

DATA SHEET

# Si-CA 8500

**Portable Industrial Combustion Flue Gas & Emissions Analyzer For Boiler, Engine, Furnace, & Other Combustion Applications**



**Accurate / Reliable / Robust / Fast**

- Up to **NINE (9)** Gas Sensors
- Low NO, NO<sub>2</sub> & SO<sub>2</sub>
- Stack Gas Velocity
- Built-In Thermoelectric Chiller
- Automatic Condensate Drain
- High Accuracy NDIR Sensors
- Upgraded Memory (2000 Tests)

 **Bluetooth®**



O<sub>2</sub>, CO, CO<sub>2</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, CxHy (HC), H<sub>2</sub>S, VOC



**PID VOC Sensor Option**



**Easy Filter Replacement**



**Real-Time PC Software with Bluetooth®**

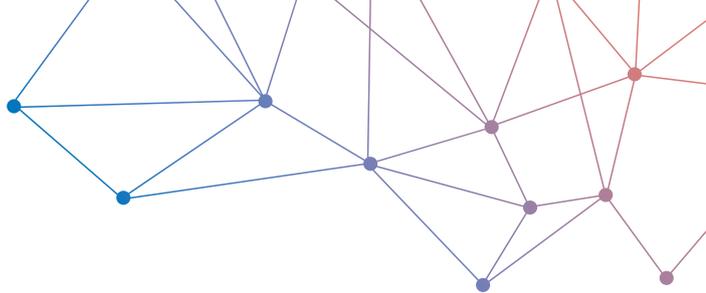


**US EPA CTM-30 & CTM-034 Compliant**



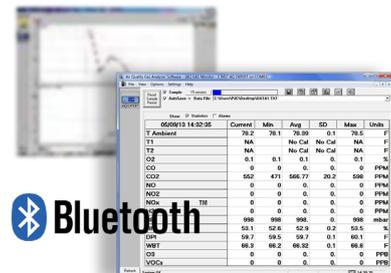
**Long Lasting Rechargeable Battery & AC Charger**

# Si-CA 8500

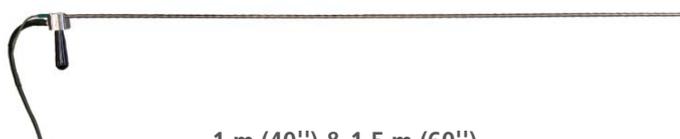


## Real-Time Software with Data Logging

The updated **EGAS** software package includes the ability to save & graph data in real-time in the field with a laptop, or in a laboratory with a PC. It also allows the user to automatically log data for an exact number of tests for a specified time period. Communications between the **Si-CA 8500** & a computer are established either by wireless Bluetooth® communications or USB cable. Data from the **EGAS** software can be exported to other spreadsheet programs for more user flexibility to create detailed emissions reports.



EGAS Real-Time  
Data Logging Software



1 m (40") & 1.5 m (60")  
High Temperature Probes

Sintered Filter



## Built-In Thermoelectric Chiller with Auto Condensate Drain

The internal thermoelectric chiller efficiently & quickly removes the water vapor from the flue gas sample to prevent combustion gases from bubbling from the gas phase into the condensate. The built-in condensate drain pump automatically pumps the accumulated water out through the bottom of the unit for greater convenience.

