

# CA-CALC™

## Combustion Analyzers

### Series CA-6200

TSI's CA-CALC portable electronic combustion analyzer is a rugged, fast-response, easy-to-use instrument ideal for tuning burners for maximum efficiency and safety—from large industrial systems to small residential appliances. The basic unit measures O<sub>2</sub>, CO, draft, and ambient and stack temperatures. Optional sensors can be added for measuring NO, NO<sub>2</sub>, SO<sub>2</sub> and high CO concentrations.



#### Combustion Analysis Made Simple

- Real-time measurements in seconds after power-up
- Calculates efficiency, excess air, %CO<sub>2</sub> and emission rates
- Provides NO<sub>x</sub> values (models with NO sensor only)
- User-adjustable CO high limit pump shutdown protects CO sensor
- Zoom function simplifies viewing of critical parameters
- Easy-to-understand menus and icon-driven commands
- Emission gas concentrations use the adjustable O<sub>2</sub> reference

#### Advanced Sensor Technology

- Field re-calibration of sensors saves time and money
- Factory calibrated, field-installable replacement sensors
- Four sensor slots designed for easy field upgrades
- CO sensor is hydrogen compensated

#### Superior Data Logging and Printing

- Stores up to 350 samples for 35 sites and 75 systems
- On-site access of customer histories
- Data sorted by customer, system or individual sample for printouts and report generation
- Stored data include fuel parameters and are time/date stamped
- Download stored data for report management
- Optional printer provides hard copy output

#### Additional Benefits of the CA-CALC

- Battery system provides 24 hours of continuous operation
- Eight factory-set fuels are user-adjustable to improve accuracy
- Five user-defined fuels with easy field set-up
- Status of the internal pump monitored continuously

#### Applications

- Tune burners in industrial boilers, heat exchangers, residential furnaces, process heaters and other combustion equipment
- Supplement regular boiler system maintenance checks to minimize maintenance and repair costs
- Spot check levels of NO, NO<sub>2</sub> and SO<sub>2</sub>
- Perform emissions control equipment maintenance checks
- Measure flue gas and combustion inlet air temperatures
- Check carbon monoxide safety in boiler rooms



## CA-CALC Series CA-6200 Specifications

### Oxygen (O<sub>2</sub>)\*:

Range: 0 to 25%  
Resolution: 0.1%

### Carbon Monoxide (CO)–H<sub>2</sub> Compensated\*:

Range: 0 to 5,000 ppm  
Resolution: 1 ppm

### Carbon Monoxide (CO)–High Concentration\*:

Range: 0 to 20,000 ppm  
Resolution: 1 ppm

### Nitric Oxide (NO)\*:

Range: 0 to 4,000 ppm  
Resolution: 1 ppm

### Sulfur Dioxide (SO<sub>2</sub>)\*:

Range: 0 to 4,000 ppm  
Resolution: 1 ppm

### Nitrogen Dioxide (NO<sub>2</sub>)\*:

Range: 0 to 500 ppm  
Resolution: 0.1 ppm

Carbon Dioxide (CO<sub>2</sub>): Calculated from O<sub>2</sub> and fuel type

Excess Air (%EA): 0 to 1,000%

Efficiency (E<sub>net</sub> and E<sub>gr</sub>): 0 to 125%

Stack Loss: 0 to 100%

Supply Temperature: -22 to 392°F (-30 to 200°C)

Flue Gas Temperature: 32 to 1,800°F (0 to 1,000°C)

Draft: ±30 in. H<sub>2</sub>O (±80mBar)

\* Electrochemical Sensor

Specifications subject to change without notice. Specifications are a condensed version. For more information contact TSI.

### Operating Conditions:

#### Temperature Range:

Operating: 32 to 122°F (0 to 45°C)  
Storage: -20 to 140°F (-30 to 60°C)

Max. Probe Temperature: 1,800°F (1,000°C)

#### Instrument Humidity Range:

Continuous: 15 to 90%  
Intermittent: 0 to 99%

### General Data

#### Pump:

Flow Rate: Nominal 700 cc/min

#### Standard Sampling Probe:

Materials: Stainless steel/neoprene  
Length: 12 in. (30 cm); 9 ft (2.75 m) sampling tube  
Diameter: 5/16 in. (0.8 cm)

#### Instrument Dimensions:

6 × 10 × 2.5 in. (15 × 25.4 × 6.4 cm)

#### Weight:

2.5 lb (1.14 kg); 3.9 lb (1.75 kg) with probe

#### Display:

Approx. 1/4-VGA B/W

#### Communication Interface:

Type: Serial

Baud Rate: 1,200 to 19,200

#### Power Requirements:

Batteries: 4 "C" cell alkaline batteries

Battery Life: >24 hr (pump on); >48 hr (pump off)

AC Adapter: Use only TSI supplied part

Backup Battery: Lithium

Backup Battery Life: 3 yrs

### Packaged Model Ordering Information

	CA-6210	CA-6211	CA-6212	CA-6213	CA-6214	CA-6215
12 in. probe with a 9 ft sampling tube	•	•	•		•	
O <sub>2</sub> Sensor	•	•	•	•	•	•
CO Sensor—H <sub>2</sub> Compensated	•	•	•	•	•	•
NO Sensor		•		•	•	•
NO <sub>2</sub> Sensor				•		•
SO <sub>2</sub> Sensor				•		
CO Sensor—High Concentration			•		•	
12 in. probe with a 9 ft teflon-lined emissions sampling tube				•		•

All packaged models also include a carrying case, power supply, batteries, water trap, manual and calibration certificate.

