Gasglass 1001

INSTRUCTIONS MANUAL

Sparklike Ltd
Särkiniementie 5c 41
00210 Helsinki
Puh: +358 9 6923510
Fax: +358 9 687 36 550
Mail: sparklike@sparklike.com

1. IMPORTANT NOTES

This is a high voltage instrument and should NEVER be used near computers or other sensitive electronic devices. The instrument MUST NEVER be used in hospitals. People with heart conditions or who use pacemakers are strongly advised not to use the instrument.

The high voltage discharge should never be directed at people or animals, either directly or through conductive materials such as metal or wires.

The instrument should never be used in wet or humid conditions.

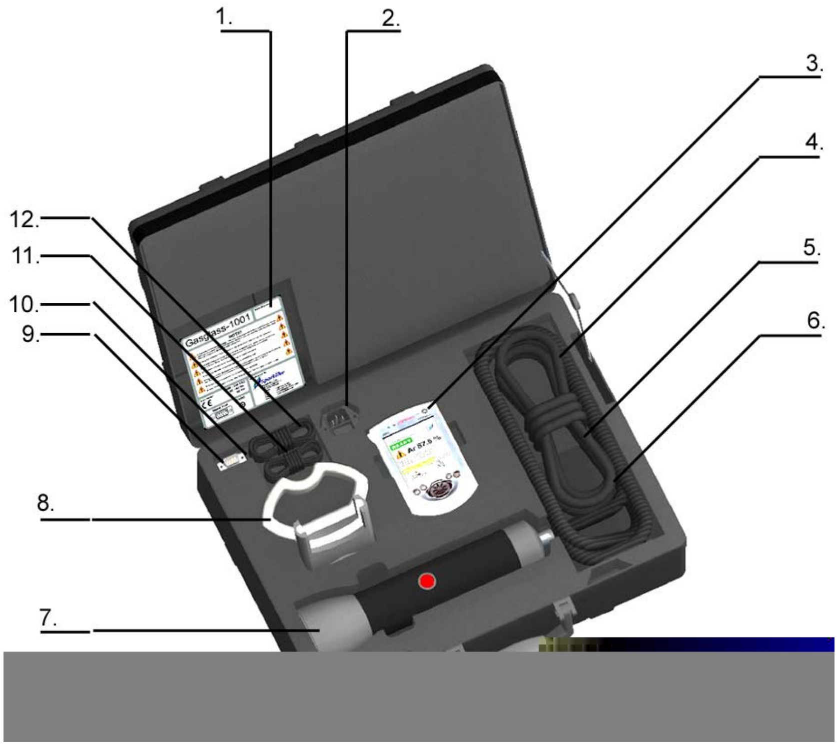
Gasglass is designed to measure the concentration of argon inside Insulated Glazing (IG) units. The calibration of the instrument assumes that the gases inside the IG-units are argon and air. Should the ratio between nitrogen (assumed 71% by volume) and oxygen (assumed 20.9% by volume) change due to diffusion, the data may not be accurate.

Gasglass is factory calibrated prior to shipping. Please read the Manufacturers Pre-Calibration documentation and check suitability for own use. Please note that additional calibrations can be made by the manufacturer upon request.

This is a sensitive measuring device and we recommend it be handled carefully. If the case is subject to excessive knocks, it may affect the operation of the device. If this occurs, please contact the distributor.

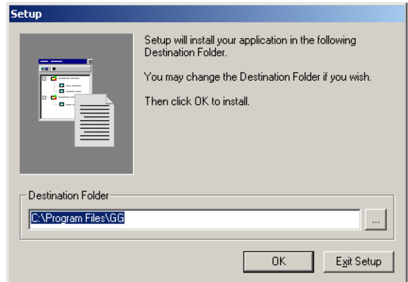
Always turn off the power when the device is not in use.

