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# 1. Introduction

The Sauermann Combustion app lets you control your Si-CA analyzer remotely, view measurement results in real time, and customize them before exporting in the format of your choice. This app is available for smartphone and PC.

Main features:

- 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

Please note that the Si-CA 030 analyzer is only compatible with the app for smartphone.

O Gas ana	lysis	=
	NATURAL GAS	
02	4.51	%
CO	80	ppm
Eff. (η)	91.4	%
C02	12.5	%
T flue	170.3	°C
NO	78	ppm
NOx	82	ppm
Draft	1.094	mbar
v	B	Ø



Smartphone graph view

Smartphone data view



Computer data view

# 2. Warning and safety instructions

# 2.1 Exclusions and restrictions of liability

The application operation is under the exclusive customer or user entity responsibility, who acknowledges using this system at his/her own risks. The customer or user entity explicitly excludes Sauermann and every other company through which the it could have been sold of any kind of responsibility or warranty regarding any direct, indirect, accidental, consecutive or non-consecutive damage that could have been subjected, for some or all, by partial or total non-respect, voluntary or involuntary, of recommendations, conditions and prerequisites indicated hereafter.

## 2.2 Exclusions and warranty limitations

Sauermann guarantees that the application, which is made available for the customer or user entity through digital content such as a downloaded link as indicated in our commercial documents, are in a state enabling its correct installation and operation. Within the limits of the law, this warranty is exclusive. Therefore, we do not guarantee the application operation after its availability to the customer or user entity of this digital support or downloaded link. There is no other explicit or implicit guarantee regarding the application merchantability and fitness for a particular purpose. The customer or user entity acknowledges accepting all the present guarantee limitations or exclusions.

# 2.3 Symbols used

6

For your safety and in order to avoid any damage of the device, please follow the procedure described in this user manual and read carefully the notes preceded by the following symbol:

The following symbol will also be used in this user manual: Please read carefully the information notes indicated after this symbol.



# 3. Download the app and create an account

# 3.1 Download the Combustion app

- Download the app for smartphone for free from Apple Store and Google Play Store or download the PC software for free from Sauermann website.
- Install the app on your device.



Minimum required versions to install and use the app: Android 5.0, iOS 12.4, BLE 4.0

The PC software is not compatible with the Si-CA 030 combustion analyzer. Please use the Sauermann Combustion mobile phone app instead for the Si-CA 030.

### 3.2 Create a Sauermann account and launch the app

When you first connect, you have to create a Sauermann account.

- Launch the app.
- Tap "Create account".
- Enter an valid email address and confirm it.
- Choose a password and confirm it.
- Tap "Next".
- Enter personnal information.
- Tick the box to agree to receive information about Sauermann's products.
- Tick the box to agree the EULA before using the application.
- Tap "Create an account".

11:12 🔯 🕂 🛱 🖬 🖬	11:13 🗸 🕫 🖓 🖉 🖉	11:14	U 🕈 👬 🖉 D
	< Create account	< Create acc	ount
	Welcome to your new Sauermann Combustion app	First name *	
		Last name *	
	Email *	Company*	
	Confirm Email *	Street	
Sauermann Combustion	Password *	Postal Code	*
Fmail	Confirm Password *	City	
Paseword	NEXT	Country *	
CONNECTION	••	Phone	
CREATE ACCOUNT LOST PASSWORD		I agree to Sauermann's p	receive information about roducts
		You must using our appli	agree to our EULA before cation. <u>Read our EULA</u>
		c	REATE ACCOUNT
			••
<	< <b>—</b>	<ul> <li></li> </ul>	-

Once the account is created, enter your email address and password for further connections when required.

# 4. Connect the analyzer and search for analyzers

The analyzer can be connected via the app through wireless connection (app or PC software) or through USB connection (PC software only).

# 4.1 Wireless connection

First, activate your wireless connection on your device (smartphone or computer). Then, the wireless connection must be activated on the analyzer:

- Turn on your analyzer.
- Press Menu key (Si-CA 030) or tap Menu (Si-CA 130 and 230).
- Go to "Settings".
- Go to "General".
- Activate the "Wireless connection".

The wireless connection icon is displayed at the top right of the screen.

- Launch the app.
- Tap "Search for devices".

The list of detected devices appears with their names and serial numbers.

- Tap the required analyzer then **"Connection"**.
- After a few moment, the analyzer is connected to the smartphone or computer.

11:56 전 아 IS J Connect your analyzer	=	11:56     ☉ ◊ ħ ∠ Δ       Connect your analyzer     Ξ		12:03 Connect your analyzer	60 10	°⊾‡ =
No device found				142108000030	WHELESS	۲
		Searching for devices Make sure your analyzer is turned On and is obtained on the wireless pairing enabled.	$\rightarrow$			
+SEARCH FOR DEVICES		CANCEL		CONNEC	TION	$\supset$

# 4.2 USB Connection

For the USB connection:

- Connect the analyzer to the computer via the USB cable.
- Launch the software app.

The list of detected devices appears with their names and serial numbers.

- Click the required analyzer then **"Connection"**.
- After a few moment, the analyzer is connected to the computer

# 5. Set the general parameters of the analyzer

The settings menu allows to set the general parameters of the analyzer:

- Autozero
- Purge time

# ) Any changes made to settings are automatically saved when you exit the screen.

### 5.1 Set the autozero

This part allows to set the autozero duration.

"Settings > General" screen is displayed.

• Tap **"Autozero"**.

• Select the autozero duration: 30 s, 60 s, 120 s or 180 s.

U The manufacturer recommendation is a minimum of 60 seconds for most applications.

### 5.2 Set the purge time

This part allows to set the purge time duration.

