

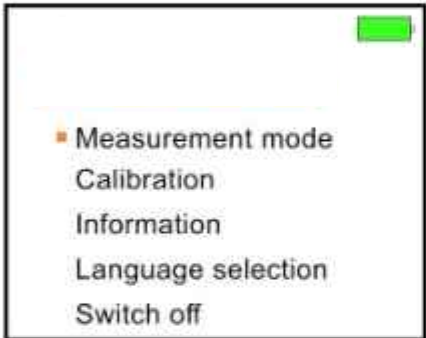
5 Starting and Operating the Device

Starting the device:


In order to switch on the device, please push the control knob ⑥ in the direction of the case. A two-minute warm-up phase is recommended before calibrating and performing measurements. Using the device without a warm-up phase can be the cause of incorrect measurement results.

Main menu:

After activating the device, you will get to the main menu:

Display	Description
	<p>The main menu offers you five options:</p> <ul style="list-style-type: none">• Measurement mode• Calibration• Information• Language Selection• Switch off <p>By turning the knob, you can select a menu option and confirm your selection by pushing the knob. This will take you to the corresponding submenu.</p>

Preparing measurements / Using the glass fibre pen:

Illustration	Description
	<p>The included glass fibre pen or a file are important tools for the preparation of the testing objects for measurement. It allows you to treat impurities, plated layers unwanted for the measurement (rhodium-plating, gold-plating) and tarnished spots gently and without destroying the surface.</p>

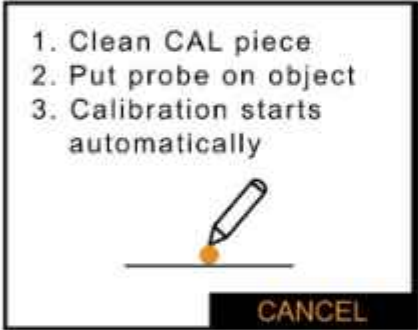
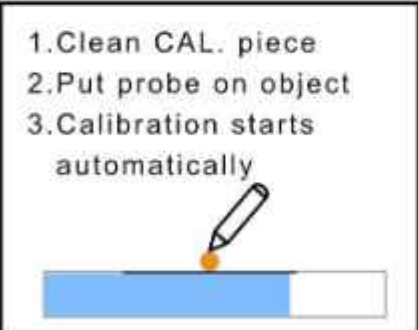
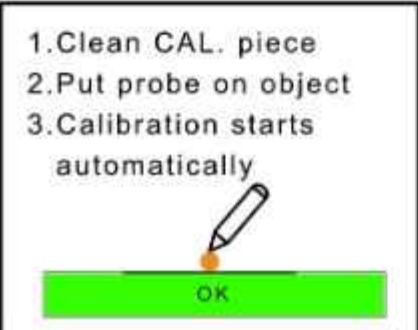
IMPORTANT INFORMATION:

Many gold alloys, especially objects with a lower carat number, are covered with a more or less strong oxide layer after a certain amount of time, which shows itself in the form of e.g. grayish, brownish or black deposits on the surface. **To ensure uniform and objective measurement conditions, you must always remove the oxide layers and also other contaminants such as fingerprints, grease residues or other soiling with the enclosed glass fibre pen and a damp cloth.**

To do this, place the glass fibre pen on the desired area and carefully polish the object under light pressure until a color difference is visible. Then place the probe tip on the polished area. If a testing object is measured with the CaratScreenPen, also slight discolorations may remain on the object. This can be observed especially on objects with a very high silver content (black spot) or copper content (copper-colored spot). The discoloration is caused by the electrochemical measurement process of the CaratScreenPen. You can polish the discoloration with the glass fibre pen and thus remove it. Please keep this in mind when measuring mint or representative objects and ideally measure in inconspicuous places. Especially with supposed 8 or 9 carat objects, it is almost essential to clean the desired measuring area with glass fibre pen beforehand. If the result deviates from the hallmarking on the object or if the measurement result is output in one of the transition ranges, it is advisable to use the glass fibre pen and perform another measurement.

Calibrating the device:

Regular calibration is necessary to ensure accurate measurement results!

