

# Contents

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## English Version

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## **I. Disclaimers, Exclusions and Limitations of Liability**

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PLEASE READ AND NOTE PRESIDIUM WARRANTY TERMS AND CONDITIONS as stated in the warranty card. Presidium warranty for its testers are subject to proper use by its users in accordance with all the terms and conditions as stated in the relevant user handbook and shall cover only manufacturing defects.

In pursuing continuous product improvement and enhancements, Presidium reserves the right to revise the product software data, including the Presidium Gem Indicator thermal conductivity and color charts, and firmware.

Presidium shall not be responsible for any damage or loss resulting from the use of this tester or handbook, and under no circumstances shall Presidium, its manufacturer or any of its subsidiaries, licensors, distributors, reseller, servant and/or agent be liable for any direct or indirect damages, resulting from the use of this tester.

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, under no circumstances shall Presidium, its manufacturer or any of its subsidiaries, licensors, distributors, reseller, servant and/or agent be responsible for any special, incidental, consequential or indirect damages howsoever caused.

The tester or Presidium Gem Indicator (PGI) referred to in this handbook is provided and/or sold on an “as is” basis. Except as required by applicable law, no warranties of any kind, either expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

## II. About this book

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Thank you for purchasing the Presidium` Gem Indicator (“PGI” or “tester” or “unit”).

This handbook is designed to help you set up your tester and describes all you need to know about how to use your tester accurately and take care of it in line with its requirements. Please read these instructions carefully and keep them handy for future reference.

This book also contains the terms and conditions in relation to the use of the tester including the **Disclaimer, EXCLUSION and Limitation of Liability clauses stated above in section I.**

### III. About your Presidium Gem Indicator (PGI)

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The Presidium Gem Indicator is an enhanced and more convenient handheld version of the Presidium Gem Tester/Colored Stone Estimator based on the invention of Professor Julian Goldsmid from the University of New South Wales in Australia. It was developed to distinguish between diamonds and other colored gemstones using the principles of thermal conductivity.

Most colored gemstones have their individual color and distinguishable heat conductivity properties, with diamonds having the most exceptional heat conductivity. The Presidium Gem Indicator probe consists of two linked thermometers: one, which is heated electronically, while the other is cooled by the gemstone being tested. The difference in temperature creates an electrical output, which is then amplified and displayed on the new digital organic LED (OLED) display.

The Presidium Gem Indicator is further able to give indication about the possible colored gemstone through its color separation capability. As some colored gemstones have similar thermal conductivity, the addition of the color separation feature will thus be able to give a more definitive indication about the type of colored gemstone.

With this, the Presidium Gem Indicator is now capable of identifying a wider range of up to 31 gemstones compared to the previous desktop Presidium Gemstone Tester/Colored Stone Estimator.

It is to be noted that PGI still does not distinguish between natural and synthetic gemstones, including diamonds against moissanites, as they have similar physical properties (thermal conductivity and color).

The Presidium Gem Indicator has been subjected to thorough factory quality control, and will generally give a clear and reliable reading of the gemstone being tested under proper use. However, you are advised to conduct further supporting tests.

**The Presidium Gem Indicator (PGI) features the following:**

- Thermal conductivity testing of gemstones
- Color separation function with user input
- Clear quality OLED display screen
- Industry's thinnest probe tip (0.45mm) for testing gemstones as small as 0.02ct
- Retractable thermoelectric tip that maintains constant pressure between probe tip and gemstone
- Patented replaceable probe tip technology, the first in the industry
- Metal alert buzzer
- Fast warm-up time of 3 seconds
- Calibration disk for calibration at user's discretion, to ascertain accuracy
- Stylish ergonomic design
- Low battery alert
- Automatic power off after 10 minutes of inactivity

### **Functions of your Presidium Gem Indicator**

Your Presidium Gem Indicator has 3 functional options on the main screen menu as follows:

Test  
Settings  
Calibrate

You may toggle between these options using the "Up" and "Down" buttons. To activate a function, press "Select" when the navigation arrow on screen points to the function.

The rest of this handbook will give further information on how to use the various functions.

## Included in your package:

- Presidium Gem Indicator
- 2 pieces of Built-in Calibration disks – Disk 1 (Gray) and Disk 2 (Black)
- USB cable
- Quick Guide
- QR Code Card
- Protective carrying case

