

# Contents

## (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.

Due to continuous product improvement, Presidium reserves the right to revise all documents including the right to make changes to the handbook without notice and without obligation to notify any person of such revisions or changes. Users are advised to check Presidium's website <http://www.presidium.com.sg/> from time to time.

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, resellers, servants and/or agents 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, resellers, servants and/or agents be responsible for any special, incidental, consequential or indirect damages howsoever caused.

The tester or Presidium Gem Tester II (PGT II) 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 Tester II (“PGT II” or “tester”).

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 Tester II

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The Presidium Gem Tester II is 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 its other simulants using the principles of thermal conductivity.

Diamonds, with their exceptional heat conductivity properties are unlike any other simulants, and are therefore not easily replicable.

The Presidium Gem Tester II 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 an analog dial.

The Presidium Gem Tester II is now equipped with a Color Stone Estimator display to assist the user in distinguishing popular colored gemstones from each other.

It is to be noted that natural and synthetic gemstones have similar physical and optical properties. As such, Presidium Gem Tester II does **not** distinguish between natural and synthetic gemstones.

As with all thermal testers in the market, the tester is not able to differentiate between natural Diamonds and Moissanite.

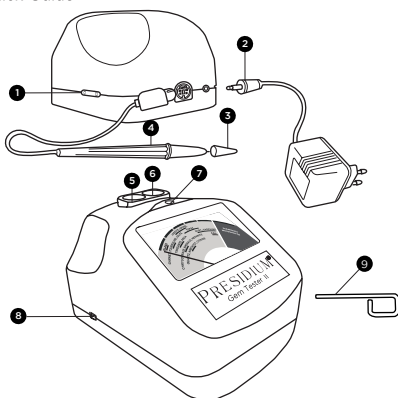
The Presidium Gem Tester II has been subjected to thorough factory quality control, and will generally give a clear and reliable reading of the gemstone being tested under proper use. However, you are advised to conduct further supporting tests.

## The Presidium Gem Tester II features the following:

- Retractable thermoelectric probe tip that ensures constant pressure between probe tip and gemstone
- Industry's thinnest probe tip (0.6mm) for testing diamonds as small as 0.02ct
- Metal alert buzzer to ensure that probe tip is in contact with gemstone during testing
- Clear and easy-to-read analog dial
- No waiting time between tests
- Built-in Calibration (CAL) and Glass test discs for reference
- Powered by 2 x AA batteries or adaptor

## Included in your package:

- Presidium Gem Tester II
- Probe pen
- Built-in Calibration (CAL) and Glass test discs
- AC adaptor
- Protective carrying case
- Quick Guide



1	Thermal Conductivity Calibration Inlet With Plug
2	Adaptor
3	Probe Protective Cap
4	Probe Pen
5	Glass Test Disc
6	Calibration (CAL) Test Disc
7	ON/OFF LED Indicator
8	ON/OFF Switch
9	Calibration Pin

#### IV. IMPORTANT NOTICE

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- Keep the tester dry. Precipitation 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, store or expose the tester in dusty and dirty areas. Its moving parts and electronic components can be damaged.
- Do not use, store or expose the tester in hot areas. High temperatures can damage or shorten the life of the tester, damage batteries, and warp or melt certain plastics.
- Do not use, store or expose 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.

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

Presidium Instruments Pte Ltd  
Unit 7, 207 Henderson Road  
Singapore 159550  
Attn: Customer Service Executive

## 1. GETTING STARTED with your Presidium Gem Tester II

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### Powering up your Presidium Gem Tester II

This tester can be powered by either the use of an AC adaptor or through the use of batteries. If AC adaptor is used, connect one end of the AC adaptor to the tester and the other end directly into an electrical outlet. Please ensure that only the adaptor supplied by Presidium is used.

If batteries are used (2 x AA batteries), take note of the positive (+) and negative (-) directions of batteries when inserting the batteries into the tester (**Fig 1.1**). The use of alkaline batteries is preferred, as it should generally give approximately two and a half hours of continuous operation, while the use of ordinary batteries will give a shorter working life.

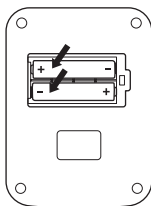


Fig. 1.1

### Turning on your Presidium Gem Tester II

Insert the probe pen into the socket at the back side of the tester (**Fig 1.2**). Note that the probe pen must be inserted into the socket before turning on the unit. Otherwise, the indicator will rise to the Dark Grey zone (Diamond/Moissanite) when turned on.

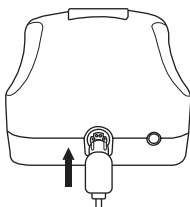


Fig. 1.2

Switch the tester to the ON position, wait for approximately 30 to 50 seconds for the initial warm-up period (**Fig. 1.3**). At this point, it is quite common if the reading is slightly above zero is indicated on the meter.