- "Settings > General" screen is displayed.
  - Tap "Purge time".
  - Select the purge time: 15 s, 30 s, 60 s or 120 s.

# 6. Set the parameters of the analysis

This menu allows to set the following itemes regarding the analysis:

• Alarms
<ul> <li>Pump after autozero</li> </ul>
• Zero draft sensor
Atmospheric pressure
• Air temperature
• Display configuration
<ul> <li>Stack cross-sectionnal area</li> </ul>

# 6.1 Set the fuel

This part allows to select the required fuels for the gas analysis but it also allows to add customized fuels.

### 6.1.1 Select the fuel

The default list of fuels is dependent on the country selected. Possible fuels listed include the following:

• Natural Gas (H)	• Biogas
Natural Gas (L) Groningue	• Firewood 20% (Soft)
Natural Gas North America	• Firewood 50% (Soft)
• #2 Oil / Domestic	• Firewood 20% (Hard)
• #3 Oil / Heavy	• Firewood 50% (Hard)
• #6 Oil / RFO	Wood Chips / Pellets 8%
• Propane	Cannel Coal
• Butane	Low Volatile Coal
• LPG	• Hog Fuel
• Biofuel 5%	• Peat
• Diesel	• Biomass
• Coke Gas	

"Settings > Analysis" screen is displayed.

• Tap **"Fuel"**.

• Select the required fuel.



To see features of the fuel, tap on it. The following information about the fuel is displayed: A1, B, K,  $CO_2t(\%)$ , V dry gas (m<sup>3</sup>/ucb), M air (kg/ucb), MH<sub>2</sub>O (kg/ucb) and PCI (MJ/ucb)

14:17	U O 🛱 🖌 🗎	14:17	೮.0 % ⊿1
Settings	=	< Analysis	
General		Fuels	
Analysis		CO Pump Cut Off Level 1000 to 8000 ppm	2000ppm
Measuring units		Reference 02	20.0 %
Data saving	Manual	NOx Factor	
Report customization		1.00 to 1.50	1.05
		Smoke/Soot	2 📢
		 Alarms	
		Pump after Auto-Zero	
		Atmospheric Pressure 500 to 1100 mbar	1013 mbar
		Air Temperature	
< <b>—</b>		< <b>—</b>	

### 6.1.2 Create a fuel

It is possible to create a customized fuel.

"Settings > Analysis" screen is displayed.

- Tap **"Fuel"**.
- Tap "Add fuel" on the bottom of the screen.
- Name the fuel and validate it tapping  $\leq$
- Enter the following features of the fuel: A1, B, K, CO<sub>2</sub>t(%), V dry gas (m<sup>3</sup>/ucb), M air (kg/ucb), MH<sub>2</sub>O (kg/ucb) and PCI (MJ/ucb).
- Tap "Save".

The customized fuel is then integrated at the end of the fuel list.

If a very specific fuel must be created please contact the Sauermann Service Center for further information.

A customized fuel can be deleted:

• Tap the name of the customized fuel on the fuel list.

Features of this fuel are displayed.

• Tap 🔟 on the top of the screen.

A message is displayed asking to confirm the deleting.

• Tap Yes to confirm.

# 6.2 Set the CO dilution mode (Si-CA 230 only)

This part allows to activate the CO dilution mode. The CO dilution allows to bring fresh air to the analyzer and so to dilute the CO. The following choices can be selected for the CO dilution:

- AUTO: dilution is activated once the CO value exceeds the defined threshold value (see chapter "Set the CO dilution threshold" on page 11)
- ON: dilution is activated continuously.
- OFF: dilution is inactivated
- "Settings > Analysis" screen is displayed.
  - Tap "CO dilution mode".
  - Select "AUTO, "ON" or "OFF".

The manufacturer recommendation is to set to AUTO for most applications.

When dilution is activated,  $\stackrel{69}{\bigcirc}$  wil be displayed on top of the screen and in front of the CO line on the measurement screen.

