

**Field Mounted - Multi-Channel - TDL Gas Analyzer
ISA DATA SHEET**



General	1	Manufacturer	Boreal Laser Inc.
	2	Analyzer Model No.	GasFinder3-MC (Multi-Channel) Assembly (e.g. BL-GF3-MC-_-_-_-_-_-_-_-_-_-_-)
	3	Measurement Head Model No.	N/A
	4	Warranty Period	10 years on Laser (Light Source) and 3 years Full Warranty
Analyzer Performance	5	Detection/Operating Principle	Tunable Diode Laser Absorption Spectroscopy (TDLAS)
	6	Sensor Type / Number of Sensors	Semiconductor Diode Laser (NIR) / One (1) or Two (2) Lasers per GasFinder3-MC
	7	Channels / Measurement Heads	One (1), Two (2), Three (3), or Four (4) Measurement Heads per GasFinder3-MC
	8	Eye Safety	Class 1 AEL under IEC 60825-1
	9	Function	Detects/monitors free gaseous molecules of one (1) or two (2) target gas(es)
	10	Calibration	Factory calibrated with no requirement for periodic/inherent calibration
	11	Field Calibration	None Required or Available
	12	Automatic Validation	Internal Reference Cell (interrogated once a minute)
	13	User Function Testing	External Response Cell to "bump", "test" or "challenge" (Optional Accessory)
	14	Response Time	1.2 Seconds per Sample. Consult with manufacturer if quicker response time is required
	15	Recovery Time	Instantaneous (Each sample is independent of the last)
	16	Analyzer Mounting Location	Field (See Area Classification for more details)
	17	Display / Local Indication	HMI Touchscreen (ppm-m, light level, alarm status, and fault status)
	18	Accuracy	±2% of Reading
	19	Drift	±0.1% over operating temperature and pressure ratings
	20	Warm-up / Start-up Time	2 Minutes
	21	User Intervention on Start-up	None Required
	22	Operating Temperature	-55 to +65°C (-67 to 149°F)
	23	Operating Humidity	0-100% RH (Non-Condensing)
	24	Operating Pressure	50 to 200 kPa Absolute (7.25 to 29 psia)
	25	Fault Diagnostics	Status Code visible via HMI Display, Interface, Outputs, and Logfiles
	26	Internal Data Logging	User has access to 20 years worth of storage capacity via USB Stick
	27	Safety Integrity Level	SIL2 Suitable
	28	Obscuration / Beam Block	Operates down to 97% Obscuration (40x Turndown)
	29	Solar Blind	No False Positives from Solar Interference
Analyzer Enclosure	30	Area Classification - Option #1	(A)Ex nA IIC T5 Tamb -45 to 65°C (Equivalent to: Class 1 Div/Zone 2 & Groups A,B,C,D)
	31	Area Classification - Option #2	(A)Ex nA IIC T6 Tamb -45 to 50°C (Equivalent to: Class 1 Div/Zone 2 & Groups A,B,C,D)
	32	Method of Protection	Non-Sparking/Non-Arcing "nA" (CSA No. 60079-15:16, ANSI/ISA 12.12.01-2015)
	33	Ingress Protection	IP 66 & NEMA Type 4X
	34	RFI/EMI	N/A
	35	Enclosure Material	304 Stainless Steel
	36	Enclosure Mounting	Surface/Wall - 4 bolts in structure with 0.3125" nominal hole size
	37	Enclosure Dimensions (LxWxH)	495 x 368 x 160 mm (19.5 x 14.5 x 6.3 inches)
	38	Enclosure Weight	14 kg (31 lbs)
	39	Shipping Weight	16.6 kg (36.6 lbs)
	40	Storage Temperature	-55 to +65°C (-67 to 149°F)
	41	Power Cable Entry Size	One (1) 1/2" hole / M14 (left side of enclosure)
	42	Communication Cable Entry Size	Two (2) 3/4" holes / M20 (left side of enclosure)
