

Instruction Manual

JE



Model: Multi Tester JE

Thank you for buying this Multi Tester of SAUTER. We hope you are pleased with your high quality product and with its functional range. If you have any queries, wishes or helpful suggestions, do not hesitate to call our service number.

The Multi Tester utilises the feature that diamonds have a very high thermal conductivity. So it can effectively and quickly distinguish natural diamonds from all kinds of diamond simulations and metals, except synthetic moissanites (a man-made stone), which have a thermal conductivity similar to diamonds.

The lights (and a distinctive sound which accompanies each light) will indicate Diamond, Moissanite, Metal Alert Metal Alert usually because the jewellery has been touched by accident). Other stones like ruby, sapphire, topaz give no reaction at all (including glass and cubic zirconia). These various readings (Diamond, Moissanite, Metal, no reaction) show that the Multi Tester works accurately on the largest number of gemstones.

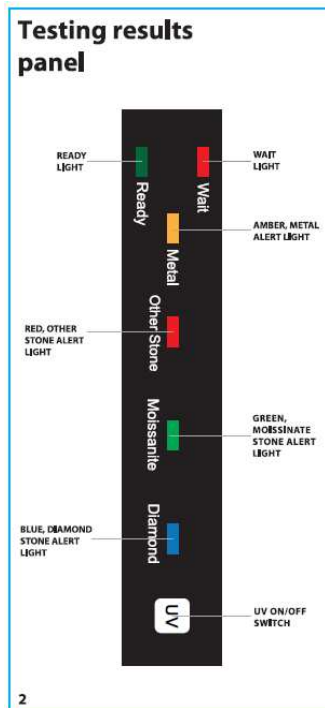
Table of contents

1. Features
2. Specifications
3. Components of the Multi Tester
4. Battery and power
5. Important notes before use
6. Cleaning procedures
7. Testing Instructions
8. The readings
9. Diamond testing (thermal conductivity)
10. Moissainte Testing (electrical conductivity)
10. Other uses of the UV light
11. Using the UV light
12. Maintenance
13. Declaration of Conformity

1. Features

- 360 degree illumination around the front of the Multi Tester allows the user to see the test results clearly and comfortably without having to angle the tester.
- Fitted with a 0.6mm diameter fine retractable thermoelectric sensor, giving consistent pressure when being placed on the surface of a gemstone, ensuring accurate results, even on tiny stones.
- Non-slip rubber coated body allows a better handling during the tests.

- The built-in metal alert lets you know if the jewellery setting or the stone holder has been accidentally touched. It helps the user to reduce false readings
- There can be tested stones mounted in jewellery or loose stones (stone-holder included)
- There are different sounds for diamond, Moissanite and metal which facilitate to distinguish the test results without having to look at the lights
- An integral UV light can be used during a test to give more accurate readings when testing Moissanites (it excites the atoms and improves electrical conductivity). It can also be used to observe the fluorescence in diamonds for the purpose of colour grading.
- There are no waiting times between the tests
- Designed for left and right handed users.
- Fully automatic, requires no calibration by the user
- powered by one 9V monobloc standard battery
- Alarm sounds after a few minutes if the power is accidentally left on and it automatically powers off
- The diamond tester can be connected with an AC adapter for a long time indoor use (not included in delivery). It has got a 2 years manufacturer's warranty.