Analysis CC </th <th>36</th> <th>0 • # 🖌 🕯</th> <th>10:36</th> <th>0 • # 🖌 B</th> <th>10:36</th> <th>5 + # <b>4</b> 8</th> <th>10:36</th>	36	0 • # 🖌 🕯	10:36	0 • # 🖌 B	10:36	5 + # <b>4</b> 8	10:36
res     res     res     res       Watch Mode     Auto     CO Dilution Mode     Auto     CO Dilution Mode     Auto     CO Dilution Mode     Auto     CO Dilution Mode     CO Dilution Mode <td>Analysis</td> <td>=</td> <td>&lt; Analysis</td> <td>=</td> <td>&lt; Analysis</td> <td>=</td> <td>&lt; Analysis</td>	Analysis	=	< Analysis	=	< Analysis	=	< Analysis
Autor CO Dilution Mode Autor CO Dilution Mode Autor CO Dilution Mode Autor CO Dilution Mode <td< td=""><td></td><td></td><td>Fuels</td><td></td><td>Fuels</td><td></td><td>Fuels</td></td<>			Fuels		Fuels		Fuels
abox Threaded       100 pm       CO Obtion Threaded       100 pm	ution Mode   🧐	Auto	CO Dilution Mode 🥹	Auto	CO Dilution Mode 🛛 🧐	Auto	CO Dilution Mode 🥹
rp. OLD (Intel     CD Pump OLD (Intel     D       rp. OLD (Intel     <	ution Threshold	1200 ppm	CO Dilution Threshold 100 to 4000 ppm	1200 ppm	CO Dilution Threshold 100 to 4000 ppm	1200 ppm	CO Dilution Threshold 100 to 4000 ppm
col     2.0.0 %     Reference 02     20.0 %     00.0 %     20.0 %     00.0	Out Off Level		CO Pump Cut Off Level 1000 to 8000 ppm		CO Pump Cut Off Level 1000 to 8000 ppm		CO Pump Cut Off Level 1000 to 8000 ppm
tors     1.05     ND Factor     ND Factor     ND Factor       Note     2     SmokerSoot     2     SmokerSoot     2       Atems     Atems     Atems     Atems       ref Ador Zero     0     Purp after Ador Zero     0       6 mear     101 mear     0     000 lot 100 mear       6 mear     101 mear     Atems     Atems	e 02	20.0 %	Reference O2 0.0 to 20.9 %	20.0 %	Reference O2 0.0 to 20.9 %	20.0 %	Reference O2 0.0 to 20.9 %
cost     2     SmokerSoot     2     SmokerSoot     2     SmokerSoot     3mokerSoot     3mokerSoot     Amms       Aarms     Amms     Amms     Amms     Amms       e Auto-Zero     3     Poor pafter Auto-Zero     Poor pafter Auto-Zero     Poor pafter Auto-Zero       Binder     1013 mbar     000 Dilation Mode     Smoker Soot     Smoker Soot	or 0	1.05	N0x Factor 1.00 to 1.50	1.05	NOx Factor 1.00 to 1.50	1.05	NOx Factor 1.00 to 1.50
Alarms     Alarms     Alarms       r Advo Zero     Punp after Auto Zero     Punp after Auto Zero     Punp after Auto Zero       r EPessure theme     1013 mbar     Atmosphetic Pressure toto in 101 mean     CO Dilution Mode	oot	2 📖	Smoke/Soot	2 💶	Smoke/Soot	2	Smoke/Soot
er Aufo-Zero Dump after Aufo-Z			Alarms		Alarms		Alarms
etc Pressure 3 mbar 3 mbar 3 mbar 1013 mbar 00 00 bitson Mode Atmospheric Pressure 300 bitson Mode 4 Atmospheric Pressure 300 bitson bi	ter Auto-Zero		Pump after Auto-Zero		Pump after Auto-Zero	(m)	Pump after Auto-Zero
Auto	nic Pressure mbar	1013 mbar	Atmospheric Pressure 500 to 1100 mbar	1013 mbar	CO Dilution Mode		Atmospheric Pressure 500 to 1100 mbar
nperature 20.0°C and Air Temperature 20.0°C and Air Temperature	mperature	20.0°C	Air Temperature	20.0°C	Auto		Air Temperature
					UI UI		

# 6.3 Set the CO dilution threshold (Si-CA 230 only)

This part allows to define the CO dilution threshold.

- "Settings > Analysis" screen is displayed.
  - Tap "CO dilution threshold".

# Set the parameters of the analysis

• Enter the required threshold between 100 and 4000 ppm.

ls		Fuels		Fuels	
Dilution Mode 🥹	Au	o CO Dilution	Mode 🥹 Auto	CO Dilution Mode 🤤	
Dilution Threshold to 4000 ppm	1200 pp	m CO Dilution	Threshold 1200 ppm	CO Dilution Threshold 100 to 4000 ppm	1200
mp Cut Off Level 8000 ppm	0	CO Pump C 1000 to 8000	ppm Diff Level	CO Pump Cut Off Level 1000 to 8000 ppm	
oe O2 .9 %	20.0	% Reference C 0.0 to 20.9 %	20.0 %	Reference O2 0.0 to 20.9 %	2
ar D		.05 N0x Factor	1.0	NOx Factor 1.00 to 1.50	
oot	2 📹	Smoke/Soo	t 2 📢	Smoke/Soot	2
		Alarms		Alarms	
er Auto-Zero	0	Pump after	Auto-Zero 🔊	Pump after Auto-Zero	
Pressure	1013 mb	ar Atmospheri 500 to 1100 r	c Pressure 1013 mbar	Atmospheric Pressure 500 to 1100 mbar	1013
perature	20.0°C 🛒	Air Tempera	iture 20.0°C 📹	Air Temperature	20.0°C

# 6.4 Set the CO pump cut-off level

This part allows to define the CO pump cut-off level.

- "Settings > Analysis" screen is displayed.
  - Activate the CO pump cut-off level.
  - Tap "CO pump cut-off level".
  - Enter the required level between 1000 and 8000 ppm.

# In normal operation it is recommended to set the CO pump cut-off level threshold higher than the CO dilution threshold.

14:17	೮0**⊿∎
Settings	=
General	
Analysis	
Measuring units	
Data saving Report customization	Manual
report outcommuter!	

# 6.5 Set the Reference $O_2$

This part allows to set the oxygen reference level to use when corrected emissions calculations are needed. **"Settings > Analysis"** screen is displayed.

- Tap "Reference O2".
- Enter the required reference O2 in percentage between 0.0 and 21%.

\_

,	
Settings	=
General	
Analysis	
Measuring units	
Report customization	Manual

# 6.6 Set the NOx factor

This part allows to set the NOx factor, which is the assumed NO to  $NO_2$  ratio used to calculate NOx when the NO sensor is included but the  $NO_2$  is not included. Same apply for low ranges NO and  $NO_2$  sensors.

"Settings > Analysis" screen is displayed.

- Tap "NOx factor".
- Enter the required NOx factor in percentage between 1.00 and 1.50.

