Product Bulletin

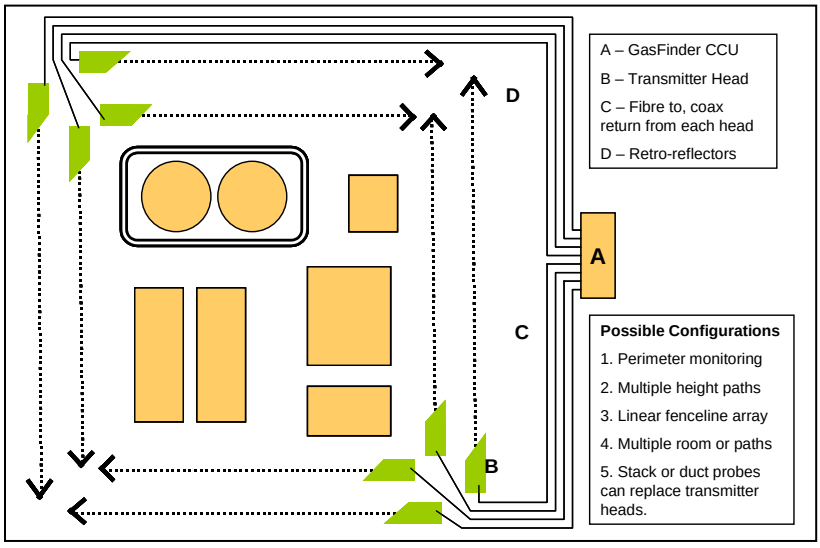
BOREAL LASER GasFinderMC

BENEFITS

- Gas specific – no interferences
- Fast response times – typically 1 second.
- Path lengths from 1 to 1000 m
- Multiple path – flexible configurations
- Robust, reliable, proven technology
- Self-calibrating—no calibration needed
- Easy set-up, alignment and use.
- No consumables, limited maintenance
- Built-in self diagnostics

GasFinderMC is a multiple path system that can monitor up to eight paths at the same time. These paths can be open path, process or stack/duct or any combination of these. GasFinderMC is primarily used for fixed installations and in hazardous areas. The photograph above shows an 8-channel GasFinderMC control unit (CCU) with an open path transceiver head. Using the multiple path capability of GasFinder MC, it is now possible to provide complete facility perimeter coverage at relatively low cost.

Typical leak detection configuration



Multiple pass extractive sample cell

APPLICATIONS

Oil & Gas

- HF leak detection in refinery HF Alkylation units
- H_2S safety monitoring in Sour Gas Operations
- Fence line H_2S, CH_4 and NH_3 monitoring in refineries, petrochemical plants, etc.

Primary Aluminium

- Pot room and perimeter ambient HF monitoring
- HF scrubber inlet, outlet and stack monitoring

Selected Others

- HF leak detection in HF manufacturing and use
- HF stack monitoring (bricks, ceramics, incinerators)
- NH3 stack monitoring (de-NOx and others)
- Agricultural CH_4 and NH_3 flux measurements

Purged, stainless steel cross duct probe

"Changing the way industry looks at gas sensing"

GasFinderMC

How GasFinderMC works

Boreal Laser's GasFinder MC (US Patent No. 5,748,325) measures gas concentrations in up to 8 measurement channels. A Central Control Unit (CCU) contains the laser diode source, drive electronics, detector signal processing and microcomputer subsystems. Fibre-optic cable carries the laser light to transceiver heads, which direct the beam along a path to a reflector. The return light is collected on a photo-detector. The photo current is returned to the CCU using coaxial cable. The transmitter heads are therefore intrinsically safe.

The transceiver can be mounted in one of several different measurement head configurations. A long path transmitter head can be used for open path monitoring to 1km. A variable length cross-duct probe is used for permanent stack or duct monitoring. A multi-pass gas cell is available for high sensitivity extractive monitoring.

A portion of the laser beam is passed through an onboard reference cell to provide a continuous calibration update. The measure and calibration signals are processed to determine the gas concentration in each optical path. The computed gas concentration is displayed on the front panel of the CCU as well as being transmitted to the customer's central computer where the data may be collected, stored, and displayed.

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 1000m without requiring any phase adjustments or calibration.

Built-in, permanent calibration reference cell: means GasFinders are delivered calibrated, stay in calibration and never need to be re-calibrated.