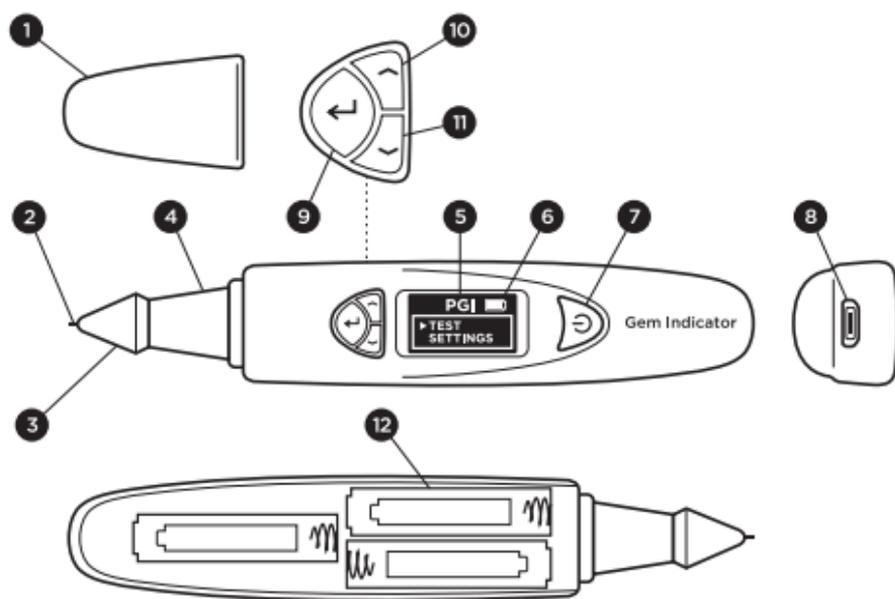


Fig. 1

1	Protective Cap
2	Retractable Probe
3	Replaceable Probe Tip
4	360° Textured Metal Plated Ergonomic Grip
5	Display Screen with OLED Illumination
6	Battery Lifespan Indicator
7	On/Off Button
8	USB Inlet
9	“Select” Button
10	Navigation “Up” Button
11	Navigation “Down” Button
12	Battery Compartment (beneath the lid with Presidium wording)

## 1. GETTING STARTED with your Presidium Gem Indicator

### Powering up your PGI

This tester can be powered either through electrical power via the Presidium Universal USB Adaptor (not included in your package) or through the use of batteries.

If electrical power is preferred, please ensure that only the Presidium Universal USB Adaptor is used.

Connect one end of the USB cable provided to the Universal USB Adaptor and the other end to the USB inlet on the unit (Fig.1.1).

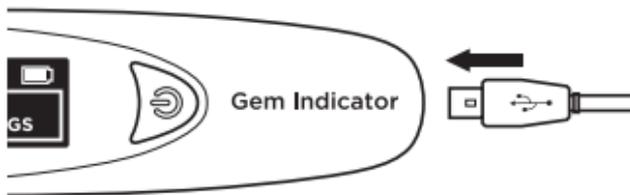


Fig. 1.1

If batteries are preferred, please use 3x AAA batteries. The use of alkaline batteries is recommended as it should generally give approximately 3 hours of continuous operation, while the use of ordinary batteries will give a shorter operating life.

Remove the battery cover lid on the side of the tester. This is the side of the tester with the Presidium logo wording on the top (Fig 1.2).

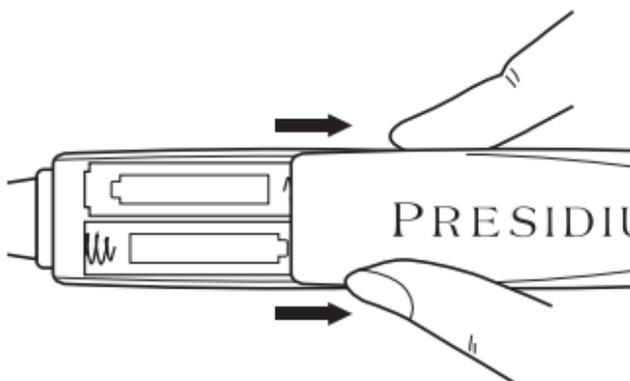


Fig. 1.2

Take note of the positive (+) and negative (-) directions of the batteries when inserting them into the tester (Fig. 1.3). The use of alkaline batteries is preferred as it should generally give approximately 3 hours of continuous operation, while the use of ordinary batteries will give a shorter operating life.

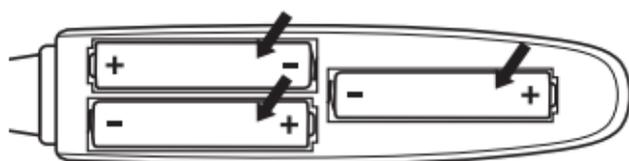


Fig. 1.3

### Turning on your PGI

Press and hold the [ON/OFF] button (Fig. 1.4.1) on the tester.

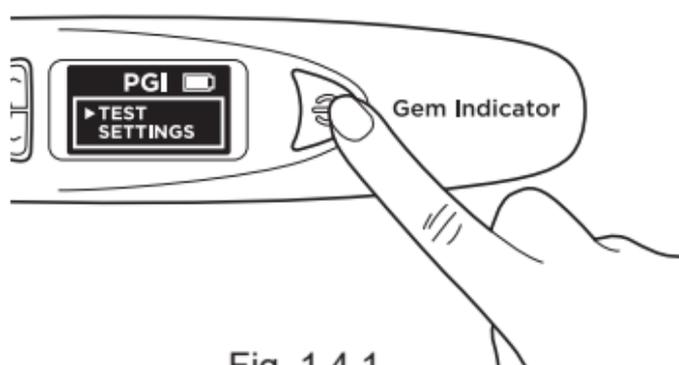


Fig. 1.4.1

“SYS CHECK” will appear on the display screen as you wait for about 3 seconds for the tip to warm up to programmed pre-determined tip temperature.



Fig. 1.4.2

An “Error” message will appear if “SYS CHECK” fails (Fig 1.4.3). The error can be due to the following reasons:

1. The tip is not connected properly.
2. A new tip has been inserted and its settings are different as it has not been properly calibrated.
3. There are broken pin connections within the unit or the tip has been damaged.

In such situations, it is recommended for you to remove, re-insert and recalibrate the tip. If the error persists, please contact Presidium.



