



SPARKLIKE HANDHELD™ 3.0

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WARNING

- ▶ The instrument uses high voltage, therefore the device should NEVER be used near computers nor other sensitive electronic devices.
- ▶ Persons with heart conditions or who use pacemakers should not use this device.
- ▶ The high voltage discharge should never be directed at humans or at animals either directly or through a conductive material such as wires or metal structures.
- ▶ The Sparklike Handheld™ should NEVER be used to measure any flammable substances nor be used in any flammable environment. Also make sure that the insulating glass unit does not contain any flammable substances. (Such as Isopropanol, Alcohol, Acentone, Xylen, Thinner)
- ▶ The device should never be used in wet or in humid conditions.
- ▶ Never use the instrument while standing on unsteady surfaces.
- ▶ The device is a precision measuring instrument and should be handled accordingly. Please, handle the device with care.
- ▶ Always turn off the power when instrument is not in use.
- ▶ Keep fingers and other body parts clear of the high voltage area when using the device. Do not keep the device connected to your computer nor other electronic devices while performing measurements.
- ▶ Do not open the Sparklike Handheld casing. In such case calibration is void and no safety guarantee can be granted.
- ▶ Do not use any other battery charger than charger provided by the manufacturer.
- ▶ Do not use any other power source for the Sparklike Handheld than the battery provided with the device.

1. . DELIVERED WITH THE DEVICE

1. Sparklike Handheld™ device
2. Neck strap
3. Setup Guide
4. Calibration certificate
5. Battery
6. USB Cable
7. Battery charger and power cord
8. Protective cap
9. Protective hard case

Software, Drivers and Instruction manuals can be downloaded at sparklike.com/handheld

Delivered with the device



4. HOW TO USE ENCODER BUTTON

Press down to:

1. Enter MENU
2. Confirm a selection



Turn to:

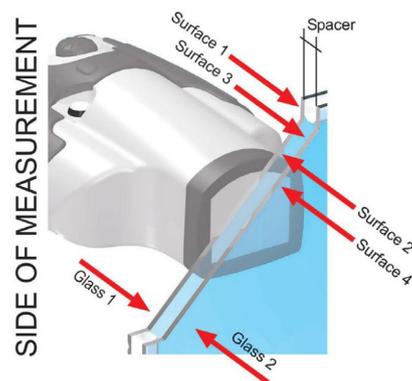
3. Scroll in the MENU
4. Name a log file



5. FACTORS TO CONSIDER WHEN MEASURING

To be able to use the instrument in the best way there are some factors influencing the measurement that should be considered. Sparklike Handheld requires two main things; LIGHT (Optics) and HIGH VOLTAGE (Electricity).

If either or both of these factors are disturbed, the measurement might be affected.



5.1 HIGH VOLTAGE

The measurement is made by using a high voltage spark. The voltage is approx. 50 000 V but the current is very small. The spark will sting a little if coming into contact, but not harm a normal healthy person. **The device MAY NOT to be used by a person with a pacemaker or who is in poor physical health.** Nor should the spark ever be pointed at any sensitive areas (eyes etc.).

When measuring, the device will create a spark that passes through Glass 1 and ignites inside the air space. Glass is an electrically insulating material, as is air. This means that the spark needs to be strong enough to jump the air gap. In addition to the other electrically insulated materials, such as laminated glass, plastic films, etc. on either side of Glass 1, this makes it even harder to ignite inside the IG.

If there is a metallic coating on Glass 1, it will be impossible for the spark to get through as the metallic film will cause the spark to stay on the surface. Argon gas is a better conductor for the spark than air. This means that the spark actually ignites easier when the fill level is higher. The other thing that helps the spark "jump" is a metallic coating on Glass2, which grounds the spark.

NOTE: NO SPARK DETECTED. Check that spark hits through the window.