2. Specifications

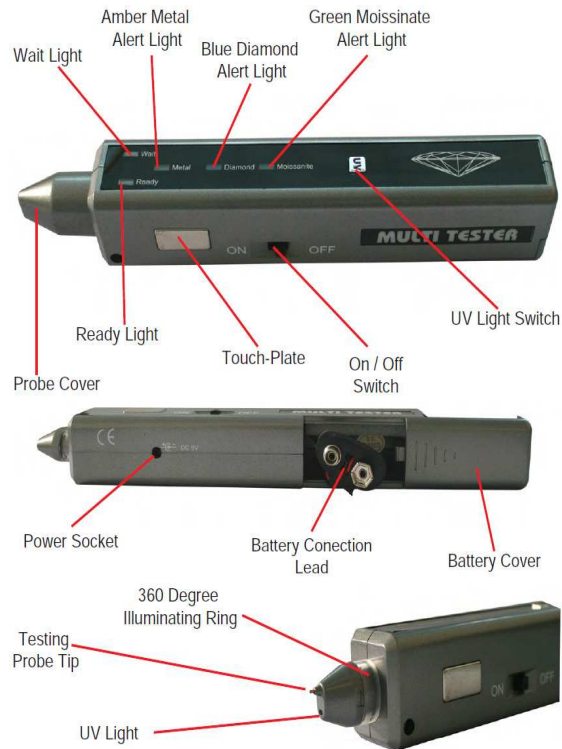
- Working voltage: 9V battery (approximately 3 hours of continuous use, based on high quality alkaline batteries). Continuously used UV light source will give an approximately 1.5 hours of use) or with AC adapter, 110V-240V, DC 9V, optional available.
- Sensor's warm-up time: about 45 seconds
 - Operation temperature: 18°C to 27°C
 - Recommended Humidity: 45% to 75%

Instruction Manual

JE

- Dimensions: 177mm x 30mm x 24mm (L x W x D)
- Net weight: 65g (without battery), 102g (including battery)

3. Components of the Multi Tester



4. Battery and Power

The Multi Tester can be powered either by a universal AC power adaptor (optional item) or one 9V PP3 battery (not included in delivery).

If using the universal power adaptor, only the 9V DC 0.5A $\pm 5\%$ (centre negative) original one from your distributor has to be taken, which can be purchased separately. Using an incorrect adaptor can damage the Multi Tester beyond repair, which will not be covered by warranty.

If using a battery, it is recommended to buy a good quality 9V alkaline battery like Duracell or UCAR, which will grant about 2 ½ hours of continuous use or 5 hours without using the UV-light. Ordinary "super" or "high power" batteries may not be suitable.

On the first picture on the left, above, you see how to remove the battery cover.

On the second one on the right, above, the new battery is connected with the contacts of the Multi Tester.

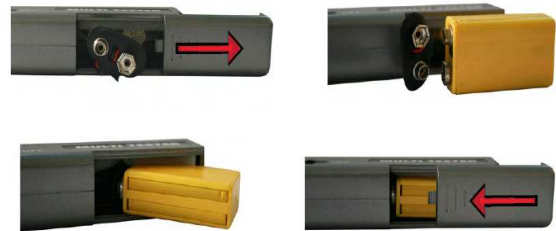
The third picture down below on the left shows how to insert the battery into the compartment.

The last one shows how the compartment is closed again, by taking care not to catch the wire.

If the Multi Tester is accidentally left powered on, then after 10 minutes a continuous alarm will sound and if it isn't

used immediately afterwards, it will be powered off automatically.

When the WAIT light flashes, the battery is low and it should be changed immediately. It should always be changed immediately as soon as it flashes. Tests should not be performed with a low battery.



If the Multi Tester is not going to be used for an extended period of time (more than one month), the battery has to be removed. Never leave a worn out or old battery inside as it may corrode and cause damage to the Multi Tester. This is not covered by warranty.

5. Important notes before use

Using the Multi Tester for the first time, or if it hasn't been used for a week or more, the sensor tip has to be cleaned to ensure that the tester shows consistent and accurate readings (see also "cleaning procedures").

Before any test is carried out, the gemstone must be clean and dry. This has to be done with a jewellery cloth or dry tissue. There is no need to elaborate cleaning procedures or to take special cleaning fluids.

This instrument has been carefully calibrated during the manufacturing process, it doesn't require any further adjustment or interventions.

When testing small gemstones (10 points or below), it is important to allow the gemstones to cool down before further tests are carried out, to gain optimum accuracy in tests.

If you are suspecting any doubts during the tests in your readings, it is advisable to take any more tests, to be assured that the gemstone has got enough time to cool down during the tests. Gemstones become hot when tested, which gives a false reading.