	೮0**⊿1	-	14:26	5 @ # 🖌 🕯	
lings	=		< Analysis	=	
			Fuels		
alysis			CO Pump Cut Off Level 1000 to 8000 ppm	2000ppm	
suring units			Reference 02 0.0 to 20.9 %	20.0 %	
a saving ort customization	Manual		NOx Factor 1.00 to 1.50	1.05	
			Smoke/Soot	2 🛑	
		$\longrightarrow$	Alarms		$\longrightarrow$
			Pump after Auto-Zero		
			Atmospheric Pressure 500 to 1100 mbar	1013 mbar	
			Air Temperature		

### 6.7 Set the Smoke/soot index

This part allows to enter the smoke or soot index obtained with an external pump (available as option). An inputted smoke value will be included with saved data points.

"Settings > Analysis" screen is displayed.

- Tap "Smoke/soot".
- Enter the smoke/soot index between 0 and 9.

To enable the smoke index input, activate this function on the screen.

Settings	=	< Analysis	=	< Analysis	
neral		Fuels		Fuels	
alysis		CO Pump Cut Off Level 1000 to 8000 ppm	2000ppm	CO Pump Cut Off Level 1000 to 8000 ppm	2000ppm
ts		Reference O2 0.0 to 20.9 %	20.0 %	Reference O2 0.0 to 20.9 %	2
	Manual	NOx Factor 1.00 to 1.50	1.05	NOx Factor 1.00 to 1.50	
ALCOLO 1		Smoke/Soot	2 💶	Smoke/Soot	2
		Alarms		Alarms	•
		Pump after Auto-Zero		Pump after Auto-Zero	
		Atmospheric Pressure 500 to 1100 mbar	1013 mbar	Atmospheric Pressure 500 to 1100 mbar	1013
		Air Temperature		Air Temperature	

# 6.8 Set the alarms

This part allows to set an alarm for every parameters measured and calculated by the analyzer.

This alarm can be rising (the alarm of the instrument is activated when the measured value exceeds the defined threshold) or falling (the alarm of the instrument is activated when the measured value is below the defined threshold).

A maximum of 5 different alarms can be set. "Settings > Analysis" screen is displayed.

- Tap "Alarms".
- Tap on one of the five listed alarms to first set it up.
- Select the parameter in which the alarm will be activated on the "Parameter" line.
- Enter the threshold value on the "Value" line.
- Select either high threshold or low threshold alarm.
- Return to main Alarm screen and tap on the activate button in order for the alarm to be enabled.
- Repeat the procedure for other alarms as needed.

Alarms can be revised later (for example, different threshold value) if needed.

During the measurements, an alarm remains ON even if the measurement goes below or above the threshold value until it is acknowledged.

If the alarm is acknowledged and the value is always in alarm, the alarm remains ON.

	1426 ७० ॥ ▲ < Analysis =	14:46 ⊗ ଓ •0 11 ∡ 10 < Alarms ≡	14-46 ⊛ ≺ Alarm 1	505
General	Fuels	ALARM 1	Parameter	
Analysis	CO Pump Cut Off Level 2000ppm	No parameter selected		
easuring units	Reference O2 20.0 %	ALARM 2		
ata saving Manual	0.0 to 20.9 %	No parameter selected		
eport customization	1.00 to 1.50	5 ALARM 3		
	Smoke/Soot 2	No parameter selected		
-	Alarms	ALARM 4	$\rightarrow$	
	Pump after Auto-Zero	No parameter selected		
	Atmospheric Pressure 1013 mbar 500 to 1100 mbar	ALARM 5		
	Air Temperature	No parameter selected		
< <b>-</b>	c 📼	c <b>e</b>		
17 © © 0 % #8.	<ul> <li>۲۹۹۳</li> <li>۲۹۹۳</li> <li>۲۹۹۳</li> <li>۲۹۹۳</li> </ul>		<	5 <b>0</b> 3
< ■ 7 8 5 0 # 28 Alarms ■	< ■ 1447 Ø ② ◇ Ⅲ J G < Alarma ■	<ul> <li>≤</li> <li>1567 ●</li> <li>○ 0 fl ∡ 6</li> <li></li></ul> <li>C 0 fl ∡ 6     </li>	<	S 📀
ControlAlarmsMit	KAT () KATANI CO	tat7 ●	tet e Alarm 1 Parameter	S 💠
Alarms	1xcr 0     8 0 # 1       < Alarms	ter ●	14.67 @ < Alarm 1 Parameter Value	© ♦
Alarms	Alarms CO 25 ppm - High threshold A.AMM 3 CO 25 ppm - High threshold A.AMM 3 No parameter selected	Letr ● □ • + ■ 6 < Alarm 1	14.07 © Kalarm 1 Parameter Value Low threshold High threshold	50
7 0 0 0 7 2 4 Alarms = population of threshold populations are selected	Alarms Alarms 25 ppm - High threahold Alarma <b>No sparmeter selected</b>	t£0 ● □ ● fl d E < Alarm 1 = Parameter CO Value 25ppm Low threshold O High threshold @	KASY @ KASY @ KASY @ Kasmeter Value Low threshold High threshold	\$ ₽
7 0 0 0 0 1 1 Alarms = opm-High threshold as 2 op parameter selected	Alarms Alarms Alarms C 25 ppm - High threshold Alarma No parameter selected - Alarma No parameter selected No parameter selected	1607 Image: Constraint of the second seco	rt 457 @ < Alarm 1 Parameter Value Low threshold High threshold	₩ •
7 C C T C C Alarms E mai population threshold mai poparameter selected mai mai mai mai mai mai mai mai	Alarms Alarms Alarms Alarms Comparameter selected - Mongarameter selected	tet ● ● f d d < Narm 1 = Parameter CO Value 220pm Low threshold O High threshold @	star @ star @ < Alarm 1 Parameter Value Low threshold High threshold	© ◆
A constant of the selected	Asser Asser Asser Asser Constants Constants Asser A	tet ● ● ● f ■	14.87 @       < Alarm 1	5 ♦
tr C C T L C Alarms E Marino E o parameter selected mara oparameter selected mara oparameter selected	Asama Asama CO 25 ppm - High threshold Asama No parameter selected - - - - - - - - - - - - - - - - - - -	14.0 ●     0 ● ↑ ■ ■       ▲ Alarn 1     ■       Parameter     CO       Value     25ppm       Low threshold     ●       High threshold     ●	1447 @         < Alarm 1	S •

### 6.9 Set the atmospheric pressure

This part allows to set the atmospheric pressure in which measurements are performed. This value is taken into account in calculations such as the stack velocity. It is set to 1013 mbar by default.

