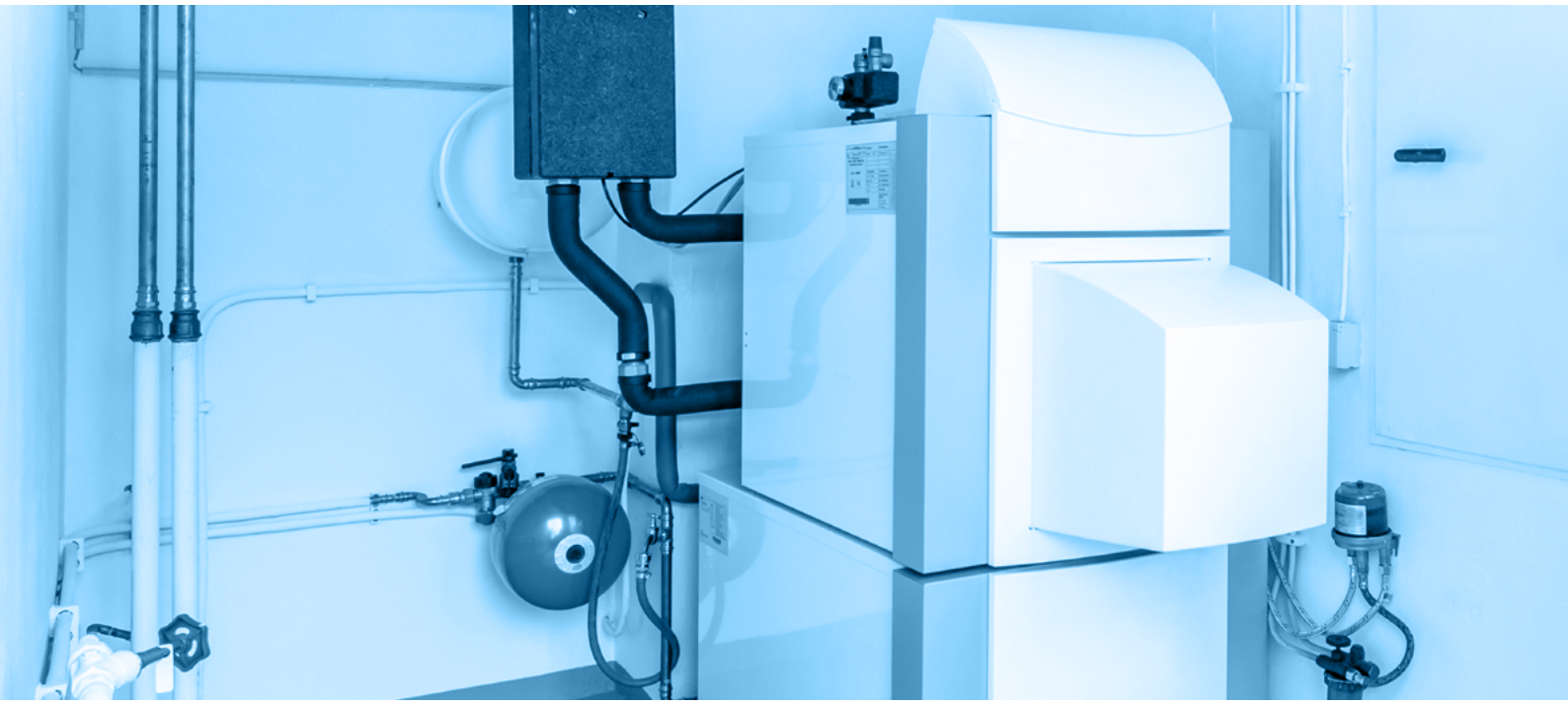
sauermann®

HEATING AND COMBUSTION



sauermanngroup.com

ABOUT US

For more than 45 years, Sauermann Group has designed, manufactured and sold products and services dedicated to the industrial and HVACR markets. The Group specifically focuses on the detection, measurement and control of indoor air quality (IAQ).

HIGH ACCURACY
UNMATCHED RELIABILITY
MULTIPLE APPLICATIONS

Measurement instruments: Sauermann measurement instruments monitor a broad spectrum of indoor air quality parameters and serve a wide range of applications, from building ventilation (heating and air conditioning) systems, to cold-chain installations and combustion gas analysis. Backed by our testing laboratories and in-house research and development program, Sauermann instruments deliver the accuracy and reliability that HVACR engineers need.