Fig. 1.4.3

### **Cleaning of gemstone prior to testing**

Prepare a clean tissue or jewelry cloth. Carefully retrieve the gemstone with tweezers and place the gemstone face down on its table facet. (Fig 1.5a)

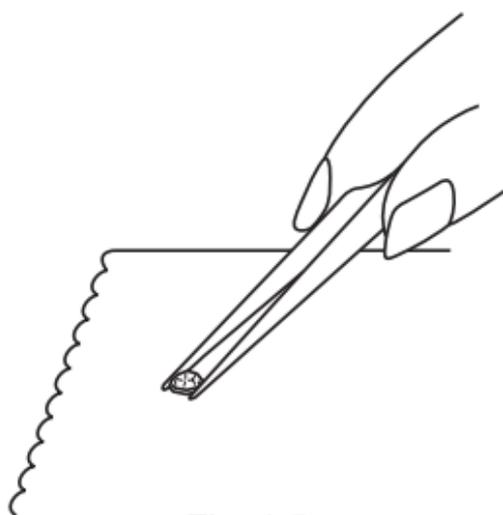


Fig. 1.5a

Gently rub the table of the gemstone against the tissue/ jewelry cloth (Fig. 1.5b).

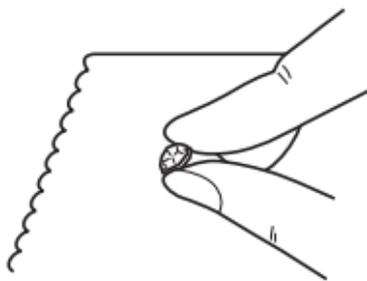


Fig. 1.5b

If your stone is mounted in jewelry, please carefully clean the stone (Fig 1.6).

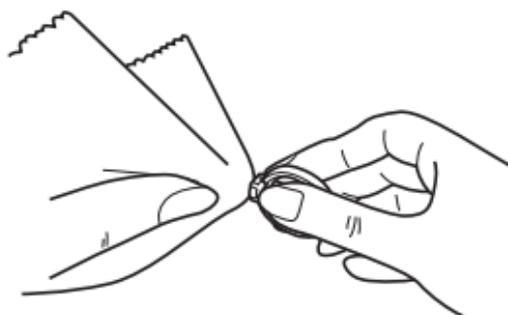


Fig. 1.6

### **Operating Conditions**

The gemstone should be clean and dry before testing. Elaborate cleaning procedures are not normally necessary.

### **Recommended Normal Operating Conditions**

The recommended testing temperature is between 23°C – 27°C or 73°F – 80°F. Please allow the gemstone or jewelry piece to adjust to room temperature prior to testing. Exposure and/or operating the tester outside the recommended testing temperatures will affect the result and performance of the tester.

### **Operating under Extreme Conditions**

In the event that testing is done outside the recommended operating conditions, the tester must first be calibrated under the same temperature setting as the testing site. Please refer to Section 5 of this handbook for calibration procedure. This calibration is done to ensure the accuracy and consistency of the testing results.

However please note that the temperature conditions should be kept between 20°C to 33°C.

## Battery Information

Battery life is indicated by the icon at the top right-hand corner of the display screen.

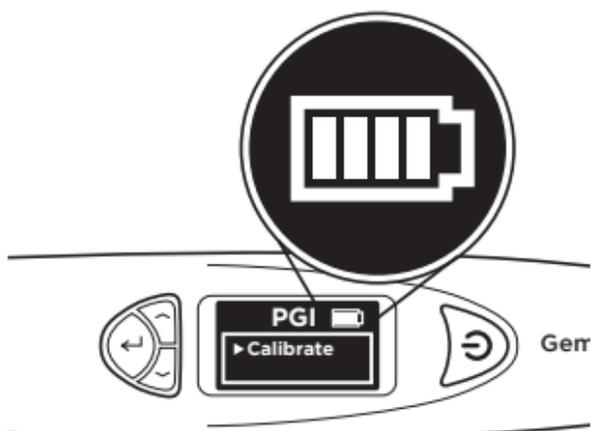


Fig. 1.7

4 Bars	Battery life is at least 75% or full 100%. Tester may be used as indicated.
3 Bars	Tester may be used as indicated.
2 Bars	Battery life is about 25 – 50%. Tester is still usable but it is recommended for the user to recalibrate the tester at this stage.
1 Bar	Battery life is low at about 0 – 25%. No test should be performed. It is recommended for the user to change to new batteries.

Note: The power-saving feature will ensure the tester shuts down automatically after 10 minutes of inactivity.

Do not leave worn out batteries in the battery compartment as the batteries may corrode or leak and damage the circuitry of tester. Batteries should be removed when the instrument is expected to be stored for an extended period of time.

Batteries do not have to be removed when the electrical power via a power adaptor is used.

## 2. PERFORMING A TEST with your Presidium Gem Indicator

> Test  
Settings  
Calibrate

Toggle the navigation and Select “Test” to begin testing (Fig 2.1)

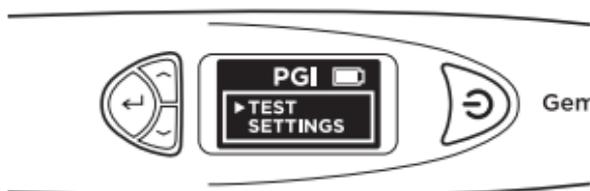


Fig. 2.1

When prompted on the screen, depress the probe tip against the gemstone for about 5 seconds. Testing will begin. You will need to hold the tester in this position till the testing bar on the screen is completed (Fig 2.2).



