

# NOVA

Dependable Gas Analysis Solutions

## 8000 SERIES BLAST FURNACE TOP GAS ANALYZER



### Applications

The Nova 8000 series has been designed for the continuous monitoring of oxygen (O<sub>2</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), and hydrogen (H<sub>2</sub>) in gases from blast furnaces or other continuous industrial processes where an uninterrupted stream of gas concentration data is critical. Calculated values of BTU, nitrogen (N<sub>2</sub>), and efficiency are also available.

### Description

The 8000 Series analyzers measure up to four gases simultaneously - O<sub>2</sub>, CO, CO<sub>2</sub>, and H<sub>2</sub> using sensitive infrared and thermal conductivity detectors. From these readings, other operating parameters such as nitrogen content, BTU, and efficiency can be calculated and displayed. Other gases can be included as part of this platform, including methane (CH<sub>4</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen oxide (NO), and nitrogen dioxide (NO<sub>2</sub>) in % or PPM ranges.

The analyzer consists of three main components: a heated filter cabinet which is directly mounted on the side of the blast furnace gas main, a sample conditioning system which is integral to the main analyzer cabinet, and the gas detectors which are mounted in a separate but integral rack mount drawer for ease of service and maintenance.

### Models

- 8002 - H<sub>2</sub> and CO<sub>2</sub>
- 8003 - CO, CO<sub>2</sub>, and H<sub>2</sub>
- 8004 - O<sub>2</sub>, CO, CO<sub>2</sub>, and H<sub>2</sub>
- 8006 - 8004 gases + calculation of N<sub>2</sub>, BTU, and efficiency
- CH<sub>4</sub>, SO<sub>2</sub>, NO, & NO<sub>2</sub> optional with any model

### Options

- Cabinet purge systems for use in dusty or hazardous locations
- Cold weather package for operation to -5°F (-20°C)
- Cabinet coolers can be fitted to most models
- High-temperature filters and probes



NOVA ANALYTICAL SYSTEMS INC.

[www.nova-gas.com](http://www.nova-gas.com)

# 8000 SERIES

## BLAST FURNACE TOP GAS ANALYZER

### Sample Conditioning

- High capacity sample pump (where sample motivation is required) and high flow by-pass allows fast system response time
- Compression-style moisture removal eliminates need for failure-prone thermoelectric cooling elements
- Automatic blow back of heated filter and probe, can be sequenced with autocalibration, or based on sample vacuum limit

