

# BOREAL

## GasFinder2

## LASER

GasFinder2 is a fully portable, open path, single gas monitor providing one second response and a broad dynamic range. GasFinder2 is small, light and can be set up and operating in less than five minutes. A series of open paths of different path lengths can be measured in quick succession using an optional scanning mount. GasFinder2 is commonly used for research and troubleshooting studies as well as temporary safety monitoring during process turnarounds and new construction. Versions of GasFinder2 are also available for fixed open path monitoring.



### Applications

#### Ambient monitoring

- CH<sub>4</sub> and CO<sub>2</sub> emissions fluxes from landfills
- CH<sub>4</sub> and NH<sub>3</sub> emissions fluxes from agricultural operations
- Greenhouse gas emissions monitoring in various industries
- CO<sub>2</sub> fluxes from volcanic activity

#### Oil and Gas leak detection

- Detection of CH<sub>4</sub> leaks from natural gas pipelines and local distribution networks
- HF leak detection in refinery HF Alkylation units
- H<sub>2</sub>S safety monitoring in Sour Gas Operations
- Fenceline H<sub>2</sub>S, CH<sub>4</sub>, and NH<sub>3</sub> monitoring

#### Selected Others

- HF monitoring in primary aluminium smelters
- HF safety monitoring in HF use industries
- NH<sub>3</sub> leak detection in nitrogen and fertilizer plants

### Features

**Patented Features** provide laser gas detector leadership in price, performance, and ease of use.

**"No phase adjustment" detection technology** enables paths from 1m to 750m without requiring any electronic adjustments

**Built in, permanent gas reference cell** ensures GasFinder2 systems stay "locked-on" to gas of interest.

**High precision scanning mount option** enables multiple paths of varying length to be measured in quick succession.

### Benefits

- Battery powered portable operation possible
- Gas specific - no interferences
- Fast response times - 1 second
- Long paths possible - 750m
- Wide measurement range - 4 orders of magnitude
- Robust, reliable, proven technology
- Easy set up, alignment and use
- No consumables, limited maintenance
- Built in data logger and self diagnostics
- Reliable, un-attended operation in all climates

# GasFinder2

## Operational Specifications

Dynamic Range	4 orders of magnitude
Response Time	1 second default
Path Length	<1m to>750m (max length depends on gas)
Light Source	Semiconductor Diode Laser
Eye Safety	Class I or Class IIIa (ANSI) FDA/CDRH approved
Data I/O Interface Options	RS232, Ethernet 4-20mA current loop
Hazardous Area Classification	North American Class 1, Div 2, Groups A,B,C,D

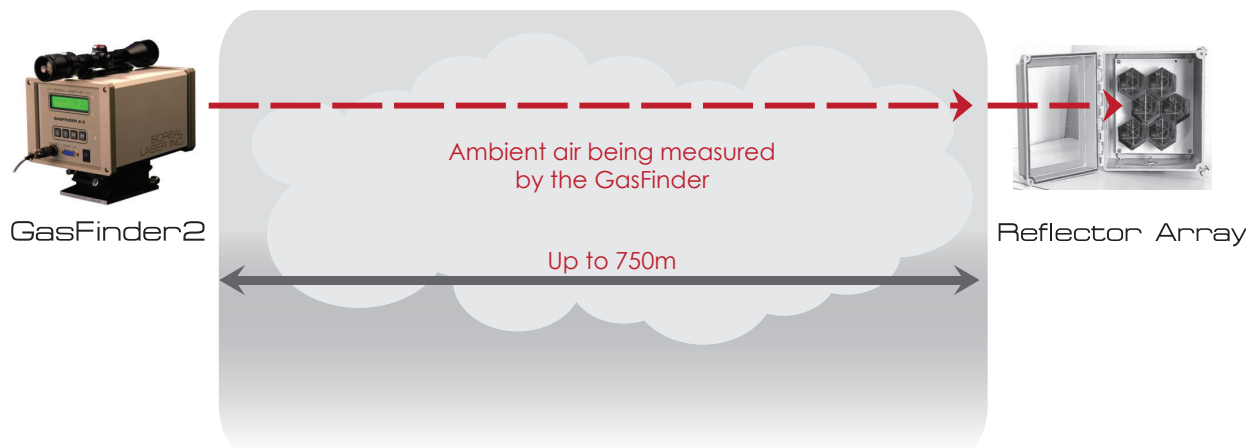
## Physical Specifications

Weight: 5.0 kg [11.0 lbs]  
Dimensions(LxWxH): 260mm x 200mm x 160mm  
[10.2 x 7.9 x 6.3 inches]  
Power Requirement: <2A@12Vdc  
Ambient Temperature: -30°C to +50°C  
Ingress Protection IP 65

## Available Gases

Standard: HF, NH<sub>3</sub>, H<sub>2</sub>S, CH<sub>4</sub>, CO<sub>2</sub>, HCN  
Custom: HCl, CO, C<sub>2</sub>H<sub>2</sub>, H<sub>2</sub>O  
Sensitivities depend on gas and specific application. Typically one gas per GasFinder2 unit. However, some combinations are possible with a single unit (eg. CO and CO<sub>2</sub>). Please contact Boreal Laser for more details.

## Schematic Representation



## How GasFinder2 Works

GasFinder2 (see schematic below) is an open-path gas detector that uses an integrated transmitter/receiver unit and a remote, passive retro-reflector.

The GasFinder2 transceiver houses the laser diode, drive electronics, detector module and micro-computer subsystems. Laser light is emitted from the transceiver through ambient air to the reflector and back. The return light is focused onto a photo-diode. A portion of the laser beam is passed through an onboard reference cell to ensure that the laser beam is locked onto the gas of interest. Measure and calibration signals are then compared to determine the actual gas concentration in the path. The GasFinder2 has a local data display with simple, menu driven set-up functions. Serial and analog signals are also available. The serial signal contains extensive self diagnostic data. A built-in data logger stores up to 10,000 readings.

Boreal's GasView software enables easy transfer of data and diagnostics to a PC.

GasFinder2 works by absorption of near infra-red laser light by the specific gas of interest. It therefore provides a direct and immediate measurement of the gas. The laser method uses single line spectroscopy using an absorption line selected to be well isolated from absorption lines of other atmospheric gases. The laser method therefore suffers less from absorption interferences, especially from ever present gases like H<sub>2</sub>O and CO<sub>2</sub>, that cause problems with broadband IR and FTIR detectors. As a consequence, GasFinder2 systems can measure over long ambient paths, up to 750m, using low powered lasers that are completely eye-safe.