2. GASGLASS CONTENTS

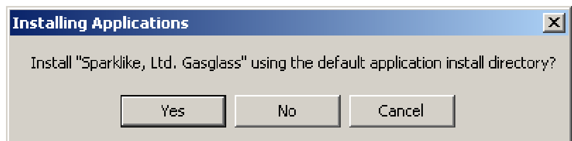


Your Gasglass case contains the following:

1. Technical information plate. This also states the unit's serial number which should be referred to when contacting the distributor or manufacturer.
2. Power cable plug and main power switch.
3. Palm computer.
4. Power cable.
5. Grey serial cable (for use with the PC.)
6. CD containing software for Palm computer (CD1) and PC (Windows software).
7. Spark unit.
8. Palm computer docking station.
9. Serial port plug for Palm computer and PC use.
10. 5V Charger output for Palm computer.
11. 5V Charger cable for Palm computer.
12. Serial cable for Palm computer docking station.

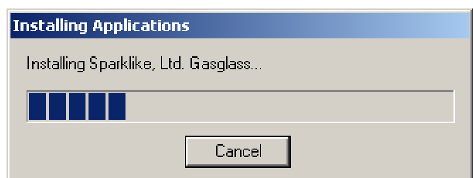


4. When reminded the location doesn't exist, click OK.
5. There should then appear a message asking:



Choose Yes.

6. Wait until the installation is complete on the PC.



7. You have now completed the PC side of the installation. Next, go to the IPaq and read the on-screen message.

The software should load automatically. If there is any on-screen question about replacing files, click **Yes To All**.

One button software start up.
If you would like the software to start up from one of the panel buttons on your IPaq, go to **settings** and then **buttons**. Browse until you find the Gasglass software and assign it to any button you like.

REMEBER THAT THE GASGLASS NEEDS TO BE CONNECTED TO EITHER YOU PC OR THE IPAQ WHEN STARTING UP THE SOFTWARE.

4. INSTALLING THE PC SOFTWARE

Delete any old Gasglass software installations that may exist. Please verify that the actual folder is also deleted as Windows does not always delete all the files.

Open the folder named **Windows Software** on your CD and run auto install. This installs the software under **Program Files**. A shortcut will be placed on your desktop under START (Programs / Sparklike / Gasglass).

Connect the Gasglass to your PC / IPaq via the COM1 serial port and power up the instrument. When the instrument is powered up, start the Gasglass software. The instrument is now ready for use.

If there is an error message when starting the PC software that states "runtime error" or "serial port already open" you need to change some additional settings in the "Active Sync" software.

a. Open Active Sync (if not already open.)
b. Choose **Connection Settings**... under the **File** menu.
c. Disable the "Allow serial cable connection to this COM1 port" function.

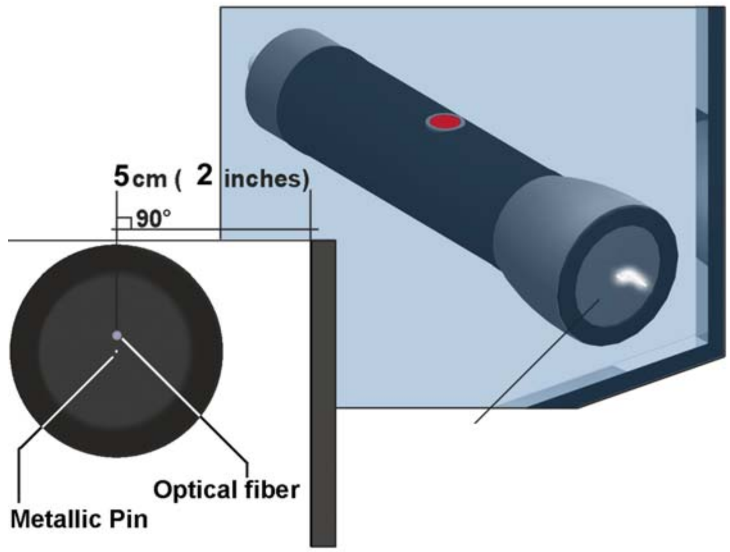
REMEBER THAT GASGLASS NEEDS TO BE CONNECTED TO EITHER YOUR PC OR THE IPAQ WHEN STARTING THE SOFTWARE.

5. STARTING THE INSTRUMENT

Connect the computer / IPaq to your Gasglass device via the serial cable and switch on. Then, plug the power cable into Gasglass and switch on. While the PC or IPaq software is running you are free to change between these two without any difficulties.