	43	Measurement Head Cable Entry Size	Four (4) 3/4" holes / M20 (bottom of enclosure)
	44	Cable Glands: Power & Comm.	Supplied by others (as per local electrical standards)
Analyzer Power	45	Power Consumption/Fuse	20 Watts under Normal Operation and 4A Fast Blow Cartridge Fuse (5x20 mm)
	46	In-Rush Current	Non-Hydrogen Fluoride (HF): 2.5A for 100ms & Hydrogen Fluoride (HF): 3.1A for 100ms
	47	Input Voltage	24 VDC (Nominal) & 120-220 VAC (Available Option)
	48	Power/Communication Terminals	4-Wire Device (16 awg)
	49	Measurement Head Terminals	Single Mode Fiber Optic Cabling (FC/APC) and Shielded CAT6/5e Cabling (RJ-45)
Analyzer Interface Protocols	50	Serial	USB (Data Download via USB Stick), & Micro USB (Realtime Data via GasView)
	51	MODBUS	RS-485
	52	HART	PV (ppm-m), SV (Light Level), TV (R2 Confidence Factor), & QV (TBD)
Analyzer Outputs	53	Analyzer Board Stack Outputs	One (1) HART 7 enabled Non-Isolated/ Active Analog Loop and Digital Relay Output
	54	Analog Module	Four (4) HART 7 enabled Isolated/ Active Analog Loops per Analog Module
	55	Max. # of Analog Modules	GasFinder3-MC can support up to two (2) Analog Modules
	56	Configurable Analog Output Options	ppm-m, ppm, mg/Nm3, Light Level (Rx), & R2 Confidence Factor
	57	Analog Load Impedance	1,000 ohms (3 Devices)
	58	Analog Range	2-20 mA
	59	Low Light Alarm (Beam Block)	2.7 mA
	60	General System Fault	3.6 mA
	61	Relay Module	Six (6) Isolated Digital Relays per Relay Module (24 V, 1A Max)
	62	Max # of Relay Module(s)	GasFinder3-MC can support up to four (4) Relay Modules
	63	Configurable Relay Output Options	Hi-Alarm, Hi-Hi-Alarm, Low Light (Low Rx) Alarm, & General System Fault
	64	Contact Relay Type	Voltage Free
	65	Analog Range Settings	User Programmable via HMI Touchscreen or HART Communicator
	66	Discrete Alarm Settings	User Programmable via HMI Touchscreen or HART Communicator
	67	Analog/Discrete Low Light Time Delay	0 to 300 seconds - User Programmable via HMI Touchscreen or HART Communicator

Lo-Range Hydrogen Fluoride (HFL)	68	Minimum Detectable Limit (MDL)	0.4 ppm-m
	69	Sensitivity	0.1 ppm-m
	70	Full Scale	250 ppm-m (analog range(s) are user programmable)
	71	Lowest Actionable Concentration	0.8 ppm-m (2x MDL)
	72	Lowest Recommended Alarm Threshold	2 ppm-m (5x MDL)
	73	Maximum Recommended Path Length	500 m
	74	Maximum Recommended Cable Length	300 m
Hi-Range Hydrogen Fluoride (HFH)	75	Minimum Detectable Limit (MDL)	4 ppm-m
	76	Sensitivity	1 ppm-m
	77	Full Scale	1,000 ppm-m (analog range(s) are user programmable)
	78	Lowest Actionable Concentration	8 ppm-m (2x MDL)
	79	Lowest Recommended Alarm Threshold	20 ppm-m (5x MDL)
	80	Maximum Recommended Path Length	500 m
	81	Maximum Recommended Cable Length	300 m
Lo-Range Ammonia (NH3L)	82	Minimum Detectable Limit (MDL)	8 ppm-m
	83	Sensitivity	2 ppm-m
	84	Full Scale	6,500 ppm-m (analog range(s) are user programmable)
	85	Lowest Actionable Concentration	16 ppm-m (2x MDL)
	86	Lowest Recommended Alarm Threshold	40 ppm-m (5x MDL)
	87	Maximum Recommended Path Length	500 m
	88	Maximum Recommended Cable Length	300 m
Hi-Range Ammonia (NH3H)	89	Minimum Detectable Limit (MDL)	40 ppm-m
	90	Sensitivity	10 ppm-m