Display	Description
	<p>You can access the calibration mode either via the main menu (select "Calibration") or in the measuring mode via "CAL". Before each use and after each restart, the device must be calibrated with the integrated calibration piece ③ made of 14 carat (585) red gold.</p>
	<p>Pre-treatment of the calibration piece with the glass fibre pen is important to obtain an optimal result. Oxide layers and other impurities could falsify the calibration and lead in the following to incorrect results. Therefore, clean the calibration piece with the glass fibre pen before each calibration. It is also advisable to wipe the calibration piece with a soft, damp cloth after polishing. Please always carry out these steps, even if you do not directly notice any impurities on the surface.</p>
	<p>Make sure that the probe pen is inserted correctly and all the way into the socket ④. Now you can place the probe tip as vertically as possible on the calibration piece. Calibration starts automatically (figure on the upper left). Keep the tip on the calibration piece until the blue-gray progress bar has run through. If calibration is successful, a green bar appears with the output "OK" (figure on the lower left).</p>

1. Clean CAL. piece
2. Put probe on object
3. Calibration starts automatically



If the calibration should fail, a red bar with an "X" appears (figure on the left). In this case, please clean the calibration piece again and repeat the calibration. Should the calibration fail again, restart the device and try another calibration process. If you have a second probe pen, try the calibration with this one. If those measures do not lead to success, please contact us.

Performing measurements:

Display	Description
 <p>Measurement of an 18 K ring:</p> 	<p>For testing your objects, select the "Measurement mode". The "READY" display shows you that the device is ready for measurement. Please not the important information below before taking the first measurement.</p> <p>If the device does not show any reaction when you put on the probe pen, it is either a connection error (check the cinch cable!) or a varnished object.</p> <p>To perform a measurement, place the testing object on the golden measuring surface (2). It is extremely important that there is an electrical contact between the gold surface and the testing object: Therefore always touch with the metal and not, for example, with stones or other non-conductive materials. With the other hand, place the probe pen on another conductive part of the testing object. Press lightly and the measurement will start automatically – you will see "Measurement in progress..." (figure on the left). Wait until the measurement is completed.</p>
	<p>The result is output in the form of 3 indications (figure on the lower left): The yellow-orange cursor (A) flashes on the measurement scale in the carat range of the test object. In addition, the carat number is output in the unit "K" (B e.g. 14K for 14 carat) and below the respective range of the gold content in percent (C). Furthermore, for some result screens, another line with additional information (D) is shown.</p>
	

	<p>After the measurement, the result remains for a few seconds. Then the screen display changes back to "READY". However, you do not have to wait, but can directly test the next object once the result is logged in.</p> <p>In the lower section of the display, you can either return to the main menu by pushing the control knob or switch directly to calibration via "CAL".</p>
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IMPORTANT INFORMATION:

We recommend filing the testing objects before measurement. The CaratScreenPen analyzes only the surface of the testing objects. A penetrating measurement, i.e. an examination of the core of the respective objects is only possible if you file the object. But even without filing, many fakes can be detected and cheap, only lightly gold-plated costume jewellery can be distinguished from valuable gold jewellery.

The pen of the CaratScreenPen contains an aqueous electrolyte solution with a pH value of 5.8 (slightly acidic). Due to the limited volume, the pen has a certain lifetime. Below a certain liquid level, a reliable measurement can no longer be guaranteed. Should you notice deviating values or errors during calibration, you should replace the pen: This is usually only the case after circa 4000-5000 measurements.

Be especially careful with **jewellery without a hallmark**. Objects should always be hallmarked to the correct gold content. Therefore, unmarked objects are often fakes or only lightly gold-plated costume jewellery. In addition, you have no indication of the alloy or the gold content of the object. Therefore, be particular careful when interpreting the measurement results. For jewellery without a hallmark, we recommend intensive treatment with the glass fibre pen or filing of the object. If the CaratScreenPen shows a gold content in the range of 21-24 K, it is probably only a gold coating and not an object made of fine gold. But also with unmarked objects with a lower carat output, you should be careful and take several measurements. Please keep in mind that also marked objects can of course be under-alloyed!

Another special case are objects which below their surface are made of a gold alloy and are also hallmarked accordingly, but have been **plated with a thin gold layer for aesthetic reasons**. This often happens, for example, with 585 gold coins – by polishing those objects with the glass fibre pen, you can remove the superficial layer and thus quickly and easily determine the "true" alloy. Please note, however, that the color differences between the treated area and the surrounding area are sometimes very noticeable.