# sauermann®

# Si-CA 230

## Gas Analyzer for Emissions Monitoring of Boiler, Engine, & Other Combustion Applications

**Accurate / Reliable / Robust / Innovative**

Up to Six Gas Sensors. Can inlcude $O_2$, CO, NO, Low NO, $NO_2$, Low $NO_2$, $SO_2$, Low $SO_2$, $H_2S$, and CxHy

Large Color Touch Screen

iOS and Android Mobile Apps Real-Time Display & Control

CO Dilution auto-range with measurements to 50,000 ppm

Total NOx & Low NOx Capable

Field Replaceable Pre-Calibrated Sensors

**TOUCH SCREEN**

Note: Phone not included.

**FREE app**

GET IT ON Google Play

Download on the App Store

- Ergonomic, light weight, & durable design
- Data management with automatic logging & report creation
- Predictive maintenance with estimated sensor life & calibration reminders
- One touch pump On/Off with purge
- PC software with wireless and USB connectivity
- Auto pump cut-off for high CO levels
- Graphical data display
- Customizable gas analysis screen

- Sample conditioning unit for low NOx & high moisture applications
- Stack gas velocity with Pitot tube
- Draft & differential pressure measurements
- Emissions values adjusted for reference $O_2$
- CO & $CO_2$ Monitoring in Ambient Air
- Hose extensions for tall & difficult to reach stacks
- Wireless Printer
- Protective rubber holster

## Dimensions

11.2 cm (4.3")

5.5 cm (2")

28 cm (11")
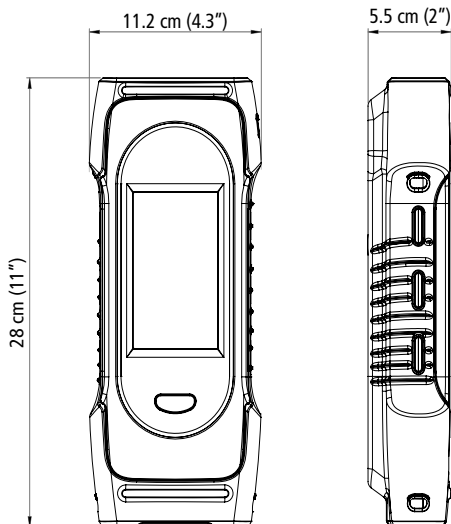
## Apps and software

- Free apps for iOS & Android mobile devices
- PC software with USB & wireless connectivity
- Fast, easy wireless connection
- Remote live view of combustion analysis data as list or graph
- Remote control to change settings
- Data saving, including automatic logging
- Report creation in PDF, CSV (for Excel) and XML formats
- Databases for customers, operators, & equipment
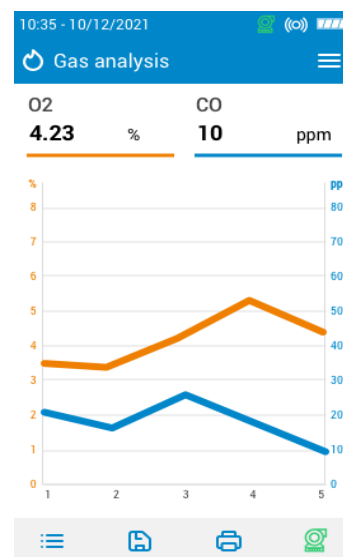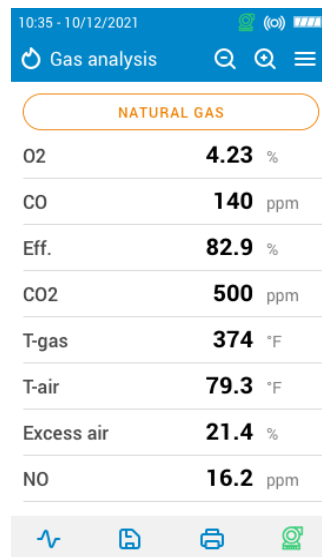