LOW SOUND LEVEL
LOW FAIL RATE
HIGH PERFORMANCE

Condensate management solutions: Safe and effective condensate management for air quality systems can be a challenge. Sauermann pumps are designed to look good, while our patented piston technology delivers whisper-quiet operation and unrivalled reliability.

Sauermann Industrie, Laboratories, located in Montpon (FR), accredited to standard NF EN ISO/IEC 17025

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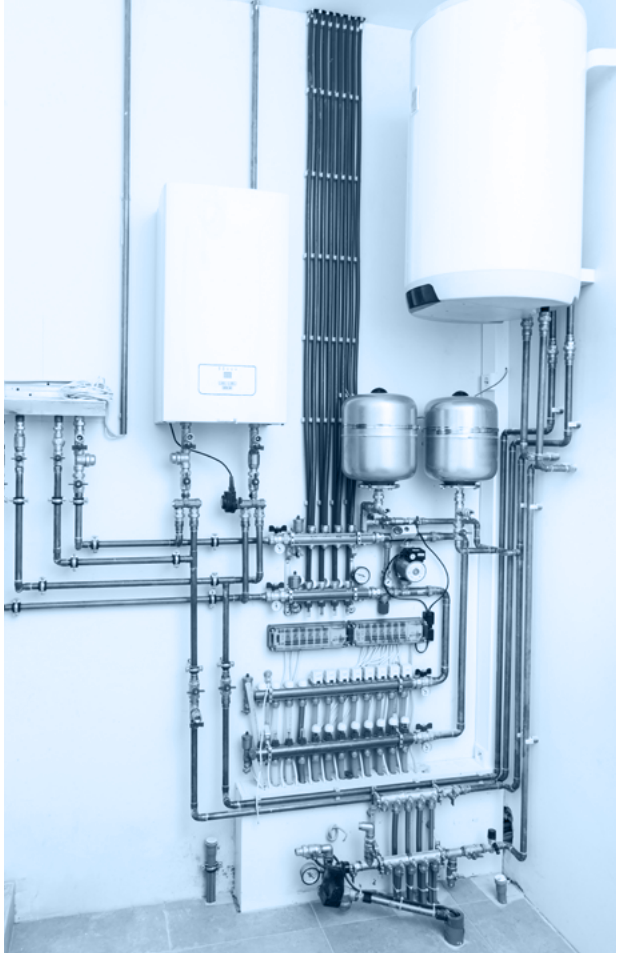
HEATING AND COMBUSTION

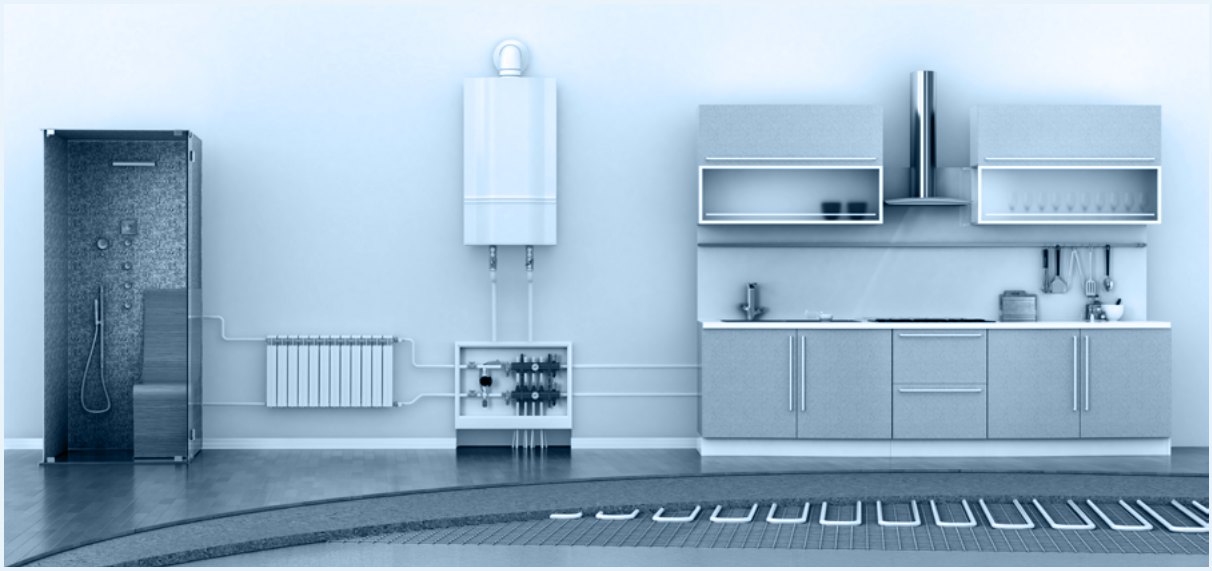
Heating systems consist of a boiler, a furnace, or a heat pump to heat water, steam or air in a central location, such as a furnace room in a home or a mechanical room in a large building. Those systems also include the heat distribution part, whether it is a water circuit or a forced air system with fans & blowers.