6. TAKING MEASUREMENTS

The following procedure is recommended for taking measurements:



Place the centre of the torch head approximately **4,5 cm** (**2"**) from the window's spacer bar, towards the corner of the pane. Ensure also that you follow the warnings on the technical information plate. Different spacer depths will have an effect on the measurements. Please read, "USING THE SOFTWARE". Currently the instrument is calibrated to measure mixes of Argon and Air. When taking a measurement it is recommended that a visual check also be performed to see if the spark "jumps" the cavity. If the spark does not ignite, the Palm computer will give an error.

a) How to measure when IG unit have no LowE coating on one surface.

As the LowE coating is usually of a metal based composition this will work as a conductor for the spark when making a measurement. This have been noticed to make a difference in calibration of the instrument. By placing a conductor onto the opposite side of the metal pin, you will make it easier for the spark to "jump" the cavity and by this making the measure signal stronger. This can easily be done by placing one hands finger on the opposite side of the spark.
This will also improve the measure accuracy on lower fill levels.

7. USING THE IPAQ SOFTWARE

The IPaq contains the following settings:

b) Quiet mode

To the right from the Gasglass logo you have two buttons: **Settings** and **Quiet**. The **Quiet** button gives the possibility to show or hide all measurement information on the **History** screen. This means that you can show or hide the raw data upon which the concentration is calculated. After you have been using the instrument for some time, this might be a useful way to interpret what is *happening* while measuring.

c) Settings button

The **Settings** button allows the adjustment of the settings on your instrument. When the settings button is pressed, you will have an additional window layout for adjusting the settings on your Gasglass. For more information on this issue, please see **Gasglass Settings**.

d) Visual indicator

Next is the fill level or Visual Indicator. When using default settings and the indicator is green, the fill level is over 90%, when the fill level is under 50% the indicator is red and in between these two the indicator will show the colour orange. These limits can be adjusted from under **Settings** at the top left but this we will be examined shortly.

e) OK indicator

The **OK** indicator indicates whether the measurement was satisfactory or not. If a green **OK** is given, the measurement is fine, otherwise there may have been some issues which render the result unreliable. Besides the **OK** sign it is possible to see an exclamation mark or a question mark. The exclamation mark indicates that an error has occurred. Check which error number is given from the **History**. The errors will be listed later in this guide. The Question mark indicates the measured concentration of argon is below 60%. This should also give Err-8.

f) Concentration indicator

Right from the **OK** indicator is the actual measurement indicator. This will give of the measurement reading or an error indication. The measurement box will give only a ERR indication and the error number can be found in the history box.

g) Errors

There are a few errors that can occur while measuring. These errors are indicated with the following numbers:

-Err-1	The signal is too low . This probably means that the spark did not ignite through the airspace
-Err-2	The total signal is too high The fill level and/or background signal is very high and you need to change mode
-Err-4	Background signal is too high You are measuring against too strong a light
-Err-8	Too low measurement. The calculated concentration is too low for the Gasglass to give a reliable measurement
-Err-16	The measurement signal is too high. The fill level is very high and you need to change mode

When more than one error has occurred during the measurement the numbers will add up.

For example Err-22 indicates that you have the following errors:

a. Total signal is too high	(2)
b. Background signal is too high	(4)
c. Measurement signal is too high	(16)
	(Total: 22)

h) History box

Next, the **History** box. History provides different information regarding the measurement (for example, the errors mentioned before.) This information will also be information logged using this function. When the instrument is in **Quiet Mode** the information showed is:

a. Measured gas: In this stage only Argon
b. The measurement, for example 81.338
c. The threshold of the measurement, This can be set according to own standards
d. The mode you currently are in. The mode function will be explained in the **Gasglass Settings** chapter.

When the instrument is out of quiet mode there will be more information showed on the screen. This information is the different raw data that the Gasglass is basing the concentration calculations on. This data is to be used when troubleshooting with the Gasglass or when making new Calibration curves. Please consult Sparklike Ltd before making your own calibrations

i) Logging buttons

The three functions on the right of the screen are all related to logging the measured data.
Lowest on the right is a checkbox **LOG**. When this is activated, the instrument will log the measured data to a file that you have specified in the instrument's settings.
The **Reject Last** button will delete the last measurement from the list and the measurement will not be logged.
The **Clear All** button will clear the whole screen.
For more information on logging data, please see **GASGLASS SETTINGS**.