"Settings > Analysis" screen is displayed.

- Tap "Atmospheric pressure".
- Set the atmospheric pressure between 500 and 1100 mbar.

	ଷ⊕∰ ▲∎	14:17	0 ⊕ \$; ▲ B		14:59 🛞
ettings	=	< Analysis	=		< Analysis
		Fuels			Fuels
		CO Pump Cut Off Level 1000 to 8000 ppm	2000ppm		CO Pump Cut Off Level 1000 to 8000 ppm
units		Reference O2 0.0 to 20.9 %	20.0 %		Reference O2 0.0 to 20.9 %
mization	Manual	NOx Factor 1.00 to 1.50	1.05		NOx Factor 1.00 to 1.50
		Smoke/Soot	2 💶		Smoke/Soot
		 Alarms		$\rightarrow$	Alarms
		Pump after Auto-Zero			Pump after Auto-Zero
		Atmospheric Pressure 500 to 1100 mbar	1013 mbar		Atmospheric Pressure 500 to 1100 mbar
		Air Temperature			Air Temperature

# 6.10 Set the air temperature

This part allows to set the air temperature for the incoming air into the combustion equipment if known. This value is obtained by three different ways:

- by an external probe if this optional probe is connected
- entered by the user if no probe is connected
- by the internal NTC sensor of the analyzer if no probe is connected and if no value entered

### To enter an air temperature:

- "Settings > Analysis" screen is displayed.
  - Activate the air temperature.
  - Enter the required air temperature.

If the external probe or the internal sensor senor is used, just activate the air temperature.

14:17	ଷ•†* <b>⊿</b> ∎
Settings	
General	
Analysis	
Measuring units	
Data saving Report customization	Manual

# 7. Perform other measurements

The analyzer can perform other measurements than a gas analysis:

- Gas/pump flow rate
- Stack gas velocity

# 7.1 Gas pump flow rate

This screen shows the real-time measured flow rate of the gas passing through the analyzer as performed by the main flue gas sampling pump.



### The pump of the analyzer must be turn on.

"Other measurements" screen is displayed.

### • Tap "Gas/pump Flow Rate".

The analyzer displays the flow rate of the pump in L/m.

# 7.2 Perform a Stack Gas Velocity measurement with a Pitot tube



### Place and connect the L Pitot tube:

The Pitot tube must be introduced perpendicularly, in the middle into the duct and parallel to the flow. The head (ending with an ellipsoidal nose) must be maintained parallel and facing the flow. The total pressure (+) caught by the nose, is connected to the P+ at the bottom of the analyzer. The static pressure (-) caught by the holes of the head, is connected to the P- at the bottom of the analyzer.

### Place and connect the S Pitot tube:

The S-type Pitot tube is inserted into the stack and rotated until the differential pressure measurement is greatest for a given location in the stack. The proper orientation is for the high pressure side of the S-type Pitot tube tip to face into the direction of the stack gas flow as shown in the diagram.

The holes must be perfectly aligned with the air or gas flow direction.

The Pitot tube S is more sensitive to alignment errors thas the Pitot tube L.

- The connecting to the measurement device must be carried out like following:
- The leg in front of the air flow is connected to the P+ sign of the analyzer.
- The leg at the opposite of the air flow is connected to the P- sign of the analyzer

When the connections are made and "Other measurements" screen is displayed :

### • Tap "Stack Gas Velocity".

The analyzer displays the following measurements: Velocity, Volume flow and Mass Flow.

• Tap the K value to modify it if necessary (K value must be between 0.0000 and 99.0000).

Recommended values are: 0.84 for S-Type Pilot tube and 1.0015 for L-Type Pilot tube.



# 8. Set the measuring unit

This part allows to define the measuring unit for each parameters measured or calculated by the analyzer.

The following unit is avalaible according to the parameter and the model of Si-CA analyzer:

- Temperature: °C, °F
- Pressure: mbar, iwg (inches water gauge), mmwg, mmHg, Pa, hPa, kPa, psi
- Gas concentrations: ppm, mg/m<sup>3</sup>, %, mg/kWh, g/GJ, g/m<sup>3</sup>, g/kWh, g/hp
- Excess air: %, --- (no unit)
- Stack gas velocity: m/s, f/m, km/h, mph
- Volumetric flow rate: m<sup>3</sup>/m, cf/m
- Mass flow rate: kg/h, lb/h, t/d
- Stack cross-sectional area: cm<sup>2</sup>, in<sup>2</sup>
- CxHy: %, ppm

"Settings" screen is displayed.

- Tap "Measuring units".
- Tap the required parameter to set.
- Select the required unit in the list.