In order to ensure that such a heating system is working safely and efficiently various functional checks, adjustments and measurements should be performed on heat pumps, gas-fired systems, oil and solid fuel systems, both during commissioning and at regular intervals.

These include flue gas analysis, differential pressure measurement, leak detection and tightness testing, flow temperature measurement, as well as ambient CO measurement.

Also note that combustion analysis is important for engines and other combustion processes whose purpose is not to generate heat. It is required to measure their gas emissions for regulatory compliance reasons and efficiency assessments.





Flue Gas Analysis

Combustion-based equipment, such as boilers, furnaces or internal combustion engines need to be tightly controlled with regards to environmental and energy regulations. They also have to ensure a perfectly optimized and efficient combustion process over time in order to consume less fuel.

Flue gas analysis with professional combustion analyzers from Sauermann helps make combustion processes more efficient and reduces emissions by optimizing the combustion reaction and processes.

Flue gases released during combustion contain O_2, CO_2, CO, NO_x (oxides of nitrogen), other pollutant gases and soot particles among others. These pollute the environment, have a negative effect on the climate and create numerous health risks for human beings.

Perform an exhaustive combustion analysis of a residential or commercial boiler or furnace with an efficiency test, CO and NOx emissions measurements, calculation of CO_2, CO ambient monitoring, and stack draft (pressure) and temperature measurements.

Solution

Si-CA 130 Combustion analyzer

Servicing Heat Pumps

Heat pumps generate heat without any combustion processes and offer greater energy efficiency than even the best condensing boilers. The heating process is based on a refrigerant gas, transporting heat through a phase change cycle. However, most refrigerant gases are not harmless for the environment and usually have a significant cost, so these heat pump systems need to be properly commissioned and maintained.

In order to reliably provide sustainable heat and optimize the heating curve, the heat pumps must be thoroughly checked using suitable measurement technology at regular service and maintenance intervals.

An annual service is also recommended for all heat pumps. This ensures efficient operations, detects any refrigerant gas leaks, and optimizes efficiency to reduce energy costs.

This tool allows the user to commission a heat pump, check the refrigerant circuit tightness or fill gas and check differential pressure and subcooling / superheating temperatures simultaneously.

Solution

Si-RM13 Combined manifold with smart wireless probes and 2-channel by-pass

Differential Pressure Check

When you carry out servicing work on residential heating systems, the differential pressure measurement is part of the standard repertoire. This includes:

- Measurement of gas pressure and static pressure of a boiler
- Draft pressure: pressure measurement in the combustion chamber or exhaust stack/flue to ensure the combustion gases safely and properly exit the combustion equipment

The measurement of gas flow and static gas pressure in the system is especially important, because the burner can only operate well at a specified flow pressure range. Outside this range, explosive flame formation can occur. The consequences are malfunctions or even breakdown of the heating system. For this reason, the acquisition of a reliable, easy-to-operate differential pressure measuring instrument is essential.

Measure pressure at the gas inlet valve, boiler or furnace draft, and differential pressure across a filter or any other part of the combustion system to verify proper, safe, and efficient operations.

Solution

MP 115 Manometer

Temperature Check

In order for a heating system to work efficiently and distribute heat energy as uniformly as possible, temperature measurement is crucial. At Sauermann you will find temperature measuring instruments for these important heating measurements, directly performed on heating equipment or in a room's ambient air.

Measuring flow and return water temperatures of a heat circuit distribution system.