Operational Specifications

Sensitivity and Accuracy	See table below
Dynamic range	4 orders of magnitude
Response Time	1 second (default)
No. of paths	Up to 8
Path length	< 1m to > 1000m
Light source	Semiconductor diode laser
Eye Safety	Class I or Class IIIa (ANSI) FDA/CDRH approved
Data I/O Interface Options	RS232, Modbus option 4-20 mA analog option Dry contact relay option
Hazardous Area Classification (with optional RF IS Barrier)	Cl 1, Div 1, Groups A,B,C,D Cenelec Zone 1

Physical Specifications

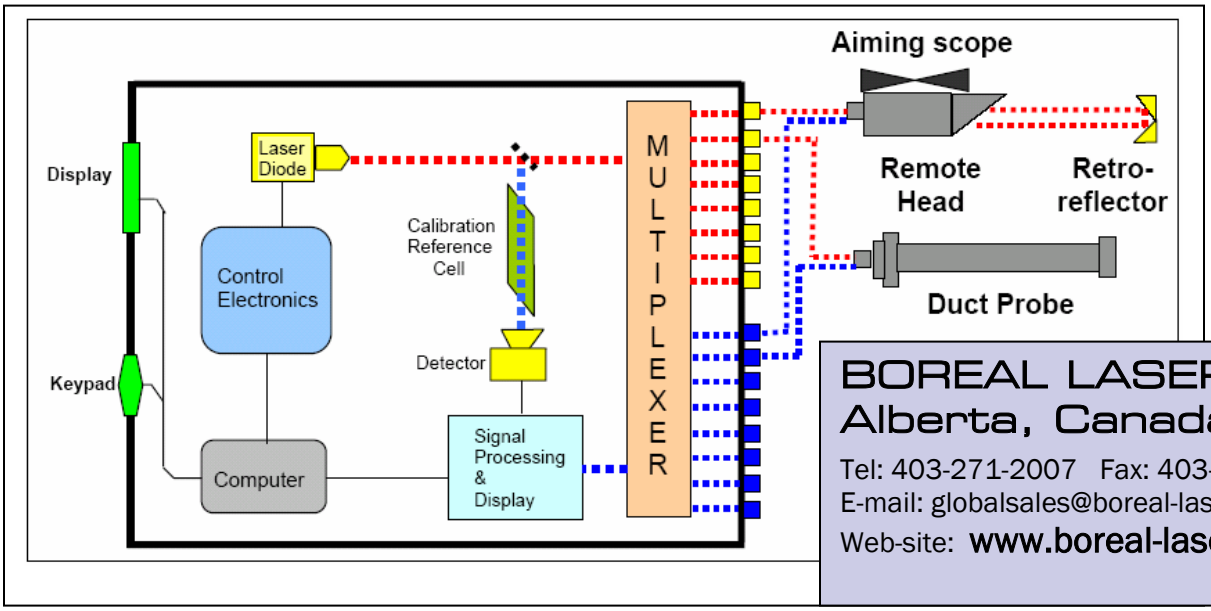
Central Control Unit	Weight	12 kg
	Dimensions (W x D x H)	44 x 38 x 13 cm
	Power requirement	<1A @ 110 Vac
	Ambient Temperature	0°C to 50°C
Open Path Transmitter	Weight	4 kg
	Dimensions (L x dia)	35 x 10 cm
	Ambient Temperature	-45°C to +80°C
Duct Transmitter Unit	Weight	5 kg
	Dimensions (L x dia)	45 x 12 cm
	Ambient Temperature	-45°C to +80°C
	Stack Temperature	up to 300°C
Stack/Duct Probe	Weight	4 kg
	Dimensions (L x dia)	25 x 12 cm
	Ambient Temperature	-45°C to +80°C
	Stack Temperature	up to 300°C

Sensitivity

Gas	Sensitivity (in ppm for different path lengths/plume size)			
	1m	10m	100m	1000m
HF	0.1	0.01	0.001	0.0001
HCl	0.3	0.03	0.003	0.0003
NH3	1	0.1	0.01	0.001
H2S	20	2	0.2	0.02
HCN	1	0.1	0.01	0.001
CH4	1	0.1	0.01	0.001

Other gases include CO2, C2H2, CO

Schematic representation of GasFinderMC



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