The Multi Tester will give accurate readings when it will be used at the recommended room temperature of 18°C to 27°C (64°F to 81°F). It should be assured that the gemstone has been adjusted to the recommended room temperature before using the tester.

Before the Multi Tester was quality assured and sold, it was subjected to thorough and extensive laboratory tests until its manufacturing process was started.

It will generally give a clear and reliably reading of the gemstone being tested. If there are any doubts in the tests, supporting tests should be carried out.

Either the manufacturer or any of its subsidiaries, distributors or third parties shall be liable under no

Instruction Manual JE

circumstances for any direct or indirect damages resulting from the use of this instrument.

6. Cleaning procedures

There are two important cleaning procedures that should be performed when using the Multi Tester:

Cleaning the sensor tip

Using the tester for the first time or if you haven't used it for a week or more, then the sensor tip should be cleaned. By doing this, it will be assured that the tester shows consistent and accurate readings.

How to clean it:

1. You will need a clean sheet of standard paper.
2. Ensure that the Multi Tester is switched off.
3. The sensor cap (which protects the tip), has to be removed, see fig. 1
4. The tester has to be held with the sensor tip at a right angle or perpendicular to the paper surface, see fig. 2
5. The sensor tip has to be gently rubbed in a circular motion without retracting the sensor tip, see fig.3
6. The same motion has to be performed a few times to complete the cleaning process.
7. Then the tester is ready for use



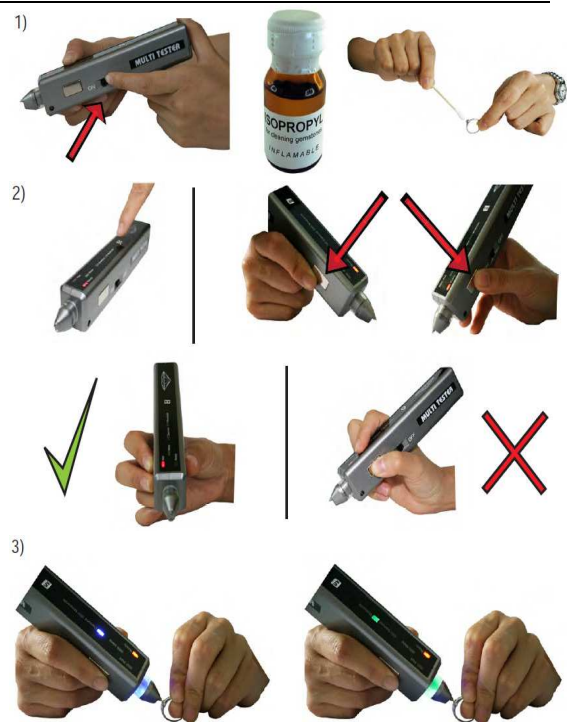
Cleaning the gemstone:

Before the first test is performed, the gemstone has to be clean and dry. This has to be done with a jewellery cloth or a dry tissue. There is no need to elaborate cleaning procedures using special cleaning fluids. If you do so, just use an alcohol such as isopropyl or any other alcohol.

The slightest amount of grease will give false readings on Moissanites.

Once cleaned, the stone needs to cool down for a minute before testing, as the cleaning procedure can cause the stone to be heated a little bit from your fingers and friction.

7. Testing Instructions



1. The sensor protective cover has to be removed and the Multi Tester has to be switched on. It has to be waited until the red waiting light turns off and the green light starts shining. Now it is READY for use.

2. The Multi Tester has to be held in the way that the index finger is touching one of the metal touch-plates and the thumb is touching the other, ensured that there is a firm contact.

The probe tip has to be held against the gemstone, applying sufficient pressure for accurate readings. There will be a reading result within 2 seconds. While testing, there should be a steady and constant contact between the sensor tip and the gemstone.

It may not be pressed so hard that the tip bends or breaks. If there is applied too much force, this is not covered by warranty!

The tip of the Multi Tester may not be touched. In the pictures above it is shown how to hold the tester correctly and how it is wrong to hold it.