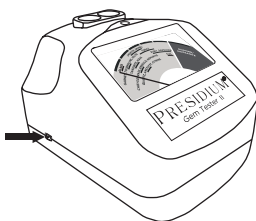


Fig. 1.3

## Testing to ensure your Presidium Gem Tester II is functioning properly

### Calibration (CAL) test disc

- Press the probe tip onto the calibration (CAL) test disc located on the right of the indicator lamp (**Fig.1.4**). Apply sufficient pressure to retract the protruding tip completely into the probe pen. The indicator should rise to and remain within the red strip (preferably at the center of red strip) with "CAL" printed on top, within two to three seconds.



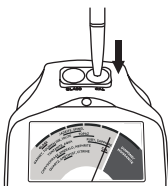


Fig. 1.4

### Glass test disc

- Press the probe tip onto the glass test disc located on the left of the indicator lamp (**Fig. 1.5**). Apply sufficient pressure to retract the protruding tip completely into the probe pen. The indicator should rise to and remain within the red strip (preferably at the center of red strip) with “Glass” printed on top, within two to three seconds.

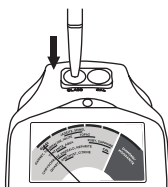


Fig. 1.5

### Calibration

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

However, in situations below, calibration will be warranted:

- A replacement probe pen is used for the first time
- Inaccurate readings when checking the functionality of the instrument.
- Testing under extreme temperature conditions (See section under “Operating under Extreme Conditions”)

## Assisted Thermal Calibration

To begin calibration, you will need to access the Thermal Conductivity CAL inlet and depress the tact switch once using the provided Calibration Pin (**Fig. 1.6**). Once depressed, the buzzer will beep once and a blinking LED blue light will be shown.

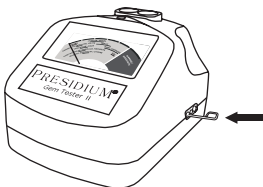


Fig. 1.6

Depress the probe pen against the "CAL" disc and ensure that the probe pen is fully depressed and retracted into the housing of the probe pen (**Fig 1.7**). Please ensure that your fingers are touching the metallic chrome area of the probe pen. The needle indicator will calibrate to the red "CAL" strip automatically. The buzzer will beep twice upon completion of "CAL" Calibration. Remove the probe pen and wait.

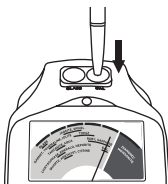


Fig. 1.7

When the LED green light is blinking, depress the probe pen against the "Glass" disc and follow the steps above on probe pen handling (**Fig 1.8**). The needle indicator will calibrate to the red "Glass" strip automatically. The LED green light will stop blinking once disc is detected and the buzzer will beep twice upon completion of "Glass" Calibration.

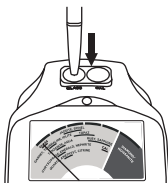


Fig. 1.8

Repeat “CAL” calibration twice and this will end the calibration procedure.

Table 1 shows the sequence of the Assisted Thermal Calibration procedure.

Steps	Light Indicator	Depress on disk	Needle Indicator
1	Blinking Blue	CAL	Calibrate to “CAL”
2	Blinking Green	GLASS	Calibrate to “GLASS”
3	Blinking Blue	CAL	Calibrate to “CAL”
4	Blinking Blue	CAL	Calibrate to “CAL”

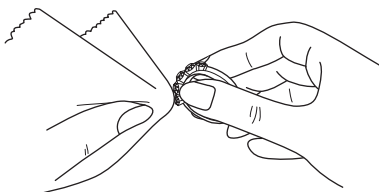
Table 1

**Calibration Notes:**

- It is advisable to power the unit via the AC adaptor during the calibration process.
- As a precaution, it is important to allow the “CAL” and “Glass” discs to cool down before subsequent tests.

## Recommended testing conditions

The gemstone should be clean and dry before testing. However, elaborate cleaning procedures are not normally necessary (**Fig. 1.9**).



**Fig. 1.9**

The recommended testing temperature is 18°C – 27°C or 65°F- 80°F Please allow the gemstone or jewelry piece to adjust to room temperature prior to testing.

Exposure and/or operation of the tester outside the room temperature would affect the results and performance of the tester.

## Battery information

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

Batteries do not have to be removed when the AC adaptor is in use.

To prevent inaccurate readings, replace with fresh battery. If the red LED does not light up after 50 seconds. A test should not be performed when the battery is low or flat.

## Cleaning your gemstone prior to testing

Prepare a clean tissue. Carefully retrieve the gemstone with tweezers and place the gemstone face down on the table (**Fig. 1.10**).