17	0 👁 🛱 🔟 🕯	13:35	© ⊕ # ⊿ D	13:36 🕲
Settings	=	< Measurin	g units 🛛 🚍	< Measuring units
I		Temperature	°C	Temperature
is		Pressure	Pa	Pressure
ng units		Gas concentratio	ppm ppm	Gas concentrations
aving	Manual	Excess air	%	Excess air
customization		Stack gas velocit	y m/s	Pressure
		Volumetric flow r	rate m³/min	Pa
	-	Mass flow rate	kg/hr	
		Stack cross-secti	ional area cm <sup>2</sup>	mbar
		СхНу	%	in H <sub>2</sub> O
				mm H <sub>2</sub> O
				mm Hg
				hPa
				kPa
				psi
· -		<	-	

# 9. Set the data saving

This part allows to define the data saving mode: manual or data logger

"Settings" screen is displayed.

- Tap "Data saving".
- Select "Manual": data will be manually saved during measurement. All data saved using the app will be saved on the mobile, not on the internal memory of the combustion analyzer or
- Select "Data logger": data will be saved according to a specified time interval and duration.
- Define the time interval between 10 and 600 seconds (by default time interval 10 seconds and duration 10 min). This time interval is for how often data points will be saved and to respect a maximum of 60 points per campaign.
- Define the duration bewteen 1 and 120 minutes. The duration is the total time for the entire test period.



Data will not be saved until initiated on the gas analysis screen. Only displayed values are saved.

All data saved using the app will be saved on the smartphone or computer, not on the internal memory of the combustion analyzer

14:17	Ծ Փ 🛱 ⊿ 🕯
Settings	
General	
Analysis	
Measuring units	
Data saving	Manual
Report customization	

	14:04 🛞	10 🗣 🗄 📶 🕅
	< Data saving	≡.
$\wedge$	Manual	
The following encourse if the displaced if the mean and is in a filled at the	Data logger	
i ne following screen will be displayed if the memory is insufficient:	Time interval	10s
• Tap "Change setting".	Duration	10min
<ul> <li>Modify the time interval or the duration.</li> </ul>		



# 10. Manage your data

The data menu allows to create and manage folders where measurements will be saved.

# **10.1 Create a folder**Tap then "Data". Enter a folder name. You can use your customer's name. Tap "Create folder". The folder appears in the list. **10.2 Modify a folder**Tap then "Data". The folders list appears. Tap to edit the folder name.

# 10.3 Delete a folder

• Tap then **"Data"**.

The folders list appears.

• Tap to delete the folder.

# 10.4 Import data from the analyzer

It is possible to import data saved in Si-CA 130 and Si-CA 230 analyzers.

- Tap = then **"Data"**.
- Tap \_\_\_\_\_ at the top right of the screen.

Folder(s) containing data are imported from the analyzer to the app and appears on the folder list.

# 11. Manage the customer database

The customer database allows to create customers and use their information when creating a report.

# 11.1 Create a customer

- Tap 💳 then "Customer Database".
- Tap "Create customer".
- Enter all information regarding the customer to create.
- Tap **"Save"**.

The customer is created and appears on the list.

14:40	o o a a a	17.01     Image: Original State S	1149 0 0 0 1 ≠ 4 < New customer	t1.51 (S O R ∠ C < New customer	11:51     © ● □ ▲ ●       A Customer database
Search by	O Gas analysis	Manage your customers And quickly use their information when creating a	FIRST NAME *	FIRST NAME - John	Search by name or company Q
+ ADD CUST	Other measurements     Data	report	LAST NAME -	LAST NAME * Doe	+ ADD CUSTOMER
John Doe	Reports		COMPANY	COMPANY Sauermann	John Doe >
	Settings     Information		ADDRESS Street	ADDRESS Rue Koufra	
	R Customer database		Postal Code	Postal Code	
	📯 Operator database		Country	France	
	Equipment database     Firmware update available		PHONE	PHONE 0123457890	
	Disconnect from analyzer	CREATE CUSTOMER	EMAIL	EMAIL sauermann@sauermanngroup.com	
	B Logout	IMPORT A DATABASE			
			CANCEL	CANCEL	
<	-	< <b>—</b>	< <b>—</b>	<	< 🗕

# 11.2 Modify a customer

From the list of customers:

- Tap the name of the customer to modify.
- Perfom the required modifications.
- Tap **"Save"**.

# 11.3 Delete a customer

From the list of customers:

- Tap the name of the customer to delete.
- Tap 🔟 at the top right of the screen.
- Tap "Delete" to confirm.

# All information and locations about this customer will be deleted.

# 11.4 Import a customer data file

It is possible to import customer information from an xml file.

- Tap 📃 then "Customer Database".
- Tap **"Import a database"** or tap **if** customers have already been created.
- Tap "Select your file".
- Select the required file on your device (smartphone or computer).

A preview of the first customer is displayed.

### • Tap "Import".

A message confirming the import is displayed.

### • Tap "Go to customer database".

Customers from the xml file have been imported into the customer database.

In order to be correctly imported, the xml file must follow our xml format:

```
<?xml version='1.0'?>
<customers>
  <customer>
    <customerDetails>
      <city>Montpon-Ménestérol</city>
      <company>Sauermann France</company>
      <country>France</country>
      <email>example 1@sauermanngroup.com</email>
      <firstname>John</firstname>
      <lastname>Doe</lastname>
      one>+33 5 53 80 85 00
      <street>Zone d'Activités Bernard Moulinet, Rue Koufra</street>
      <zipCode>24700</zipCode>
    </customerDetails>
    <location>
      <name>Sauermann Montpon</name>
      <contact>Mme Marie Doe</contact>
      <city>Montpon-Ménestérol</city>
      <country>France</country>
      <email>example_1@sauermanngroup.com</email>
      one>+33 5 53 80 85 00
      <street>Zone d'Activités Bernard Moulinet, Rue Koufra</street>
      <zipCode>24700</zipCode>
    </location>
    <location>
      <name>Sauermann New York</name>
      <contact>Ms Helena Smith</contact>
      <city>New York</city>
      <country>United states</country>
      <email>example 2@sauermanngroup.com</email>
      one>(631) 234-7600
      <street>140 Fell Court, Ste. 302 Hauppauge</street>
      <zipCode>11788</zipCode>
    </location>
  </customer>
</customers>
```

To create your own xml file:

- Copy the text from "<?xml version='1.0'?>" to the last "</customer>".
- Past this text into a notepade file.
- Change the information written in black between "city", "company", "country", "email", "firstname", lastname", "phone", "street" and "zipCode".
- Save the notepade file as xml.

