

**RACK MOUNTED - MULTI-CHANNEL TDL GAS ANALYZER
ISA DATA SHEET**



General	1	Manufacturer	Boreal Laser Inc.
	2	Analyzer Model No.	GasFinder3-MCr (Rack Mounted) Assembly (e.g. BL-GF3-MCr-_-_-_-_-_-_-_-_-_-)
	3	Measurement Head Model No.	No Measurement Head Selected
	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-MCr
	7	Channels / Measurement Heads	Two (2), Four (4), or Eight (8) Measurement Heads per GasFinder3-MCr
	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	1.0 to 1.7 (Default) Seconds per Sample
	15	Recovery Time	Instantaneous (Each sample is independent of the last)
	16	Analyzer Mounting Location	Remote (Within General Purpose Area)
	17	Display / Local Indication	HMI Touchscreen (ppm-m, light level, alarm status, and fault status)
	18	Accuracy	±2% of Reading
	19	Internal Temperature Compensation	Dynamic (Piezo Resistive) or Manual Entry: -55°C to +150°C (-67°F to +302°F)
	20	Internal Pressure Compensation	Dynamic (MEMS) or Manual Entry: 50 to 200 KPaA (7.25 to 29 PSIA)
	21	Drift	±0.1% over operating temperature and pressure ratings
	22	Warm-up / Start-up Time	2 Minutes
	23	User Intervention on Start-up	None Required
	24	Operating Temperature	-55 to +65°C (-67 to 149°F)
25	Operating Humidity	0-100% RH (Non-Condensing)	
26	Operating Pressure	50 to 200 KPaA (7.25 to 29 PSIA)	
27	Fault Diagnostics	Status Code visible via HMI Display, Interface, Outputs, and Logfiles	
28	Internal Data Logging	User has access to 20 years worth of storage capacity via USB Stick	
29	Safety Integrity Level	SIL2 Suitable	
30	Obscuration / Beam Block	Operates down to 97% Obscuration (40x Turndown)	
31	Solar Blind	No False Positives from Solar Interference	
Analyzer Enclosure	32	Area Classification - Option #1	None (Measurement Heads carry the Hazardous Area Certification)
	33	Area Classification - Option #2	None
	34	Method of Protection	None (GasFinder3-MCr provides an IS Barrier to the Measurement Heads)
	35	Ingress Protection	None
	36	RFI/EMI	None
	37	Enclosure Material	Powder Coated Aluminum
	38	Enclosure Mounting	19" Rack Mount
	39	Enclosure Dimensions (LxWxH)	3U Enclosure: 374 x 446 x 132 mm (14.7 x 17.6 x 5.2 inch)
	40	Enclosure Weight	12 kg (26.4 lbs)
	41	Shipping Weight	15 kg (33 lbs)
	42	Storage Temperature	-55 to +65°C (-67 to 149°F)
	43	Power Cable Entry Size	None
	44	Communication Cable Entry Size	None
	45	Measurement Head Cable Entry Size	None
	46	Cable Glands: Power & Comm.	None
	Analyzer Power	47	Power Consumption
48		Input Voltage	120 - 220 VAC (Nominal)
49		Power Terminals	Three (3) Pronged Plug
50		Communication Terminals	Various (See Analyzer Outputs)
51		Measurement Head Terminals	Single Mode Fibre (FC/APC) and Shielded CAT6/5e (RJ-45) / Coaxial (BNC)
Analyzer Interface Protocols	52	Serial	USB (Data Download via USB Stick), & Micro USB (Realtime Data via GasView)
	53	MODBUS	RS-485
	54	HART	PV (ppm-m), SV (Light Level), TV (R2 Confidence Factor), & QV (TBD)
Output Options	55	Analyzer Outputs	MODBUS (RS-485), Ethernet (TCP/IP Serial), Serial (RS-232), One (1) Relay Output
	56	Analog Module	Four (4) HART 7 enabled Isolated/ Active Analog Loops per Analog Module
	57	Max. # of Analog Modules	GasFinder3-MC can support up to four (4) Analog Modules (e.g. 16 Analog Outputs)
	58	Configurable Analog Output Options	ppm-m, ppm, mg/Nm3, Light Level (Rx), & R2 Confidence Factor
	59	Analog Load Impedance	1,000 ohms (3 Devices)
	60	Analog Range	0-20 mA
	61	Low Light Alarm (Beam Block)	2.7 mA
	62	General System Fault	3.6 mA and 1 mA Disabled
	63	Relay Module	Six (6) Isolated Digital Relays per Relay Module (24 V, 1A Max)
	64	Max # of Relay Module(s)	GasFinder3-MC can support up to eight (8) Relay Modules (e.g. 48 Relay Outputs)
	65	Configurable Relay Output Options	Hi-Alarm, Hi-Hi-Alarm, Low Light (Low Rx) Alarm, & General System Fault
	66	Contact Relay Type	Voltage Free
	67	Analog Range Settings	User Programmable via HMI Touchscreen or HART Communicator
	68	Discrete Alarm Settings	User Programmable via HMI Touchscreen or HART Communicator
	69	Analog/Discrete Low Light Time Delay	0 to 300 seconds - User Programmable via HMI Touchscreen or HART Communicator