5.2 LIGHT

The measurement is dependent on a stable light signal. The light can not be measured if the total light level is too weak or too strong. The total light intensity increases with the background light level as well as with increasing argon percent when measured. If the background light is too strong, e.g. measuring against the sun or a bright lamp, the argon light will “drown” in the sunlight. If the argon concentration is very low, the signal light is very low causing the spectrometer not to see the light.

5.3 OBSERVE WHEN MEASURING

Factors affecting the optics:

- Coloured glass
- Tinted glass (minimal effect)
- Strong background light (Against the sun or other source)
- Dirt on glass (minimal effect)
- Dirt on the front optical fibre
- Damaged front optical fibre or electrode

Factors affecting the spark:

- Thick glass (over 6 mm)
- Plastic films on Glass 1 (Laminated glass, coatings, etc.)
- Metallic films on Glass 1
- Metallic components in Glass 1
- Low Argon fill (Less than 80%)
- Wide spacer (over 20mm)
- Electrode is not in contact with the glass surface
- Sparklike Handheld is not evenly pressed against the glass.
- Non-metallic spacers

Correct conditions:

- Stable dark background light
- Hand unit NOT moved during measurement

Factors making it easier for the Spark to “jump”:

- High argon fills
- Thin glass (6mm or less)
- Thin air space (20mm or less)
- Metallic or other conductor on surface 3, such as low-e coating
- Metallic spacer bar



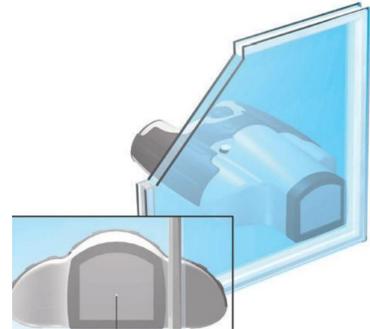
6. HOW TO PERFORM A MEASUREMENT

As described above there are different factors that may affect the measurement result. Sparklike has done extensive research on how to obtain the best possible results when measuring with Sparklike Handheld.

The following procedures are recommended when measuring with Sparklike Handheld.

Measure close to the spacer

As the spacer bar of an IG unit is often metallic or contains metal, the spacer bar will help the spark to ignite. It is therefore suggested that the measurement is made close to the spacer. The centre of Sparklike Handheld should be approx. 5cm (2") from the inner side of the spacer (Approx. 10mm from the side of the front piece). There is no difference at which height of the IG it is measured.



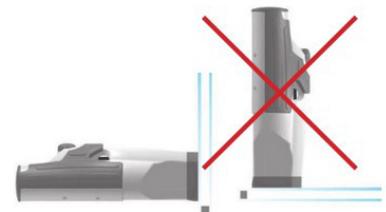
Measure several times: "Because you can"

When measuring the spark will ignite inside the air space ionizing the gases, leaving the gases ionized for a short period of time. This means that the second measurement will ignite easier and producing a better result. Measuring more than three times on one place may cause the Low-E coating to burn changing the readout of Sparklike Handheld. For repetitive measurements, move the hand unit slightly after two or three measurements.

- 1) Ar = 92,2 %
- 2) Ar = 92,4 %
- 3) Ar = **82,5 %**
- 4) Ar = 92,7 %
- 5) Ar = 92,1 %

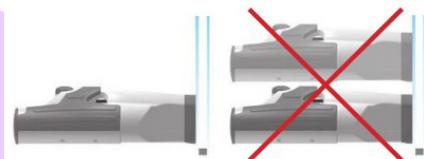
Keep the IG upright

Due to the earth's magnetic field and the ionization of the gasses, the spark will try to "travel up" during the measurement. This causes the spark to act more erratically than if the IG would be laying flat down. In this way the Low-E is protected better from burning so it is suggested to measure the IG standing up.



Do not move the hand unit during ONE single measurement

During one measurement cycle two individual measurements are being made; one background measurement and one with the spark on. If the hand unit is being moved during the measurement cycle, the background is altered and the results may not be accurate.

