

Series CA-6200 CA-CALC™ Multi-Gas Combustion Analyzers

TSI's Series CA-6200 CA-CALC™ Multi-gas Combustion Analyzers are rugged, fast-response, easy-to-use instruments ideal for tuning burners for maximum efficiency and safety—from large industrial systems to small residential appliances.

The basic unit measures O₂, CO, draft, ambient temperature and stack temperature.

Optional sensors can be added for measuring NO, NO₂, SO₂ and high CO concentrations.



Features

- Industry-leading service
- Intuitive operation with large backlit display
- Real-time data displayed on a single screen
- Operates on AC power or C-Cell batteries (24 hrs)
- O₂ Reference adjustable from 0% to 18%
- Rugged case, built-in magnets, heavy-duty pump
- Pump status monitored continuously
- Calculated emission rates include lb/MBtu and ng/J

Advanced Sensor Technology

- Quick field installation of factory-calibrated sensors
- Four sensor slots designed for easy field upgrades
- H₂-compensated CO sensor with manual isolation valve and high-limit protection
- Automatic baseline calibration of sensors
- Recalibrates easily for critical safety checks
- Sensors protected by a condensation moisture barrier

Superior Data Logging and Printing

- Store up to 680 sets of combustion test data
- Define up to 35 customers and 75 boilers/burners
- Test data time/date stamped for easy on-site access
- Download data to a computer or print hard copy report

Applications

- Tune burners in industrial boilers, heat exchangers, residential furnaces, process heaters
- Supplement preventative maintenance
- Monitor and service diesel systems
- Measure NO_x and SO₂ emissions
- Monitor emissions controls and burner performance
- Check carbon monoxide safety

Models available for:

- Boiler/Burner Service and Repair Contractors
- Boiler/Furnace Maintenance Companies
- Plant Engineers
- Process Boiler Technicians
- Utility Companies
- Boiler Owners and Manufacturers

Specifications

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Sensors

Oxygen (O₂)*	
Range	0 to 25%
Resolution	0.1% O ₂
Carbon Monoxide (CO)-H₂ Compensated*†	
Range	0 to 5,000 ppm
Resolution	1 ppm
Carbon Monoxide (CO)-High Concentration*†	
Range	0 to 2%
Resolution	5 ppm
Nitric Oxide (NO)*†	
Range	0 to 4,000 ppm
Resolution	1 ppm
Nitrogen Dioxide (NO₂)*†	
Range	0 to 500 ppm
Resolution	1 ppm
Sulfur Dioxide (SO₂)*†	
Range	0 to 4,000 ppm
Resolution	1 ppm
Flue Gas Temperature Probe	
Range	32 to 1,800°F (0 to 1,000°C)
Resolution	1°F (1°C)
Draft Pressure	
Range	±30 in. H ₂ O (±80 mBar)
Resolution	0.01 in. H ₂ O (0.01 mBar)
Supply Air Temperature Probe (Optional)**	
Range	-40 to 302°F (-40 to 150°C)
Resolution	1°F (1°C)

Calculated Data

Carbon Dioxide (CO ₂)††	0 to CO ₂ Max
Excess Air (EA)	0 to 1,000%
Loss ASME	-25 to 100%
Efficiency ASME (net)	0 to 125%
Loss qA (Siegert)	-25 to 100%
Efficiency (η) Based on qA	0 to 125%
Lambda (λ)	0 to 10
CO/CO ₂ Index (CO _r)	0 to 1.0000
NO _x	0 to 4,500 ppm

Operating Conditions

Instrument Temperature Range	
Operating Range	32 to 113°F (0 to 45°C)
Storage Range	-22 to 140°F (-30 to 60°C)
Instrument Humidity Range	
Continuous	15 to 90% non-condensing
Intermittent	0 to 99%
Maximum Flue Gas Probe Temperature	
Continuous	1,800°F (1,000°C) (with handle shielded)

General Data

Instrument	
External Dimensions	6 × 10 × 2.5 in. (15 × 25.4 × 6.4 cm)
Weight	2.5 lbs/3.9 lbs with probe (1.12/1.75 kg)
Display	1/4 VGA B/W
Pump	
Flow Rate	Nominal 700 cc/min
Maximum Flue Pressure	±30 in. H ₂ O (±80 mBar)
Standard Flue Gas Sampling Probe	
Probe/Hose Material	Stainless steel/rubber
Probe Length	12 in. std (30 cm)
Hose Length	9 ft (2.74 m)
Probe Diameter	5/16 in. (0.80 cm)
Emission Flue Gas Sampling Probe†††	
Probe/Hose/Material	Stainless steel/rubber/Teflon®
Probe Length	12 in. std (30 cm)
Hose Length	9 ft (2.74 m)
Probe Diameter	1/2 in. (1.27 cm)
Communication Interface	
Type	Serial
Baud Rate	1,200 to 19,200, selectable
Power Requirements	
Batteries	4 size C alkaline batteries
Battery Life	>24 hours (pump on); >48 hr (pump off)
AC Adapter	P/N 2613033 (NA), 2613078 (EU)
Backup Battery	Lithium
Backup Battery Life	3 yrs

* Electrochemical sensor

** P/N 3013003

† Selectable units include mg/m³, g/bhphr, ppm, lb/MBtu, ng/J, g/MWh, mg/MJ, mg/kJ, mg/kWh and g/kWh.

†† Calculated from O₂ and fuel type

††† Required for NO₂ and SO₂ measurement

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Ordering Information

Model	Carbon Monoxide (CO)	Carbon Monoxide 0-2% (CO _h)	Oxygen (O ₂)	Nitric Oxide (NO)	Nitrogen Dioxide (NO ₂)	Nitrogen Oxides (NO _x)*	Sulfur Dioxide (SO ₂)	Draft Pressure	Ambient, Stack Temp.	Carbon Dioxide (CO ₂)**	Efficiency (Loss) (qA)	Excess Air (λ)	CO/CO ₂ Index (CO _r)	Adjustable O ₂ Reference**	Water Trap and Filler	Data Storage/Review/Print	8 Factory and 5 User-Defined Fuels	Emissions Probe for NO _x and SO ₂
CA-6210	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CA-6211	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CA-6212	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CA-6213	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CA-6214	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CA-6215	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CA-6216	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

* NO_x=NO+NO₂ in Model CA-6215

** Calculated from fuel type and O₂

***CO undiluted (air free) when

O₂ reference=0



TSI Incorporated

500 Cardigan Road, Shoreview, MN 55126 USA

Tel: 651 490 2811 Toll Free: 1 800 874 2811 Fax: 651 490 3824 E-mail: answers@tsi.com

TSI Germany—Tel: +49-241-523030 Fax: +49-241-5230349 E-mail: tsigmbh@tsi.com

TSI Sweden—Tel: +46-18-52-70-00 Fax: +46-18-52-70-70 E-mail: tsi@tsi.se

TSI United Kingdom—Tel: +44 1275-847837 Fax: +44 1275-842437 E-mail: tsiuk@tsi.com

For current information
www.tsi.com