Fig. 2.2

You will be prompted to Select “Color” to enable the color separation function, thereby narrowing down the possible results.

Note: If you have disabled the Color function (see Section 4 Fig. 4.2), you will not be prompted to input Color. However, once the results have been displayed, you can still Select Color to narrow down the possible results.

### **For mounted jewelry or gemstones:**

Hold the jewelry or mounted gemstone with one hand and the tester with the other hand (Fig. 2.3).

For proper operation of the tester, the thumb and index finger must always be placed on the metal grip of the tester.

Press the probe tip of the tester against the gemstone. Ensure the tip is fully depressed for consistent pressure between the tip and the gemstone.

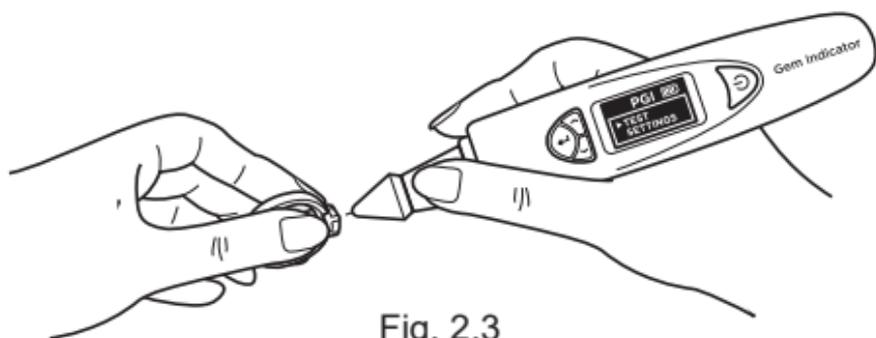


Fig. 2.3

Note: Care should be taken when testing mounted jewelry. Users must ensure that the stones are securely mounted before conducting the test as the gap between the stone and setting might lead to an inaccurate reading.

### **For loose gemstones:**

Hold the gemstone with one hand while holding the tester with the other hand (Fig. 2.4).

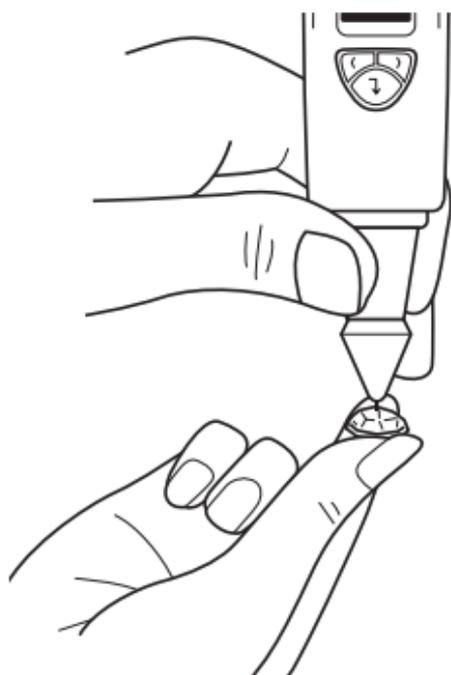


Fig. 2.4

The probe tip must be placed at a right angle or perpendicular to the facet of the gemstone for an accurate reading.

Tests should be conducted on the table of the gemstone. In the event of any doubt, you may also test on the girdle of the gemstone.

For proper operation of the tester, fingers must be placed on the metal grip at all times.

To achieve optimum test accuracy involving very small mounted gemstones (1.22mm exposed diameter and below), it is extremely important that no contact is made on any metal/jewelry setting part of the jewelry.

To achieve optimum test accuracy involving very small gemstones (10 points and below), it is important to allow the gemstone to cool down for 5-10 seconds in between tests.

It is advisable to conduct multiple tests on different points on the gemstone as thermal conductivities may differ slightly along different crystal axes of the gemstone.

### **Cleaning of probe tip**

Please note that if the tester is being used for the first time, or if the tester has not been used for more than a week, it is advisable to clean the probe tip using a piece of paper.

A clean probe tip helps to attain consistent and accurate readings.

To clean the probe tip,

- Ensure the unit is switched off.
- Hold the probe pen with the pen tip forming right-angle (90-degree) with any paper or stone rest.

Gently move in circular motion without retracting the tip (Fig. 2.5).

- Repeat the same motion several times. The cleaning process is completed and the tester is now ready for use.

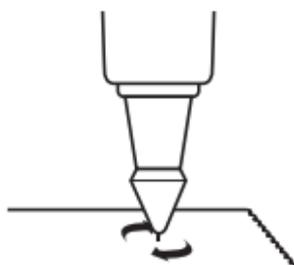


Fig. 2.5

### 3. READING TEST RESULTS on your Presidium Gem Indicator

Based on the test and color input selected for the tested gemstone, the possible types of gemstone will be displayed on the LED screen (Fig. 3.1).

If you have disabled the Color input function in Settings, the tester will indicate the Results based only on thermal conductivity.

You may still input Color at this stage by going to the Color option in Results menu (See Fig. 3.1e).