Solution

Kiray 100 Infrared thermometer

Tightness Testing and Gas Leak Detection

Both heat pumps and combustion-based heating systems can severely suffer from refrigerant and combustible gas leaks. Most refrigerants are powerful greenhouse gases that can seriously harm the environment and sometimes can be explosive (such as R32). Combustible gases leaks can raise safety concerns, be explosion hazards, and waste valuable fuel. Thus, it is utterly important to be able to easily locate any leak in order to quickly repair or replace the impacted portion of the gas circuit.

Searching for and finding gas leaks can be very difficult. Fast professional leakage sniffers are essential to locate the slightest leaks precisely and quickly in a gas circuit.

Detect most refrigerant gas leaks throughout a heat pump gas loop.

Solution

Si-RD3 Refrigerant gas leak detector

Detect any combustible gas leaks, such as natural gas, methane, propane, isobutane, and LPG, throughout a boiler's gas piping system.

Solution

Si-CD3 Combustible gas leak detector

Full Product List

Our most common articles for heating and combustion applications

	PRODUCT	ITEM	REF.	MEASURED PARAMETERS						DESCRIPTION
				Pa	°C/°F	%RH	m/s	m³/h	ppm	
Combustion Analyers		Si-CA 130 KIT 2AS	27507	✓	✓	-	✓	-	✓	Combustion analyzer **Si-CA 130 Kit 2AS** with touch screen, · 2 electrochemical gas sensors (O_2, CO) upgradeable to a 3rd sensor (NO or NO low range), automatic pump cut-off protection for sensors, · 180 mm sampling probe with 2 m hose and water trap with filter, magnetic support, protective rubber holster, vinyl carrying case, power charger, USB cable, quick start guide and calibration certificate · Wireless communication for mobile application and remote printer (optional).
		Si-CA 130 KIT 2AS CO-H2	27878	✓	✓	-	✓	-	✓	Combustion analyzer **Si-CA 130 Kit 2AS** · With touch screen, 2 electrochemical gas sensors (O_2, CO-H_2) upgradeable to a 3rd sensor (NO or NO low range), automatic pump cut-off protection for sensors. · 180 mm sampling probe with 2 m hose and water trap with filter, magnetic support, protective rubber holster, vinyl carrying case, power charger, USB cable, quick start guide and calibration certificate. · Wireless communication for mobile application and remote printer (optional).
		Si-CA 030 KIT 2AS	27496	✓	✓	-	-	-	✓	Combustion analyzer **Si-CA 030 Kit 2AS** · With 2 electrochemical gas sensors (O_2, CO) upgradeable to a 3rd sensor (NO), automatic pump cut-off protection for sensors, 180 mm sampling probe with 2 m hose and water trap with filter, magnetic support, protective rubber holster, power charger, USB cable, quick start guide and calibration certificate · Wireless communication for mobile application and remote printer (optional) · Packaged in vinyl carrying case.
Si-RM13 Manifold		Si-RM13 Wireless Manifold	25558	✓	✓	-	-	-	-	**Si-RM13** Wireless manifold Set made of two pressure probes and and two temperature probes. Pressure probe in ABS-PC with elastomer overmoulding. Connection to facilities: 1/4''FFL with depressor. Fluid load and evacuation: 1/4''MFL with Shrader valve. Relative pressure range from -1 to 60 bar. Wireless low energy communication. NTC temperature clamps, range from -40 °C to +150 °C. · Cable of 2 m with reinforced Jack connector. Blind manifold with hanging hook and three 'Y' 1/4''MFL connections including one with Shrader valve. Probes supplied in a robust transport case with red and blue identification rings, AAA batteries, adjusting certificate and a set of three charging lines with flow ball valves. Measurements reading on Si-Manifold application.
Differential pressure		MP 115	24617	✓	-	-	-	-	-	**MP115** portable micro-manometer with integrated pressure sensor (0 to +/- 500 mbar), 2-line display · Functions: Pressure, Hold, Min, Max, backlight, change of unit, configurable automatic switch-off, manual auto-zero · Supplied with secured pressure connections, 2 x 1 m of clear tube 4 x 6, stainless steel tube diameter 6 mm length 100 mm · Supplied with soft case and calibration certificate.
Temperature		TK 61	25513	-	✓	-	-	-	-	K/J/T/S thermocouple, 1-channel portable thermometer (-200 to +1760 °C) type **TK 61**, 2-line display · Functions: Hold, Min, Max, backlit display, alarm, change of unit, configurable auto switch-off and selection of thermocouple type. Supplied with batteries and adjustment certificate
		TK 62	25514	-	✓	-	-	-	-	K/J/T/S thermocouple, 2-channel portable thermometer (-200 to +1760 °C) type **TK 62**, 2-line display · Functions: Hold, Min Max, Delta T, backlit display, alarm, change of unit, configurable auto switch-off and selection of thermocouple type · Supplied with batteries and adjustment certificate.
		KIRAY 100	21664	-	✓	-	-	-	-	· **KIRAY 100** infrared thermometer, double laser sighting. · Measuring range: -50 to +800 °C. D:S = 20:1. Backlit display, audible alarm (high and low), adjustable emissivity · Supplied with transport cover and user manual.