	91	Full Scale	15,000 ppm-m (analog range(s) are user programmable)
	92	Lowest Actionable Concentration	80 ppm-m (2x MDL)
	93	Lowest Recommended Alarm Threshold	200 ppm-m (5x MDL)
	94	Maximum Recommended Path Length	500 m
	95	Maximum Recommended Cable Length	300 m
Ultra Hi-Range Ammonia (NH3UH)	96	Minimum Detectable Limit (MDL)	4,000 ppm-m
	97	Sensitivity	1,000 ppm-m
	98	Full Scale	1,000,000 ppm-m (analog range(s) are user programmable)
	99	Lowest Actionable Concentration	8,000 ppm-m (2x MDL)
	100	Lowest Recommended Alarm Threshold	20,000 ppm-m (5x MDL)
	101	Maximum Recommended Path Length	500 m
	102	Maximum Recommended Cable Length	300 m
Lo-Range Methane (CH4L)	103	Minimum Detectable Limit (MDL)	2 ppm-m
	104	Sensitivity	0.5 ppm-m
	105	Full Scale	8,500 ppm-m (analog range(s) are user programmable)
	106	Lowest Actionable Concentration	4 ppm-m (2x MDL)
	107	Lowest Recommended Alarm Threshold	10 ppm-m (5x MDL)
	108	Maximum Recommended Path Length	500 m
	109	Maximum Recommended Cable Length	300 m
Hi-Range Methane (CH4H)	110	Minimum Detectable Limit (MDL)	100 ppm-m
	111	Sensitivity	25 ppm-m
	112	Full Scale	500,000 ppm-m or 10 LEL-m (analog range(s) are user programmable)
	113	Lowest Actionable Concentration	200 ppm-m (2x MDL)
	114	Lowest Recommended Alarm Threshold	500 ppm-m (5x MDL)
	115	Maximum Recommended Path Length	500 m
	116	Maximum Recommended Cable Length	300 m
Lo-Range Hydrogen Sulphide (H2SL)	117	Minimum Detectable Limit (MDL)	100 ppm-m
	118	Sensitivity	25 ppm-m
	119	Full Scale	100,000 ppm-m (analog range(s) are user programmable)
	120	Lowest Actionable Concentration	200 ppm-m (2x MDL) to 500 ppm-m
	121	Lowest Recommended Alarm Threshold	500 ppm-m (5x MDL)
	122	Maximum Recommended Path Length	500 m
	123	Maximum Recommended Cable Length	300 m
Hi-Range Hydrogen Sulphide (H2SH)	124	Minimum Detectable Limit (MDL)	1,000 ppm-m
	125	Sensitivity	250 ppm-m
	126	Full Scale	500,000 ppm-m (analog range(s) are user programmable)
	127	Lowest Actionable Concentration	2,000 ppm-m (2x MDL)
	128	Lowest Recommended Alarm Threshold	5,000 ppm-m (5x MDL)
	129	Maximum Recommended Path Length	500 m
	130	Maximum Recommended Cable Length	300 m
Hydrogen Chloride (HCl)	131	Minimum Detectable Limit (MDL)	2 ppm-m
	132	Sensitivity	0.5 ppm-m
	133	Full Scale	2,500 ppm-m (analog range(s) are user programmable)
	134	Lowest Actionable Concentration	1 ppm-m (2x MDL)
	135	Lowest Recommended Alarm Threshold	10 ppm-m (5x MDL)
	136	Maximum Recommended Path Length	2-Channels (100m max path length) & 4-Channels (40m max path length - indoors)
	137	Retro-Array Requirements	Limited to Wafer Retro-Array and Cornercube Retro-Array
	138	Maximum Recommended Cable Length	200 m

Hydrogen Cyanide (HCN)	139	Minimum Detectable Limit (MDL)	8 ppm-m
	140	Sensitivity	2 ppm-m
	141	Full Scale	5,000 ppm-m (analog range(s) are user programmable)
	142	Lowest Actionable Concentration	16 ppm-m (2x MDL)
	143	Lowest Recommended Alarm Threshold	40 ppm-m (5x MDL)
	144	Maximum Recommended Path Length	500 m
	145	Maximum Recommended Cable Length	300 m
Lo-Range Carbon Monoxide (COL)	146	Minimum Detectable Limit (MDL)	8 ppm-m
