

GasFinder benefits for detection of hazardous & toxic gases

HF

Open Path
Ambient



NH₃

Stack
Emissions

H₂S

CH₄
& others

Reliable, Cost-effective
solutions

BOREAL LASER

Why Laser Gas Detection?

- ❑ Very high spectral resolution (<0.01nm)
 - Minimum interference from other gases
 - Linear response over wide measurement range
- ❑ Intense light source
 - High signal-to-noise and rapid response - typically < 1 sec
 - Long path lengths possible (to 1000m)
 - Very sensitive – ppm to ppb levels
- ❑ Lasers available throughout NIR
 - Can be used with many gases
- ❑ Solid state technology
 - Robust and reliable in all climates
 - No consumables and minimal maintenance
- ❑ Can be used with fibre optics
 - Multi-path capability reduces cost per measurement

Specific GasFinder features

- ❑ Built-in, stable calibration reference cell
 - Ensures GasFinder system stays in calibration.
 - Regular calibration cell checks eliminate zero and span drift
 - No consumables and no maintenance required
- ❑ “No Phase Adjustment” detection technology
 - Vary path length with no electronic adjustments
 - No special expertise required to operate
- ❑ Extensive self diagnostics
 - System health parameters continuously monitored
 - Immediate reporting of any warning or error conditions

Benefits for Open-Path Monitoring

- ❑ Built-in calibration
 - No field calibration required
- ❑ No interference from H₂O or CO₂ or other gases
 - Longer path lengths possible (up to 1km)
 - Specific to gas of interest (e.g. HF, H₂S, NH₃, CH₄)
- ❑ GasFinder is small, light, battery operated
 - Truly portable system – easy to set-up and use
 - Measurement programs can be completed quickly
- ❑ Fast response time
 - Enables measurement of transients
- ❑ GasFinderMC measures up to 8 paths with one analyzer
 - Economic perimeter monitoring of facilities and process units

Why GasFinder is better than Open Path IR/UV

- ❑ Very high resolution means GasFinder more selective
 - Laser diode picks out an individual gas absorption line
 - IR and UV measure many lines over wide wavelength range
- ❑ Therefore GasFinder does not suffer from the interferences that affect open path IR and UV
 - H₂O and CO₂ (which cause interference in IR detectors)
 - Hydrocarbons in oil & gas related activities (UV & IR)
- ❑ Intense Laser light concentrated at specific wavelength
 - Enables longer range - to 1000 m
 - Penetrates fog and steam better

Benefits for Stack Monitoring

- ❑ Optical measurement technique
 - Direct measurement of stack gas concentrations
- ❑ In-situ measurements possible
 - Removes uncertainties introduced by sample systems
 - Especially important for reactive gases (HF, HCl, NH₃)
- ❑ Very high resolution
 - Better selectivity hence less interference from H₂O & CO₂
- ❑ Very fast response time (1 second)
 - Enables correlation of high emission levels with process conditions and parameters – leading to process optimization
- ❑ GasFinderFC enables portable stack measurements
- ❑ GasFinderMC monitor multiple stacks with single analyzer

Some gas sensitivities

Gas	Sensitivity (ppm-m)	10m path (ppm)	100m path (ppm)	1000m path (ppm)
HF	0.1	0.01	0.001	0.0001
NH ₃	1	0.1	0.01	0.001
H ₂ S	20	2	0.2	0.02
CH ₄	1	0.1	0.01	0.001
CO ₂	500	50	5	0.5
HCN	1	0.1	0.01	0.001
HCl	0.3	0.03	0.003	0.0003
C ₂ H ₂	0.2	0.02	0.002	0.0002

Countries with GasFinder installations

- ❑ Canada
- ❑ United States
- ❑ Brazil
- ❑ Iceland
- ❑ United Kingdom
- ❑ Holland
- ❑ France
- ❑ Spain
- ❑ Italy
- ❑ United Arab Emirates
- ❑ South Africa
- ❑ Mozambique
- ❑ Australia
- ❑ New Zealand
- ❑ Thailand
- ❑ Germany
- ❑ Norway

Selected Clients

- ❑ ExxonMobil
- ❑ Shell
- ❑ BP
- ❑ Conoco Phillips
- ❑ Dupont
- ❑ Honeywell
- ❑ US Dept of Agriculture
- ❑ Agriculture & Agri-Foods
Canada
- ❑ Alcoa
- ❑ Alcan
- ❑ Dubai Aluminium
- ❑ Aluminium Pechiney
- ❑ Gaz de France
- ❑ Transcanada Pipelines
- ❑ BHP Billiton
- ❑ Tomago Aluminium
- ❑ Hydro Aluminium