**Download app**



**Graph view**
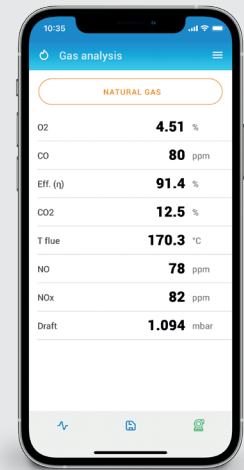


**Data view**

## Example of analyzer screens





## Si-CA 230 kit content

- Si-CA 230 analyzer
- $O_2$ & CO gas sensors (other gas sensors available, see Optional accessories)
- CO Dilution Auto-Range to 50,000 ppm
- Protective rubber holster
- 300 mm  flue gas probe with 3 m dual hose (other probe lengths available)
- Water trap with filter
- AC power supply / charger
- USB cable
- Mobile app (Free download)
- Internal wireless communication module
- ABS hard carrying case
- Quick Start Guide
- Calibration certificate
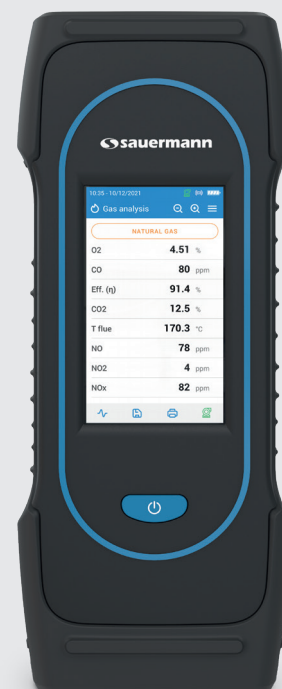
## Parameter specifications

| Parameter | Sensor | Measuring range | Resolution | Accuracy[1] | Response time |
|-----------|--------|-----------------|------------|-------------|---------------|
| $O_2$ | Electrochemical | 0 to 25% | 0.01% | ±0.2% vol | $T_{90} < 30$ s |
| CO ($H_2$ comp.) | Electrochemical | 0 to 10,000 ppm | 1 ppm | ±8 ppm < 160 ppm<br>±5% rdg up to 2000 ppm<br>±10% rdg > 2000 ppm | $T_{90} < 40$ s |
| CO (with dilution) | Electrochemical | 100 to 50,000 ppm | 1 ppm | ±10% rdg | $T_{90} < 40$ s |
| $CO_2$ | Calculated | 0 to 99.9% | 0.1% | - | - |
| NO | Electrochemical | 0 to 5000 ppm | 1 ppm | ±5 ppm < 100 ppm<br>±5% rdg > 100 ppm | $T_{90} < 40$ s |
| Low NO | Electrochemical | 0 to 300 ppm | 0.1 ppm | ±1.5 ppm < 30 ppm<br>±5 % rdg > 30 ppm | $T_{90} < 40$ s |
| $NO_2$ | Electrochemical | 0 to 1000 ppm | 1 ppm | ±5 ppm < 100 ppm<br>±5 % rdg > 100 ppm | $T_{60} < 60$ s |
| Low $NO_2$ | Electrochemical | 0 to 100 ppm | 0.1 ppm | ±1.5 ppm < 30 ppm<br>±5% rdg > 30 ppm | $T_{60} < 60$ s |
| NOx | Calculated | 0 to 7500 ppm | 1 ppm | - | - |
| Low NOx | Calculated | 0 to 450 ppm | 0.1 ppm | - | |
| $SO_2$ | Electrochemical | 0 to 5000 ppm | 1 ppm | ±5 ppm < 100 ppm<br>±5% rdg > 100 ppm | $T_{60} < 30$ s |
| Low $SO_2$ | Electrochemical | 0 to 100 ppm | 0.1 ppm | ±1.5 ppm < 30 ppm<br>±5% rdg > 30 ppm | $T_{60} < 30$ s |
| CxHy (HC) | Pellistor | 0 to 5% | 0.01% | ± 5% full scale | $T_{90} < 40$ s |
| $H_2S$ | Electrochemical | 0 to 500 ppm | 0.1 ppm | ±5 ppm < 100 ppm<br>±5% rdg > 100 ppm | $T_{60} < 35$ s |
| Flue temperature | TcK | -20 to +1250 °C | 0.1 °C | ±2 °C or ±0.5% rdg[2] | - |
| Air temperature | NTC or TcK | -20 to +120 °C | 0.1 °C | ±2 °C | - |
| Differential temperature | Calculated | 0 to 1250 °C | 0.1 °C | - | - |
| Pressure/Draft | Semiconductor | -200 to +200 mbar | 0.01 mbar | ±1% rdg ±0.03 mbar | - |
| Excess air | Calculated | 0 to 999% | 1% | - | - |
| Efficiency | Calculated | 0 to 100% (Gross/HHV[3]) | 0.1% | - | - |
| Efficiency (condensation) | Calculated | 0 to 125% (Net/LHV[4]) | 0.1% | - | - |
| Stack Gas velocity | Calculated | 0 to 99 m/s<br>0 to 19,500 fpm | 0.1 m/s<br>1 fpm | - | |