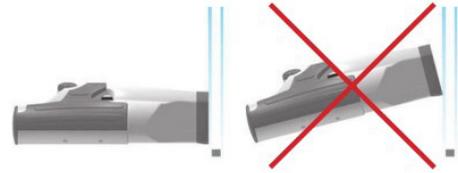


Keep the hand unit flush to the IG unit

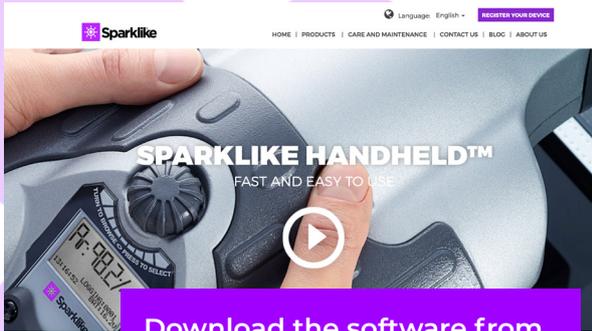
If there is space between the spark electrode and the surface of the glass, a big part of the spark burst will occur outside of the IG unit. This means that the instrument is not measuring the spark inside the window but a mix of the inside gas and normal air causing the readings to be too low. The user can easily hear when the hand unit is flush to the IG.

Non Low-E IG units

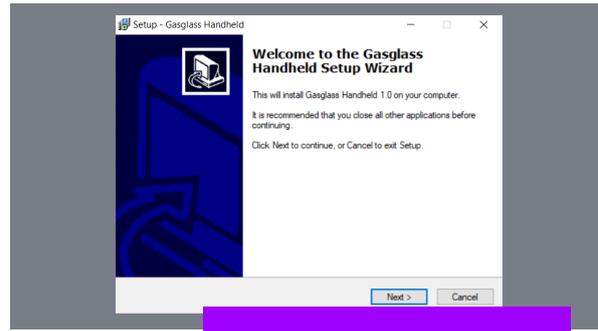
As the LoW-E coating is metallic, this will act as a ground for the spark. This grounding is being used when the instrument is calibrated. If the window has no Low-E coating, there is no ground to where the spark will ignite producing more erratic readings. These windows should be measured with either a finger on the back of the IG or some other metallic ground for the spark.



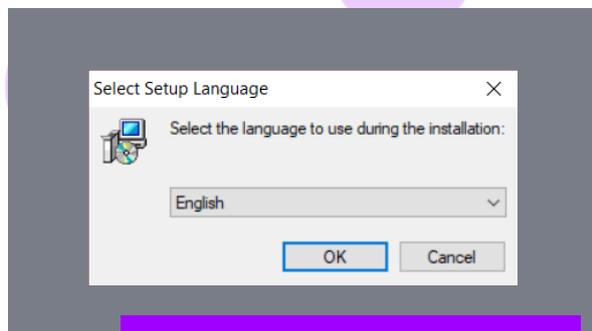
7. INSTALLING THE SOFTWARE



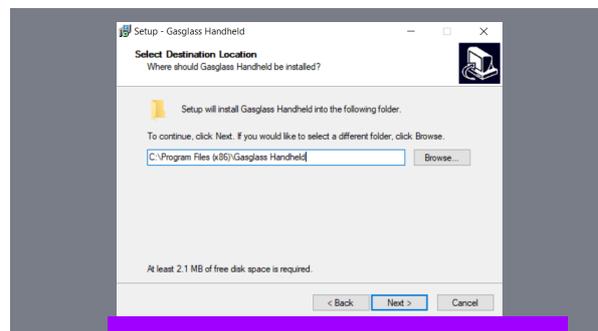
Download the software from sparklike.com/handheld



