

# Gemometrics

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## About this user guide

Thank you for purchasing GemPen® by Gemometrics, your screening tool in your pocket. This user guide aims to describe all necessities in terms of how to use your GemPen® accurately and taking care of it, all in line with its requirements. Please read the following instructions carefully, keep them handy for future reference and keep yourself updated by visiting our instructional GemPen® usage resources on [www.gemometrics.com/gempen-academy/](http://www.gemometrics.com/gempen-academy/)

**IMPORTANT NOTE** This user guide also contains the terms and conditions in relation to the use of the device including the Disclaimer, EXCLUSION and Limitation of Liability clauses stated on page 8.

## Read before usage

GemPen® is designed for professional users and only trained and authorized personnel are permitted to operate, service and maintain the products. The users must be specifically informed about the possible hazards. The product and its ancillary equipment can present hazards if used incorrectly by untrained personnel or if used not in accordance with this manual.

Carefully read all safety instructions and other instructions provided by the manufacturer. Failure to observe the safety instructions and other instructions may result in electric shock, incineration and/or serious injury. Retain all safety precautions and instructions for future reference.

Always stay updated by consulting [www.gemometrics.com](http://www.gemometrics.com) on a daily basis for updated instructions on how to properly use GemPen®.

## Importance notice

- Do not attempt to open and/or tamper with GemPen® in any other way than instructed in this user guide.
- Tampering or attempting to open GemPen® will void any claims and/or guarantees towards the manufacturer. Any eventual electrical discharges caused by tampering or opening GemPen® is at the user's own risk and is not the responsibility of the manufacturer.
- Do not drop, shake or throw GemPen®. Handling GemPen® rough might inflict damage to internal components.
- Do not use strong detergents or harsh chemicals to clean GemPen®.
- Do not paint GemPen®. Paint can hinder the moving parts to function properly.
- Stay alert at all times, watch what you are doing and use common sense when operating GemPen®.
- Do not remove information and warning notices.
- Keep GemPen® out of reach of children.
- Only let authorized personnel repair GemPen®.
- Always take into account the surrounding area and do not use GemPen® if there is a risk of explosion or fire.
- Treat GemPen® with care.
- If used in damp conditions, make sure to wipe it dry after use.
- Do not submerge GemPen® in water as this may damage the electronics and impair the proper functioning.
- Turn your GemPen® OFF when changing between filters.
- Make sure to check the condition of GemPen® before using it.
- Store GemPen® under normal conditions.
- Do not expose to high temperatures, direct heat of the sun and keep away from fire as overexposure to heat may stop GemPen® from functioning. Once under normal temperature again GemPen® should function properly, otherwise contact the manufacturer.
- Recharge only with enclosed cable provided by manufacturer and use a CE-marked USB charger.
- Not recommended to charge through computer or laptop.
- Do not attempt to remove the fixed lens; if any part of GemPen® is damaged, including the glass or fixed lens, immediately stop using GemPen® and contact the manufacturer as per below.
- Kindly contact email [info@gemometrics.com](mailto:info@gemometrics.com) if the device is not working properly.
- If GemPen® is damaged contact manufacturer for returning the faulty device. No service is done on GemPen® since there are no serviceable parts.

## Warranty

Please consult our website regarding any eventual warranty claims. The Gemometrics One-Year Limited Warranty is a voluntary manufacturer's warranty. It provides rights separate to rights provided by consumer law, including but not limited to those relating to non-conforming goods. As such, the Gemometrics One-Year Limited Warranty benefits are in addition to, and not instead of, rights provided by consumer law and it does not exclude, limit or suspend a buyer's rights arising from consumer law. Consumers have the right to choose whether to claim service under the Gemometrics One-Year Limited Warranty or under their consumer law rights. Important: The Gemometrics One-Year Limited Warranty terms and conditions shall not apply to consumer law claims. For further information about consumer law, please visit the Gemometrics website or contact your local consumer organisation.