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

Hydrogen Cyanide (HCN)	140	Minimum Detectable Limit (MDL)	8 ppm-m
	141	Sensitivity	2 ppm-m
	142	Full Scale	5,000 ppm-m (analog range(s) are user programmable)
	143	Lowest Actionable Concentration	16 ppm-m (2x MDL)
	144	Lowest Recommended Alarm Threshold	40 ppm-m (5x MDL)
	145	Maximum Recommended Path Length	500 m
	146	Maximum Recommended Cable Length	300 m
Lo-Range Carbon Monoxide (COL)	147	Minimum Detectable Limit (MDL)	8 ppm-m
	148	Sensitivity	2 ppm-m
	149	Full Scale	8,500 ppm-m (analog range(s) are user programmable)
	150	Lowest Actionable Concentration	4 ppm-m (2x MDL)
	151	Lowest Recommended Alarm Threshold	40 ppm-m (5x MDL)
	152	Maximum Recommended Path Length	50 m with one (1) OPX Head and 20m with two (2) OPX Heads
	153	Maximum Recommended Cable Length	5 m (2-Channels Only)
154	Special Note	Visible Laser function from Optical Multi-Meter will not work with COL Transceivers	
Hi-Range Carbon Monoxide (COH)	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)
	160	Maximum Recommended Path Length	500 m
161	Maximum Recommended Cable Length	300 m	
Ultra Lo-Range Carbon Dioxide (CO2UL)	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)
	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	Special Note	2-Channels Only & Atmospheric Concentrations can vary from 400-1,000 ppm	
Lo-Range Carbon Dioxide (CO2L)	170	Minimum Detectable Limit (MDL)	120 ppm-m
	171	Sensitivity	30 ppm-m
	172	Full Scale	60,000 ppm-m (analog range(s) are user programmable)
	173	Lowest Actionable Concentration	240 ppm-m (2x MDL)
	174	Lowest Recommended Alarm Threshold	600 ppm-m (5x MDL)
	175	Maximum Recommended Path Length	100 m
	176	Maximum Recommended Cable Length	20 m
177	Special Note	2-Channels Only & Atmospheric Concentrations can vary from 400-1,000 ppm	
Hi-Range Carbon Dioxide (CO2H)	178	Minimum Detectable Limit (MDL)	500 ppm-m
	179	Sensitivity	150 ppm-m
	180	Full Scale	500,000 ppm-m (analog range(s) are user programmable)
	181	Lowest Actionable Concentration	2,000 ppm-m (2x MDL)
	182	Lowest Recommended Alarm Threshold	2,500 ppm-m (5x MDL)
	183	Maximum Recommended Path Length	500 m
	184	Maximum Recommended Cable Length	300 m
185	Special Note	Atmospheric Concentrations can vary from 400-1,000 ppm	
Oxygen (O2)	186	Minimum Detectable Limit (MDL)	2,500 ppm-m
	187	Sensitivity	625 ppm-m
	188	Full Scale	1,000,000 ppm-m (analog range(s) are user programmable)
	189	Lowest Actionable Concentration	5,000 ppm-m (2x MDL)
	190	Lowest Recommended Alarm Threshold	12,500 ppm-m (5x MDL)
	191	Maximum Recommended Path Length	4.5 m (Full Scale Saturation at Atmospheric Concentrations)
	192	Maximum Recommended Cable Length	5m
193	Special Note	To meet FDA & Hazardous Area requirements, this laser has a power output limit of 0.5 mW	
Latest Revision	194	12/16/21	