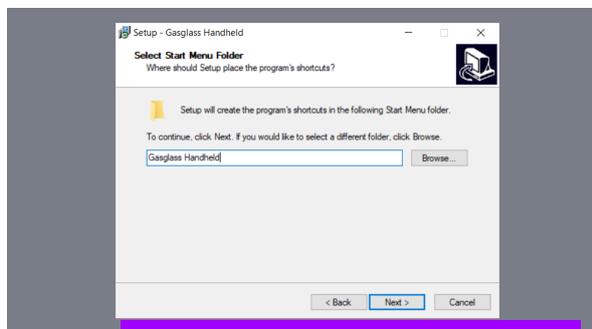
Install wizard start up



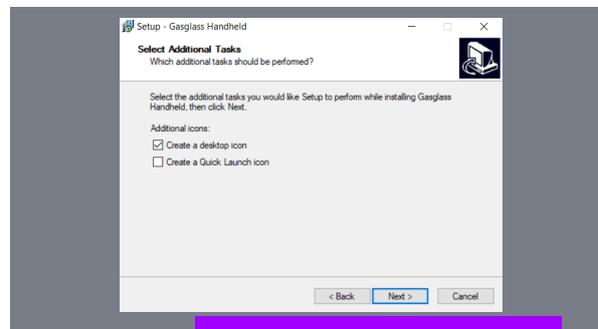
Select language for the installation



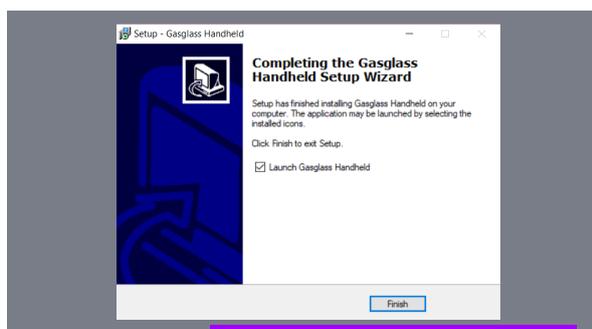
Select directory where software files are to be installed



Select the name of the start up folder



Select additional tasks



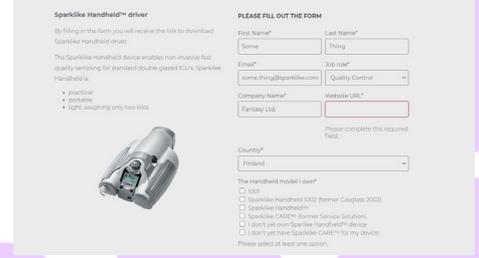
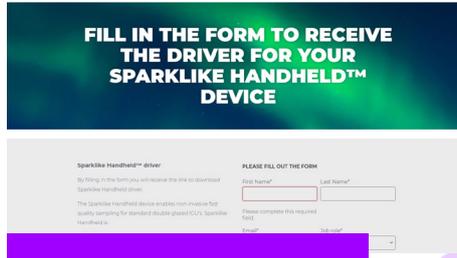
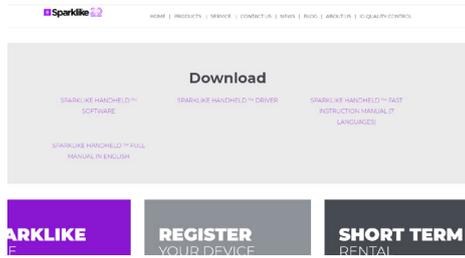
Installation completed

NOTE: The appearance of the Windows will vary according to your computer.