### Gas Analyzer

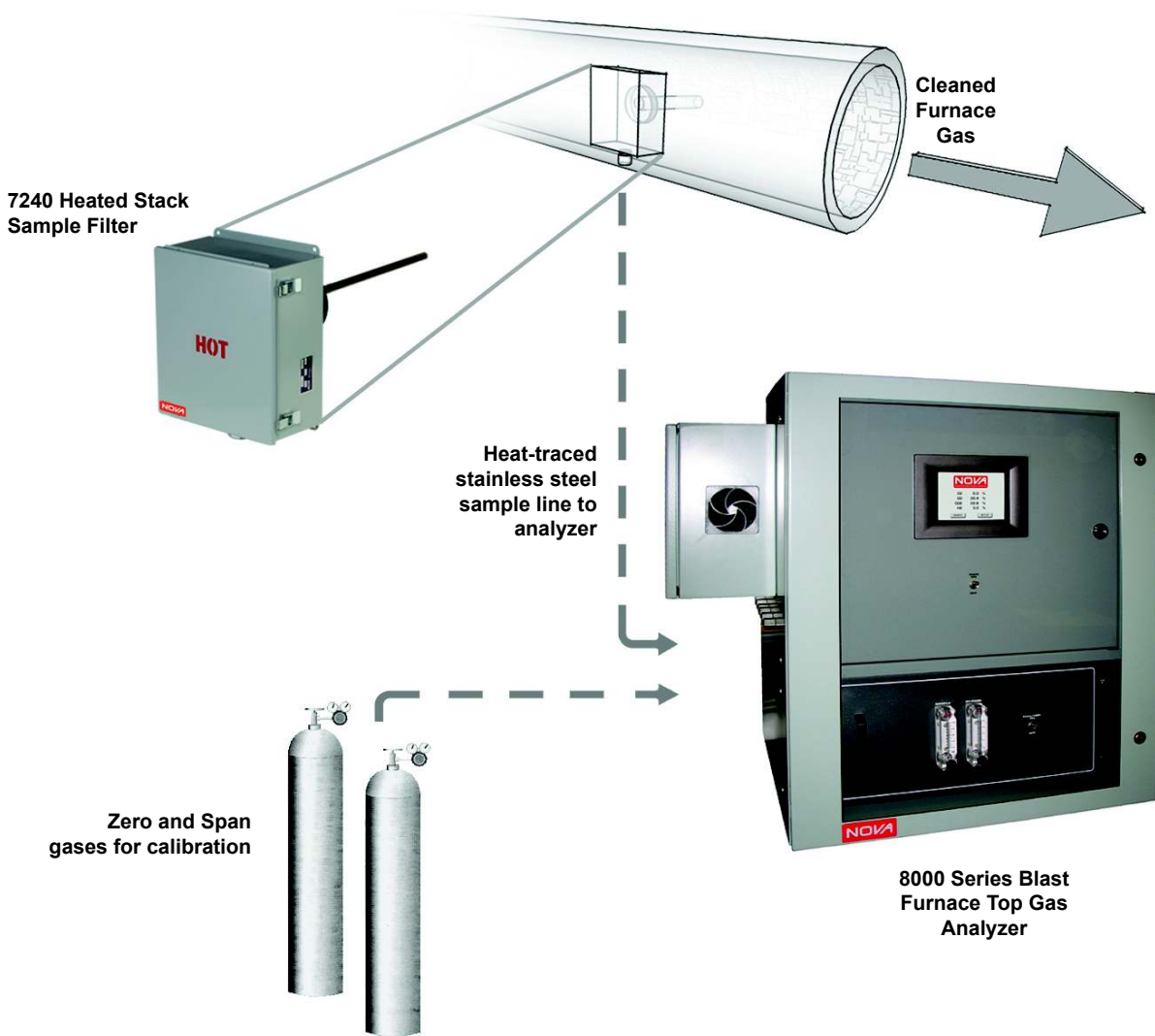
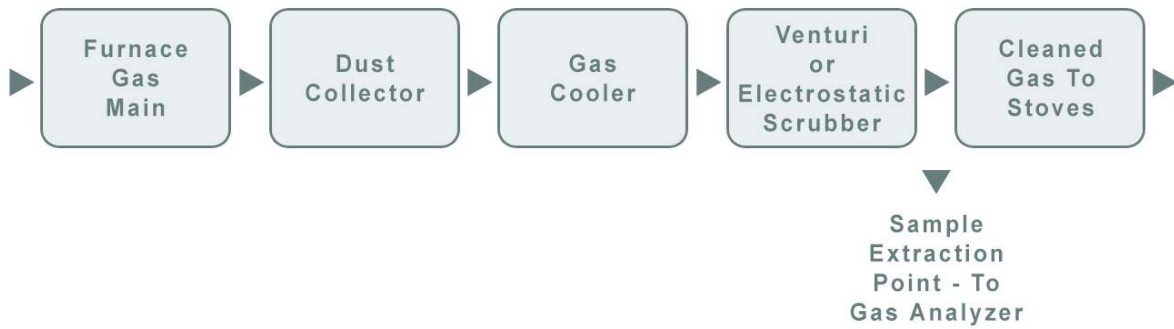
- High accuracy gas detectors ( $\pm 0.5\%$  of full scale)
- Detection of CO & CO<sub>2</sub> (and optional CH<sub>4</sub>) by reliable, field-cleanable, non-dispersive infra red detector
- Detection of O<sub>2</sub> (and optional SO<sub>2</sub>, NO, & NO<sub>2</sub>) by long-life electrochemical sensor (3-4 year life)
- Detection of H<sub>2</sub> by thermal conductivity cell with continuous CO & CO<sub>2</sub> compensation
- Dual range H<sub>2</sub> for use during furnace blowdown procedure
- All gas detectors mounted in separate temperature-controlled 19" (48cm) rack mount drawers for ease of service or to permit a quick swap with a replacement rack