PLEASE NOTE: IF YOU DEACTIVE THE LOG FUNCTION IN THE MIDDLE OF A MEASUREMENT SERIES AND ACTIVATES IT AGAIN WITHOUT GIVING A NEW NAME TO THE FILE, THE LAST FILE WILL BE OVERWRITTEN AND ALL PREVIOUS DATA WILL BE LOST.

8. GASGLASS SETTINGS - IPAQ

j) View properties

On the top left of the settings window is the **View Properties** box. Here it is possible to adjust **Good Quality** (green) or **Poor Quality** (red) settings. This is merely a visual indicator that the user can use to easily gage if the measurement is over or under a certain preset fill level.

k) Data logging parameters

It is possible to specify an easy- to-remember file name in the data logging parameters box. This is done by pressing **Change File** and then naming the file.

i) Exporting the logged data.

In order to export logged data, the following settings must be correct. Data logging must be turned off before exiting the software (This terminates the logging function and saves the data properly). Then, follow these steps:

a. Connect the IPaq to your PC.
b. When connected, find the log file from your IPaq.
c. Choose the log file and from the **Edit** menu choose **Copy**.
d. **Paste** the file into a folder on your PC from where it can be easily found.
e. Open **Excel** on your PC.
f. Choose **Open**.
g. Find the log-file and select it.
h. **Excel** will now ask how to import the file.
In the first window, choose "comma (,) and other" as separators.
In the other field write colon (:). Then press next.
i. Select **Next**.
k. Select **Ready**.
l. The logged data will now be displayed as a data sheet. Save it to your PC.

l) Curves and factors

Under the **Operating Modes** box there are two boxes which are empty by default. When selected, the first box shows **Curve 0 - 9**, the second **Factor 0 - 19**. The reason for these two is boxes is due to variations when measuring different types of panes. A pane with a 19mm spacer, for example, shows a result approximately 2 % lower than a pane with 12mm spacer.

i) Curve

The curve shows the instrument's separate calibration curves. Curve 0, Curve 1 and Curve 2 are default calibration curves, set by the manufacturer. Additional calibration curves can be added but we recommend you consult your distributor before doing so.
Please read "The pre calibrations are set as follows" to see how the curves are pre-calibrated.

ii) Factor

In many cases the difference in the measurement results are only based on a constant factor. This factor can easily be tested and added to the software but we still recommend that you consult your distributor before doing so.

NOTE
Creating your own **Curves** and **Factors** is not recommended because it may interfere with the default calibrations. For customers with special requirements, please contact the manufacturer.

9. USING THE GASGLASS SOFTWARE - PC

The PC software has the same basic functions as the IPaq. The only notable difference is that on the main screen there is a **MEASURE** button. Use carefully because on clicking this button the Gasglass device will perform a complete measurement and it is possible that the spark will ignite uncontrolled.

10. GASGLASS SETTINGS - PC

The settings for Gasglass is the same when using the PC software and IPaq.

11. Pre-calibration of the instrument

Sparklike Ltd. have pre-calibrated the instrument according to the following procedure:

> **Set up**
> The calibration is made on windows that have 4mm glass in position 1, various spacer thickness and 4mm Low-E coated glass in position 2.
> Gases used are Argon S (99.98%) and dry compressed air.
> By using calibrated gas mixers the proper percentage is achieved.

The calibrations are made for the following fill levels.