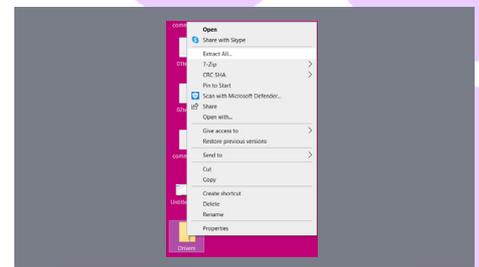
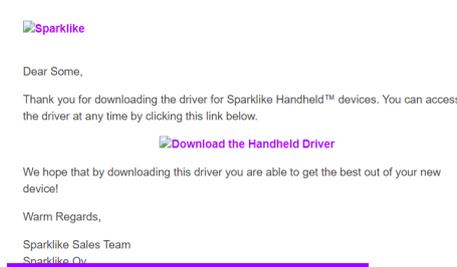


8. INSTALLING THE USB DRIVERS

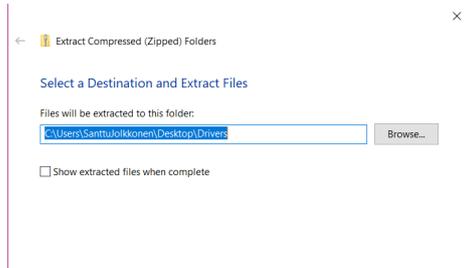
Handheld™ drivers should install automatically in couple of minutes, when you connect Handheld to a PC with Windows10+ and internet connection. If you have older Windows version, you can download the driver from Sparklike's website:



Download the driver installation folder

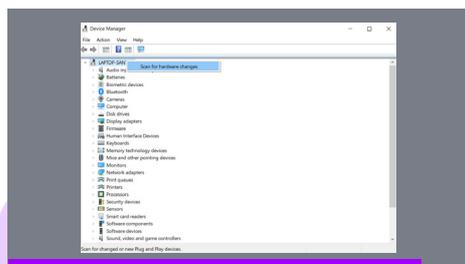


Unpack the folder

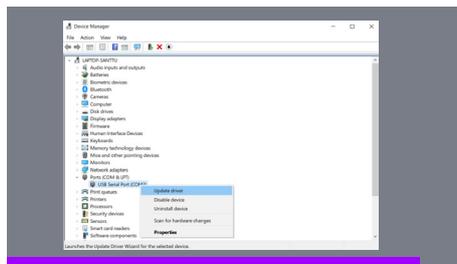


If your PC asks the location of the driver, give the unpacked driver folder location

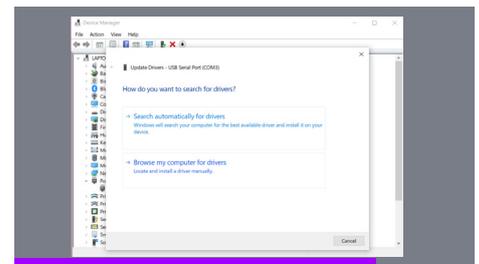
Connect Handheld to a PC with USB cable



If your PC doesn't ask about the driver, open the Device Manager, and select 'Scan for hardware changes'



Once you get the new connection to the Device Manager's list, right click the connection, and select 'Update Driver Software'



Follow the installer instructions



9. HOW TO CONNECT TO YOUR COMPUTER

The software for Sparklike Handheld™ can be downloaded at sparklike.com/handheld

Please make sure that all needed software and drivers are installed before attempting to connect Sparklike Handheld™ with your computer.

1. Connect the provided USB cable to the USB socket in Sparklike Handheld™. Connect the provided USB cable to your computer.
2. Start up Sparklike Handheld™.
3. Enable the connection between your computer and Sparklike Handheld from the device by selecting "PC connection".
4. Start the software.
5. Press the "Read Datalogs"

1.



2.



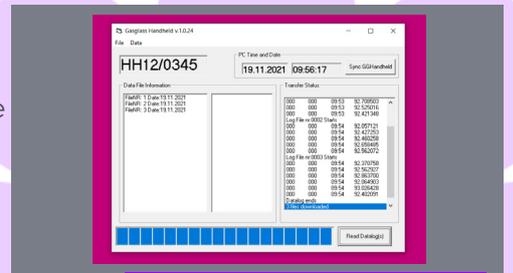
3.



4.



5.