### Smart User Interface

- Large graphical color touch screen display
- Auto calibration with user defined calibration frequency and purge duration
- One-step 'CAL NOW' button allows full calibration without opening cabinet
- Automatic calibration can also be controlled by customer's SCADA or DCS system
- MODBUS<sup>®</sup>, ethernet, and 4-20mA outputs suitable for data collection by SCADA systems
- Diagnostic alarms quickly notify operator of special faults
- Diagnostic screen aids operator testing of gas analyzer
- Troubleshooting guide aids operator in testing sample conditioning system and identifying parts to be changed
- Maintenance alerts notify operators that filters should be checked or changed; change frequency can be set by user
- Password-protection allows only qualified technicians to access adjustable parameters (e.g. alarm points)



# 8000 SERIES BLAST FURNACE TOP GAS ANALYZER



**NOVA**  
Dependable Gas Analysis Solutions

# 8000 SERIES

## BLAST FURNACE TOP GAS ANALYZER

### SPECIFICATIONS

*Nova reserves the right to specification changes which may occur with advances in design without prior notice.*

#### Description

**Method of Detection:** O<sub>2</sub>/SO<sub>2</sub>/NO/NO<sub>2</sub> - customer replaceable electrochemical 'fuel cell' sensor  
CO/CO<sub>2</sub>/CH<sub>4</sub> - dual wavelength, high accuracy NDIR infra-red detector  
H<sub>2</sub> - temperature-controlled thermal conductivity sensor  
N<sub>2</sub> - continuously calculated by subtraction of other gases from 100%  
BTU - continuously calculated from the flammable gases in the mixture  
Efficiency - continuously calculated from established CO/CO<sub>2</sub> ratios

**Ranges Available:** Oxygen - 0-5.0 to 0-25.0% Methane - 0-2.0%  
Hydrogen - 0-10.0% and 0-20.0% Sulfur Dioxide - PPM to % levels  
Carbon Monoxide - 0-50.0% Nitrogen Oxide - 0-1000 PPM  
Carbon Dioxide - 0-50.0% Nitrogen Dioxide - 0-800 PPM  
*(Other ranges available)*

**Resolution:** 0.1% for all percent gases measured; 1 PPM for PPM gases

**Accuracy and Repeatability:** ± 0.5% of full scale

**Drift:** Less than 1% of full scale per month

**Response Time (T-90):** T90 < 30 seconds not including sample transport time

**Ambient Temperature Range:** 32-122 °F (0-50°C), lower temperatures with cold weather package (to -20°C; -5°F)

**Linearity:** ± 1% of full scale

**Size and Weight:** Main Analyzer Cabinet: 30" H X 24" W X 22" D @ 100lbs (76 x 61 x 56 cm @ 45kg)

**Power:** 115 VAC 60 Hz (220 VAC 50Hz available)

**Output Options:** MODBUS®, ethernet, and 4-20 mA output for all gases and alarm conditions

**Alarms:** Low Flow, Low Span 1, Low Span 2, Low Zero, and Hi/Low gas concentration (or any calculated values). Also has calibration Fail Alarm

*Modbus® is a Registered Trademark of the Modbus Organization, Inc.*

### UNIQUE APPLICATIONS

All Nova analyzers are built using proven technologies and techniques. If this product does not suit your application, please contact Nova at 1-800-295-3771. In many cases, we are able to build an analyzer specific to your needs.

# NOVA

Dependable Gas Analysis Solutions

NOVA ANALYTICAL SYSTEMS INC.

IN USA:

1925 Pine Avenue • Niagara Falls, NY • 14301  
Tel: 1-800-295-3771 • 716.285.0418 • Fax: 716.282.2937

IN CANADA:

270 Sherman Avenue North • Hamilton, ON • L8L 6N5  
Tel: 905.545.2003 • Fax: 905.545.4248  
email: sales@nova-gas.com