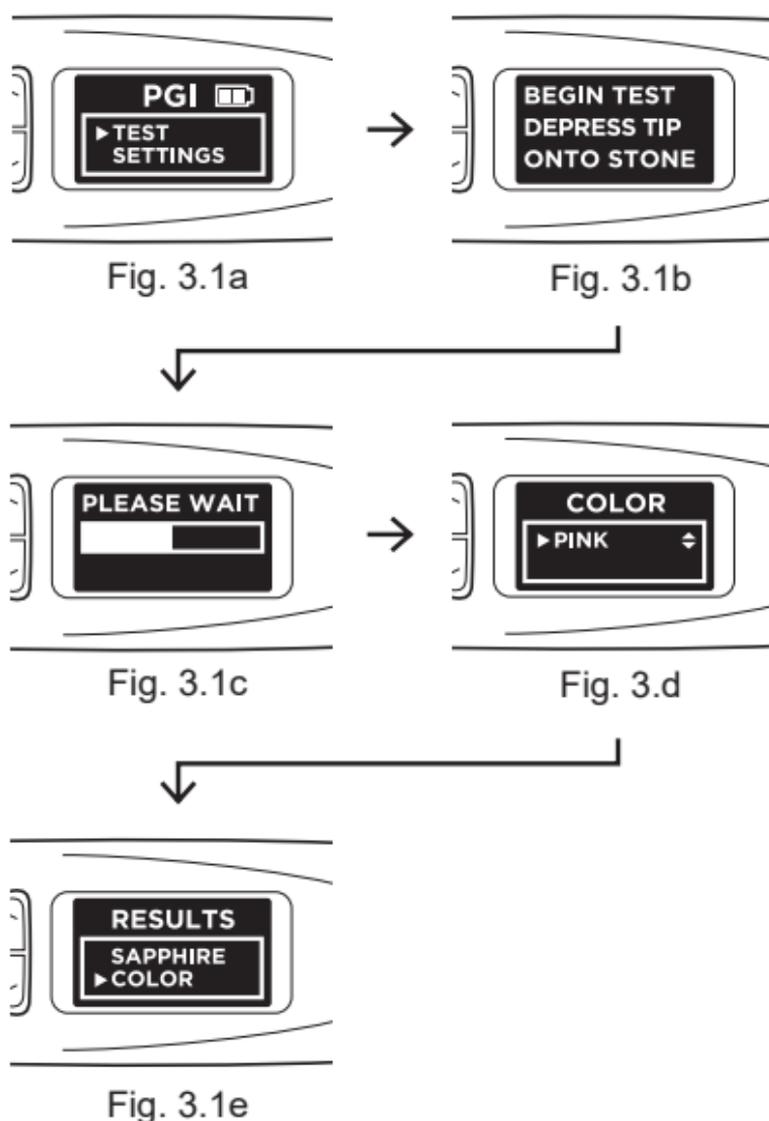


Fig. 3.1 (a), (b), (c), (d) & (e) illustrate the steps and results after testing

“Metal Detect” will display on the screen and an audible sound is emitted (if “Sound” is enabled at Settings) if the probe tip touches metal or conductive material. (Fig. 3.2)