	147	Sensitivity	2 ppm-m
	148	Full Scale	8,500 ppm-m (analog range(s) are user programmable)
	149	Lowest Actionable Concentration	4 ppm-m (2x MDL)
	150	Lowest Recommended Alarm Threshold	40 ppm-m (5x MDL)
	151	Maximum Recommended Path Length	50 m with one (1) OPX Head and 20m with two (2) OPX Heads
	152	Maximum Recommended Cable Length	5 m (2-Channels Only)
Hi-Range Carbon Monoxide (COH)	153	Retro-Array Requirements	Limited to Wafer Retro-Array and Cornercube Retro-Array
	154	Special Note	Visible Laser function from Optical Multi-Meter will not work with COL Transceivers
	155	Minimum Detectable Limit (MDL)	250 ppm-m
	156	Sensitivity	60 ppm-m
	157	Full Scale	500,000 ppm-m (analog range(s) are user programmable)
	158	Lowest Actionable Concentration	500 ppm-m (2x MDL)
	159	Lowest Recommended Alarm Threshold	1,250 ppm-m (5x MDL)
Ultra Lo-Range Carbon Dioxide (CO2UL)	160	Maximum Recommended Path Length	500 m
	161	Maximum Recommended Cable Length	300 m
	162	Minimum Detectable Limit (MDL)	0.4 ppm-m
	163	Sensitivity	0.1 ppm-m
	164	Full Scale	250 ppm-m (analog range(s) are user programmable)
	165	Lowest Actionable Concentration	0.8 ppm-m (2x MDL)
	166	Lowest Recommended Alarm Threshold	2 ppm-m (5x MDL)
Lo-Range Carbon Dioxide (CO2L)	167	Maximum Recommended Path Length	Saturation will occur over a 0.5m Path Length if measuring ambient concentrations
	168	Maximum Recommended Cable Length	20 m
	169	Retro-Array Requirements	Limited to Wafer Retro-Array and Cornercube Retro-Array
	170	Special Note	2-Channels Only & Atmospheric Concentrations can vary from 400-1,000 ppm
	171	Minimum Detectable Limit (MDL)	120 ppm-m
	172	Sensitivity	30 ppm-m
	173	Full Scale	60,000 ppm-m (analog range(s) are user programmable)
Hi-Range Carbon Dioxide (CO2H)	174	Lowest Actionable Concentration	240 ppm-m (2x MDL)
	175	Lowest Recommended Alarm Threshold	600 ppm-m (5x MDL)
	176	Maximum Recommended Path Length	100 m
	177	Maximum Recommended Cable Length	20 m
	178	Retro-Array Requirements	Limited to Wafer Retro-Array and Cornercube Retro-Array
	179	Special Note	2-Channels Only & Atmospheric Concentrations can vary from 400-1,000 ppm
	Oxygen (O2)	180	Minimum Detectable Limit (MDL)
181		Sensitivity	150 ppm-m
182		Full Scale	500,000 ppm-m (analog range(s) are user programmable)
183		Lowest Actionable Concentration	2,000 ppm-m (2x MDL)
184		Lowest Recommended Alarm Threshold	2,500 ppm-m (5x MDL)
185		Maximum Recommended Path Length	500 m
186		Maximum Recommended Cable Length	300 m
Latest Revision	187	Special Note	Atmospheric Concentrations can vary from 400-1,000 ppm
	188	Minimum Detectable Limit (MDL)	2,500 ppm-m
	189	Sensitivity	625 ppm-m
	190	Full Scale	1,000,000 ppm-m (analog range(s) are user programmable)
	191	Lowest Actionable Concentration	5,000 ppm-m (2x MDL)
	192	Lowest Recommended Alarm Threshold	12,500 ppm-m (5x MDL)
	193	Maximum Recommended Path Length	4.5 m (Full Scale Saturation at Atmospheric Concentrations)
Latest Revision	194	Maximum Recommended Cable Length	20 m
	195	Special Note	To meet FDA & Hazardous Area requirements, this laser has a power output limit of 0.5 mW
Latest Revision	196	15/08/2024	