

MULTI-GAS ANALYZER BASED ON RAMAN SPECTROSCOPY



Multi-Gas Analyzer ToronMGA™ utilizes Raman spectroscopy to detect and analyze all gases except noble gases. It provides simultaneous, real-time monitoring of multiple gases across various applications, including:

- 1. **Petrochemicals:** CH₄, C₂H₆, C₃H₈, C₂H₄, and more
- 2. **Fluorine compounds:** F₂, BF₃, PF₅, Cl₂, HCl, HF, etc.
- 3. **Fermentation:** CO, H₂O, H₂S, N₂, O₂, CH₄, and others
- 4. **Metallurgy:** N₂, H₂, O₂, CO₂, CO, and similar gases
- 5. **Gas isotopologues:** H₂, D₂, T₂, HD, HT, DT, and more

This analyzer delivers accurate, efficient gas detection for diverse industrial and scientific needs.

APPLICATIONS

Typical Spectra

Gas Mixture Analysis

Component	Concentration (ppm)
CH ₄	50
C ₂ H ₆	30

Component	Concentration (ppm)
C ₃ H ₈	40
C ₂ H ₄	15
C ₃ H ₆	20

Multi-Gas Analyzer based on Raman Spectroscopy

Standard Gas Spectra

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Applications

Multi-Gas Analyzer based on Raman Spectroscopy

Natural gas industry

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Fluorine chemical industry

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Electronic special gas

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Coal chemical industry

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Metallurgical industry

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Pharmaceutical chemical industry

FEATURES

Key Features of the ToronMGA™ Multi-Gas Analyzer

- 1. **Multi-Component Analysis:** Simultaneous, real-time monitoring of multiple gases in a single measurement.
- 2. **Universal Detection:** Capable of identifying over 500 gas types—excluding noble gases—for broad application coverage.
- 3. **Pressure-Independent Operation:** Accurate quantification without requiring sample gas pressure control.
- 4. **Fast Response Time:** Delivers results in seconds per detection cycle.
- 5. **Wide Dynamic Range:** Detects concentrations as low as ppm levels and measures up to 100% gas composition.

TECHNICAL SPECIFICATIONS

Multi-Gas Analyzer based on Raman Spectroscopy

Sample Gas Requirements	
Gas Pressure	1 kPa ~ 1 MPa
Gas Temperature	-50 ~ 40 °C
Gas Flow Rate	0.5 ~ 15 L/min
Installation Conditions	
Sample Gas Interface	6 mm standard tube fitting (3 mm, 1/8", and 1/4" are optional)
Voltage	100~240 VAC, 50~60 Hz
Operating Temperature	0 ~ 35 °C

Sample Gas Requirements	
Relative Humidity	0 ~ 90%RH
Dimensions	445 mm (Width) × 350 mm (Height) × 600 mm (Depth)
Weight	40 kg
Data Communication	
Output Interface	USB2.0, RS232/RS485 DB9, RJ45
Input Interface	Temperature / pressure sensor, 12 V power supply, RS485



Torontech Inc.

251 Consumers Road, Suite 1200
Toronto, Ontario, M2J 4R3, Canada 

Phone: +1 416 368 2721 | Fax: +1 416 981 7652
Email: info@torontech.com

Torontech, LLC

601 Brickell Key Drive, Suite 700
Miami, FL 33131, USA 

Toll-Free: 1-866-383-7919
Email: sales@torontech.com

Torontech ME FZE

Meydan Grandstand, 6th Floor,
Meydan Road, Nad Al Sheba,
Dubai-261440, UAE 

Phone: +971 488 19252
Email: me@torontech.com