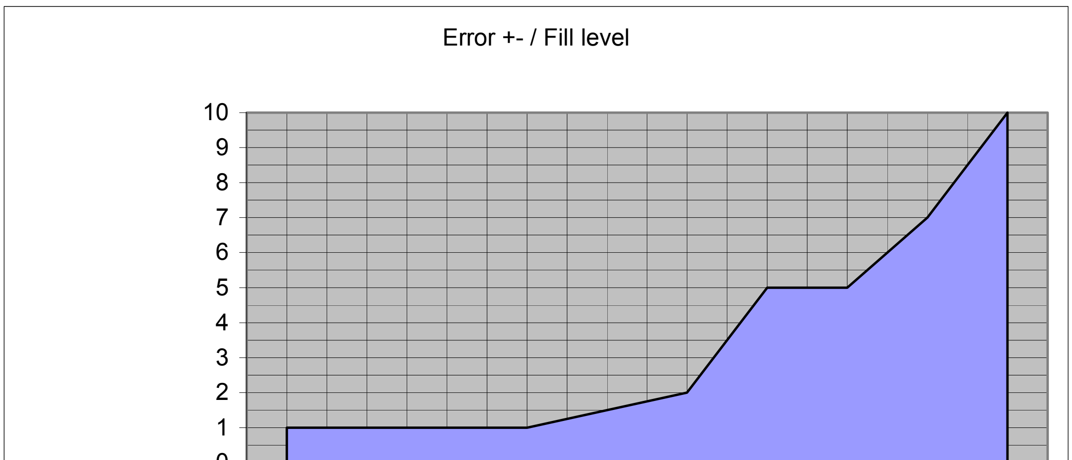
99.98%
97,0%
95,0%
90,0%
80,0%
70,0%
60,0%
50,0%
1,0% Argon

12. INSTRUMENT ACCURACY

These are set at:

100 - 90%	**±1%***
90 - 85%	**±1.5%***
85 - 80%	**±2%***
Below 80%	**Accuracy expected to be ±5% but not guaranteed**

Lowest measurable concentration is around 50%



	100	97	95	90	85	80	75	70	60	50
Error +- / Fill level	1	1	1	1	1,5	2	5	5	7	10

NOTE* The error shown in the diagram is a (+) error which means that the total +- error is the double of the actual reading.

NOTE** The calibration is made according to the set up described above, if measured window units varies from calibration description the manufacturer does not guarantee accuracy.
Please see document "CURVE REPRESENTATIONS" of to which IG units the instrument is calibrated to.

NOTE*** The manufacturer can make different calibrations upon request.

NOTE**** More accurate calibrations can be made upon request

13. PRE-CALIBRATIONS SETTINGS

Curve	Position 1	Spacer	Position 2	Named
Curve 0*	4 mm	12 mm	4mm Low-E	4Ar12
Curve 1*	4 mm	15 mm	4mm Low-E	4Ar15
Curve 2*	4 mm	20 mm	4mm Low-E	4Ar20

NOTE*
In many cases the instrument needs to be calibrated according to customers own requests and the curve settings might change because of this. To find out which IG units your instrument is calibrated to please see the "CURVE REPRESENTATIONS" document provided with your instrument and on the provided CD named "GG02/***SERIAL***_CURVES.pdf".

14. MISCELLANEOUS

The instrument is a sensitive measuring device and we recommend that it be handled **CAREFULLY**.

If there are improvements you feel could be made to the instrument, please let us know!

15. TECHNICAL SPECIFICATIONS

Overall dimensions:	440*350*170	mm
Weight:	8	kg
Operating conditions:	+10 - +35	°C
Main power supply:	100 - 240 50 - 60	VAC Hz
Power consumption:	60	VA
Output connectors:	RS232 Serial interface	
	Power cable 5,1	VDC
Fuses:		
Primary fuse:	Power board 2	F1 0,5A, 250V (5*20mm
Primary fuse:	Power supply	F1 1,25A, 250V (5*20mm
Secondary fuse:	PWB S 325.02.01.01	F1 3,125A, 250V (5*20mm
Display:	Compaq IPaq Colour display or LCD screen	
Keypads:	One button measurement (Calibration setting needed)	
Readout:	Argon concentration in percent	
Calibration:	Factory calibration to customer request	
Temperature:	0 - 40 C°	
Humidity:	0 - 90 % Non-condensing	
Accuracy:	100 - 90 % ±1% 90 - 85 % ±1,5% 85 - 80 % ±2% Below 80% Expected to be ±5% but not guaranteed	
Lowest measurable concentration:	50 %	
Software:	IPaq software; Standard Windows software; Standard	