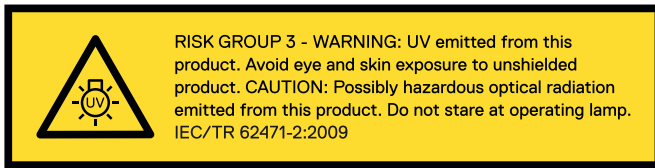
For any other inquiries regarding GemPen®, kindly contact [info@gemometrics.com](mailto:info@gemometrics.com).

To claim your Warranty, you will need to provide a copy of the invoice with proof of date of purchase, as the Warranty only applies within One-Year of original purchase date.

Register your Warranty on-line by inserting your unique Product reference number (starting with GPX) which you will find on GemPen® as illustrated in figure 7 on page 14. Enter only the numbers found after GPX when registering your GemPen®.

Please consult [www.gemometrics.com](http://www.gemometrics.com) for further instructions.

## WARNING UV



### For service providers

GemPen® must be turned off when service is performed. Please take note of the paragraph regarding the dangers with UV light stated to the left.

Ultraviolet Xenon Radiation. Do NOT expose to unprotected eyes or skin. GemPen® emits UV Xenon light when switched on. The light source in GemPen® emits invisible UV (ultraviolet) radiation which may be harmful to eyes and skin, even when used for a short period of time. Beware of the harmful effects of UV radiation, the user and all persons in the vicinity should always wear “UV-B” safety glasses and gloves to protect eyes and skin.



GemPen® conforms to the safety, health, and environmental protection requirements of the European Economic Area (EEA).



The symbol above means that according to local laws and regulations your product and/or its battery shall be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. The separate collection and recycling of your product and/or its battery at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

## Disclaimers, Exclusions and Limitations of Liability

GemPen® is a handheld device for screening gemstones. The device emits UV-light that can permanently damage your, or a nearby person's, skin or eyes and in severe cases result in malign melanoma. By using this product, you agree and warrant that the device is only to be used by professional users, handled in compliance with the instructions in this manual and only used as a supplement to the user's professional knowledge in analyzing gemstones. Furthermore, you warrant that you understand and agree to be aware of that the surroundings, user operation and other factors may influence the results of GemPen® and will therefore only use the results as an indication of the properties of the gemstone and never base a commercial decision on the results of the device.

THE MANUFACTURER EXPLICITLY DISCLAIMS ANY AND ALL LIABILITY, INCLUDING IMPLIED WARRANTIES OF ANY KIND, REGARDING COMMERCIAL DECISIONS BASED IN WHOLE OR IN PART OF THE RESULTS OF GEMPEN®, USAGE OF THE GEMPEN® IN NON-COMPLIANCE WITH THIS MANUAL, ANY MISUSAGE, IMPROPER USE, ALTERATIONS, MODIFICATIONS OR TAMPERING WITH THE DEVICE, IMPROPER MAINTENANCE OR STORAGE, IMPROPER OR CARELESS HANDLING OR DEFECTS RESULTING FROM NORMAL TEAR AND WEAR OF THE PRODUCT. THE MANUFACTURER EXPLICITLY DISCLAIMS ANY AND ALL LIABILITY FOR ANY USAGE THAT EXPOSES A USER, ANY PERSON NEARBY OR OTHERWISE LIVING CREATURE, TO UV-RADIATION.



## About your GemPen® by Gemometrics

Founded in 2015, with the vision to “Assure safe global trading of Gemstones”, Gemometrics provide solutions for the entire gemstone value chain – from mine to end-client.

Gemometrics AB is based in Luleå in northern Sweden and works closely with several reputable Universities and institutions.

The GemPen® provides professional users with the means to efficiently determine indications whether a diamond, ruby or sapphire is natural, synthetic (man-made) or treated (visually improved to increase the value). The tool is portable, durable and gives instant results. GemPen® is used to screen gemstones.