Pa: Differential pressure; °C/°F: Temperature; % RH: Relative humidity; m/s: Air velocity; m³/h: Airflow; ppm: Gas concentration

Full Product List

Our most common articles for heating and combustion applications

	PRODUCT	ITEM	REF.	MEASURED PARAMETERS						DESCRIPTION
				Pa	°C/°F	%RH	m/s	m³/h	ppm	
Gas leaks		Si-CD3	27868	-	-	-	-	-	✓	Combustible gas leak detector **Si-CD3** • Detects gases such as methane (CH_4), propane, isobutane, hydrogen (H_2), LPG • Flexible probe length 300 mm. Range 0-10,000 ppm (hydrocarbon and CH_4) and 0-1800 ppm (LPG) • Graphic backlit display, configurable visual and audible alarms, change of unit, Hold, Min-Max, configurable backlight and automatic switch-off.
		Si-RD3	27867	-	-	-	-	-	✓	Refrigerant gas leak detector **Si-RD3** • Detects the most common refrigerants. • Gases detected: all HFCF and HFC refrigerants, HFO-1234yf, HFO-1234ze, R290, R600a. Detection of mixtures: 5% hydrogen - 95% nitrogen, Nidron 5 / Trace Gas, etc. • Flexible probe 300 mm. Instrument meeting EN14624 norm. Manual and automatic auto-zero, draft pump, heat-system sensor, visual and audible alarm, battery-level indicator.
Accessories		SKV 150	17156	-	✓	-	-	-	-	**SKV150** Class 1 K thermocouple contact probe with hook and loop fastener (-20 to +90 °C) • For duct Ø 100 mm (maximum), with 1.50 m cable and compensated miniature male connector.
		SCLK 150	24648	-	✓	-	-	-	-	**SCLK150** K thermocouple lamella contact probe, • Class 1 (-50 to +250 °C). Stainless steel probe Ø 6 mm, length 150 mm with handle, retractable cable and miniature male compensated connector.
		SAK-2	24818	-	✓	-	-	-	-	**SAK-2** K thermocouple wire probe, class 1, (-40 to +250 °C) • Visible welding, isolated PTFE cable length 2 m, output on miniature male compensated connector. (Tr 99%: 3 sec)
		SAK 150	24646	-	✓	-	-	-	-	**SAK-150** K thermocouple ambient probe • Class 1 (-40 to +250 °C) • Stainless steel perforated probe Ø 4.5 mm, length 150 mm with handle, retractable cable and miniature male compensated connector. (Tr 99%: 50 sec)
		PRINTER Si-CAX30	27546	-	-	-	-	-	-	• Remote thermal printer With wireless connection for Si-CA 030/130/230.
		DP HOSE KIT Si-CAX30	27538	✓	-	-	-	-	-	• Differential pressure measurement hose kit comprised of two hoses of 1 m (40") each with connectors, for differential pressure measurements with Si-CA 030/130/230 and also for stack velocity measurements using a S type Pitot tube (optional) with Si-CA 130
		ST 110	24635	-	-	-	-	-	-	• ST110 soft case with handle. For Class 60 and 110 instruments (supplied with all Class 110 / can be ordered separately)

Customized Products

If you cannot find the product (instrument, probe, accessory) that suites your specific needs in this list, we can also deliver a large range of products that are available with longer delivery lead times.

Pa: Differential pressure; °C/°F: Temperature; % RH: Relative humidity; m/s: Air velocity; m³/h: Airflow; ppm: Gas concentration

The 10 Killer Features of a Modern Portable Combustion Gas Analyser

Today, combustion gas analysis requires instruments that are built for speed, versatility and reliability – and many older devices no longer make the grade. Here, we look at the 10 killer features that a modern analyser cannot do without.