[1] All accuracies indicated in this document were stated in laboratory conditions at 20 °C (68 °F) and can be guaranteed for measurement carried out in the same conditions.
[2] Accuracy given for the analyzer only.
[3] For Higher Heating Value / [4] For Lower Heating Value

**General features**

| | |
|---|---|
| Dimensions | 28 x 11.2 x 5.5 cm |
| Weight | 825 g |
| Display | Color Touch Screen with Graphing; Size: 480 x 272 pixels |
| Keypad | 1 On-Off key |
| Material | ABS-PC |
| Protection | IP42 |
| Connection | - Wireless: class 2 range, range frequency from 2402 MHz to 2480 MHz with a transmit power of 1 dBm. Range up to 15 m, depending on smartphone radio strength. Minimum required versions: Android 8.0, iOS 12.4, BLE 4.0 Low Energy or compatible - USB |
| Power supply | Rechargeable battery, USB power supply Li-Ion 5100 mA/h 3.6 V battery / Power supply voltage of the mains unit: 100-240 Vac, 50-60 Hz Mains unit: 5 Vdc/2A |
| Battery | Battery life > 8 h; Charging time: Fully charge: < 6.5 h; 50%: < 2.5 h |
| Memory | Internal memory up to 2000 tests |
| Environmental conditions of use | Temperature: from -5 to 45 °C, Hygrometry: in non-condensing conditions (< 85% RH) Maximum altitude: 2000 m |
| Storage temperature | From -20 to 50 °C |
| Languages | English, French, German, Spanish, Italian, Portuguese, Simplified Chinese |
| European Union Directives | 2014/53/EU (RED); 2015/863 EU (RoHS 3) |
| Regulations | EN 50379-1 and EN 50379-2; UNI 7129; UNI 11137; UNI 10389; UNI 10845; UL & cUL Certification; BS 7967:2015; BS EN 50543:2011; UNE 60670-10; ES.02173.ES |

## Optional accessories

| Part number | Description | Illustration |
|---|---|---|
| 27520 (NO)<br>27521 (Low NO) | NO/NOx sensor<br>Low NO/Low NOx sensor |  |
| 27526 ($NO_2$)<br>27527 (Low $NO_2$) | $NO_2$ sensor<br>Low $NO_2$ sensor |  |
| 27528 ($SO_2$)<br>27529 (Low $SO_2$) | $SO_2$ sensor<br>Low $SO_2$ sensor |  |
| 27530 | CxHy sensor |  |
| 27531 | $H_2S$ sensor |  |
| 27544 | Draft probe |  |
| 27532 (180 mm)<br>27533 (300 mm)<br>27534 (750 mm)<br>27535 (1 m)<br>27536 (1.5 m) | 180 mm probe rated to 800 °C with 2 m dual hose<br>300 mm probe rated to 800 °C with 3 m dual hose<br>750 mm probe rated to 800 °C with 3 m dual hose<br>1 m probe rated to 1200 °C with 3 m dual hose<br>1.5 m probe rated to 1200 °C with 3 m dual hose<br><br>All probes include thermocouple K type sensor, water trap with filter, connectors to device |  |
| 27546 | Remote wireless printer |  |
| 27537 | 3 m dual hose extension |  |
| 27538 | Differential pressure hose kit |  |
| 27547 | CO ambient probe |  |
| 27548 | $CO_2$ ambient probe |  |
| 26811 | SCU (Sample Conditioning Unit) |  |