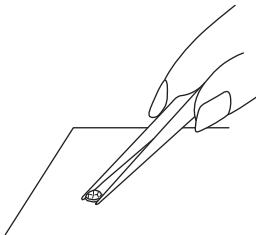


Fig. 1.10

Gently rub the table of gemstone against the tissue/jewellery cloth and place the gemstone on the centre of the Test Pad (**Fig. 1.11**).

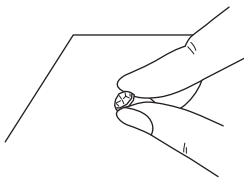


Fig. 1.11

## 2. PERFORMING A TEST with your Presidium Gem Tester II

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Place the tip of the probe pen against the gemstone. Apply minimal pressure to fully depress the tip into the probe pen for correct reading. This is to provide a steady and constant contact made between the probe tip and the gemstone.

### For mounted jewelry or gemstones:

Hold the jewelry or gemstone with one hand and the tester with the other hand (**Fig. 2.1**). Care should be taken when testing mounted jewelry. User must ensure that the stones are securely mounted before conducting a test as gap between stone and setting might lead to inaccurate reading.

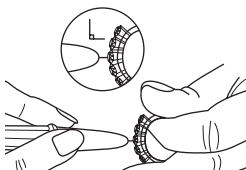


Fig. 2.1

### For testing loose gemstones:

Place the gemstone on the metal stone rest and hold the metal stone rest with one hand while holding the probe with the other hand (**Fig. 2.2**).

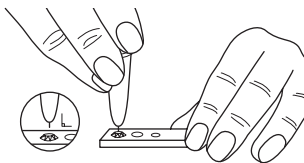


Fig. 2.2

Note: Metal stone rest is not provided by Presidium.

## **Tips for using your Presidium Gem Tester II**

If the tester is being used for the first time, or if the tester has not been used regularly, it is advisable to clean the probe tip using a piece of paper to attain consistent and accurate reading. Rub the tip gently across the paper surface before testing.

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

Tests should be conducted on the table of the gemstone. In the event of any doubt, kindly test on the girdle of the gemstones instead.

To achieve optimum accuracy for tests involving very small gemstones (10 points and below), it is important to allow the gemstone to cool down before subsequent tests.

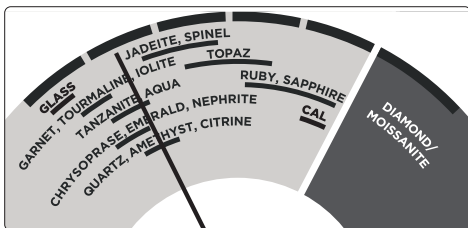
It is advisable to take multiple readings regarding the test results indicated.

### 3. READING TEST RESULTS on your Presidium Gem Tester II

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The test results are indicated as follows:

- After pressing the probe tip on the stone for about 2 seconds, the indicator will reach its highest position, then slowly fall back. Take the reading at the highest position.
- The tester will provide all possible results on the display.
- The Presidium Gem Tester II should be used only to confirm the identity of suspected gemstone.
- An example of reading the result on the meter is given below:



When the indicator stops at the above position, the stone tested may be Quartz, Amethyst, Citrine, Tanzanite or Aqua, i.e., any stones that fall within the black strip that the indicator passes.

**Metal Alert Buzzer:** If the tip of the pen comes in contact with the metal mounting of a stone, an audible signal is emitted.

- **LIGHT GREY band:** Simulant is detected if the needle falls into this band
- **DARK GREY band:** Diamond/Moissanite is detected if the needle falls into this band.

Relatively low readings in the dark grey zone must be expected with very small diamonds.

Based on the thermal test results, Presidium Gem Tester II can easily distinguish between:



Sapphire	vs.	Tanzanite	Jadeite	vs.	Chrysoprase
Sapphire	vs.	Iolite	Ruby	vs.	Spinel
Sapphire	vs.	Spinel	Ruby	vs.	Garnet
Sapphire	vs.	Citrine	Topaz	vs.	Aquamarine
Sapphire	vs.	Topaz	Topaz	vs.	Amethyst
Sapphire	vs.	Tourmaline	Topaz	vs.	Citrine
Emerald	vs.	Jadeite	Spinel	vs.	Garnet
Jadeite	vs.	Garnet	Gem- stones	vs.	Glass

The use of the thermal results is restricted to the gemstones listed above and will assist the jeweler to distinguish the many confusing gemstones in the market.

#### 4. TAKING CARE of your Presidium Gem Tester II

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- The probe and wire tip is extremely sensitive and should be handled with care. Caution should be taken so as not to damage the probe tip.
- Do not use the tester if the indicator lamp does not glow or glow as brightly. This is to prevent inaccurate measurements.
- Do not leave worn out batteries in the battery compartment as the batteries may corrode, leak or damage the tester. Batteries should be removed when the tester is expected to be stored for an extended period of time.

Your tester is a product of extensive design and craftsmanship and should be treated with care.

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/>