### GemPen® Capabilities

- Can distinguish natural from synthetic gemstones
- Can identify treatment of gemstones

### Factors which could affect the accuracy of the readings

- Unidentified stones (Should only be diamonds, rubies and sapphires)
- Outdoor or indoor light – the darker the better
- The user's interpretation of the fluorescence

### Functions GemPen®

- Power switch (On/Off)
- UV Xenon Light source
- Lithium battery (LiPo 18650) embedded in non-conductive material to prevent electrical discharges.
- GemPen® Aluminum Casing.
- Filters for diamonds, rubies and sapphires.
- USB-C port.

### Specifications GemPen®

Length: 240 mm  
Width: 36 mm  
Height: 32 mm  
Weight: 405 g  
Power: 2,5 W / 3300 mAh  
Battery: 12 Wh  
Operational temperature: -10° C to + 35° C  
Charging temperature: 0° C to + 45° C  
Maximum 95 % humidity non condensing  
IP 54  
EMC: EN 61000-6-3:2007/A1:2011  
EMC: EN 55022:2010 class A/B

### Specifications GemPen® Travel Case

Length – 252 mm  
Width – 55 mm  
Height – 40 mm  
Weight without GemPen®: 130 g  
Weight with GemPen®: 535 g

### Specifications Filter Casing

Length – 56 mm  
Width – 55 mm  
Height – 40 mm  
Weight without filters: 35 g  
Weight with filters: 85 g

### Specification of GemPen® LED Indicator Colors

Off / No light  
On / White (constant)  
Charging <50% / Orange (blinking)  
Charging >50% / Green (blinking)  
Fully charged (charger mounted) / Green (cons)  
Battery level medium / Orange (constant)  
Battery level low / Red (blinking)  
Safety timer (after 1 minute) / White (blinking)  
Service needed / Red (constant)

## Included in your package

- GemPen® unit + Filter no. 1
- GemPen® Travel Case
- Filter no. 2 / no. 3 / no. 4
- Filter Case
- USB Cable
- User Guide

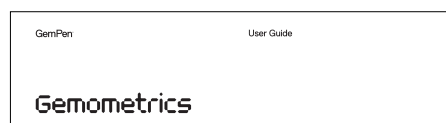
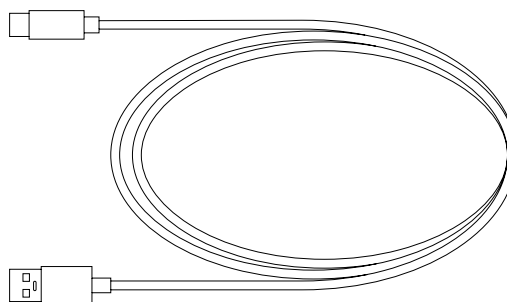
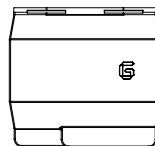
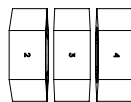
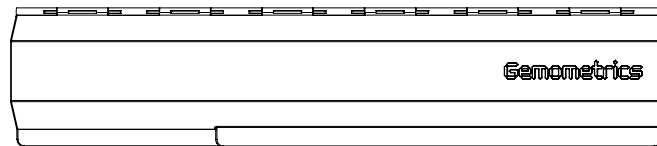


Figure 1

# Getting started

## Powering up GemPen®

GemPen® is charged using the enclosed cable, connected to a USB port. Please use a CE-marked charging source, 5V 1A.

Charge by inserting the provided standard USB cable to the port located at the side of GemPen® as shown in figure 2. Connect the adapter into an external power socket.

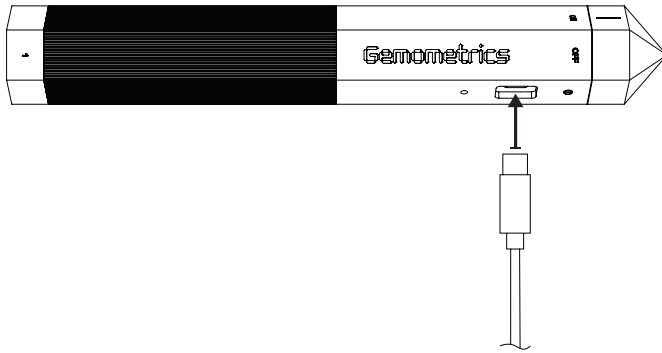


Figure 2

## Switching on and off your device

To switch on your GemPen®, turn the knob one click clockwise (60°) as illustrated in the figure 3. A white light will begin to shine indicating that GemPen® is turned on. To switch off GemPen® turn the knob one click in the opposite direction as illustrated in figure 4.