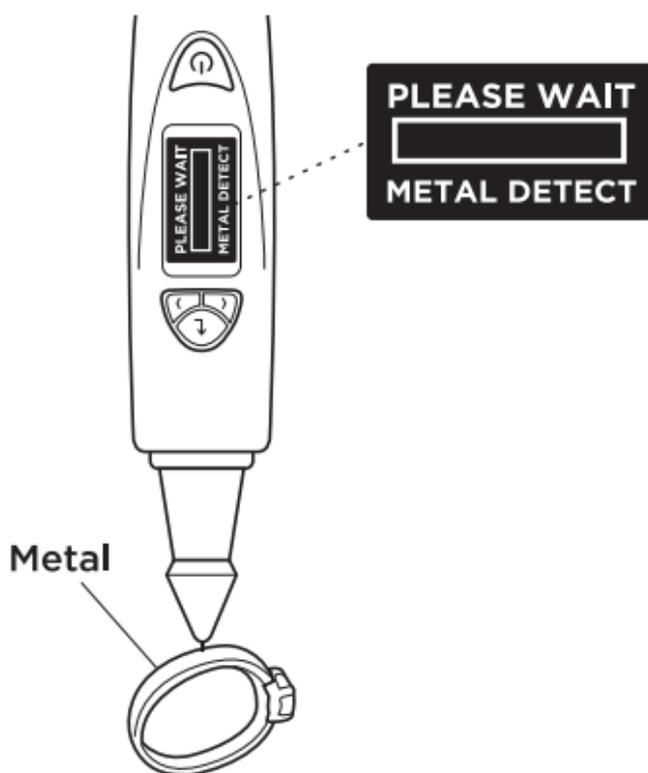
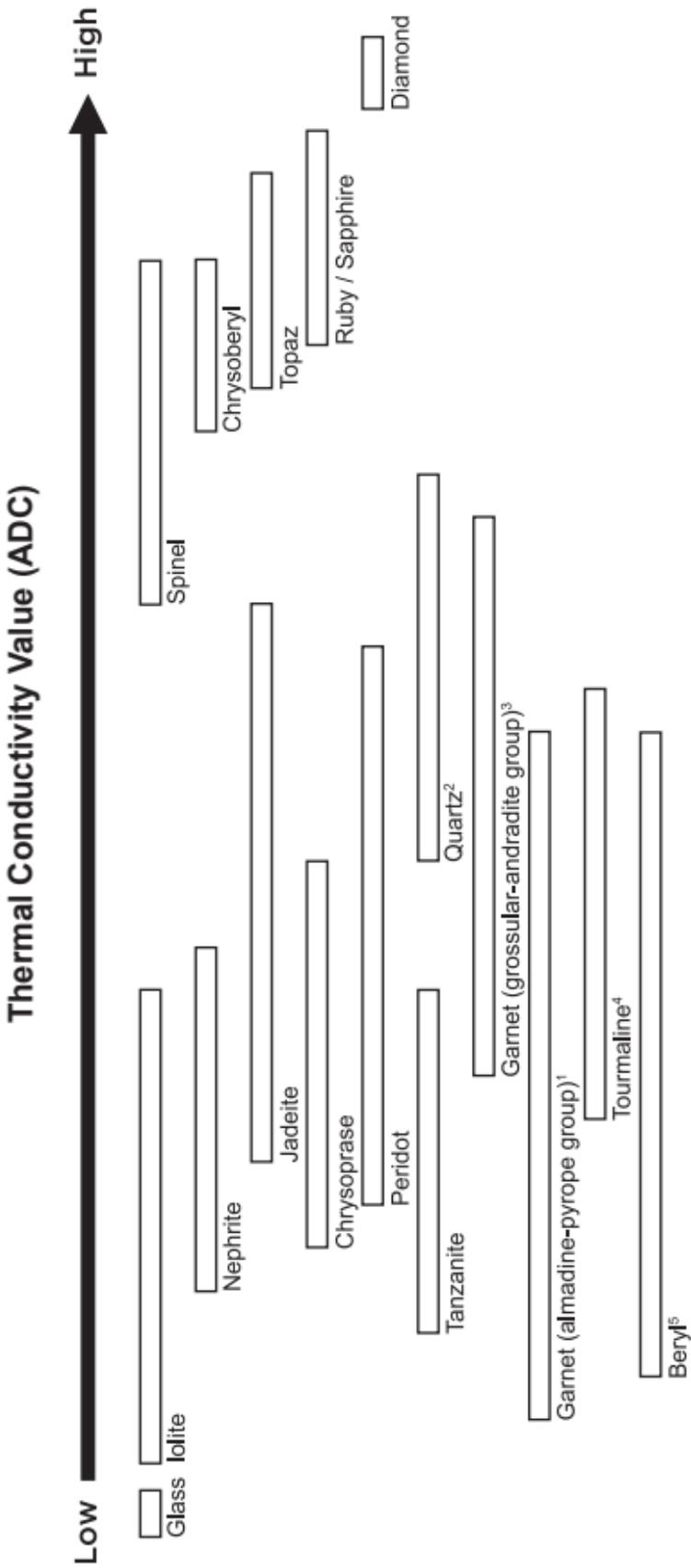


Fig. 3.2

PGI can test for up to 31 types of gemstones and their ranges of individual thermal conductivity readings based on the analog to digital (ADC) values are illustrated in Fig 3.3 on the next page.

In pursuing continuous product improvement and enhancements, Presidium reserves the right to revise the product software data, including the Presidium Gem Indicator thermal conductivity and color charts.



Note: The graph is not drawn to scale.

Fig. 3.3

References:

- 1) Almandine Garnet, Pyrope Garnet, Spessartite Garnet
- 2) Aventurine, Citrine, Amethyst, Colorless Quartz, Brown Quartz, Black Quartz
- 3) Hessonite, Tsavorite, Demantoid
- 4) Tourmaline, Paraiba, Rubellite
- 5) Aquamarine, Morganite, Emerald, Goshenite, Helidor

The PGI is also further able to narrow down the overlapping gemstones with similar thermal conductivity, by using the color separation function.

After getting the test results, users are still able to revise the color of the gemstone by selecting “Color” if they will like to revise their chosen choice of color, without repeating the thermal conductivity testing.

For the full list of gemstones and colors that can be tested, please see Fig. 3.4.

**WARNING:** Please note that the list of gemstones colors chart provided are based on the general colors descriptions as stated and serves only as a guide. There is no known standard color charts for gemstones if unsure, please check with a gemologist.

Gemstone Family	Gemstone Name	Red	Pink	Orange	Yellow	Brown	Green	Blue	Violet	Purple	White	Black	Colorless
Glass	Glass	Red	Pink	Orange	Yellow	Brown	Green	Blue	Violet	Purple	White	Black	Colorless
Garnet (almandine - pyrope group)	lolite							Blue	Violet	Purple			
	Almandine	Red							Violet	Purple			
	Pyrope	Red							Violet	Purple			
	Spessartite	Red		Orange	Yellow								

Fig. 3.4

Gemstone Family	Gemstone Name	Red	Pink	Orange	Yellow	Brown	Green	Blue	Violet	Purple	White	Black	Colorless
Beryl	Aquamarine						Green	Blue					
	Emerald						Green						
	Goshenite										White		Colorless
	Heliodor					Yellow							
	Morganite		Pink						Violet	Purple			
Tanzanite							Blue	Violet	Purple				
Nephrite			Orange			Brown	Green	Blue			White	Black	Colorless
Peridot				Yellow			Green						
Jadeite		Red		Orange	Yellow	Brown	Green	Blue	Violet	Purple	White	Black	Colorless
Tourmaline	Paraiba						Green	Blue					
	Rubellite	Red	Pink										
	Tourmaline			Orange	Yellow	Brown			Violet	Purple	White	Black	Colorless