# 12. Manage customers' locations

A customer can have multiple sites with differents addresses. So, it is possible to create several locations to assign to the same customer.

To add a location, one or more customers must be created. See "Create a customer" on page 20.

# 12.1 Add a location to a customer

From the list of customer:

- Tap the name of the customer to add a location.
- Tap "Locations" at the bottom of the screen.
- Tap "Create location".
- Enter all information regarding the location.
- Tap "Save".

11:51	000°°.∡0		11:59 8 0 8 .	<i>i</i> 0	12.00	0 • T ¥ 1	15:37 🖬 🛇 🛛 🖏 🖏	27 🖌 0	13.51	005	i 🖌 🛙
😤 Customer database	± ≡			=	< Locations	=	< New location	=	< Equipment data	abase	=
Search by name or company	٩		FIRST NAME *		Manage location	S	LOCATION NAME *		BRAND *		
			I AOT MALE :		Your customer can have multiple sites addresses	s with different			MODEL		
+ X00 COSTONER			Doe				CONTACT		123		
John Doe	>		COMPANY						SERIAL NUMBER		
			Sauermann						84916383		
		~	ADDRESS				ADDRESS		POWER - KW		15
			Rue Routra				Postal Code				10
			24700				City		ENERGY		
			France	v			Country	v	Gas		
			BLIONE		CREATE LOCATION				OI		
			0123457890				PHONE		Wood		-
			EMAIL								
			sauermann@sauermanngroup.com						EVACUATION MODE		
			Locations	>			EMAIL		Sealed		-
									Mat Casled		-
			CANCEL SAVE				CANCEL SAVE		CANCEL	SAVE	
< <b>—</b>			< <b>—</b>		< <b>—</b>		< <b>—</b>		<	-	
		-									

### 12.2 Modify a location

From the list of locations:

- Tap the name of the location to modify.
- Perfom the required modifications.
- Tap "Save".

### 12.3 Delete a location

From the list of locations:

- Tap the name of the location to delete.
- Tap **u** at the top right of the screen.
- Tap "Delete" to confirm.

All information about the location will be deleted.

# 13. Manage the operator database

The operator database allows to create operators and use their information when creating a report.

# 13.1 Create an operator

- then "Operator Database". • Tap
- Tap "Create operator".
- Enter all information regarding the operatot to create.
- Tap "Save".

The operator is created and appears on the list.

15:30	00548	13:40 0 0 17 🖌 🖬	15.31 0 0 1 4 0		15.32	00548	15.08	001110
🐥 Opera	Menu	☆ Operator database	< Operator database		😤 Operator database		Equipment database	_± =
M And quick	👌 Gas analysis	Manage your operators And quickly use their information when creating a	FIRST NAME *		Search by name	٩,	Search by brand or model	٩,
	Other measurements     Data	report	LAST NAME *		+ ADD OPERATOR		+ ADD EQUIPMENT	
	Reports		COMPANY		Peter Jonhson	>	Kimo 123	>
	Ø Settings		EMAIL	~				
	Information     Outcomer database		ADDRESS					
	Operator database		Street Postal Code					
	Equipment database		City Country ~					
_	Firmware update available		PHONE					
	Disconnect from analyzer	CREATE OPERATOR						
			CANCEL SAVE					
<	-	<	< <b>—</b>		< <b>—</b>		< <b>—</b>	

# 13.2 Modify an operator

From the list of operators:

- Tap the name of the operator to modify.
- Perfom the required modifications.
- Tap "Save".

# 13.3 Delete an operator

From the list of operators:

- Tap the name of the operator to delete.
- Tap at the top right of the screen.
  Tap "Delete" to confirm.

All information about this operator will be deleted.

# 14. Manage the equipment database

The equipment database allows the user to enter information about the combustion equipment and use this information when creating a report.

# 14.1 Create an equipment

- then "Equipment Database". • Tap
- Tap "Create equipment".
- Enter all information regarding the equipment to create.
- Tap "Save".

The equipment is created and appears on the list.



# 14.2 Modify an equipment

From the list of equipment:

- Tap the name of the equipment to modify.
- Perfom the required modifications.
- Tap "Save".

# 14.3 Delete an equipment

From the list of equipment:

- Tap the name of the equipment to delete.
- at the top right of the screen. • Tap
- Tap "Delete" to confirm.

All information about this equipment will be deleted.

# 14.4 Import an equipment data file

It is possible to import equipment information from an xml file.

- then "Equipment Database". • Tap
- Tap **"Import a database"** or tap **if** equipments have already been created.
- Tap "Select your file".
- Select the required file on your device (smartphone or computer).

A preview of the first equipment is displayed.

### • Tap "Import".

A message confirming the import is displayed.

