

BOB-1000FT

On-board Multi-Component Analyzer System



Specifications

FTIR Spectrometer Specifications

Measuring Method:	FTIR
Measuring Component:	24 components (30 optional)
Application:	Gasoline/Diesel/Flex Fuel/CNG
Dimensions:	Approx. 482(W) x 645(D) x 391(H) mm
Weight:	Approx. 40 kg
Operating Conditions:	5 – 40 °C, Relative Humidity 80% (non-condensing)
Sampling Frequency:	1Hz and 5Hz (selectable)
Absorbance Spectrum:	500-6000 cm ⁻¹
Wave Length Resolution:	0.5 cm ⁻¹
Optical Path Length:	5.1 m
Gas Cell Volume:	200 ml
Gas Cell Temperature:	191°C
Detector Cooling Method:	MCT (Liquid Nitrogen, 50 ml/h)
Gas Cell Window Material:	ZnSe
Optical Mirror:	Gold Coat
Seismic Isolation:	Wire seismic isolation system
Cell Pressure:	Vacuum (standard) or atmospheric (optional)

Sample System Specifications

Dimensions:	Approx. 480(W) x 645(D) x 421(H) mm
Weight:	Approx. 40 kg
Power Supply:	120/220 VAC or 24 VDC (with transformer)
Power Consumption:	Max 3 KVA
Operating Conditions:	5 – 40 °C, Relative Humidity 80% (non- condensing)
Sample Intake Lines:	Direct exhaust gas sample line
Sample Gas Flow Rate:	Approx. 10 l/min
Sampling Method:	Vacuum (standard) or atmospheric (optional)
Temperature Control Sample Gas:	191 °C ±5 °C
Inlet Pressure:	0 – 5 KPa
Heated tube:	Temperature: 191 °C ±5°C Power Consumption: 110 VA/meter

Heated Filter Specifications

Dimensions:	Approx. 239(W) x 200(D) x 207(H) mm
Weight:	Approx. 15 kg
Temperature Control:	191 °C (Optional 113 °C, 150 °C) ±5 °C
Operating Conditions:	5 – 40 °C, Relative Humidity 80% (non-condensing)
Filter Shape:	Extraction thimble filter
Filter Element Material:	Quartz/Silica Fiber

System Performance

Response Time (T10 – T90):	~1.5s
Zero Drift:	1.0% F.S./4 hrs (± 5°C)
Span Drift:	1.0% F.S./4 hrs (± 5°C)
Repeatability:	2.0% F.S.
Warm-Up Time:	Gas Cell: approx. 1.5 hrs System: approx. 1.0 hr

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Measured Gas Components

Gas Component	Formula	Concentration	Units
Carbon Monoxide (Low)	CO - L	0 - 5000	ppm
Carbon Monoxide (High)	CO - H	0 - 5	%
Carbon Dioxide (Low)	CO ₂ - L	0 - 4	%
Carbon Dioxide (High)	CO ₂ - H	0 - 20	%
Water	H ₂ O	0 - 20	%
Nitrogen Oxide	NO	0 - 5000	ppm
Nitrogen Dioxide	NO ₂	0 - 1000	ppm
Nitrous Oxide	N ₂ O	0 - 200	ppm
Total Oxides of Nitrogen (NO + NO ₂)	NO _x	0 - X	ppm
Ammonia	NH ₃	0 - 500	ppm
Methane	CH ₄	0 - 2000	ppm
Methanol	MeOH (CH ₄ O)	0 - 500	ppm
Acetylene	C ₂ H ₂	0 - 1000	ppm
Ethylene	C ₂ H ₄	0 - 1000	ppm
Ethane	C ₂ H ₆	0 - 1000	ppm
Ethanol	C ₂ H ₆ O	0 - 1000	ppm
Propylene	C ₃ H ₆	0 - 1000	ppm
Propane	C ₃ H ₈	0 - 1000	ppm
Acetaldehyde	MeCHO (CH ₃ CHO)	0 - 1000	ppm
1,3 - Butadiene	C ₄ H ₆	0 - 1000	ppm
Isobutylene	C ₄ H ₈	0 - 500	ppm
Butane	NC4 (C ₄ H ₁₀)	0 - 1000	ppm
Benzene	C ₆ H ₆	0 - 500	ppm
Isopentane	C ₅ H ₁₂	0 - 200	ppm
Toluene	C ₇ H ₈	0 - 500	ppm
Octane	NC8 (C ₈ H ₁₈)	0 - 1000	ppm
Isocyanic Acid	HNCO	0 - 1000	ppm
Formic Acid	HCOOH	0 - 1000	ppm
Formaldehyde	HCHO	0 - 1000	ppm
Hydrogen Cyanide	HCN	0 - 1000	ppm
Sulfur Dioxide	SO ₂	0 - 1000	ppm
Carbonyl Sulfide	COS	0 - 200	ppm

Note: Additional gas components and ranges are available.

Detection Limits

Gas Component	Formula	Lowest Detectable Limit
Ammonia	NH ₃	0.5 ppm
Carbon Dioxide	CO ₂	0.2%
Carbon Monoxide	CO	1.0 ppm
Formaldehyde	HCHO	0.6 ppm
Methane	CH ₄	1.0 ppm
Nitrogen Dioxide	NO ₂	0.5 ppm
Nitrogen Oxide	NO	1.0 ppm
Sulfur Dioxide	SO ₂	1.0 ppm

Americas

A&D Technology, Inc.
Ann Arbor, MI USA
Ph: +1 (734) 973-1111
www.AandDTech.com

Europe

A&D Europe, GmbH
Griesheim, Germany
PH: +49 6155 60 52 50
www.AandDEurope.com

A&D Europe - UK
Abingdon, Oxon, UK
PH: +44 1235 550 420
www.AandD-eu.net

Asia

A&D Technology Trading Co.
Shanghai, China
PH: +86 (0)21-33932340
www.AandDTech.com

A&D Company, Ltd.
Tokyo, Japan
PH: +81 (0)3 5391 2753
www.AandD.co.jp

Australia

A&D Australasia Pty Ltd.
Kensington, VIC, Australia
PH: +61 (0)3 9372 1522
www.andaustralasia.com.au