Gemstone Family	Gemstone Name	Red	Pink	Orange	Yellow	Brown	Green	Blue	Violet	Purple	White	Black	Colorless
Garnet (grossular-Andradite group)	Demantoid				Yellow		Green						
	Hessonite			Orange	Yellow	Brown							
	Tsavorite						Green						
Quartz	Chrysoprase						Green						
	Amethyst								Violet	Purple			
	Aventurine						Green						
	Citrine			Orange	Yellow								
	Quartz					Brown					White	Black	Colorless
Spinel		Red	Orange		Brown	Green	Blue	Violet	Purple	White	Black	Colorless	
Chrysoberyl			Orange	Yellow	Brown	Green	Blue	Violet	Purple	White	Black	Colorless	
Topaz		Red	Orange	Yellow	Brown	Green	Blue						Colorless
Corundum		Red	Pink										
Diamond	Sapphire		Pink	Orange	Yellow	Brown	Green	Blue	Violet	Purple	White		Colorless
	Diamond										White		Colorless

### 4.1 Settings Function

Test  
> **Settings**  
Calibrate

Navigate downwards to the second option “Settings” and select.

In the Settings function, you may adjust Sound and Color.

#### Settings – Sound

Press “Select” at the option “Sound” to either turn it on or off. (Fig. 4.1)

By selecting “Sound On”, beeps will sound as you navigate up and down in the menus, and there will be alerts when test result is completed or when metal is detected.

By selecting “Sound Off”, no beeps will be emitted from the tester and you will not be alerted via sound when the test is completed or when metal is detected.



Fig. 4.1

## Settings – Color

Press “Select” at the option “Color” to either turn it on or off. (Fig. 4.2)

By selecting “Color On”, you will be switching on the Color separation function. The tester will automatically prompt you for your color input after a test is done, so you may input the color, thereby narrowing down the possible results.

By selecting “Color Off”, the tester will not prompt you for your color input after a test is done. It will then only give you the possible results based on thermal conductivity.



Fig. 4.2

Note: When Results are displayed, you may still input or change color by navigating down and “Select” Color in the Results menu where there will be 12 colors for you to choose from.

To exit Settings menu, navigate downwards and “Select” Exit.

### 4.2 Calibrate Function

Test  
Settings  
> **Calibrate**

You may calibrate the tester to check on its accuracy using the provided Calibration Disk and by selecting Calibrate in the main menu.

For more instructions on Calibrate function, please refer to Section 5 – Calibration.

## 5. CALIBRATING your Presidium Gem Indicator

All testers have been calibrated during the manufacturing process and usually no further adjustment or user intervention to the tester is required.

However in situations as stated below, calibration will be warranted:

- i. Existing probe tip becomes bent/broken and needs to be replaced with a new probe tip,
- ii. You have repeatedly gotten an inaccurate result against a known gemstone
- iii. Testing under extreme temperature conditions (See section under “Operating Conditions”)

To begin calibration, you will need to first remove and re-insert the probe tip or replace with a new probe tip.

### Removing and Replacing the Probe Tip

Turn the probe tip anti-clockwise to remove the existing probe tip (Fig 5.1a).

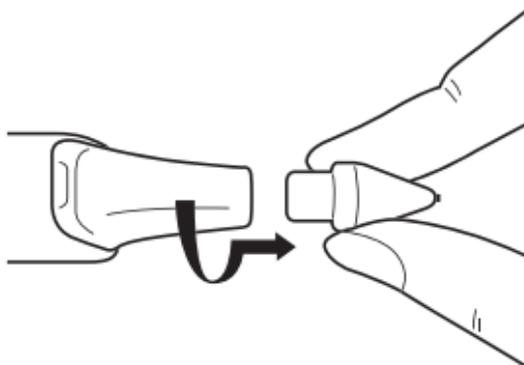


Fig. 5.1a

To insert new probe tip, align the tip guide 1 which is found on the body of the tip with guide 2 which is found on the metal grip of the tester (Fig. 5.1b).

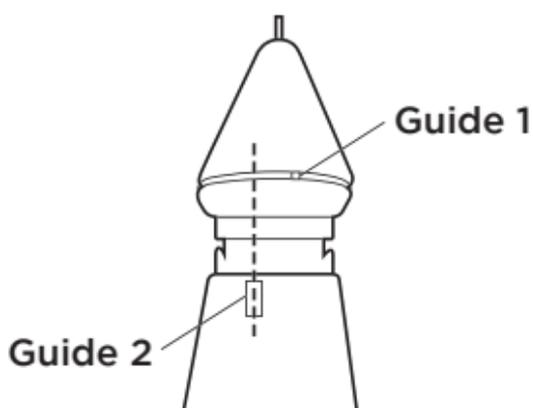


Fig. 5.1b

Push in and turn clockwise to lock the probe tip (Fig 5.1c).



Fig. 5.1c

## Calibrating

Once the tip has been inserted, you may begin Calibration by navigating to the third option in the main menu and Select "Calibrate".