Software window after a successful download

Gasglass Handheld v.1.0.24

File Data

- Copy Current Log
- Copy All Logs

Copies all log files to clipboard

Gasglass Handheld v.1.0.24

File Data

- Copy Current Log
- Copy All Logs

Copies selected log files to clipboard

Sparklike Handheld serial number → HH12/0345

Downloaded log files →

Information from selected log file →

PC Time and Date: 19.11.2021 09:56:17 Sync GGH

Syncs and updates time and date on Sparklike Handheld

Shows all transferred data

Retrieves all logs from Sparklike Handheld → Read Datalogs

Status of transfer



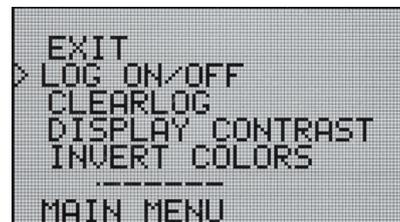
10. USING THE SCREEN

1. When the ON/OFF button is switched ON, Sparklike Handheld™ will perform a self test where it checks itself for errors.
2. The screen will automatically change when all is tested OK
3. The first fixed screen after start up is a device information screen.
4. This screen will be important when communicating with the manufacturer.
5. The information screen shows:
 - ▶ Revision of the device
 - ▶ Last calibration date
 - ▶ Calibration status: "CALIBRATION VALID", "CALIBRATION SOON" or "CALIBRATION EXPIRED"
 - ▶ Current time
 - ▶ Battery charge status
6. Device is now ready to use
7. When the button is pressed for the first time after start up, the measurement result will show.
8. The current time and battery charge status can be seen on the screen.
9. It will also indicate that the measurement has not been logged. (see: How to create a log file)



11. HOW TO CREATE A LOG FILE

1. From the main menu, scroll by turning the encoder button, to the LOG ON/OFF menu.
2. Select this by pressing the encoder button once.
3. The next screen shows that the logging is to be started.
4. The device will suggest the following free log name (number) available. If the suggested number is OK, simply press the encoder button to confirm.
5. By turning the encoder button the number of the log file can be changed. One click will increase or decrease the number with one.
6. When measuring a text is displayed showing that the logging mode is on and it will also display the log file number.



12. HOW TO ERASE THE LAST LOGGED FILE

When the log mode is on and a measurement has been taken but the operator feels that the measurement was an error measurement, it is possible to erase this measurement. This is done to prevent faulty log files on your computer.

If the measurement is not satisfying:

1. From the main menu, scroll by turning the encoder button, to the "CLEAR LOG" menu.
2. The log value will be deleted permanently.

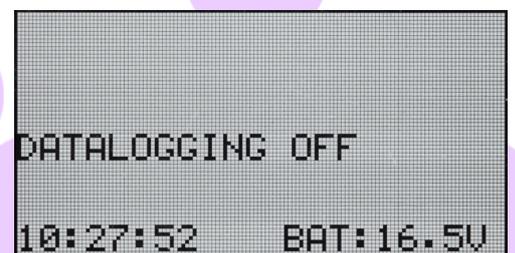
Sparklike Handheld™ log data can be downloaded to your computer. In order to do this, Sparklike Handheld™ has to open its communication port to your computer. This is performed before enabling the connection from the computer.



13. HOW TO TURN OFF THE LOG MODE

1. From the main menu scroll, by turning the encoder button, to the LOG ON/OFF menu.
2. Select this by pressing the encoder button once.
3. A screen will display that the log mode has been turned off.
4. When measuring, a text is displayed that the measurements have not been logged.
5. To create a new log file with a new name, repeat procedure explained in chapter 10.

NOTE: When Sparklike Handheld™ is connected to a computer and the log files have been retrieved, the log memory will be deleted from Sparklike Handheld™ device. This is the only way of emptying the memory and should be done every now and then to prevent the memory from overflowing.