Parameter	Sensor	Range	Resolution	Accuracy
O <sub>2</sub>	Electrochemical	0 to 25%	0.1%	±0.1% vol
CO-H <sub>2</sub> compensated w/ built-in NO <sub>x</sub> filter	Electrochemical	0 to 8000 ppm	1 ppm	±8 ppm <200 ppm ±4% rdg up to 2000 ppm ±10% rdg for >2000 ppm
CO Auto range	Electrochemical	0 to 20000 ppm	1 ppm	±10% rdg
CO	NDIR	0 to 15.00%	0.01%	±3% rdg
CO <sub>2</sub>	Calculated	0 to 99.9%	0.1%	-
CO <sub>2</sub>	NDIR	0 to 50.0%	0.1%	±3% <20% ±5% rdg >20%
NO	Electrochemical	0 to 5000 ppm	1 ppm	±5 ppm <100 ppm ±5% rdg for >100 ppm
NO <sub>2</sub>	Electrochemical	0 to 1000 ppm	1 ppm	±5 ppm <125 ppm ±4% rdg for <5000 ppm
Low NO and/or Low NO <sub>2</sub>	Electrochemical	0 to 100.0 ppm	0.1 ppm	±1.5 ppm <50.0 ppm ±4% rdg for <100.0 ppm
NO <sub>x</sub>	Calculated	0 to 5000 ppm	1 ppm	-
SO <sub>2</sub>	Electrochemical	0 to 5000 ppm	1 ppm	±5 ppm <125 ppm ±4% rdg for <5000 ppm
Low SO <sub>2</sub>	Electrochemical	0 to 100.0 ppm	0.1 ppm	±1.5 ppm <50.0 ppm ±4% rdg for <100.0 ppm
C <sub>x</sub> H <sub>y</sub> (HC)	NDIR	0 to 3.00%	0.01%	±3% rdg +0.01%
H <sub>2</sub> S	Electrochemical	0 to 500 ppm	1 ppm	±5 ppm <125.0 ppm ±4 % rdg for <500.0 ppm
VOC	PID	0 to 200 ppm	1 ppm	±10% rdg +1 ppm
Tair	Pt100	-10 to +99.9°C 14.0 to 212.0°F	1°C 1°F	±2°C / ±3°F
Tgas	Tc K	-20 to +1050°C -4 to 1920°F	1°C 1°F	±3°C / ±5°F
ΔT	Calculated	-20 to +1050°C -4 to 1920°F	1°C 1°F	-
Pressure/Draft	Piezoresistive	±100 mbar ±40.0 inH <sub>2</sub> O	0.1 mbar 0.1 inH <sub>2</sub> O	±1% rdg
Excess air	Calculated	1.00 to infinity	0.01	-
Gas velocity	Calculated	0 to 99.9 m/s 0 to 330 ft/s	0.1 m/s 0.1 ft/s	-
Efficiency	Calculated	1 to 99.9%	0.1%	-
Efficiency (condensation)	Calculated	0 to 120%	0.1%	-

## Draft, Pressure & Velocity

An internal pressure sensor allows the analyzer to measure both pressure & stack draft. With two (2) pressure inputs, differential pressure can also be measured.

Gas velocity can be measured using the differential pressure & an optional pitot tube (#Si-CA8500 Pitot Tube).



## Sample Conditioning Unit

The Sample Conditioning Unit is mounted directly at the sampling probe exit, where excess moisture rapidly condenses & separates from the gas sample. This minimizes contact of the gases with moisture, which could potentially affect NO<sub>x</sub> & SO<sub>2</sub> measurements (#Si-CA8500 SCU).



## Gas Sensors

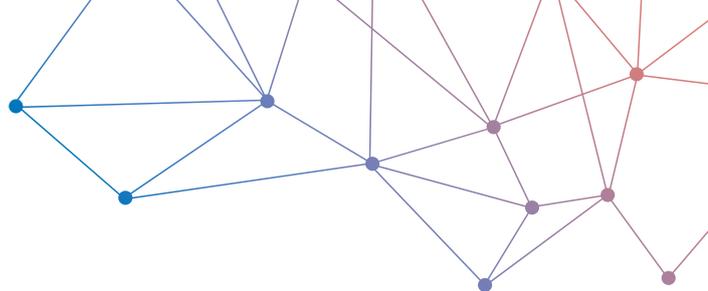
The Si-CA 8500 can have a maximum of NINE (9) total gas sensors: up to six (6) electrochemical type sensors, up to three (3) NDIR type sensors, & an optional PID sensor for measuring VOC.