Testing the stone two or three times in succession will make it warm and a warm diamond will no longer register "warm". So it has to be waited for two or three minutes between the tests to allow the stone to cool down.

The recommended ambient testing temperature is from 18°C to 27°C and the ideal humidity is 45% to 75%. The temperature of the stone should be the same as the ambient temperature. Exceeding the ambient temperature of 27°C, the test result may be incorrect. Therefore, this tester cannot be used outside in the cold and damp or in direct sunlight at elevated temperatures.

Instruction Manual JE

When testing mounted jewellery/ gemstones, they have to be held with one hand and the tester with the other hand. When testing a loose gemstone, it has to be placed into a suitable hole on the metal stone-rest (included in delivery), preferably on a flat surface. So the stone can't drop out. The tester has to be held with one hand. The stone-rest has to be touched with the index finger of the other hand. The sensor tip has to be positioned at a right angle to the gemstone and always at the "table" (top) of it.

For a correct operation, a "circuit" has to be created between the hand holding the tester and the other one holding the jewellery or metal stone holder. Therefore the thumb and forefinger must always be positioned on the metal panels located on both sides of the tester.

The hands may not be insulated (by wearing gloves) and the fingers have to be clean. Also the item being tested may not be insulated (e.g. costume jewellery set in plastic or metal covered with lacquer).

8. The readings

	Diamond = Blue		
	Moissanite = Green		
	Other stone = Red		
	Metal alert = Amber		
	LIGHTS ON TOP	SOUND	LIGHT AROUND PROBE
DIAMOND	Blue light	Quick beeping Beep..beep.. beep..beep	Blue
MOSSANITE	Green light	Slow beeping Beep.....beepbeep	Green
OTHER STONE	Red light	Silent	Red
METAL ALERT	Amber light	Continuous beep Beeeeeeeeeeep	Amber

The red light will appear for another stone (simulant) and typically gemstones with a higher thermal conductivity, such as a ruby, sapphire or topaz.

Gemstones with a low thermal conductivity, such as glass or cubic zirconia, may not always show a reading on the Multi tester.

9. Diamond testing (thermal conductivity)

The tip of the tester warms up diamonds (and to a less extent, rubies and sapphires). Initially, they are "cold". A crude test is to touch the stone against your lip or underside of your wrist to feel this "coldness". The Multi Tester measures this "coldness", e.g. how quickly the heat from the tip is "drawn" into the stone. Therefore it is most important that both, the stone and the Multi Tester are at room temperature. Otherwise, any cold stone (including any large ruby or sapphire which is "cool") will register "diamond".

Conversely, a warm diamond will register "not diamond". Diamonds become warm, being heated by the tip of the Multi Tester, so when testing the same stone, it has to be waited two or three minutes between the tests (especially with small stones) for the stone to cool down. Placing the stone on a cool surface helps to cool the stone.

10. Moissanite testing (electrical conductivity)

The stone being tested must be absolutely clean. It should be preferably cleaned with a cotton wool bud soaked in alcohol. A layer of grease can give a false reading, it is not sufficient to wipe the stone with a clean cloth.

The Moissanite test is not reliable for stones under 3 points (note: 72pt= 1inch= 2.54cm), the current can spark onto the setting of the stone and gives a false reading.

The test tip has to be placed exactly in the centre of the stone. The sensor and the stone must be seen clearly, in doubts, a magnifier can be used.

If there isn't a good close-up eyesight (or an eyeglass) and a steady hand, there will be difficulties in testing stones under 10 points.

The reason for holding the tester in the way that the metal plates are touched with one hand and the setting of the plate (or metal stone holder) with the other is that the electrical resistance is measured from the sensor, all the way through your body and back to the stone. Therefore, if you are insulated (by wearing gloves) you will get a false reading. The Moissanite tester is for testing diamond-like stones, household objects may not be tested.

11. Using the UV light

The quality (wavelength) of the UV light in the Multi Tester is particularly good for the UV testing.

It will give more accurate readings on Moissanites (UV light excites the atoms and improves the electrical conductivity).