1 - Extremely robust CO measurement cells

Combustion professionals work on a wide variety of residential, commercial and industrial boilers. And this versatility means that the instruments they use need to be able to withstand high concentrations of CO. That's why, for modern combustion gas analysers, extremely robust CO cells are an absolute must.

Our Si-CA 030 and Si-CA 130 models are the only analysers in their weight and price category to include advanced CO cells, which are capable of measuring and withstanding CO concentrations of up to 8,000 ppm. The Si-CA 230 model, meanwhile, has a range of up to 10,000 ppm – and as high as 50,000 ppm thanks to its built-in automatic dilution system. The CO dilution not only allows for higher CO measurements, but also helps prevent the CO sensor from becoming oversaturated with high CO levels that can damage the sensor.

2 - NO_x measurement capability without changing the device

These days, NO_x has become an essential measurement parameter for various zcombustion equipment – for both environmental, health and financial reasons. For some combustion applications, such as power stations, incinerators and high-powered boilers, strict regulations often require NO_x concentrations to be measured at various points in the combustion process. A good combustion gas analyser therefore needs to support this capability when needed.

That's why our Si-CA 030 and 130 analysers are the only instruments in their class that can be adapted to measure NO_x, with the Si-CA 130 supporting field-replaceable pre-calibrated cells. And of course, the top-of-the-range Si-CA 230 can measure NO_x (including Total NOx with both NO & NO_2 sensors) and have a maximum of six gas sensors.

3 - Multiple cells for simultaneous measurements

For reasons of speed and efficiency, engineers naturally prefer all-in-one instruments that can handle multiple measurements at once. The aim is to reduce the number of maintenance and analysis steps, allowing specialists to service a combustion equipment quickly without compromising on reliability.

Our Si-CA 030 and 130 analysers come with three replaceable measurement cells, while our top-of-the-range Si-CA 230 model features six cells: more than any competitor in its format and price category!

4 - Measurement reliability backed by metrology experts

As emissions regulations become ever stricter and more precise, modern combustion gas analysers must be able to take measurements to a high degree of accuracy. Periodically calibrating these instruments is more essential now than ever before. And it's a task that needs to be done in the lab by metrology experts – both before and after sales.

Our Si-CA 030, 130 and 230 models are backed by 45 years of measurement expertise, with specialist gas analysis laboratories located on the same premises as our production

lines. Our metrology experts and production engineers provide the full range of after-sales services: calibration, adjustment and repair.

5 - Wireless connectivity and free apps

Paid apps linked to measuring devices are a thing of the past. Customers buying professional-grade instruments no longer expect to pay extra for an accompanying iOS, Android or Windows app. Why? Because these apps are now viewed as an integral part of the package when purchasing a combustion gas analyser.

The brand-new Sauermann Combustion mobile app & PC software are free to download when customers purchase any of our three latest-generation Si-CA combustion gas analysers. The app, for Android, iOS and Windows, gives users access to the extra features available in this digital environment, which has formed a natural extension to our products in recent years. The app allows for real-time remote display and control functionality when used with all three combustion analyzers.

6 - One-click auto-generation of exportable measurement reports

Again for reasons of efficiency, modern combustion gas analysers must be able to generate comprehensive measurement reports, which can then be exported and emailed instantly in various formats (such as Excel, CSV or PDF). The report generation interface needs to be linked to a customer (and equipment) database stored on the device and/or in the app.

Our Si-CA 030, 130 and 230 models can all generate and export reports in any standard electronic format, as well as store a customer database. They can also export a hard-copy version of the document to a portable, wireless printer. The accompanying Sauermann Combustion mobile app & PC software even generates statutory service reports. For instance, the app can create the "Attestation d'Entretien" (AdE, or "Service Certificate") for France, as well as service reports that include CO room & sweep tests and pressure let-by tests as required under UK regulations.

7 - User-friendly features built for speed

Ease and convenience are the first things that today's customers look for in a measurement instrument. In other words, it needs to be instantly usable out of the box. That means the device must be intuitive, quick and easy to handle in any circumstances. And with so many clever technical design features, modern-day instruments are helping combustion professionals work more efficiently than ever.