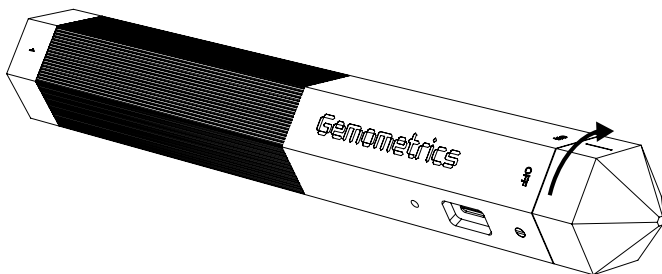


Figure 3

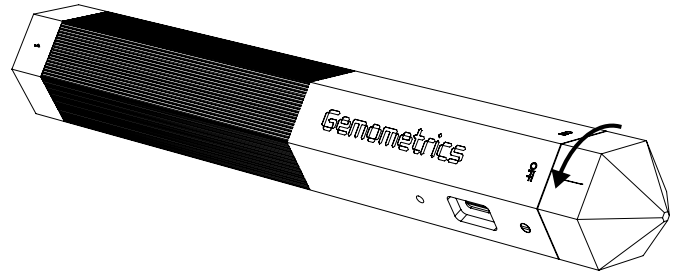


Figure 4

## Auto off

To ensure that GemPen® conserves energy and to avoid potential damages, the device will automatically turn off within 1 minutes after turned on.

## Battery indicator

When the battery is too low to function properly, the LED indicator will blink red. GemPen® is fully charged when the LED indicator shows the constant color of green. Recharge only with enclosed cable provided by manufacturer and use a CE-marked USB charger. Not recommended to charge through computer or laptop.

## Battery Information

Internal rechargeable standard lithium-ion battery 18650. Don't attempt to replace the GemPen® battery yourself—you may damage the battery, which could cause overheating, fire, and injury. The lithium-ion battery in your GemPen® should be serviced or recycled by Gemometrics, and must be recycled or disposed of separately from household waste. Dispose of batteries according to your local environmental laws and guidelines.

## Operational environment

GemPen® can be operated in temperatures ranging from -10° C to + 50° C and in a maximum of 95% humidity non condensing. GemPen® can be charged in temperatures ranging from 0° C to +45° C.

## Performing a screening

Connect a filter to GemPen® as illustrated in figure 5.

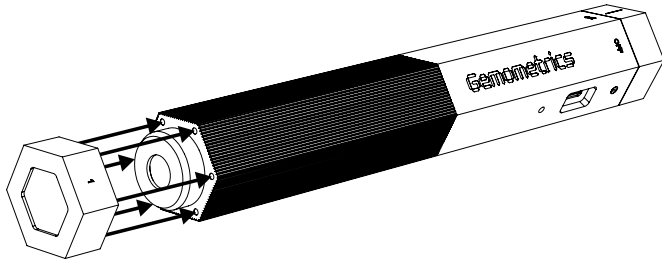


Figure 5

Rotate GemPen® and examine the LED indicator next to the USB-C port on the unit. If it glows in the color of white the unit can be used for screening gemstones. After GemPen® is switched on, hold and point GemPen® towards your gemstone. The filter glass should be within 30-50 mm from the gemstone. It is highly recommended to place your gemstone in the GemPen® Travel Case before switching GemPen® on. Depending on the position of the gemstone you may want to twist and tilt GemPen® for a more accurate result. When conducting a screening, it should look like the illustration in figure 6.