Test  
Settings  
> **Calibrate**

When Calibrate is selected, the tester will go into calibration mode and you may follow the instructions as they appear on the display screen. (Fig. 5.2)

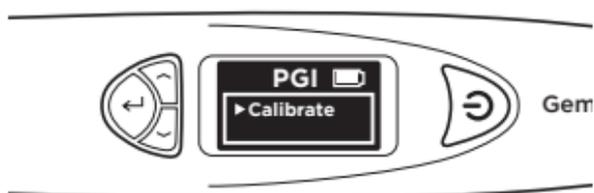


Fig. 5.2

After "Calibrate" is selected, the tester will do an automatic pre-programmed calibration that will take about 6-8 seconds. Do not press or rest the probe tip of the tester onto any material during this time (Fig 5.3).



Fig. 5.3

When the auto-calibration is done, press the probe tip against the provided Calibration Disks, starting with **Disk 1 (gray disk)**, followed by **Disk 2 (black disk)** (Fig. 5.4). Ensure the tip is fully depressed against the Calibration Disk for calibration to be performed.

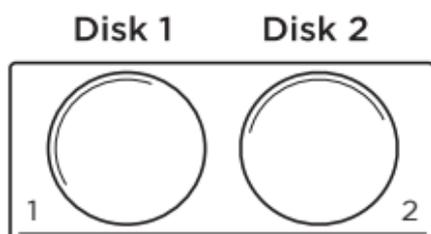


Fig. 5.4

When the probe tip is pressed against the Calibration Disk (Fig. 5.5a), the display screen will show the process of calibration (Fig. 5.5b). Calibration is done for each Calibration Disk when the display screen shows the completed calibration meter and the word “Successful” appears on the screen (Fig. 5.5c).

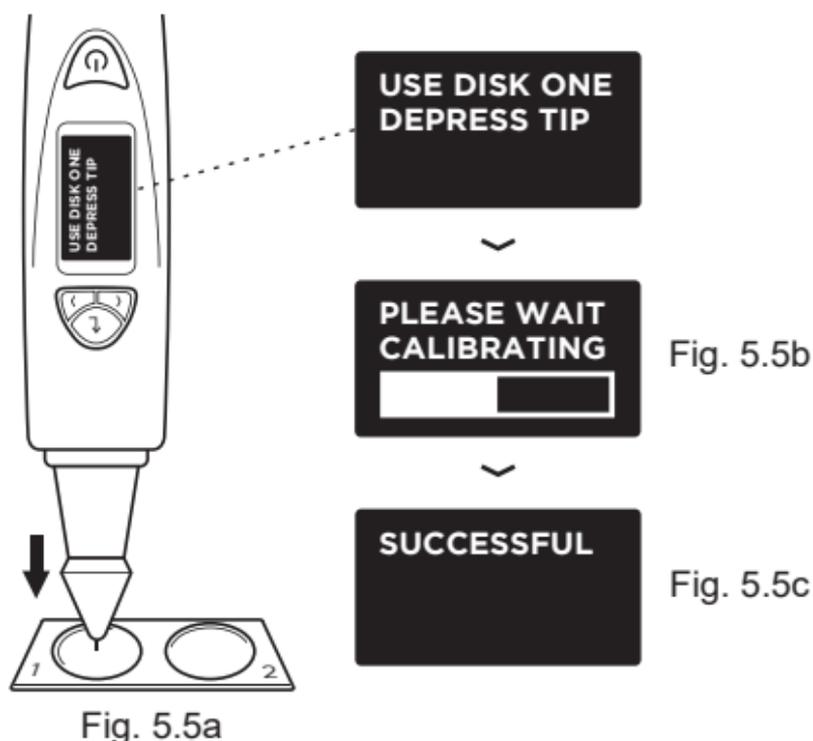


Fig 5.5 (a), (b) & (c) exhibit the steps of calibration using **Disk 1 (gray disk)**

You will be prompted to perform the same calibration process with Disk 2 by pressing the probe tip against **Disk 2**.

When calibration on both disks are done, you will be prompted on the screen to press “Select” to exit calibration mode (Fig. 5.7).

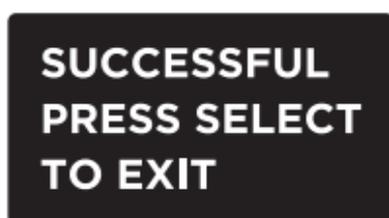


Fig. 5.7

#### IV. IMPORTANT NOTICE

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- Keep the tester dry. Precipitation, humidity, and all types of liquids or moisture can contain minerals that will corrode electronic circuits. If your tester does get wet, remove the battery, and allow the tester to dry completely before replacing it.
- Do not use or store the tester in dusty, dirty areas. Its moving parts and electronic components can be damaged.
- Do not store the tester in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store the tester in cold areas. When the tester returns to its normal temperature, moisture can form inside the device and damage electronic circuit boards.
- Do not attempt to open the tester other than as instructed in this handbook.
- Do not drop, knock, or shake the tester. Rough handling can break internal circuit boards and fine mechanics.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the tester.
- Do not paint the tester. Paint can clog the moving parts and prevent proper operation.

Thank you for taking time to go through the user handbook which will enable you to understand your recent purchase better.

Presidium also recommends that you register your warranty by sending the warranty registration card to us or registering online at <http://www.presidium.com.sg/>

If the tester is not working properly, kindly contact Presidium customer service at [service@presidium.com.sg](mailto:service@presidium.com.sg) or :

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Unit 7, 207 Henderson Road  
Singapore 159550  
Attn: Customer Service Executive