### • Tap "Go to equipment database".

Equipments from the xml file have been imported into the equipment database. In order to be correctly imported, the xml file must follow our xml format:

In order to be correctly imported, the xml file must follow our xml format:

```
<?xml version='1.0'?>
<equipments>
       <equipment>
              <equipmentDetails>
                     <brand>Chaffoteaux</brand>
                     <energy>Gas</energy>
                     <evacuation>NotSealed</evacuation>
                     <model>32N</model>
                     <power>25</power>
                     <serialNumber>123-aaa</serialNumber>
                     <installationDate>2020-12-22</installationDate>
                     <burnerBrand></burnerBrand>
                     <burnerModel></burnerModel>
                     <br/>
<br/>
burnerInstallationDate></burnerInstallationDate>
                     <br/>
<br/>
burnerPower></burnerPower>
                     <br/>
<br/>
burnerSerialNumber></burnerSerialNumber>
              </equipmentDetails>
       </equipment>
       <equipment>
              <equipmentDetails>
                     <brand>Chaleur Bois</brand>
                     <energy>Wood</energy>
                     <evacuation>Sealed</evacuation>
                     <model>SOLID25KW</model>
                     <power>25</power>
                     <serialNumber>153-fez</serialNumber>
                     <installationDate>2020-12-22</installationDate>
                     <br/>
<br/>
burnerBrand>RIELLO</burnerBrand>
                     <burnerModel>fioul Millenium 40G3</burnerModel>
                     <br/>

                     <br/>
<br/>
burnerPower>35</burnerPower>
                     <burnerSerialNumber>15615151-1-gerrger</burnerSerialNumber>
              </equipmentDetails>
       </equipment>
</equipments>
```

To create your own xml file:

- Copy the text from "<?xml version='1.0'?>" to the last "</equipments>".
- Past this text into a notepade file.
- Change the information written in black between "brand", "energy", "evacuation", "model", "power", "serialNumber", "installationDate", "burnerBrand", "burnerModel", "burnerInstallationDate", "burnerPower" and "burnerSerialNumber".
- Save the notepade file as xml.

# 15. Update the firmware of the analyzer

When the analyzer is connected to the app and if a new firware version is available for the analyzer, the app will display **"Firware update available"** on the Menu.

To update the firmware:

- Tap
- Tap "Firmware update available".
- Tap "Download" to download the firmware.

A progress bar is displayed.

Transferring the firmware to the analyser can take a long time depending on the wireless connection.

The battery level on both the analyzer and mobile phone should be greater than 50% to ensure proper installation of new firmware

When downloading is finished:

• Tap "Install".

A message is displayed asking to confirm the installation.

• Tap "Install now".

The progress of the update is displayed on the analyzer screen.

15:46	छ Ф ‼ ⊿ 0 Menu	15:48 0 0 # 4 0	
New firm	🖒 Gas analysis	New firmware available	
SICA-130	→ Other measurements	SIGA-130 Firmware 0.2 Current version 1.01	
READ PA	Data	READ PATCH NOTES DOWNLOAD	
	Settings		
	(i) Information	►	
	Customer database		
	📯 Operator database		
	Equipment database		
	G Firmware update available		
	GD Disconnect from analyzer		
	☐→ Logout		
<	-	< <b>—</b>	

Tap "Read Patch Notes" to find out what's new in the firmware.

# 16. Create a report

The gas analysis measurements can be exported as part of a detailed report. To create reports, combustion gas analysis data must first be saved.

### 16.1 Save measurements

- Tap b during a gas analysis.
- Select a folder previously created or create a folder.
- Tap **"Save"**.

## 16.2 Create a report

- Tap
- Tap "Reports" then "Create report".
- Select the folder or create a new one in which the report will be saved.
- Tick the box corresponding to the saved data.
- Tap "Create report".
- Name the report.
- Select the report format: pdf, CSV/Excel® or XML.
- Tap **"Save"**.
- Select the customer or create a new one corresponding to the report.
- Proceed the same way for the location, the equipment and the operator.
- Add some comments that will appear on the report if needed.
- Add pictures if needed by cliking "Add picture" below the comments part.
- Tap "Save".

The report is created and appears on the list.

• Tap on it to open it.



# 16.3 Create a report from data of the analyzer

It is possible to create a report from data saved in Si-CA 130 and Si-CA 230 analyzers.

- Tap 💳
- Tap "Reports" then "Create report".
- Tap \_\_\_\_\_ at the top right of the screen.
- Folder(s) containing data are imported from the analyzer to the app and appears on the folder list.
- Use this folder to create the report.

It is possible to customize the report by adding a logo:

- Tap
- Tap then "Settings".
  Tap "Report Customization".
- Tap "Add a logo to your reports".
- Select a logo file.

The logo must follow these guidelines: Width: 450 px max; Height: 140 px max; Size: 500 KB max and Format: JPG or PNG

7	0 O 🐩 🖌 🗎	14:09	
Settings	=	<ul> <li>&lt; 1</li> </ul>	Report customization
Seneral		+ AD	D A LOGO TO YOUR REPORTS
Analysis		Your fi Width	le must follow these guidelines: 450px max
Measuring units		Height Size: 5	1: 140px max 500 KB max
Data saving	Manual	Forma	t: JPG, PNG
Report customization			
		$\longrightarrow$	

-

-

# 18. Disconnection

To disconnect the analyzer from the app:

- Tap
- Tap "Disconnect from analyzer".

The analyzer is disconnected from the app. Follow the connection procedure to connect the analyzer again.

To log o<u>ut fro</u>m the app:



• Tap "Logout".

You will no longer connected to the app. The email and password will have to be re-entered to log in to the app.

It is not necessary to log out each time you close the app.



 $m \underline{M}$  BE CAREFUL! Material damages can happen, so please apply the precautionary measures indicated.

Once returned, required waste collection will be assured in the respect of the environment in accordance to guidelines relating to WEEE.