

**LASER BASED - AIRBORNE GAS DETECTOR**  
**ISA DATA SHEET**



<b>General</b>	1	Manufacturer	Boreal Laser Inc.
	2	Analyzer Model No.	GasFinder3-AB (Airborne) Assembly (e.g. BL-GF3-AB- - - - )
	3	Warranty Period	10 years on Laser (Light Source) and 3 years Full Warranty
<b>Detector Specifications</b>	4	Detection/Operating Principle	Tunable Diode Laser Absorption Spectroscopy (TDLAS)
	5	Sensor Type	One (1) Semiconductor Diode Laser which emits Laser Light in the Near Infrared (NIR)
	6	Eye Safety	Class 1 AEL under IEC 60825-1
	7	Function	Detects/monitors free gaseous molecules of one (1) specific target gas
	8	Calibration	Factory calibrated with no requirement for periodic/inherent calibration
	9	Field Calibration	None Required or Available
	10	Automatic Validation	Internal Reference Cell (interrogated once a minute)
	11	User Function Testing	External Response Cell to "bump", "test" or "challenge" (Optional Accessory)
	12	Response Time	3 Samples per Second
	13	Recovery Time	Instantaneous (Each sample is independent of the last)
	14	Accuracy	±2% of Reading
	15	Internal Temperature Compensation	Dynamic (Piezo Resistive) or Manual Entry: -55°C to +150°C (-67°F to +302°F)
	16	Internal Pressure Compensation	Dynamic (MEMS) or Manual Entry: 50 to 200 KPaA (7.25 to 29 PSiA)
	17	Drift	±0.1% over operating temperature and pressure ratings
	<b>Enclosure Specifications</b>	18	Warm-up / Start-up Time
19		User Intervention on Start-up	None Required
20		Active Measurement Path - Temperature	-55 to +300°C (-67 to 600°F)
21		Active Measurement Path - Humidity	0-100% RH (Non-Condensing)
22		Active Measurement Path - Pressure	50 to 200 KPaA (7.25 to 29 PSiA)
23		Fault Diagnostics	Fail Safe Operation with Status Codes visible via HMI Service Module, Interface and Logfiles
24		Internal Data Logging	User has access to 20 years worth of storage capacity via USB Stick
25		Obscuration / Beam Block	Operates down to 97% Obscuration (40x Turndown)
<b>Power Requirements</b>	26	Solar Blind	No False Positives from Solar Interference
	27	Area Classification	General Purpose
	28	Operating Temperature Range	-55 to +65°C (-67 to 149°F)
	29	Storage Temperature	-55 to +65°C (-67 to 149°F)
	30	Ingress Protection	Weather Tight
	31	Enclosure Material	Potted Aluminium
	32	Enclosure Dimensions (LxWxH)	260 x 200 x 160 mm (10.2 x 7.9 x 6.3 in)
	33	Enclosure Weight	5.0 kg (11.0 lbs)
	34	Cable Glands/Fittings	Military Connectors for Power and Communication
<b>Analog Output</b>	35	Power/Communication Terminals	12 or 24 VDC Power Supplies with Military Connector for Power Connection
	36	Input Voltage	24 VDC (24-30 VDC)
	37	Power Consumption	20 Watts under Normal Operation
	38	In-Rush Current	2.5A for 100ms
	39	Recommended External Fuse	4A Fast Blow Fuse
<b>Relay Output</b>	40	Number of Analog Loops	One (1) HART 7 over Analog Loop
	41	HART	Analog (PV) = ppm-m, Digitized (SV) = Light Level (Rx), Digitized (TV) = R2 Confidence Factor (R2)
	42	Supply of Loop Power	3-Wire = Active/Source (Device Powered Loop) or 3 or 4-Wire = Passive/Sink (Powered by DCS/PLC)
	43	Configurable Analog Output Options	Concentration (ppm-m, ppm, or mg/Nm3), Light Level (Rx), & R2 Confidence Factor (R2)
	44	Analog Range Settings	User Programmable via HMI Touchscreen or HART Communicator
	45	Analog Load Impedance	1,000 ohms (4 Devices)
	46	Analog Range	0-20 mA
	47	Low Light Alarm (Beam Block)	2.7 mA
<b>MODBUS</b>	48	General System Fault	3.6 mA
	49	Number of Relay Outputs	One (1) Isolated Digital Relay
	50	Configurable Relay Output Options	Hi-Alarm, Hi-Hi-Alarm, Low Light (Low Rx) Alarm, & General System Fault
	51	Contact Relay Type	Voltage Free (24 V, 1A Max)
	52	Terminals	Normally Open (NO), Normally Closed (NC), and Common (C)
	53	Alarm Threshold Settings	User Programmable via HMI Touchscreen or HART Communicator
	54	Alarm Delay	Default - 3 Consecutive Samples (User Programmable from 0 to 5 Consecutive Samples)
<b>Interface</b>	55	Beam Block Time Delay	Default - 30 Consecutive Samples (User Programmable from 0 to 300 Consecutive Samples)
	55	MODBUS	RS-485 - See Address Register Map for more information
	56	Commonly Used Registers	Concentration (ppm-m) - 41001, Light Level (Rx) - 41101, & Confidence Factor (R2) - 41061
<b>Lo-Range Methane (CH4L)</b>	57	HMI Touchscreen	Full Interface Capabilities: Configuration, Alignment, Access to Logfiles, and Upload Firmware
	58	Minimum Detectable Limit (MDL)	0.66 ppm
	59	Sensitivity	0.16 ppm
	60	Full Scale	2,833 ppm
	61	Lowest Actionable Concentration	1.32 ppm (2x MDL)
<b>Airborne (AB) Measurement Cell</b>	62	Maximum Recommended Cable Length	20 m (60 ft)
	63	Optical Configuration	Transceiver and Retro-Reflector (Mono-Static) with Three (3) Multipass Configuration
	64	Measurement Cell Dimensions	1,300 x 300 x 200 mm (51.2 x 11.8 x 9.1 in)
	65	Measurement Cell Weight	14.8 kg (32.5 lbs)
<b>Alignment Mount</b>	66	Beam Divergence	16mm (5/8") @ 0.5m (1.6ft) = (32 milliradian x path length (m) = laser dot size (mm))
	67	Window Material	Lexan, Mylar, or Teflon
	68	Bell 206B Long Ranger	Mounting Bracket and STC Available
<b>Recommended Accessories</b>	69	Robertson R44	Mounting Bracker and no STC Required
	70	A-Star A350/355	Mounting Bracket and STC Available
<b>Latest Revision</b>	71	Replacement Filter	BL-RCAB
	72	Alignment Kit	BL-OAK-VB
	73		3/04/21