14. ENABLING THE CONNECTION WITH YOUR COMPUTER

Sparklike Handheld™ log data can be downloaded to your computer. In order to do this, Sparklike Handheld™ has to open its communication port to your computer. This is performed before enabling the connection from the computer.

1. From the main menu scroll, by turning the encoder button to the PC-CONNECT menu
2. Select by pressing the encoder button once.
3. A screen will display that the PC communication is enabled.
4. Sparklike Handheld™ is open for communication with the PC.

```
DISPLAY CONTRAST
INVERT COLORS
GASTYPE
> PC-CONNECT
SETUP MENU...
-----
MAIN MENU
```

```
PC-COMMUNICATION
ENABLED
```

15. INFORMATION DISPLAY

You can retrieve the device serial number and calibration information through SETUP >> INFO.

```
FIRMWARE: U. 3.0.2
SERIAL: HH12/0345
AR: INT:150 DEL 500
CALDATE:11:11:2021
CALIBRATE SOON
TODAY:11:10:2022
NOT LOGGING
10:43:17 BAT:16.4V
```

```
EXIT
SET TIME
SENSOR TEST
> INFO
-----
SETUP MENU
```

16. INVERTING THE COLORS OF THE DISPLAY

The colors of the display can be inverted, so that there is either black text on the white background, or vice versa. To change the color settings, click the encoder button to access the encoder menu. Rotate the

encoder button to select the INVERT COLORS, and click the encoder button to confirm the selection. Handheld needs to be restarted for the change to take effect.

```
CLEARLOG
DISPLAY CONTRAST
> INVERT COLORS
GASTYPE
PC-CONNECT
-----
MAIN MENU
```

```
COLORS INVERTED
PRESS SELECT
10:46:56 BAT:16.4V
```

```
COLORS INVERTED
PRESS SELECT
10:44:18 BAT:16.5V
```



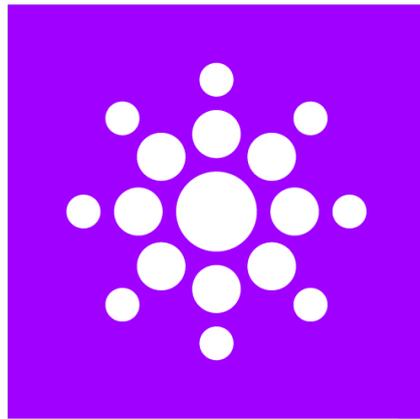
17. TECHNICAL SPECIFICATION

Overall Dimensions	Main unit	285 x 190 x 100 mm
Main Power Supply	16.8 V Li-ion Battery 2.0Ah	
Weight	The device	1.6 kg
	Canvas case	0.84 kg
	Protective hard case (option)	2.8 kg
Operating conditions	5 – 35 °C	
Humidity	10–90%	R.H. (Non-Condensing)
Measurement time	2 s	
Min/max glass thickness	2-6 mm	
Min/max cavity dimension	6-20 mm	
Connections	USB and Battery Charger	
Display	OLED 128×64 Pixel Display	
Software	Custom GGHandheld by Sparklike	
Data logging capability	1900 measurements, Windows10+ PC for data transfer	

* Typical construction of the insulating glass unit

** At least 30 measurements are needed that 95 % confidence interval is valid





Sparklike®

It is recommended to have your device calibrated yearly to maintain accurate readings. **GED offers Sparklike Handheld™ calibration service at the GED Sparklike Calibration Lab.**

Contact the GED Sparklike Calibration Lab at 440-600-8534 or sparklike@gedusa.com.

More information about GED calibration service at:

<https://gedusa.com/glass-fabrication-systems/sparklike/>

Scan the QR-code for further instructions and support

sparklike.com/guidance/hh



Sparklike

CONTACT YOUR LOCAL DISTRIBUTOR:

www.sparklike.com/en/contact-us

CONTACT US:

sales@sparklike.com

Sparklike Oy
Helsinki, Finland

12/2022