## Ordering Information

All kits includ the following: 300 mm probe rated to 800 °C with 3 m dual hose, wirelss connection to mobile app, rubber holster, water trap with filter, charger with plug set, USB-C cable, quick start guide, calibration certificate and ABS hard plastic carrying case

| Item # | Description |
|---|---|
| Si-CA 230-3N (27597) | Si-CA 230 Analyzer includes three gas sensors ($O_2$, CO, NO/NOx) |
| Si-CA 230-3NL (27598) | Si-CA 230 Analyzer includes three gas sensors ($O_2$, CO, Low NO/Low NOx) |
| Si-CA 230-4ND (27599) | Si-CA 230 Analyzer includes four gas sensors ($O_2$, CO, NO/NOx, $NO_2$) |
| Si-CA 230-4NS (27600) | Si-CA 230 Analyzer includes four gas sensors ($O_2$, CO, NO/NOx, $SO_2$) |
| Si-CA 230-4NC (27601) | Si-CA 230 Analyzer includes four gas sensors ($O_2$, CO, NO/NOx, CxHy) |
| Si-CA 230-4NLDL (27602) | Si-CA 230 Analyzer includes four gas sensors ($O_2$, CO, Low NO/Low NOx, Low $NO_2$) |
| Si-CA 230-4NLSL (27603) | Si-CA 230 Analyzer includes four gas sensors ($O_2$, CO, Low NO/Low NOx, Low $SO_2$) |
| Si-CA 230-5NDS (27604) | Si-CA 230 Analyzer includes five gas sensors ($O_2$, CO, NO/NOx, $NO_2$, $SO_2$) |
| Si-CA 230-5NDC (27605) | Si-CA 230 Analyzer includes five gas sensors ($O_2$, CO, NO/NOx, $NO_2$, CxHy) |
| Si-CA 230-5NSC (27606) | Si-CA 230 Analyzer includes five gas sensors ($O_2$, CO, NO/NOx, $SO_2$, CxHy) |
| Si-CA 230-5NSH (27607) | Si-CA 230 Analyzer includes five gas sensors ($O_2$, CO, NO/NOx, $SO_2$, $H_2S$) |
| Si-CA 230-5NLDLSL (27608) | Si-CA 230 Analyzer includes five gas sensors ($O_2$, CO, Low NO/Low NOx, Low $NO_2$, Low $SO_2$) |
| Si-CA 230-6NDSC (27609) | Si-CA 230 Analyzer includes six gas sensors ($O_2$, CO, NO/NOx, $NO_2$, $SO_2$, CxHy) |
| Si-CA 230-6NDSH (27610) | Si-CA 230 Analyzer includes six gas sensors ($O_2$, CO, NO/NOx, $NO_2$, $SO_2$, H2S) |
| Si-CA 230-6NLDLSLH (27611) | Si-CA 230 Analyzer includes six gas sensors ($O_2$, CO, Low NO/Low NOx, Low $NO_2$, Low $SO_2$, $H_2S$) |

## Maintenance

We carry out calibration, adjustment and maintenance of your devices to guarantee a consistent and accurate level of quality of your measurements. As part of Quality Assurance Standards, we recommend annual recalibration and maintenance check-up.

## Warranty

Devices have 2-year guarantee against any manufacturing defect (return to our After-Sales Service required for appraisal).

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