On [www.gemometrics.com](http://www.gemometrics.com) you will find the Gemstone Map and the Test Trees which could be used as a reference to validate your gemstones.

Please apply the right filter while validating a gemstone.

Turn your GemPen® OFF when changing between filters

In case the filters are damaged, please order new on our website [www.gemometrics.com](http://www.gemometrics.com).

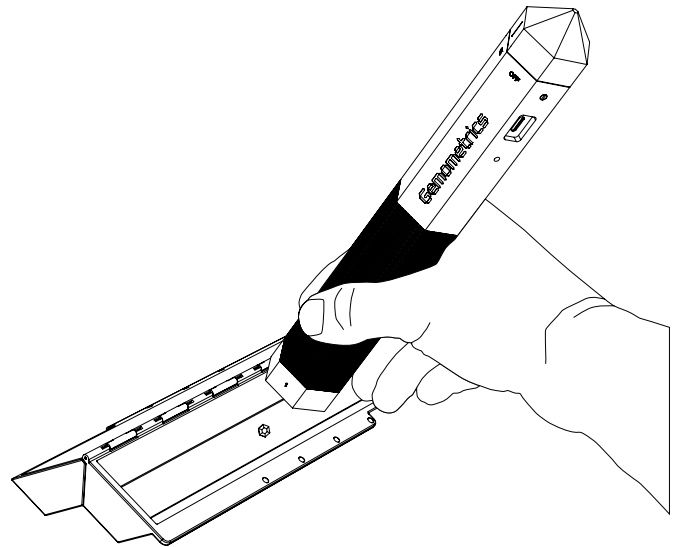


Figure 6

### Important notes

- It is necessary to conduct prior tests to ascertain the type of stone that is screened.
- To increase accuracy, it is recommended to use the GemPen® Travel Case as shown in the illustration in figure 6.
- Do not use GemPen® when the power indicates a red light, as it will yield inaccurate results.
- All results are indicative, refer to a lab for further testing if required.

## Interpreting results

After GemPen® is turned on and directed towards a gemstone a fluorescing effect may occur in the gemstone.

The darker the light environment, the better fluorescence and phosphorescence can be observed.

By analyzing this effect, certain conclusions can be deducted. All results are indicative, refer to a lab for further testing if required. Please consult GemPen® Academy where the following information can be found:

### **GemPen® Gemstone Map**

- Utilizing a proprietary map for gemstone validation and comparison.

### **GemPen® Test Trees**

- Compilation of results screening diamonds.

### **Fluorescence Map**

### **Video Tutorials**

### **Q & A**

## Taking care of GemPen®

GemPen® should be handled with care. Always cover it and place it whenever possible in the GemPen® Travel Case. Caution should be taken to prevent damage to yourself or the device.

Thank you for going through the user guide, which will help you understand GemPen® better.

Register your Warranty on-line by inserting your unique Product reference number (starting with GPX) which you will find on GemPen® as illustrated in figure 7 on page 14. Enter only the numbers found after GPX when registering your GemPen®.

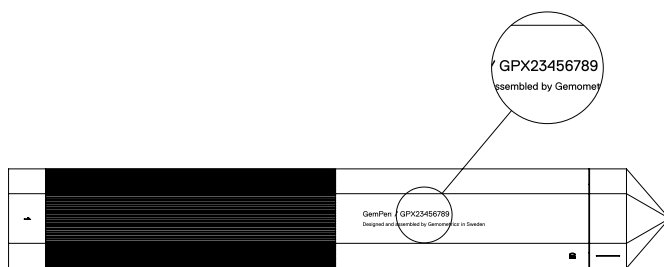


Figure 7

Gemometrics Service Center  
c/o HW4IT  
Handelsvägen 19  
973 45 Luleå  
SWEDEN

Please visit [www.gemometrics.com](http://www.gemometrics.com) to get in touch with a reseller in your country. All other countries, please contact [info@gemometrics.com](mailto:info@gemometrics.com)

### Register your GemPen®

For more information and to register your GemPen®, visit [www.gemometrics.com](http://www.gemometrics.com).