## Easy Filter Replacement

The Si-CA 8500 has a newly designed user interface that includes an easily accessible filter compartment for quick and simple inspection & replacement of filters in the field.



# Si-CA 8500



## All Si-CA 8500 Kits Include the following

- Thermoelectric Chiller with Automatic Condensate Drain
- Rechargeable Battery Pack
- 100-240 VAC/50-60Hz Battery Charger
- Gas Sampling Probe with Hose
- Stack Gas & Air Temperature
- Draft & Differential Pressure
- Calculated Values for Efficiency, Excess Air & CO<sub>2</sub>%
- Internal Memory (2000 Tests)
- Real-Time Software with Bluetooth® & USB Interface
- Wireless Bluetooth® Communications
- Protective Carrying Case
- Calibration Certificate
- Operating manual



## Ordering Code

### Part # Si-CA8500 Base Unit - Table A - Table B - Table C

Example: Si-CA 8500 Base Unit - Si-CA 8500 O<sub>2</sub> Sensor - Si-CA 8500 CO Sensor - Si-CA 8500 NO Sensor - Si-CA 8500 NO<sub>2</sub> Sensor - Si-CA 8500 SO<sub>2</sub> Sensor - Si-CA 8500 H<sub>2</sub>S Sensor - Si-CA 8500 NDIR Sensors - Si-CA 8500 1 m Probe O<sub>2</sub>, CO, NO, NO<sub>2</sub>, SO<sub>2</sub>, H<sub>2</sub>S, CO<sub>2</sub> (NDIR), CxHy (NDIR), & High CO (NDIR) with 1 m (40") Probe with 3 m (10') Hose

**Table A: Electrochemical Sensors**

Si-CA 8500 O <sub>2</sub> Sensor	O <sub>2</sub> Sensor (0-25%)
Si-CA 8500 CO Sensor	CO Sensor (0-8000 ppm) with Dilution Auto-Range up to 20000 ppm
Si-CA 8500 NO Sensor	NO Sensor (0-5000 ppm)*
Si-CA 8500 NO <sub>2</sub> Sensor	NO <sub>2</sub> Sensor (0-1000 ppm)*
Si-CA 8500 SO <sub>2</sub> Sensor	SO <sub>2</sub> Sensor (0-5000 ppm)*
Si-CA 8500 H <sub>2</sub> S Sensor	H <sub>2</sub> S Sensor (0-500 ppm)**
Si-CA 8500 VOC Sensor	VOC Sensor (0-200 ppm)***

**Table B: NDIR Sensors**

Si-CA 8500 NDIR Sensors	CO <sub>2</sub> Sensor (0-50%) CxHy Sensor (0-3%) High CO Sensor (0-15%)
0	No NDIR Sensors



**Table C: Sampling Probes & Hoses**

Si-CA 8500 300 mm Probe	300 mm (12") Probe 800°C (1470°F) max 3 m (10') Hose
Si-CA 8500 750 mm Probe	750 mm (30") Probe 800°C (1470°F) max 3 m (10') Hose
Si-CA 8500 1 m Probe	1 m (40") Probe 1200°C (2190°F) max 3 m (10') Hose for High Temp. Combustion Applications
Si-CA 8500 1.5 m Probe	1.5 m (60") Probe 1200°C (2190°F) max 3 m (10') Hose for High Temp. Combustion Applications

\*Low range Gas sensors are available for NO, NO<sub>2</sub>, SO<sub>2</sub> (0 - 100.0 ppm)

Parts # Si-CA 8500 Low NO Sensor - Si-CA 8500 Low NO<sub>2</sub> Sensor - Si-CA 8500 Low SO<sub>2</sub> Sensor

\*\* H<sub>2</sub>S & VOC sensors cannot concurrently be installed on one Si-CA 8500

\*\*\* Must include NDIR sensor option to include VOC sensor

