oil corporations, such as the National Offshore Oil Corporation of China and the Oil & Natural Gas Corporation of India, is increasing demand for the region's gas detection equipment market. The Asia Pacific gas detection equipment market is expected to be led by China. North America is predicted to expand the fastest during the forecast period. The abundance of a big oil and gas pipeline network, as well as oil and gas refinery operations, in nations such as the United States and Canada, predicts significant market growth.

Though Open Path gas detection devices may constitute a small percentage in the gas detection market, estimated <5%, it has fast been recognised in recent years to be more cost-effective option, and many new installations and projects nowadays, specified in their constructions, to have more open path devices for improved and effective gas leaks safety preventions. Therefore, it is projected that the market potential for this open path devices is encouraging.

## UNIQUE VALUE PROPOSITION

This open Path Gas Detection Device is:

- More cost effective than existing point detection devices
- Extra long distance coverage ~200m

- Enhance reliability and performance as compared to existing open path gas detection devices
- Eliminates false alarms due to environment interferences
- Improved ease of use; installation and alignment