Our new Si-CA analysers are packed with smart design features that make them incredibly convenient to use: powerful magnets to affix them to heat-generating machines and keep engineers' hands free, an LCD display that's easy to see in any situation, built-in software that issues cell service cycle reminders, the ability to manage them from a smartphone, and more. The 130 and 230 even have a large touch screens that allows for easy & quick operations of the analysers.

8 - The perfect balance between size, weight and price for on-site operations

When it comes to user-friendly design features for measurement devices, portability and maneuverability definitely top the list. Advances in digital technology and miniaturisation have made modern instruments smaller and lighter than ever – and allowed manufacturers to tweak their design so they fit seamlessly into the palm of the hand. And combustion gas analysers, despite containing complex electrochemical components, are no different.

At Sauermann, we wanted to strike the perfect balance with our mid-range instrument: the Si-CA 130 model is one of the smallest, lightest and most comprehensive devices in its class, without compromising on features (touch-screen display, CO measurement of up to 8,000 ppm, etc.). For combustion professionals, it delivers unmatched versatility at this price point.

9 - Rugged design that's built to last

Modern measurement instruments are packed with more technology and feature fewer structural weaknesses that their predecessors. Professionals expect to be able to use them in any situation, without having to take more precautions than with a conventional mechanical instrument. In fact, rugged design is a critical aspect of user-friendliness and ease of use.

Our new Si-CA analysers come with an additional protective rubber casing, which also means they sit firmly in the palm of the hand without slipping. The probe connectors are hidden away inside the unit, so there's no risk of them breaking if the instrument is dropped. They also have an ingress protection rating of IP42.

10 - Flexible configuration out of the box

Professionals know exactly what they need to do their job. That's why, when it comes to designing a specialist measurement instrument like a combustion gas analyser, flexibility is key. In other words, manufacturers need to supply the exact cells, accessories and options that the user wants.

Our latest-generation Si-CA 030, 130 and 230 models are available in dozens of different kits, which vary from country to country. Customers can also order accessories and field-replaceable gas cells separately. For information and advice, speak to our Customer Services department.

With these 10 killer features, you can't possibly go wrong!

OUR EXPERTISE

ACCREDITED MEASUREMENT LABORATORIES, IN-HOUSE RESEARCH AND DEVELOPMENT

Sauermann products and services are backed by cutting-edge facilities and expertise: a team of over 20 experts working at multiple testing and calibration laboratories worldwide, and production lines in France, the United States and China.

Our in-house research and development program – spearheaded by a young, forward-looking group of 20 engineers and 10 technicians - has three aims: to push the boundaries of innovation in ergonomic design, digital technology and connected objects, to patent our technologies, and to consistently set new standards for electronic and mechanical performance in our products.

Over 800 m² of laboratory space

Our experts provide maintenance, adjustment and calibration services for our measurement instruments.

Customer service staff trained by our experts

Our team is here to advise and quote you for the service you need.

After-sales service

Our technicians maintain and repair your devices right where they're made.

Over 20 patents

Including our oscillating piston pump technology and the foldable frame system found on our DBM 620 air flow meter.

Our measurement expertise covers a wide range of fields:

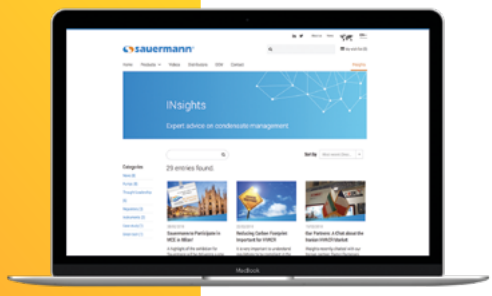
Pressure	Air velocity
Temperature	Air flow
Humidity	Gas analysis
Weight	Light measurement
Radiometry	Electrical current
Tachometry	Acoustics

Professional solutions for condensate management and indoor air quality measurement

INsights

Case studies, useful information and practical advice for HVACR and indoor air quality professionals.

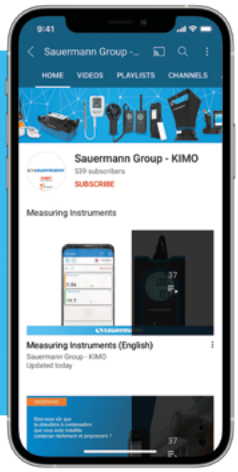
sauermanngroup.com/insights



Sauermann on YouTube

Head to our YouTube channel for tutorials, webinars and product guides.

youtube.com/sauermanngroup



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