-The UV light button has to be pressed to turn it on.

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Instruction Manual JE

- Before the sensor is placed onto the gemstone, the UV light first has to be shined onto the stone for a few seconds.

-It can also be left on and used while other tests are performed.

Note: If the UV light will be left on for a longer period of time, life of battery will be reduced respectively.

General information about UV light

UV light is usually used for observing the fluorescence (glow) in UV security marks, which are otherwise invisible. These can be found in banknotes, cheques, cheque cards and anything marked with a UV security marker.

UV light is also widely used to detect modern surface paint on antique porcelain or paintings, signatures added to drawings and paintings, writing on letters and postcards which are too faint to see in natural light. On Uranium glass (Vaseline glass) it makes the entire object glow vividly. In all cases, it helps to use the light in dim (if not dark) conditions.

Not all diamonds fluorescent to the same extent, not all diamonds fluoresce actually. Therefore, although UV light is not diagnostic, you can make use of the fact that diamonds fluoresce randomly. If there are several stones and they all react in exactly the same way, it is unlikely that they are diamonds. The fluorescence (and any phosphorescence- a glow that remains after the UV light has been turned off) must be observed in darkness, e.g. a dark room or a special "dark cabinet".

UV light is also used to help colour-grade diamonds, but it is only used by professional diamond dealers or specialist jewellers who know how to colour-grade diamonds in the first place. White diamonds which fluoresce under UV light also fluoresce under the UV that is present in daylight and this can make a stone appear a better colour than it really is, and so the diamond grader may wish to downgrade it by one or two colours.

SAUTER GmbH provides a limited quality warranty of 24 months dated from the date of purchase, provided that the tester has been used in normal environment and that its use conformed to the operation provisions as mentioned above. If there are defects in parts or technology under normal using conditions, we will repair or replace the tester free of cost. The quality warranty can only be applied to the original purchaser of the tester. The invoice should be kept as a proof.

We won't be responsible for the consequences caused by wrong operation or unsuitable use.

12. Maintenance


- Sensor and wire tip should be handled with extreme care, especially when removing the protective cap from the sensor ((if bent or broken, the Multi Tester cannot be repaired).The protective cap always has to be put on again, if the tester is not in use. The wire tip may not be damaged, because this is not covered by warranty.

- A worn battery may not be left in the battery compartment, as it may corrode and damage the tester, which is also not covered by warranty.

- If the Multi Tester is not going to be used for an extended period of time (several weeks or more), the battery has to be removed.

- A flashing "Wait" light means LOW BATTERY.

- If an universal power adaptor is used (optional item, which can be purchased separately), this must be 9V DC

0.5A  (centre negative) otherwise the tester won't work, or it will be burned out. None of these facts is covered by guarantee.

- These warranty conditions will have to be noted for this Multi Tester regarding abuse, misuse as well as unauthorised repairs.

Only manufacturing defects and/ or part failures are covered by warranty.

13. Declaration of Conformity



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Konformitätserklärung


Declaration of conformity for apparatus with CE mark
Konformitätserklärung für Geräte mit CE-Zeichen
Déclaration de conformité pour appareils portant la marque CE
Declaración de conformidad para aparatos con marca CE
Dichiarazione di conformità per apparecchi contrassegnati con la marcatura CE

English We hereby declare that the product to which this declaration refers conforms to the following standards.
Deutsch Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.
Frangale Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.
Español Manifestamos en la presente que el producto al que se refiere esta declaración está de acuerdo con las normas siguientes.
Italiano Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.

DIAMOND TESTER: SAUTER JE

Mark applied	EU Directive	Standards
	EMC 2004/108/EC	EN 61000-6-3:2007 EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-3-3:2009; EN 61000-6-1:2007 EN 61000-4-2:2009; EN 61000-4-3:2009; EN 61000-4-4:2004+A1:2010; EN 61000-4-5:2006; EN 61000-4-6:2009 EN 61000-4-8:2009; EN 61000-4-11:2004

Date: 15.09.2011

Signature: 
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Management

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Seite 1 von 1